



**CITY COMMISSION MEETING AGENDA  
AUGUST 14, 2017  
5:30 PM**



**Municipal Building, 151 Martin, Birmingham, MI 48009**

Navigating through the agenda:

- Use the bookmarks on the left to navigate through the agenda.
- Tablet Users: Tap the screen for available options, select "Open in", select "Adobe Reader". The agenda will open in Adobe Reader. Scroll through the bookmarks to navigate through the agenda.  
*(The Adobe Reader application is required to download the agenda and view the bookmarks. This free application is available through the App Store on your tablet device.)*



**BIRMINGHAM CITY COMMISSION AGENDA**

**AUGUST 14, 2017**

**SOUTHEAST CORNER OF S. ETON AND MAPLE INTERSECTION  
(NEAR BIG ROCK CHOPHOUSE, 245 S. ETON, BIRMINGHAM MI 48009)**

**5:30 P.M.**

**RECONVENING AT  
MUNICIPAL BUILDING**

**151 MARTIN, BIRMINGHAM MI 48009 PH: 248-530-1880**

**6:30 P.M.**

**A. CONVENE AT 5:30 P.M. AT THE SOUTHEAST CORNER OF S. ETON AND MAPLE INTERSECTION, BIRMINGHAM MI**

**CALL TO ORDER**

Mark Nickita, Mayor

**ROLL CALL**

J. Cherilynn Mynsberge, City Clerk

- 1) Physical inspection of S. Eton St. and Maple Rd. intersection

Members of the public wishing to attend this part of the meeting should utilize street parking either on S. Eton or Yosemite.

**B. RECESS**

- 1) Resolution to recess the meeting and reconvene at the Birmingham Municipal Building, 151 Martin, Birmingham MI at 6:30 p.m.

**C. RECONVENE AT 6:30 P.M. AT MUNICIPAL BUILDING, 151 MARTIN, BIRMINGHAM MI**

**CALL TO ORDER**

Mark Nickita, Mayor

**ROLL CALL**

J. Cherilynn Mynsberge, City Clerk

1. Resolution to meet in closed session to discuss an attorney/client privilege communication in accordance with Section 8(h) of the Open Meetings Act.

**(A roll call vote is required, and the vote must be approved by a 2/3 majority of the commission. The commission will adjourn to closed session and reconvene to open session, after the closed session, for purposes of taking formal action resulting from the closed session and for purposes of continuing the meeting.)**

**I. RECONVENE IN OPEN SESSION AT 7:30 P.M.**

**II. PLEDGE OF ALLEGIANCE**

**III. PROCLAMATIONS, CONGRATULATORY RESOLUTIONS, AWARDS, APPOINTMENTS, RESIGNATIONS AND CONFIRMATIONS, ADMINISTRATION OF OATHS, INTRODUCTION OF GUESTS AND ANNOUNCEMENTS.**

**Announcements:**

- Mayor Pro Tem Harris' Birthday
- The last Summer Concert of the year is Wednesday, August 16<sup>th</sup> at 7:00 PM in Shain Park, featuring The Favorites, who will be performing music from the 50's.
- The Birmingham Cruise event will be held on Saturday, August 19<sup>th</sup> from 9:00 AM to 4:00 PM in downtown Birmingham.
- The Farmer's Market continues on Sundays from 9:00 AM to 2:00 PM in Parking Lot #6 on N. Old Woodward.

**Appointments:**

- A. Interviews for Martha Baldwin Park Board
  - 1. Andrew Linovitz
- B. To appoint \_\_\_\_ to the Martha Baldwin Park Board to serve the remainder of a four-year term to expire May 1, 2019.
- C. Interviews for Advisory Parking Committee
  - 1. Steven Kalczynski
  - 2. Lisa Krueger
- D. To appoint \_\_\_\_ as the representative of a downtown commercial large retail business to the Advisory Parking Committee to serve a three-year term expiring September 4, 2020.
- E. To appoint \_\_\_\_ as the downtown employee representative to the Advisory Parking Committee to serve a three-year term expiring September 4, 2020.
- F. Interviews for Triangle District Corridor Improvement Authority
  - 1. Clinton Baller
- G. To concur in the Mayor's appointment of \_\_\_\_\_ to the Corridor Improvement Authority to serve the remainder of a four-year term to expire December 15, 2017.

**OR**

- To concur in the Mayor's appointment of \_\_\_\_\_ to the Corridor Improvement Authority to serve the remainder of a four-year term to expire December 15, 2020.
- H. Interviews for Design Review Board
    - 1. Lauren Tolles
    - 2. Keith Deyer
    - 3. Joseph Mercurio
  - I. To appoint \_\_\_\_ as a regular member to the Design Review Board to serve the remainder of a three-year term to expire September 25, 2018.
  - J. To appoint \_\_\_\_ as a regular member to the Design Review Board to serve a three-year term to expire September 25, 2020.
  - K. To appoint \_\_\_\_ as a regular member to the Design Review Board to serve a three-year term to expire September 25, 2020.
  - L. Interviews for Historic District Commission
    - 1. Padraic Mullin
    - 2. Doug Burley
    - 3. Keith Deyer
  - M. To appoint \_\_\_\_ as a regular member to the Historic District Commission to serve the remainder of a three-year term to expire September 25, 2018.

- N. To appoint \_\_\_\_ as a regular member to the Historic District Commission to serve a three-year term to expire September 25, 2020.
- O. To appoint \_\_\_\_ as a regular member to the Historic District Commission to serve a three-year term to expire September 25, 2020.

**IV. CONSENT AGENDA**

All items listed on the consent agenda are considered to be routine and will be enacted by one motion and approved by a roll call vote. There will be no separate discussion of the items unless a commissioner or citizen so requests, in which event the item will be removed from the general order of business and considered under the last item of new business.

- A. Approval of City Commission minutes of July 24, 2017.
- B. Approval of warrant list, including Automated Clearing House payments, of July 26, 2017 in the amount of \$555,229.01.
- C. Approval of warrant list, including Automated Clearing House payments, of August 2, 2017 in the amount of \$6,327,225.92.
- D. Approval of warrant list, including Automated Clearing House payments, of August 9, 2017 in the amount of \$814,228.89.
- E. Resolution approving a request submitted by the Birmingham Bloomfield Chamber and Junior League of Birmingham requesting permission to hold the annual Halloween Parade and Pumpkin Patch on Sunday, October 29, 2017 in downtown Birmingham, contingent upon compliance with all permit and insurance requirements and payment of all fees, and further, pursuant to any minor modifications that may be deemed necessary by administrative staff at the time of the event.
- F. Resolution approving the audit contract with Plante & Moran to include fiscal years ending June 30, 2017 through June 30, 2019 with options for June 30, 2020 and 2021 in the amount of \$70,975 for the fiscal year ending June 30, 2017 and an annual increase not to exceed the Headlee inflation factor for years two and three and option years four and five, and further authorizing the Mayor and the City Clerk to sign the agreement on behalf of the City.
- G. Resolution appointing Commissioner Patty Bordman as the Birmingham City Commission's official voting delegate at the Michigan Municipal League Annual Meeting to be held in Holland, Michigan on September 13, 2017.
- H. Resolution approving the purchase of a new 2017 Ford Transit Connect cargo van from Gorno Ford through the State of Michigan extendable purchasing contract #071B1300005 in the amount of \$23,836.00 from account #101-371.000-971.0100.
- I. Resolution approving the purchase of one (1) Tink Model 520 Claw from Alta Equipment Company in the amount of \$11,395.00 from account 641-441.006-971.0100.
- J. Resolution approving a service agreement with L.G.K. Building, Inc., for the replacement of Siding and Trim for the Allen House in the amount of \$ 57,430.00, to be charged to account 401-804.002-977.0000, and to direct the Mayor and City Clerk to sign the agreement on behalf of the City; further, to approve the appropriation and amendment to the 2017-2018 Capital Projects Fund budget as follows:  
 Capital Projects Fund  
 Revenues:  
 Draw from Fund Balance                      401-000.000-400.0000                      \$57,430  
 Expenditures:  
 Buildings - Allen House                      401-804.002-977.0000                      \$57,430
- K. Resolution accepting the resignation of Shelli Weisberg from the Design Review Board and the Historic District Commission, thanking her for her service, and directing the Clerk to begin the process of filling the vacancy.

- L. Resolution accepting the resignation of Sarah Evans, Student Representative, from the Public Arts Board, and directing the City Clerk to thank her for her service on behalf of the City of Birmingham and present her with a Certificate of Appreciation.
- M. Resolution waiving the formal competitive bid process and approving the purchase of (17) Armor Express RAZOR vests with ARA-SHOCK ICW plates in the amount of \$12,602.00 from CMP Distributors, Inc. Further, authorizing this budgeted expenditure from uniform allowance account number 101-301.000-743.0000.
- N. Resolution directing staff to issue the Request for Proposals for the solicitation of qualified firms to provide multi-modal transportation consulting services to assist the MMTB and the City Commission in reviewing all transportation-related projects with the changes noted.
- O. Resolution setting Monday, August 28, 2017 at 7:30 PM for a public hearing to consider the Final Site Plan and Special Land Use Permit for 375 S. Eton to allow a commercial use greater than 6,000 sq.ft. at 375 S. Eton.

<b>V. UNFINISHED BUSINESS</b>
-------------------------------

- A. Resolution authorizing the Mayor to sign DTE Electric Company Overhead Easement No. 47698093- 47698095, located on Lot 91 of Assessor's Plat #29, located in the northwest ¼ corner of Section 25, City of Birmingham

**AND**

Resolution authorizing the Mayor to sign the Tree Replacement Agreement with FLS Properties #5, LLC on behalf of the City of Birmingham.

- B. Resolution endorsing the Multi-Modal Transportation Board recommendations as modified for S. Eton Rd. from Maple Rd. to Yosemite Blvd., as described below:
  - 1. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
  - 2. Installation of a traffic island at the Maple Rd. & S. Eton Rd. intersection to improve safety for pedestrians crossing on the south side of Maple Rd.
  - 3. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
  - 4. Installation of sharrows on green painted squares for both directions

**AND**

Resolution confirming that the work on the block south of Maple Rd. shall be included as a part of the 2017 Concrete Sidewalk Program, Contract #3-17(SW), at an estimated total cost of \$70,000, to be charged to account number 202-449.001-981.0100.

**AND**

Resolution directing the Multi-Modal Transportation Board to study and provide recommendations for bike route improvements for the area of S. Eton Rd. from Lincoln Ave. to 14 Mile Rd., then return to the City Commission with a package of Multi-Modal recommendations for the entire corridor.

<b>VI. NEW BUSINESS</b>
-------------------------

- A. Public Hearing to consider approval of a Special Land Use Permit and Final Site plan-211 S. Old Woodward-Birmingham Theater
  - 1. Resolution approving the Final Site Plan and Special Land Use Permit for 211 S. Old Woodward to allow for the addition of a theater liquor license for the Birmingham Theater.



- B. Public Hearing to consider approval of the Brownfield Plan and Reimbursement Agreement – 35975 Woodward
  - 1. Resolution approving the Brownfield Plan and Reimbursement Agreement for 35975 Woodward.
- C. Resolution repealing Chapter 122–Vehicles for Hire, Article IV–Taxicabs, Divisions 1, 2, 3, 4 and 5, All Sections: 121, 122, 131, 132, 136, 137, 138, 139, 140, 147, 148, 149, 150, 151, 152, 161, 162, 163, 164, 165, 166, 167, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 196, 197, 198, 199, 200, 201, 211, 212, 213, 214, 215, 216 and 217 from the City of Birmingham Code of Ordinances.
- D. Resolution approving the appropriation and budget amendment to the 2016-2017 Capital Project’s Fund budget as follows:  
 Capital Project Fund
 

Revenues:		
Other Revenue – Bond Proceeds	401-751.000-698.0001	\$11,345,605
Expenditures:		
Capital Projects Fund – Bond Costs	401-751.000-824.0300	\$ 109,340
Capital Projects Fund – Debt Retirement	401-751.000-994.0000	\$11,236,265
Total Expenditures		\$11,345,605
- E. Resolution granting a waiver of Section 50-74(b) of the Birmingham City Code to the Michigan Dept. of Transportation pertaining to the repair and resurfacing of Woodward Ave. (M-1) from September, 2017 to August, 2018 so that MDOT may allow its contractors to operate under lane closures at those times of day that traffic demands are relatively light.
- F. Resolution to meet in closed session to discuss an attorney/client privilege communication in accordance with Section 8(h) of the Open Meetings Act.

**(A roll call vote is required and the vote must be approved by a 2/3 majority of the commission. The commission will adjourn to closed session after all other business has been addressed in open session and reconvene to open session, after the closed session, for purposes of taking formal action resulting from the closed session and for purposes of adjourning the meeting.)**

<b>VII. REMOVED FROM CONSENT AGENDA</b>
---

<b>VIII. COMMUNICATIONS</b>
-----------------------------

<b>IX. OPEN TO THE PUBLIC FOR MATTERS NOT ON THE AGENDA</b>
---

<b>X. REPORTS</b>
-------------------

- A. Commissioner Reports
  - 1. Notice of Intent to appoint members to Board of Zoning Appeals on Monday, September 11, 2017 at 7:30 PM.
- B. Commissioner Comments
- C. Advisory Boards, Committees, Commissions’ Reports and Agendas
- D. Legislation
- E. City Staff
  - 1. Perpetual Care Fund Annual Investment Report, submitted by Finance Director Gerber
  - 2. High-Rise Fire Ratings, submitted by Building Official Johnson

## **XI. ADJOURN**

### **INFORMATION ONLY**

*NOTICE: Individuals requiring accommodations, such as mobility, visual, hearing, interpreter or other assistance, for effective participation in this meeting should contact the City Clerk's Office at (248) 530-1880 (voice), or (248) 644-5115 (TDD) at least one day in advance to request mobility, visual, hearing or other assistance.*

*Las personas que requieren alojamiento, tales como servicios de interpretación, la participación efectiva en esta reunión deben ponerse en contacto con la Oficina del Secretario Municipal al [\(248\) 530-1880](tel:248-530-1880) por lo menos el día antes de la reunión pública. (Title VI of the Civil Rights Act of 1964).*



# MEMORANDUM

Office of the City Manager

**DATE:** August 11, 2017  
**TO:** City Commission  
**FROM:** Joseph A. Valentine, City Manager  
**SUBJECT:** Request for Closed Session  
Attorney-Client Privilege

---

It is requested that the city commission meet in closed session pursuant to Section 8(h) of the Open Meetings Act to discuss an attorney/client privilege communication at 6:30 p.m.

**SUGGESTED RESOLUTION:**

To meet in closed session to discuss an attorney/client privilege communication in accordance with Section 8(h) of the Open Meetings Act.

**(A roll call vote is required and the vote must be approved by a 2/3 majority of the commission. The commission will adjourn to closed session and reconvene to open session, after the closed session, for purposes of taking formal action resulting from the closed session and for purposes of continuing the meeting.)**



**NOTICE OF INTENTION TO APPOINT TO THE  
MARTHA BALDWIN PARK BOARD**

At the regular meeting of Monday, July 10, 2017 the Birmingham City Commission intends to appoint one member to the Martha Baldwin Park Board to serve the remainder of a four-year term to expire May 1, 2019. Members must be electors of the City of Birmingham.

Interested citizens may submit an application available at the city clerk's office or online at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities). Applications must be submitted to the city clerk's office on or before noon on Wednesday, July 5, 2017. These documents will appear in the public agenda for the regular meeting at which time the City Commission will discuss recommendations, and may make nominations and vote on appointments.

Mr. Linovitz submitted his application by the July 5, 2017 deadline but was unavailable to attend the July 10, 2017 Commission meeting.

Applicant(s) Presented For City Commission Consideration:

Applicant Name	Criteria/Qualifications
Andrew Linovitz	Applicants must be electors in the City of Birmingham. Registered Voter at 911 Henrietta

*NOTE: All members of boards and commissions are subject to the provisions of City of Birmingham City Code Chapter 2, Article IX, Ethics and the filing of the Affidavit and Disclosure Statement.*

**SUGGESTED ACTION:**

To appoint \_\_\_\_\_ to the Martha Baldwin Park Board to serve the remainder of a four-year term to expire May 1, 2019.





# MARTHA BALDWIN PARK BOARD

Chapter 78 - Section 78-56 Ordinance No. 65, Adopted May 10, 1915

Term: four years

Appointed by the City Commission

Qualifications: The board shall consist of four persons who shall be electors of the city.

Duties: The control and management of the Martha Baldwin Park shall be vested in the Martha Baldwin Park Board. (Section 78-56)

Last Name	First Name	Home Business Fax	E-Mail	Appointed	Term Expires
Forrester	Linda	(248) 761-2367	<i>linozfor@att.net</i>	7/9/2012	5/1/2019
1252 S. Bates					
Kenning	Robert	(248) 642-6161	<i>rskandsek@aol.com</i>	6/8/1992	5/1/2020
1700 Villa					
McKee	Jane	(248) 644-1029	<i>janecmckee@gmail.com</i>	7/10/2000	5/1/2020
392 Ferndale					
<b>VACANT</b>					5/1/2019



<b>OFFICE USE ONLY</b>	
Meets Requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input checked="" type="radio"/> Will Attend	<input type="radio"/> Unable to Attend

## APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest Martha Baldwin Park Board

Specific Category/Vacancy on Board Regular Member

Name Andrew Linovitz

Phone 248 506-2296

Residential Address 911 Henrietta

Email ajlino@gmail.com

Residential City, Zip Birmingham, 48009

Length of Residence 12 years

Business Address W Beaumont Hospital

Occupation Physician

Business City, Zip Royal Oak

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_

I'd like to help out where I can. My wife and I have been raising our two sons in Birmingham for over a decade. I have many skills that may be of use. I am proficient in most of the major design software. I have some working knowledge of computer coding, web design and am very good with spreadsheets/data review.

List your related employment experience Emergency Physician

List your related community activities \_\_\_\_\_

List your related educational experience University of Michigan. I am faculty at Oakland University.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_

No

Do you currently have a relative serving on the board/committee to which you have applied? No

Are you an elector (registered voter) in the City of Birmingham? yes

*Andrew Linovitz*

7/4/17

Signature of Applicant

Date



**NOTICE OF INTENTION TO APPOINT TO THE  
ADVISORY PARKING COMMITTEE**

At the regular meeting of Monday, August 14, 2017, the Birmingham City Commission intends to appoint three regular members to the Advisory Parking Committee to serve terms expiring September 4, 2020. One of the members must be a representative of a downtown commercial large retail business. One of the members must be an employee in the downtown area. One of the members must be a restaurant owner.

A vacancy exists for a building owner to fulfill the remainder of a three-year term to expire September 4, 2018.

Interested citizens may submit an application available at the City Clerk's Office or online at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities). Applications must be submitted to the city clerk's office on or before noon on Wednesday, August 9, 2017. These documents will appear in the public agenda for the regular meeting at which time the City Commission will discuss recommendations, and may make nominations and voter on appointments.

Committee Duties

The Advisory Parking Committee shall provide guidance to the City Commission in the management of Birmingham's Auto Parking System. The Committee shall recognize parking requirements of the CBD and fairly assess the costs to users. It will provide for attractive, maintained and safe facilities.

Applicant(s) Presented For City Commission Consideration:

<b>Applicant Name</b>	<b>Criteria/Qualifications</b>
Steven Kalczyński	Downtown commercial large retail business. Representative of a downtown commercial large retail business

<b>Applicant Name</b>	<b>Criteria/Qualifications</b>
Lisa Krueger	Employee in the downtown area. Employee in the downtown area.

*NOTE: All members of boards and commissions are subject to the provisions of City of Birmingham City Code Chapter 2, Article IX, Ethics and the filing of the Affidavit and Disclosure Statement.*

**SUGGESTED ACTION:**

To appoint \_\_\_\_\_ as the representative of a downtown commercial large retail business to the Advisory Parking Committee to serve a three year term to expire September 4, 2020.

To appoint \_\_\_\_\_ as the downtown employee representative to the Advisory Parking Committee to serve a three year term to expire September 4, 2020.



# ADVISORY PARKING COMMITTEE

Resolution No. 8-882-84 - August 6, 1984. Amended by Resolution No. 9-989-84 September 4, 1984. Amended by Resolution No. 05-152-00 May 22, 2000.

Terms: Three years

Appointment requirements: The majority of the members shall be residents and membership shall be as follows:

Downtown commercial representatives - large retail - 1 member; small retail - 1 member; professional firm - 1 member; building owner - 1 member; restaurant owner - 1 member; downtown employee representative - 1 member; residential - two members who do not qualify under any of the previous categories, and one resident shopper.

The Advisory Parking Committee shall provide guidance to the City Commission in the management of Birmingham's Auto Parking System. The committee shall recognize parking requirements of the CBD and fairly assess the costs to users. It will provide for attractive, maintained and safe facilities.

Last Name	First Name	Home Business	Appointed	Term Expires
<b>Champagne</b>	<b>Gayle</b>	(248) 978-5581	6/6/2016	9/4/2019
833 Hazel			Resident Shopper	
Birmingham	48009	<i>gchampagne1@aol.com</i>		
<b>Honhart</b>	<b>Anne</b>	(248) 644-3678	9/4/1984	9/4/2018
197 E. Frank			Resident	
Birmingham	48009	<i>ahonhart@atlaswelding.com</i>		
<b>Kalczynski</b>	<b>Steven</b>	(248) 642-7900	11/26/2012	9/4/2017
100 Townsend			Large Retail	
Birmingham	48009	<i>skalczynski@yahoo.com</i>		
<b>Krueger</b>	<b>Lisa</b>	(248) 921-0099	3/30/2015	9/4/2017
348 Ferndale Ave			Downtown Employee Member	
Birmingham	48009	<i>lisakrug21@gmail.com</i>		



Last Name	First Name	Home Business E-Mail	Appointed	Term Expires
<b>Kuhne</b> 873 Watkins Birmingham	<b>Lex</b> 48009	(248) 396-3937 <i>lexkuhne@gmail.com</i>	9/24/2004 Professional Firm	9/4/2019
<b>Paskiewicz</b> 560 Woodland Birmingham	<b>Judith</b> 48009	248-642-3337 <i>judithpaskiewicz@hotmail.com</i>	1/28/2013 Resident	9/4/2019
<b>VACANT</b>				9/4/2018 Building Owner
<b>VACANT</b>				9/4/2020 Alternate
<b>VACANT</b>				9/4/2020 Alternate
<b>VACANT</b>				9/4/2020 Restaurant Owner
<b>Vaitas</b> 2633 Endsleigh Drive Bloomfield Village	<b>Algirdas</b> 48301	(248) 593-3177 <i>alvortho@aol.com</i>	11/13/2006 Small Retail	9/4/2018

## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee: **Advisory Parking Committee**

Year: **2014**

MEMBER NAME	1/9	2/9	3/8	4/12	5/10	6/14	7/12	8/9	9/13	10/13	11/8	12/13	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>															
Esshaki, James	NM	A	A	NM	A	NM	A	A	A	A	NM	P	1	7	13%
Honhart, Anne	NM	P	P	NM	P	NM	P	P	P	P	NM	P	8	0	100%
Kalcynski, Steven	NM	A	P	NM	P	NM	P	P	A	P	NM	P	6	2	75%
Kuhne, Lex	NM	P	P	NM	P	NM	P	P	P	P	NM	P	8	0	100%
Paskiewicz, Julie	NM	P	P	NM	P	NM	P	P	P	P	NM	P	8	0	100%
Peabody, Susan	NM	P	P	NM	P	NM	P	P	P	A	NM	P	7	1	88%
Vaitas, Algirdas	NM	P	P	NM	P	NM	P	A	P	P	NM	P	7	1	88%
Julie Gheen													0	0	#DIV/0!
													0	0	#DIV/0!
<b>ALTERNATES</b>															
Member 1													0	0	#DIV/0!
Member 2													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Members in attendance	0	5	6	0	6	0	6	5	5	5	0	7			

**KEY: A = Absent**  
**P = Present**  
**NM = No Meeting**  
**na = not appointed at that time**

\_\_\_\_\_  
**Department Head Signature**

## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee: **Advisory Parking Committee**

Year: **2015**

MEMBER NAME	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>															
Esshaki, James	A	A	A	A	A	NM	NM	NM	NM	*	NM	NM	0	5	0%
Gheen, Julie	P	A	P	P	P	NM	NM	NM	NM	*	NM	NM	4	1	80%
Honhart, Anne	P	A	A	P	P	NM	NM	NM	NM	P	NM	NM	4	2	67%
Kalcynski, Steven	P	P	A	P	A	NM	NM	NM	NM	A	NM	NM	3	3	50%
Kreuger, Lisa	na	na	na	P	P	NM	NM	NM	NM	P	NM	NM	3	0	100%
Kuhne, Lex	P	P	P	P	P	NM	NM	NM	NM	P	NM	NM	6	0	100%
Paskiewicz, Judith	P	P	P	P	P	NM	NM	NM	NM	P	NM	NM	6	0	100%
Peabody, Susan	P	P	P	A	P	NM	NM	NM	NM	P	NM	NM	5	1	83%
Vaitas, Algirdas	P	P	P	P	A	NM	NM	NM	NM	P	NM	NM	5	1	83%
<b>ALTERNATES</b>															
Member 1													0	0	#DIV/0!
Member 2													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Members in attendance	7	5	5	7	6	0	0	0	0	6	0	0			

**KEY: A = Absent**  
**P = Present**  
**NM = No Meeting**  
**na = not appointed at that time**  
**\* = MEMBER RESIGNED**

**Department Head Signature**

## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee: **Advisory Parking Committee**

Year: **2016**

MEMBER NAME	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>															
Champagne, Gayle	na	NM	na	na	na	NM	P	P	P	P	NM	P	5	0	100%
Honhart, Anne	P	NM	P	P	P	NM	P	P	P	P	NM	A	8	1	89%
Kalcynski, Steven	P	NM	P	P	P	NM	P	P	P	A	NM	P	8	1	89%
Kuhne, Lex	P	NM	P	P	A	NM	P	P	P	P	NM	P	8	1	89%
Krueger, Lisa	P	NM	P	P	P	NM	P	P	A	A	NM	P	7	2	78%
Paskiewicz, Judith	P	NM	P	P	P	NM	P	P	A	P	NM	P	8	1	89%
Peabody, Susan	P	NM	P	P	P	NM	P	A	A	P	NM	*	6	2	75%
Vaitas, Algirdas	P	NM	P	A	P	NM	P	P	P	P	NM	P	8	1	89%
													0	0	#DIV/0!
<b>ALTERNATES</b>															
Member 1													0	0	#DIV/0!
Member 2													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Members in attendance	7	0	7	6	6	0	8	7	5	6	0	6			

**KEY: A = Absent**  
**P = Present**  
**NM = No Meeting**  
**na = not appointed at that time**  
**\* = MEMBER RESIGNED**

**Department Head Signature**



## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee: **Advisory Parking Committee**

Year: **2017**

MEMBER NAME	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>															
Champagne, Gayle	NM	P	A	P	A	P	P	P					5	2	71%
Honhart, Anne	NM	A	P	P	A	A	P	P					4	3	57%
Kalcynski, Steven	NM	P	P	P	P	P	P	P					7	0	100%
Krueger, Lisa	NM	A	A	P	P	P	A	P					4	3	57%
Kuhne, Lex	NM	P	P	P	P	P	P	P					7	0	100%
Paskiewicz, Judith	NM	P	P	P	P	P	P	A					6	1	86%
Vaitas, Algirdas	NM	P	P	P	P	P	P	P					7	0	100%
													0	0	#DIV/0!
													0	0	#DIV/0!
<b>ALTERNATES</b>															
Member 1													0	0	#DIV/0!
Member 2													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Reserved													0	0	#DIV/0!
Members in attendance	0	5	5	7	5	6	6	6	0	0	0	0			

**KEY: A = Absent**  
**P = Present**  
**NM = No Meeting**  
**na = not appointed at that time**  
**\* = MEMBER RESIGNED**

**Department Head Signature**



RECEIVED BY

JUL 27 2017

<b>OFFICE USE ONLY</b>	
Meets Requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input checked="" type="radio"/> Will Attend	<input type="radio"/> Unable to Attend

**APPLICATION FOR CITY BOARD OR COMMITTEE**

CITY OF BIRMINGHAM

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest PARKING ADVISORY COMMITTEE

Specific Category/Vacancy on Board LARGE RETAIL

Name STEVEN KALCZYNSKI

Phone 248-250-1301

Residential Address 1883 SHIPMAN BLVD

Email SKALCZYNSKI@YAHOO.COM

Residential City, Zip BIRMINGHAM, MI 48009

Length of Residence 5 YEARS

Business Address 100 TOWNSEND STREET

Occupation MANAGER

Business City, Zip BIRMINGHAM, MI 48009

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied I HAVE LIVED IN BIRMINGHAM NOW FOR FIVE YEARS; HAVE SERVED ON THE PARKING ADVISORY BOARD FOR FIVE YEARS

List your related employment experience TOWNSEND HOTEL, MANAGING DIRECTOR

List your related community activities PARKING ADVISORY COMMITTEE (5 YEARS)

List your related educational experience RUTGERS UNIVERSITY - MBA 1989  
NORTHEASTERN UNIVERSITY - B.A. CRIMINAL JUSTICE 1978

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: NO

Do you currently have a relative serving on the board/committee to which you have applied? NO

Are you an elector (registered voter) in the City of Birmingham? YES

Signature of Applicant [Handwritten Signature]

Date 7/26/17

7/26/17



RECEIVED BY  
JUL 31 2017  
CITY CLERK'S OFFICE  
CITY OF BIRMINGHAM

OFFICE USE ONLY  
Meets Requirements?  Yes  No  
 Will Attend /  Unable to Attend

APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest ADVISORY PARKING committee

Specific Category/Vacancy on Board DOWNTOWN Employee

Name Lisa Krueger

Phone 248-921-0099

Residential Address 318 Ferndale Ave.

Email lisakrug21@gmail.com

Residential City, Zip Birmingham, MI, 48009

Length of Residence 5 years

Business Address 360 West Maple + 280 N. Old Woodward

Occupation Program Manager

Business City, Zip Birmingham, MI, 48009

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied Working at two locations in Birmingham I feel I have a great perspective as an employee I am privy to employee parking concerns as there are over 400 employees at my office. I am also a Resident and involved in the community.

List your related employment experience Current member of Parking Advisory Committee + Member of Ad Hoc Rail District Review Committee

List your related community activities Junior League of Birmingham Member; Birmingham Covington School Volunteer & PTA member

List your related educational experience BA Business Administration - MSU.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: NO

Do you currently have a relative serving on the board/committee to which you have applied? NO

Are you an elector (registered voter) in the City of Birmingham? YES

Signature of Applicant Lisa Krueger

Date 7/26/17



**NOTICE OF INTENTION TO APPOINT TO  
BIRMINGHAM TRIANGLE DISTRICT CORRIDOR IMPROVEMENT AUTHORITY**

At the regular meeting of Monday, August 14, 2017 the Birmingham City Commission intends to appoint one member to the Birmingham Triangle District Corridor Improvement Authority to serve the remainder of a four-year term to expire December 15, 2017, and one member to serve the remainder of a four-year term to expire December 15, 2020.

**Members shall be appointed by the Mayor, subject to approval by the City Commission.**

Not less than a majority of the members shall be persons having an ownership or business interest in property located in the Development Area. Not less than 1 of the members shall be a resident of the Development Area, or of an area within 1/2 mile of any part of the Development Area.

The authority shall operate to correct and prevent deterioration in business districts, to redevelop the City's commercial corridors and promote economic growth, pursuant to Act 280 of the Public Acts of Michigan, 2005, as amended.

Interested parties may recommend others or themselves for these positions by submitting a form available from the city clerk's office. Applications must be submitted to the city clerk's office on or before noon on Wednesday, August 9, 2017. Applications will appear in the public agenda at which time the commission will discuss recommendations, and may make nominations and vote on appointments.

Applicant(s) Presented For City Commission Consideration:

<b>Applicant Name</b>	<b>Criteria/Qualifications</b>
Clinton Baller 999 Haynes (Business)	Must have an ownership or business interest in property located in the Development Area  Has ownership or business interest in property located in the Development Area

**SUGGESTED ACTION:**

To concur in the Mayor's appointment of \_\_\_\_\_ to the Corridor Improvement Authority to serve the remainder of a four-year term to expire December 15, 2017.

**OR**

To concur in the Mayor's appointment of \_\_\_\_\_ to the Corridor Improvement Authority to serve the remainder of a four-year term to expire December 15, 2020.

# BIRMINGHAM TRIANGLE DISTRICT CORRIDOR IMPROVEMENT AUTHORITY

Resolution # 11-363-08

The authority shall operate to correct and prevent deterioration in business districts, to redevelop the City's commercial corridors and promote economic growth, pursuant to Act 280 of the Public Acts of Michigan, 2005, as amended.

The Authority shall be under the supervision and control of the Board. The Board shall consist of the Mayor, or his or her assignee, and six additional members. Members shall be appointed by the Mayor, subject to approval by the City Commission. Not less than a majority of the members shall be persons having an ownership or business interest in property located in the Development Area. Not less than 1 of the members shall be a resident of the Development Area, or of an area within 1/2 mile of any part of the Development Area.

Members shall be appointed to serve for a term of four years.

Upon completion of its purposes, the Authority may be dissolved by the City Commission. The property and assets of the Authority, after dissolution and satisfaction of its obligations, shall revert to the City.

Last Name	First Name	Home Business Fax	E-Mail	Appointed	Term Expires
Cantrick Jr. 774 Lakeside Birmingham	Kip  48009	248-540-3741 (248) 644-7622	<i>gcantrick@kipcantrickcompany.com</i>	1/28/2013	12/15/2020
Cataldo 271 Chesterfield Birmingham	J.C.  48009	(248) 496-9096	<i>jccataldo4@gmail.com</i>	12/15/2008	12/15/2019
Fuller 255 Pierce St Birmingham	Edward  48009	(248) 642-0024	<i>ted@fullercentral park.com</i>	12/15/2008	12/15/2019

Last Name	First Name	Home Business Fax	E-Mail	Appointed	Term Expires
-----------	------------	-------------------	--------	-----------	--------------

<b>Hays</b>	<b>Curtis</b>	(248) 639-8709		12/15/2008	12/15/2018
954 Chestnut				DISTRICT RESIDENT (a resident of the development area or of an area within 1/2 mile of any part of the development area)	
Birmingham	48009		<i>chays77@gmail.com</i>		

<b>Sherman</b>	<b>Stuart</b>	(248) 645-1142			11/1/2017
1252 Stanley				City Commission member (appointed by Mayor)	
Birmingham	48009		<i>stuart.sherman@sbcglobal.net</i>		

<b>VACANT</b>					12/15/2020
				has an ownership or business interest in property located in the development area	

<b>VACANT</b>					12/15/2017
---------------	--	--	--	--	------------





<p><b>OFFICE USE ONLY</b>  Meets Requirements? Yes No  Will Attend / Unable to Attend</p>
---

**APPLICATION FOR CITY BOARD OR COMMITTEE**

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest Corridor Improvement Authority

Specific Category/Vacancy on Board Business Interest in District

Name Clinton Baller

Phone 248-703-8365

Residential Address 388 Greenwood St.

Email cmballer@visa-master.com

Residential City, Zip Birmingham, MI 48009

Length of Residence 37 years

Business Address 999 Haynes

Occupation Entrepreneur, executive, therapist

Business City, Zip Birmingham, MI 48009

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_  
I have a long-standing interest in urban design, and would like to see the realization of Birmingham's Triangle District Urban Design Plan.

List your related employment experience Journalist, entrepreneur, business executive.

List your related community activities Editor, Birmingham Buzz. Co-founder, Mill Pond Neighborhood Association.

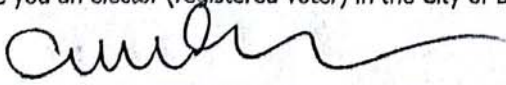
List your related educational experience Bachelor of Journalism, University of Missouri.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_

No.

Do you currently have a relative serving on the board/committee to which you have applied? No.

Are you an elector (registered voter) in the City of Birmingham? Yes.

  
Signature of Applicant

8/3/2017  
Date

Return the completed and signed application form to: City of Birmingham, City Clerk's Office, 151 Martin, Birmingham, MI 48009 or by email to [cbrown@bhamgov.org](mailto:cbrown@bhamgov.org) or by fax to 248.530.1080. Updated 05/11/17



**NOTICE OF INTENTION TO APPOINT TO  
DESIGN REVIEW BOARD**

At the regular meeting of Monday, August 14, 2017 the Birmingham City Commission intends to appoint two regular members to the Design Review Board to serve three-year terms to expire September 25, 2020, and one regular member to serve the remainder of a three-year term to expire September 25, 2018.

Interested parties may submit an application available from the city clerk's office on or before noon on Wednesday, August 9, 2017. Applications will appear in the public agenda at which time the commission will discuss recommendations, and may make nominations and vote on appointments.

The function and duty of the Design Review Board is to advise the City Commission in regard to the proper development of the city. The Design Review Board is specifically charged with carrying out the goals, objectives and intent of the city's adopted master plan and urban design plan and other development-oriented plans which may subsequently be adopted. The Design Review Board is authorized to advise and cooperate with the City Commission, city Planning Board, Historic District Commission and other city advisory boards and cooperate with the planning, historic district and legislative bodies of other governmental units in any area outside the boundaries of the city.

Applicant(s) Presented For City Commission Consideration:

<b>Applicant Name</b>	<b>Criteria/Qualifications</b>
Lauren Tolles 1080 Bennaville Ave.	Interior Designer, Custom Cabinetry
Keith Deyer 1283 Buckingham	Engineer
Joseph Mercurio 1060 Lake Park Drive	Engineer

*NOTE: All members of boards and commissions are subject to the provisions of City of Birmingham City Code Chapter 2, Article IX, Ethics and the filing of the Affidavit and Disclosure Statement.*

**SUGGESTED ACTION:**

To appoint \_\_\_\_\_, as a regular member to the Design Review Board to serve the remainder of a three-year term to expire September 25, 2018.

To appoint \_\_\_\_\_, as a regular member to the Design Review Board to serve a three-year term to expire September 25, 2020.

To appoint \_\_\_\_\_, as a regular member to the Design Review Board to serve a three-year term to expire September 25, 2020.





# DESIGN REVIEW BOARD

Ordinance #1882

Terms: 3 years

Members: One member of the Design Review Board shall be an architect duly registered in this state, if such person is available. The other members shall represent, insofar as possible, different occupations and professions such as, but not limited to, the legal profession, the financial or real estate professions, and the planning or design professions.

Duties: The function and duty of the Design Review Board is to advise the city commission in regard to the proper development of the city. The Design Review Board is specifically charged with carrying out the goals, objectives and intent of the city's adopted master plan and urban design plan and other development-oriented plans which may subsequently be adopted. The Design Review Board is authorized to advise and cooperate with the City Commission, city Planning Board, Historic District Commission and other city advisory boards and cooperate with the planning, historic district and legislative bodies of other governmental units in any area outside the boundaries of the city.

Last Name	First Name	Home Business E-Mail	Appointed	Term Expires
Chapnick	Josh	(248) 881-6571 <i>josh.chapnick@gmail.com</i>	2/27/2017 Student Representative	12/31/2017
Charles	Adam	(248) 672-3486 <i>mradamcharles@gmail.com</i>	11/21/2016 Alternate	9/25/2019
Deyer	Keith	(248)642-6390 <i>kwdeyer@comcast.net</i>	9/25/2006	9/25/2017
Dukas	Natalia	(248) 885-8535 <i>nataliadukas@yahoo.com</i>	9/9/2013	9/25/2019
Fuller	Dulce	(248) 245-4000 <i>d@woodwardandmaple.com</i>	10/27/2016 Alternate	9/25/2019

Last Name	First Name	Home Business E-Mail	Appointed	Term Expires
Henke 724 South Bates	John	(248) 789-1640 <i>jwhenke@aol.com</i>	9/25/2006 historical preservation organization member	9/25/2018
Pfaff 2150 Northlawn	Griffin	(248) 514-3324 <i>fintpfaff@yahoo.com</i>	2/27/2017 Student Representative	12/31/2017
Trapnell 660 Smith Ave	Thomas	(313) 568-6712 <i>ttrapnell@dykema.com</i>	4/27/2015	9/25/2018
<b>Vacant</b>				9/25/2018
* Weisberg 651 West Frank	Shelli	(248) 642-6461 <i>sweisberg@aclumich.org</i>	9/25/2006	9/25/2017
Willoughby 667 Greenwood	Michael	(248) 760-8903 <i>mwilloughby@mwa-architects.com</i>	3/22/2010 Architect	9/25/2019

\*Shelli Weisberg has declined to apply for reappointment.

Board/Committee:

**Design Review Board**

Year: 2017 5-Jan

MEMBER NAME	1/4	1/18	2/1	2/15	3/1	3/15	4/5	4/19	5/3	5/17		Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>														
Mark Coir	A	NM	P	A	P	NM	NM	NM	NM	NM		2	2	50%
Keith W. Deyer	A	NM	P	P	A	NM	NM	NM	NM	NM		2	2	50%
Natalia Dukas	P	NM	P	P	P	NM	NM	NM	NM	NM		4	0	100%
John Henke III	P	NM	P	P	P	NM	NM	NM	NM	NM		4	0	100%
Thomas Trapnell	A	NM	P	P	A	NM	NM	NM	NM	NM		2	2	50%
Shelli Weisberg	P	NM	A	A	P	NM	NM	NM	NM	NM		2	2	50%
Michael Willoughby	P	NM	P	P	P	NM	NM	NM	NM	NM		4	0	100%
Josh Chapnick (student r	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		0	0	#DIV/0!
Griffin Pfaff (student rep.	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		0	0	#DIV/0!
<b>ALTERNATES</b>														
Dulce Fuller	P	NM	A	A	A	NM	NM	A				1	4	20%
Adam Charles	P	NM	A	AP	A	NM	NM	P	PA			2	2	50%
Members in attendance	6	0	6	5	5	0	0	1	0	0				

## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee:

Design Review Board

Year 2017

MEMBER NAME	6/7	6/21	7/5	7/19	8/2	8/16	9/6	10/18	11/1	11/15	12/6	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>														
Mark Coir	NM	NM	NM	NM	NM							0	0	#DIV/0!
Keith W. Deyer	NM	NM	NM	NM	NM							0	0	#DIV/0!
Natalia Dukas	NM	NM	NM	NM	NM							0	0	#DIV/0!
John Henke III	NM	NM	NM	NM	NM							0	0	#DIV/0!
Thomas Trapnell	NM	NM	NM	NM	NM							0	0	#DIV/0!
Shelli Weisberg	NM	NM	NM	NM	NM							0	0	#DIV/0!
Michael Willoughby	NM	NM	NM	NM	NM							0	0	#DIV/0!
Josh Chapnick (student rep.)	NM	NM	NM	NM	NM							0	0	#DIV/0!
Griffin Pfaff (student rep.)	NM	NM	NM	NM	NM							0	0	#DIV/0!
<b>ALTERNATES</b>														
Dulce Fuller	NM	NM	NM	NM	NM							0	0	#DIV/0!
Adam Charles	NM	NM	NM	NM	NM							0	0	#DIV/0!
Members in attendance	0	0	0	0	0	0	0							

**KEY: A = Absent**  
**P = Present**  
**NM = No Meeting**

\_\_\_\_\_ **Department Head Signature**

DESIGN REVIEW BOARD

2016	J	F	M	A	M	J	J	A	S	O	N	D	%
John Heinke		P	P	P/P	P	P	P	P			P		100%
Mark Coir		A	P	P/A	P	P	A	P			P		66%
Natalia Dukas		P	A	P/P	P	A	P	P			P		78%
Thomas Trapnell		P	P	P/A	P	P	P	P			P		89%
Michael Willoughby		P	P	P/A	P	A	P	P			P		78%
Keith Deyer		A	P	P/P	P	A	P	A			A		56%
Shelli Weisberg		P	P	P/P	A	P	A	A			P		66%
Loreal Dobson		A	P	A/A	A	A	A	A			A		11% Student

X = Meeting Cancelled

\* = Member Resigned

\*\* = Member Not Yet Appointed

2015	J	F	M	A	M	J	J	A	S	O	N	D	%
John Heinke	P/P			P				P		P/P			100%
Mark Coir	P/P			P				P		P/P			100%
Natalia Dukas	P/P			P				P		P/P			100%
Thomas Trapnell								P		P/P			100%
Michael Willoughby	P/P			P				P		P/P			100%
Keith Deyer	P/A			P				A		A/P			50%
Shelli Weisberg	P/A			A				P		A/P			66%
Mitch Bourstein	P/P			*									100%
Cambria Rush	P/A			*									50%
Darlene Gehringer	A/*												0%
Zoe Bowers	**			P				P		P/A			75% Student
Patrick Rogers	**			P				P		A/P			75% Student

2014	J	F	M	A	M	J	J	A	S	O	N	D	%
John Henke	A	P/A	P	P/A	P	P	P	P/P	P/P	A		A	67%
Mark Coir	P	A/P	P	A/P	P	P	P	P/P	P/A	P		P	80%
Natalia Dukas	P	P/P	P	A/P	P	P	P	P/A	P/P	P		P	87%
Shelli Weisberg	A	A/P	A	P/P	P	P	P	P/P	P/P	P		A	73%
Michael Willoughby	P	A/P	P	P/P	P	A	P	P/P	P/P	P		P	87%
Keith Deyer	A	P/A	A	A/A	P	A	A	A/A	A/P	P		A	27%
Darlene Gehringer	P	P/P	P	P/A	P	P	A	P/A	P/P	P		P	87%
Caroline Stacey	A	A/A	*	*	*	*	*	*	*	*	*	*	0%
Mitch Boorstein	**	**	P	P/A	P	P	P	P/P	A/A	A		P	67% Student
Cambria Rush	**	**	P	P/P	P	A	A	P/P	A/A	A		A	50% Student



<b>OFFICE USE ONLY</b>	
Meets Requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input checked="" type="radio"/> Will Attend	<input type="radio"/> Unable to Attend

## APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest \_\_\_\_\_

Specific Category/Vacancy on Board \_\_\_\_\_

Name \_\_\_\_\_

Phone \_\_\_\_\_

Residential Address \_\_\_\_\_

Email \_\_\_\_\_

Residential City, Zip \_\_\_\_\_

Length of Residence \_\_\_\_\_

Business Address \_\_\_\_\_

Occupation \_\_\_\_\_

Business City, Zip \_\_\_\_\_

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_

List your related employment experience \_\_\_\_\_

List your related community activities \_\_\_\_\_

List your related educational experience \_\_\_\_\_

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_

Do you currently have a relative serving on the board/committee to which you have applied? \_\_\_\_\_

Are you an elector (registered voter) in the City of Birmingham? \_\_\_\_\_

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date



page 1  
**RECEIVED BY**  
**JUL 28 2017**  
CITY CLERK'S OFFICE  
CITY OF BIRMINGHAM

**OFFICE USE ONLY**  
Meets Requirements?  Yes  No  
 Will Attend /  Unable to Attend

**APPLICATION FOR CITY BOARD OR COMMITTEE**

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest DESIGN REVIEW BOARD (DRB)

Specific Category/Vacancy on Board \_\_\_\_\_

Name KEITH W. DEYER

Phone 248-882-2359

Residential Address 1283 BUCKINGHAM

Email KUDEYER@COMCAST.NET

Residential City, Zip B'HAM 48009

Length of Residence 41 YEARS

Business Address —

Occupation RETIRED

Business City, Zip —

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied  
HAVE SERVED ON HDSC, HDORC, DRB & HDC FOR SEVERAL YEARS AS I AM INTERESTED IN PROMOTING THE HISTORY OF BIRMINGHAM.

List your related employment experience CHIEF ENGINEER @ GM/DELPHI, DIRECTOR OF QUALITY @ AVL, LIVED IN JAPAN FOR 4 1/2 YRS

List your related community activities PAST PRESIDENT PTSA, PAST CHAIRMAN OF HDORC, CURRENT MEMBER OF DRB & HDC

List your related educational experience BSME AND MBA IN ADVANCED MANAGEMENT, PROJECT MANAGEMENT TRAINING AND EXPERIENCE.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: NO

Do you currently have a relative serving on the board/committee to which you have applied? NO

Are you an elector (registered voter) in the City of Birmingham? YES

Keith Deyer  
Signature of Applicant

7/28/17  
Date





<b>OFFICE USE ONLY</b>	
Meets Requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input checked="" type="radio"/> Will Attend	<input type="radio"/> Unable to Attend

**APPLICATION FOR CITY BOARD OR COMMITTEE**

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest Design Review Board

Specific Category/Vacancy on Board Regular Member

Name Joseph Mercurio (Joe)

Phone 248-568-4656

Residential Address 1060 Lake Park Drive

Email jfm248@gmail.com

Residential City, Zip Birmingham 48009

Length of Residence 28 years in Birmingham

Business Address General Motors 895 Joslyn Avenue

Occupation Engineering

Business City, Zip Pontiac 48340

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_

Having spent the past nine years at General Motors responsible for developing hydrogen refueling infrastructure in multiple locations including California and Hawaii, I have developed the necessary skills to evaluate and implement new solutions for application in established locations.

List your related employment experience 28 years with General Motors most recently responsible for business development in the fuel cell technology area which includes establishing fleets of fuel cell automobiles, buses and trucks to address emissions, noise and other challenges.

List your related community activities Served on two separate sub committees in Birmingham - Ryder Cub and Wind & Solar. Served as president of the Figure Skating Club of Birmingham. Served as a member of the Oakland County Transportation Roundtable. Avid restorer of a 1928 home in Birmingham Quarton Lake Neighborhood.

List your related educational experience Ph.D. Biological and Environmental Engineering Cornell University, B.S. & M.S. Mechanical Engineering U of Vermont & Union College. Professional Engineer License in Michigan and New York, Executive Branch Fellow, Department of Commerce and White House, Washington DC.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_

No

Do you currently have a relative serving on the board/committee to which you have applied? No

Are you an elector (registered voter) in the City of Birmingham? Yes

Joe J Mercurio  
Signature of Applicant

08/05/2017  
Date





**NOTICE OF INTENTION TO APPOINT TO  
HISTORIC DISTRICT COMMISSION**

At the regular meeting of Monday, August 14, 2017 the Birmingham City Commission intends to appoint two regular members to the Historic District Commission to serve three-year terms to expire September 25, 2020, and one regular member to serve the remainder of a three-year term to expire September 25, 2018.

Interested parties may submit an application available from the city clerk's office on or before noon on Wednesday, August 9, 2017. Applications will appear in the public agenda at which time the commission will discuss recommendations, and may make nominations and vote on appointments.

The function and duty of the Historic District Commission is to advise the City Commission with respect to the proper development of the city with primary emphasis upon the city's established historic districts, sites, properties and historic resources. The Commission is also authorized to recommend for the guidance of the City Commission amendments to the City Code relating to the control and development of lands within historic districts.

Applicant(s) Presented For City Commission Consideration:

Applicant Name	Criteria/Qualifications
Padraic Mullin 1794 Bradford	American History teacher. Certified in permaculture design.
Doug Burley 384 Puritan Ave.	Working to maintain original charm of his 1923 home
Keith Deyer 1283 Buckingham	Past member of HDDSC, current member of HDC & DRC

*NOTE: All members of boards and commissions are subject to the provisions of City of Birmingham City Code Chapter 2, Article IX, Ethics and the filing of the Affidavit and Disclosure Statement.*

**SUGGESTED ACTION:**

To appoint \_\_\_\_\_, as a regular member to the Historic District Commission to serve the remainder of a three-year term to expire September 25, 2018.

To appoint \_\_\_\_\_, as a regular member to the Historic District Commission to serve a three-year term to expire September 25, 2020.

To appoint \_\_\_\_\_, as a regular member to the Historic District Commission to serve a three-year term to expire September 25, 2020.



# HISTORIC DISTRICT COMMISSION

Ordinance #1880

Terms: 3 years

Members: A majority of the members shall have a clearly demonstrated interest in or knowledge of historic preservation. Two members shall be appointed from a list submitted by duly organized local historic preservation organizations. If available, one member shall be an architect who has two years of architectural experience or who is duly registered in the State of Michigan.

Duties: The function and duty of the Historic District Commission is to advise the City Commission with respect to the proper development of the city with primary emphasis upon the city's established historic districts, sites, properties and historic resources. The Commission is also authorized to recommend for the guidance of the City Commission amendments to the City Code relating to the control and development of lands within historic districts.

Last Name	First Name	Home Business E-Mail	Appointed	Term Expires
Chapnick	Josh	(248) 881-6571 <i>josh.chapnick@gmail.com</i>	2/27/2017 Student Representative	12/31/2017
Charles	Adam	(248) 672-3486 <i>mradamcharles@gmail.com</i>	11/21/2016 Alternate	9/25/2019
Deyer	Keith	(248) 642-6390 <i>kwdeyer@comcast.net</i>	9/25/2006	9/25/2017
Dukas	Natalia	(248) 885-8535 <i>nataliadukas@yahoo.com</i>	9/9/2013	9/25/2019
Fuller	Dulce	(248) 245-4000 <i>d@woodwardandmaple.com</i>	10/27/2016 Alternate	9/25/2019

Last Name	First Name	Home Business E-Mail	Appointed	Term Expires
Henke 724 South Bates	John	(248) 789-1640 <i>jwhenke@aol.com</i>	9/25/2006 historical preservation organization member	9/25/2018
Pfaff 2150 Northlawn	Griffin	(248) 514-3324 <i>fintpfaff@yahoo.com</i>	2/27/2017 Student Representative	12/31/2017
Trapnell 660 Smith Ave	Thomas	(313) 568-6712 <i>ttrapnell@dykema.com</i>	4/27/2015	9/25/2018
<b>Vacant</b>				9/25/2018
* Weisberg 651 West Frank	Shelli	(248)642-6461 <i>sweisberg@aclumich.org</i>	9/25/2006	9/25/2017
Willoughby 667 Greenwood	Michael	(248) 760-8903 <i>mwilloughby@mwa-architects.com</i>	3/22/2010 architect	9/25/2019

\* Shelli Weisberg declined to apply for reappointment.

Board/Committee:

Historic District

Year: 2017

MEMBER NAME	1/4	1/18	2/1	2/15	3/1	3/15	4/5	4/19	5/3	5/17		Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>														
Mark Coir	NM	NM	P	A	P	NM	NM	P	P	NM		4	1	80%
Keith W. Deyer	NM	NM	P	P	A	NM	NM	A	A	NM		2	3	40%
Natalia Dukas	NM	NM	P	P	P	NM	NM	P	P	NM		5	0	100%
John Henke III	NM	NM	P	P	P	NM	NM	P	A	NM		4	1	80%
Thomas Trapnell	NM	NM	P	P	A	NM	NM	P	P	NM		4	1	80%
Shelli Weisberg	NM	NM	A	A	P	NM	NM	P	P	NM		3	2	60%
Michael Willoughby	NM	NM	P	P	P	NM	NM	P	P	NM		5	0	100%
Josh Chapnick (student r	NM	NM	P	P	P	NM	NM	P	P	NM		5	0	100%
Griffin Pfaff (student rep.	NM	NM	P	P	P	NM	NM	P	P	NM		5	0	100%
<b>ALTERNATES</b>														
Dulce Fuller	NM	P	A	A	A	NM	NM	A				1	4	20%
Adam Charles	NM	A	A	P	A	NM	NM	P	PA			2	3	40%
Members in attendance	0	1	8	8	7	0	0	9	7	0				

## CITY BOARD/COMMITTEE ATTENDANCE RECORD

Board/Committee:

Historic District

Year: 2017

MEMBER NAME	6/7	6/21	7/5	7/19	8/2	8/16	9/6	10/18	11/1	11/15	12/6	Total Mtgs. Att.	Total Absent	Percent Attend
<b>REGULAR MEMBERS</b>														
Mark Coir	NM	A	NM	P	NM							1	1	50%
Keith W. Deyer	NM	P	NM	P	NM							2	0	100%
Natalia Dukas	NM	P	NM	A	NM							1	1	50%
John Henke III	NM	P	NM	P	NM							2	0	100%
Thomas Trapnell	NM	A	NM	P	NM							1	1	50%
Shelli Weisberg	NM	P	NM	P	NM							2	0	100%
Michael Willoughby	NM	P	NM	P	NM							2	0	100%
Josh Chapnick (student rep.)	NM	A	NM	A	NM							0	2	0%
Griffin Pfaff (student rep.)	NM	A	NM	A	NM							0	2	0%
<b>ALTERNATES</b>														
Dulce Fuller	NM	P	NM	P	NM							2	0	100%
Adam Charles	NM	A	NM	P	NM							1	1	50%
Members in attendance	0	6	0	8	0	0	0	0	0	0				

0

**KEY:**

**P = Present**

**NM = No Meeting**

\_\_\_\_\_  
**Department Head Signature**

HISTORIC DISTRICT  
COMMISSION

2016

	J	F	M	A	M	J	J	A	S	O	N	D	%
John Henke	P	P	P	P/P	P	P	P	P	P	A	P		92%
Mark Coir	P	A	P	P/A	P	P	P	P	P	A	P		75%
Natalia Dukas	P	P	A	P/P	P	A	P	P	P	A	P		75%
Thomas Trapnell	P	P	P	P/A	P	P	P	P	P	P	P		92%
Shelli Weisberg	P	P	P	P/P	P	P	A	A	A	P	P		75%
Michael Willoughby	P	P	P	P/A	P	A	P	P	P	P	P		83%
Keith Deyer	P	A	P	P/P	P	A	P	A	A	P	A		58%
Patrick Rogers	*	*	*	*	*	*	*	*	*	*	*		20%
Zoe Bowers	*	*	*	*	*	*	*	*	*	*	*		20% Student
Loreal Dobson	**	A	P	A/A	A	A	A	A	A	A	A		8% Student

X = Meeting Cancelled

\* = Member Resigned

\*\* = Member Not Yet Appointed

2015

	J	F	M	A	M	J	J	A	S	O	N	D	%
John Henke	P/P	P	P	A	X	P	P	P	X	X	P	P	90%
Mark Coir	P/P	A	A	P	X	P	P	A	X	X	P	P	70%
Natalia Dukas	P/P	A	A	P	X	P	P	P	X	X	P	P	80%
Thomas Trapnell	*	*	*	*	X	*	A	P	X	X	P	P	75%
Shelli Weisberg	P/P	P	P	P	X	A	P	A	X	X	P	P	80%
Michael Willoughby	P/P	P	P	P	X	P	P	P	X	X	P	P	100%
Zoe Bowers	P/A	A	P	P	X	P	A	P	X	X	P	P	80%
Patrick Rogers	P/A	A	A	P	X	P	A	P	X	X	P	P	60% Student
Keith Deyer	A/P	P	P	P	X	P	A	P	X	X	A	A	60%
Darlene Gehringer	*												
Mitch Boorstein	P/*												100% Student
Cambria Rush	P/*												100% Student

2014

	J	F	M	A	M	J	J	A	S	O	N	D	%
John Henke	P/A				P	P	P	P	P	A		A	67%
Mark Coir	A/P				P	P	P	P	A	P		P	78%
Natalia Dukas	P/P				P	P	P	P	P	P		P	100%
Shelli Weisberg	A/P				P	P	P	P	P	P		A	78%
Michael Willoughby	A/P				P	A	P	P	P	P		P	78%
Keith Deyer	P/A				P	A	A	A	P	P		A	45%
Darlene Gehringer	P/P				P	P	A	P	P	P		P	89%
Caroline Stacey	A/A				*	*	*	*	*	*	*	*	0% Student
Mitch Boorstein	**				P	P	P	P	A	A		P	71% Student
Cambria Rush	**				P	A	A	P	A	A		A	29% Student



RECEIVED BY

JAN 18 2017

OFFICE USE ONLY

Meets Requirements?  Yes  No

Will Attend /  Unable to Attend

APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest Historic District Commission

Specific Category/Vacancy on Board \_\_\_\_\_

Name Padraic MULLIN

Phone 313.452.5684

Residential Address 1794 Bradford

Email paddyfm@yahoo.com

Residential City, Zip B'Ham MI 48009

Length of Residence \_\_\_\_\_

Business Address \_\_\_\_\_

Occupation \_\_\_\_\_

Business City, Zip \_\_\_\_\_

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_

I teach American History. I am certified in permaculture design and instruction

List your related employment experience Teach American History

List your related community activities member of Birmingham Hockey Association Board

List your related educational experience Post grad degree Berkshire School Community Garden Volunteer

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_

Do you currently have a relative serving on the board/committee to which you have applied? NO

Are you an elector (registered voter) in the City of Birmingham? YES

Signature of Applicant [Signature]

Date 09 JAN 2017



<b>OFFICE USE ONLY</b>	
Meets Requirements?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input checked="" type="radio"/> Will Attend	<input type="radio"/> Unable to Attend

## APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest Historic District Commission

Specific Category/Vacancy on Board Regular Member

Name Doug Burley

Phone (248) 761-9905

Residential Address 384 Puritan Ave.

Email doug.burley@outlook.com

Residential City, Zip Birmingham 48009

Length of Residence 2.5 years

Business Address Same

Occupation Sales

Business City, Zip \_\_\_\_\_

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied \_\_\_\_\_  
I have a love of architectural history and live in a house built in 1923 and am working to maintain the original charm and character. My interest is keeping the historical integrity of the city's historic districts. I have the vision needed to act as a steward in future development in the preservation of Birmingham's history .

List your related employment experience I've traveled the world on business and see that the US has not done near enough to protect our past from poor modern-day improvements or worse, the wrecking ball.

List your related community activities I'm proud of our community and support it by attending many Birmingham functions

List your related educational experience History Major

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: \_\_\_\_\_  
No

Do you currently have a relative serving on the board/committee to which you have applied? No

Are you an elector (registered voter) in the City of Birmingham? Yes

Douglas P. Burley  
 \_\_\_\_\_  
 Signature of Applicant

07/12/2017  
 \_\_\_\_\_  
 Date





page 1  
RECEIVED BY  
JUL 28 2017  
CITY CLERK'S OFFICE  
CITY OF BIRMINGHAM

OFFICE USE ONLY  
Meets Requirements?  Yes  No  
 Will Attend  Unable to Attend

APPLICATION FOR CITY BOARD OR COMMITTEE

Thank you for your interest in serving on a Board or Committee. The purpose of this form is to provide the City Commission with basic information about applicants considered for appointment. NOTE: Completed applications are included in the City Commission agenda packets. The information included on this form is open to the public. All Board and Committee members are subject to the provisions of the Ethics Ordinance (Chapter 2, Article IX of the City Code).

Information on various Boards and Committees and a list of current openings can be found on the City website at [www.bhamgov.org/boardopportunities](http://www.bhamgov.org/boardopportunities).

(Please print clearly)

Board/Committee of Interest HISTORIC DISTRICT COMMISSION (HDC)

Specific Category/Vacancy on Board \_\_\_\_\_

Name KEITH W. DEYER

Phone 248-882-2359

Residential Address 1283 BUCKINGHAM

Email KUDEYER@COMCAST.NET

Residential City, Zip B'HAM 48009

Length of Residence 41 YEARS

Business Address —

Occupation RETIRED

Business City, Zip —

Reason for Interest: Explain how your background and skills will enhance the board to which you have applied HAVE SERVED ON HDSC, HDRC, DRB & HDC FOR SEVERAL YEARS AS I AM INTERESTED IN PROMOTING THE HISTORY OF BIRMINGHAM.

List your related employment experience CHIEF ENGINEER @ GM/DELPHI, DIRECTOR OF QUALITY @ AVL, LIVED IN JAPAN FOR 4 1/2 YRS

List your related community activities PAST PRESIDENT PISA, PAST CHAIRMAN OF HDRC, CURRENT MEMBER OF DRB & HDC

List your related educational experience BSME AND MBA IN ADVANCED MANAGEMENT, PROJECT MANAGEMENT TRAINING AND EXPERIENCE.

To the best of your knowledge, do you or a member of your immediate family have any direct financial or business relationships with any supplier, service provider or contractor of the City of Birmingham from which you or they derive direct compensation or financial benefit? If yes, please explain: NO

Do you currently have a relative serving on the board/committee to which you have applied? NO

Are you an elector (registered voter) in the City of Birmingham? YES

Keith W. Deyer  
Signature of Applicant

7/28/17  
Date

**BIRMINGHAM CITY COMMISSION MINUTES**  
**JULY 24, 2017**  
**NORTH END OF BROOKSIDE AVE.**  
**6:00 P.M.**  
**RECONVENING AT**  
**MUNICIPAL BUILDING, 151 MARTIN**  
**7:30 P.M.**

**I. CONVENE AT 6:00 P.M. AT THE NORTH END OF BROOKSIDE AVE., BIRMINGHAM MI**

Mayor Mark Nickita called the meeting to order at 6:08 p.m.

Present,            Mayor Nickita  
                         Commissioner Bordman  
                         Commissioner Boutros  
                         Commissioner DeWeese  
                         Commissioner Hoff  
                         Commissioner Sherman  
Absent,             Mayor Pro Tem Harris

Administration: City Manager Valentine, City Clerk Mynsberge, City Attorney Currier, City Engineer O'Meara

DTE Energy: Joe Jacunski, Manager, Regional Planning, Nurah Dababneh, Dan Phillips, Facilitator/Arborist

**PHYSICAL INSPECTION OF PROPOSED DTE ELECTRIC COMPANY OVERHEAD EASEMENT FOR 856 N. OLD WOODWARD.**

Mr. Jacunski explained:

- Trees painted with double white dots are slated for removal.
- The three new pole locations are marked with 3' stakes topped with a pink streamer.
- The crossbars on the poles are 8' wide, requiring a clearing of 10'.
- Existing poles will be top cut under the transformers, not removed.
- One of the new poles will have two transformers; the middle pole will have no transformers.

Commissioner DeWeese asked if DTE was going to clear cut the area. Dan Phillips, Project Manager/Arborist for DTE, stated no unmarked trees will be removed without DTE talking to the City Commission, and marked trees will not be removed if it is possible to leave them in place.

City Manager Valentine explained:

- All trees removed will be replaced with equitable species at 4" caliper.
- The developer will contribute to the cost of tree replacement.
- Locations for replacement trees have not yet been determined.

Commissioner Boutros suggested the area residents should have some say in where replacement trees are located.

Commissioner Sherman advocated for replacing the total caliper of trees removed, so that a 12" caliper tree would be replaced with three 4" caliper trees.

In response to questions about other possible routes for the wires, Mr. Jacunski explained:

- Cannot use a pole across the river because the guy wires would go into existing building.
- 10' round concrete caisson structure would intrude halfway into river to be strong enough to pull enough wire tension
- Underground option would have to go in concrete conduit. The turns are too tight for wires and going underground would require tearing up Old Woodward in front of the existing businesses. The process would take about a year. DTE would have to hand dig around the existing old utilities under the road.
- Going underground would require trenching through the side of the river with trees.
- A 10' turning radius is required for a 90 degree turn with conduit. The change of grade on the subject site would require much more.
- Bringing in wires from the north would remove redundancy.
- Leaving the lines as is would require the developer to remove 30-40% of his building plans.
- The current pole is within 8' of the subject building. Poles must be 10' from a building.

Ms. Dababneh stated DTE has been working on this for a year, and the proposed solution is the only one that keeps the line continuous. Many options were reviewed, and all had issues.

**II. RECESS**

- A. Resolution to recess the meeting and reconvene at the Birmingham Municipal Building, 151 Martin, Birmingham MI at 7:30 p.m.

Mayor Nickita recessed the meeting with instructions that the meeting would reconvene at the Birmingham Municipal Building, 151 Martin, Birmingham, MI at 7:30 p.m.

**III. RECONVENE AT 7:30 P.M. AT MUNICIPAL BUILDING, 151 MARTIN, BIRMINGHAM MI**

**IV. CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

Mayor Mark Nickita called the meeting to order at 7:33 p.m.

**V. ROLL CALL**

ROLL CALL:	Present,	Mayor Nickita Mayor Pro Tem Harris Commissioner Bordman Commissioner Boutros Commissioner DeWeese Commissioner Hoff Commissioner Sherman
	Absent,	None

Administration: City Manager Valentine, Assistant City Planner Baka, City Clerk Brown, IT Director Brunk, City Attorney Currier, City Planner Ecker, DPS Manager Filipski, Deputy Treasurer Klobucar, City Engineer O'Meara, HR Director Taylor, DPS Director Wood

**VI. PROCLAMATIONS, CONGRATULATORY RESOLUTIONS, AWARDS, APPOINTMENTS, RESIGNATIONS AND CONFIRMATIONS, ADMINISTRATION OF OATHS, INTRODUCTION OF GUESTS AND ANNOUNCEMENTS.**

Mayor Nickita announced:

- The Farmer's Market continues on Sundays from 9 AM to 2 PM in Municipal Parking Lot #6 on N. Old Woodward.
- Upcoming Summer Concerts in Shain Park will feature Elvis Tribute Artist, Darrin Hagel, on Wednesday, July 26<sup>th</sup> at 7:00 p.m., and on Wednesday, August 2<sup>nd</sup> at 12:00 Noon, The AnTekes, with classic rock & roll, will perform, followed at 7:00 p.m. that evening with The Sax Maniacs from Detroit, playing soul music.
- Mayor Pro Tem has written article in Latches Oakland County Bar Journal, "How to Guide your client through a commercial mortgage foreclosure by Advertisement."

**VII. CONSENT AGENDA**

All items listed on the consent agenda are considered to be routine and will be enacted by one motion and approved by a roll call vote. There will be no separate discussion of the items unless a commissioner or citizen so requests, in which event the item will be removed from the general order of business and considered under the last item of new business.

**07-204-17 APPROVAL OF CONSENT AGENDA**

The following item was removed from the Consent Agenda:

- Commissioner Bordman – Items G and K

**MOTION:** Motion by Commissioner Boutros, seconded by Commissioner Sherman:  
To approve the Consent Agenda, with items G and K removed.

Commissioner Hoff commended City Clerk Brown for the Joint City Commission/Planning Board meeting minutes. City Clerk Brown acknowledged Deputy Cheryl Arft for producing the minutes.

ROLL CALL VOTE:	Yeas,	Commissioner Bordman Commissioner Boutros Commissioner DeWeese Mayor Pro Tem Harris Commissioner Hoff Mayor Nickita Commissioner Sherman
	Nays,	None
	Absent,	None

- A. Approval of Joint City Commission/Planning Board meeting minutes of June 19, 2017.
- B. Approval of City Commission minutes of July 10, 2017.
- C. Approval of warrant list, including Automated Clearing House payments, of July 12, 2017 in the amount of \$398,676.48.
- D. Approval of warrant list, including Automated Clearing House payments, of July 19, 2017 in the amount of \$2,833,311.83.

- E. Resolution approving the service agreement renewal with Logicalis, Inc. effective August 1, 2017 through June 30, 2018 for City Information Technology services. Further, directing the City Manager to sign the renewal agreement on behalf of the City.
- F. Resolution authorizing the issuance of a purchase order in the amount of \$306,195.46 to DTE Energy, for the removal of existing lights, and the manufacture and installation of 50 new street lights within the Old Woodward Ave. Reconstruction Project area. The work will be charged to account number 401- 901-010-981.0100.
- H. Resolution setting Monday, August 14, 2017 at 7:30 PM for a public hearing to consider the Final Site Plan and Special Land Use Permit for 211 S. Old Woodward to allow for the addition of a theater liquor license for the Birmingham Theater.
- I. Resolution setting Monday, August 14, 2017 at 7:30 PM for a public hearing to consider the approval of the Brownfield Plan and Reimbursement Agreement for 35975 Woodward.
- J. Resolution awarding the 2017 Asphalt Resurfacing Program, Contract #5-17(P), to Florence Cement Co., of Shelby Twp., MI in the amount of \$410,369.70, to be charged to the following accounts:

Local Street Fund	203-449.001-981.0100	\$399,469.70
Sewer Fund	590-536.001-811.0100	\$ 6,000.00
Water Fund	591-537.004-811.0100	\$ 4,900.00
TOTAL		\$410,369.70

And further; approving the appropriation and amendment to the 2017-2018 Local Street Fund budgets as follows:

Local Streets Fund		
Revenues:		
Draw from Fund Balance	203-000.000-400.0000	\$ 119,470
Total Revenue		\$ 119,470
Expenditures:		
EPS-Construction/ Public Improvements	203-449.001-981.0100	\$ 119,470
Total Expenditures		\$ 119,470

The Commission agreed to discuss the items removed from the Consent Agenda at this time.

**07-205-17 GOLF COURSE FERTILIZER/TURF CHEMICALS PURCHASE (ITEM G)**

Commissioner Bordman:

- Commended DPS Director Wood for eliminating Roundup and Glyphosate from the fertilizers and turf chemicals to be used this year.
- Commended Superintendent Grill for the use of organic products.
- Asked for an explanation as to why three companies are being awarded the bid.

DPS Director Wood explained:

- Pricing for these products are the same from the various vendors, based on agency pricing which is determined by the product manufacturer.
- Some of the bidders did not make all of the products available to the City as part of their bid.
- The City selects the vendors from which to purchase its products based on experience with the vendor, customer service, availability of the product, timely product delivery, including the quality of the performance of the vendor.

**MOTION:** Motion by Commissioner Bordman, second by Commissioner DeWeese:  
To approve chemical/fertilizer purchases for Lincoln Hills and Springdale golf courses from Harrell's for \$22,000, Residex Turfgrass for \$22,000 and Great Lakes Turf for \$8,000. The total purchase from all vendors will not exceed a total of \$52,000. Funds will be charged to Springdale Golf Course and Lincoln Hills Golf Course - Operating Supplies, account #s 584/ 597-753.001-729.0000.

VOTE:           Yeas,     7  
                  Nays,     0  
                  Absent, 0

**07-206-17                   FLEIS & VANDENBRINK CONSULTING ENGINEERS CONTRACT RENEWAL (ITEM K)**

Commissioner Bordman was bothered by the length of the extension.

Commissioner Hoff:

- Pointed out the company is only paid if the City uses them.
- Commented the company has led the Commission through the restriping of Maple Road and will lead the Commission through the conversation tonight about the S. Eton crossing project.
- Did not understand the reluctance to continue the contract for five and a half months when the City has been using the contractor for at least two and a half years.
- Said she was in favor of starting the bid process, but keeping Fleis & Vandenbrink in place in the meantime.

City Manager Valentine explained:

- The contract expired without the City's realization.
- Fleis & Vandenbrink are used for Multi-Modal Transportation Board (MMTB) reviews.
- The contract will be put out for bid as quickly as possible, but noted a bid process typically takes five months.
- The Commission can terminate the contract with 30 days' notice.

City Manager Valentine confirmed for Mayor Pro Tem Harris that the renewal is at the same rate as the original contract.

Mayor Nickita stated:

- The contract is way over due to be bid out, and six months is excessive for the renewal period.
- The Commission made it clear in prior conversations with staff that it intended to bid out this contract.
- He will agree with the renewal because there is a 30 day termination clause.

Commissioner Sherman requested clarification on the fee schedule. City Attorney Currier verified the contract extension maintains the fees outlined in the current contract.

Commissioner Sherman requested the City confirm that work performed since the contract expiration has been billed under the old fee schedule. He commented that the Commission is effectively setting a month-to-month contract because of the 30 day termination clause.

Mayor Pro Tem Harris said he would agree with the contract extension because of the 30 day termination clause.

**MOTION:** Motion by Mayor Pro Tem Harris, second by Commissioner Hoff:

To approve the contract extension with Fleis & Vandenbrink consulting engineers until January 31, 2018 for traffic engineering services. Further, to direct the Mayor and the City Clerk to sign the agreement on behalf of the City.

VOTE:           Yeas,       6  
                  Nays,       1 (Bordman)  
                  Absent,     0

<b>V. UNFINISHED BUSINESS</b>
-------------------------------

**07-207-17           856 N. OLD WOODWARD AVE. DTE ENERGY LINE RELOCATION**

City Engineer O'Meara's updated staff report to City Manager Valentine, dated July 19, 2017, notes, in part:

*The referenced vacant property, directly south of the southeast corner of Oak St., has been vacant for nearly 30 years. The former building, destroyed by fire occupied only a portion of the site. The current owner, known as FLS Properties #5, LLC, has obtained final site plan approval from the Planning Board for the construction of four-story mixed-use building, including two levels of underground parking. Final construction drawings are currently under review.*

*Overhead electric wiring feeding many other properties to the north and south currently obstruct the full use of the property, and must be relocated if it is to be redeveloped to its full potential. The applicant has worked with DTE Energy Co., the two immediate property owners to the north, and City staff to finalize a relocation plan that accomplishes the goal of relocating the overhead wiring closer to the east property line, as well as entirely away from the north property line. In order to relocate the wires in such a manner that construction can proceed, DTE Energy has developed a relocation plan that moves a section of the wiring south of the subject property from its current location further east. Since the relocation involves City property, approval must be obtained from the City Commission.*

Issues relevant in this case.

- A. *The existing overhead wires obstruct both the north and east ends of the property. The wires are considered primary in the DTE Energy system, meaning that they cannot just be ended and re-routed elsewhere, rather, they need to continue north and south of this area on some path to ensure proper redundancy both to this new building, and all of the other existing buildings in the immediate corridor.*
- B. *The existing pole labeled A1 on the drawing, while not in direct conflict with the new building, is situated such that the entire relocation south of the property becomes warranted. Specifically, the wires south of the building cannot remain in place because if a new alignment started north of pole A1, a guy wire would have to extend further north to properly support the remaining wires and poles further south. With the building proposed immediately north of pole A1, there is no room available to create tension for the wires and poles to the south, if they were to remain.*
- C. *Once the determination was made that a relocation is required, DTE Energy identified three poles that should be relocated, given their current close proximity to the Rouge River (the bases of the poles are situated immediately adjacent to the*

*west bank of the river). Extending the relocation south to the north edge of Parking Lot #6 (at pole #4), the remaining lines further south can then be tensioned with a guy wire without being potentially undermined from the adjacent river bank.*

*D. Relocating the lines further east will impact existing trees on a City owned floodplain/natural area. Given its low topography and classification as a floodplain, approving an easement in this area does not represent an impediment to future development of the property. The main focus, then, would be damage to the existing natural environment, particularly in the form of mature trees. In order to avoid such damage, DTE Energy was asked to consider all possible options that could avoid this relocation. The following was considered:*

- Relocation from Parking Lot #6 property directly out to the N. Old Woodward Ave. right-of-way could be considered. Moving the wiring to an important, very visible right-of-way would require an underground installation. Further, given other existing underground utilities in the area, DTE Energy indicated that the wires would have to be moved to the west side of the right-of-way, while feeding each of the existing buildings being fed on the east side via underground connections. While such an effort would improve the overall aesthetics of the area, it would be prohibitively expensive, being roughly estimated at \$2 million (the proposal now being suggested is estimated at about \$220,000, which will be a 100% developer expense).*
- Attempting to locate a source for power relocation to the west of Old Woodward Ave. through existing backyard feeds does not address the issue of feeding the existing buildings to the south.*
- Likewise, attempting to locate a source for power relocation to the east of Woodward Ave. power lines (currently in backyards) again does not address the issue of feeding existing buildings to the south.*

#### Summary

*After much analysis and discussion involving all involved parties, it appears that the only feasible solution to removing the encumbrance from 856 N. Old Woodward Ave. will involve the relocation of overhead electric utilities on to adjacent City property currently being maintained as a natural floodplain buffer between commercial and residential areas. The proposed design moves the poles in an area of relatively low visibility, remains economically feasible, and allows redevelopment of this property that has remained vacant for nearly thirty years.*

Joe Jacunski, Manager, Regional Planning for DTE, reported DTE has been working on the project for a year going through a dozen designs. The project was taken to peer review where the proposed plan was identified as best solution. Mr. Jacunski thanked City Engineer O'Meara and City Planner Ecker for suggestions which saved ten trees. The proposed solution includes moving the lead to the other side of river to avoid the new building construction and locating the lead to minimize the impact on existing trees.

In response to questions from Commission DeWeese regarding replacement of trees, City Manager Valentine explained:

- From City property 14 trees will be removed.
- The 14 trees will be replaced with the same species, oak and maple, at a minimum of 4" caliper.
- Tree replacement cost will be approximately \$12,000.
- The developer has agreed to pay \$7,000 of that cost.



- Homeowners could be consulted on location of replacement trees.

Commissioner Bordman made the following points:

- The new development could not be built because of the difficulty of accessing electrical power.
- In order to make it possible to develop the property, a plan was designed to move the electrical lines across the river onto City property.
- The City would then grant an easement on City property in order for the development to proceed.
- The relocation of electrical lines will result in the loss of 14 mature trees.
- Relocating the lines does not benefit the City directly, except in a long vacant property being redeveloped.
- The developer benefits greatly because he can rebuild on the property as he wants.
- Replacing 14 trees with 14 trees of 4" caliper is insufficient since many of the 14 trees being removed are substantially larger than 4" caliper.
- The City should not pay any of the costs associated with replacing the removed trees.
- The proposed project is substantial, and because the City is giving up property the developer should be paying more than \$7,000 for 4" caliper trees.
- She will not approve the proposal as proposed.

Commissioner Sherman stated the removed trees should be replaced caliper inch per caliper inch, and the City should not be picking up the tab. Both the property being given up and the trees being removed have value.

Commissioner Hoff commented:

- The trees being removed should be replaced, but the replacement trees, because they will not be as big or as tall as the existing trees, are not going to provide the barrier between residential and business, which is the residents' concern.
- DTE say it is not possible to bring power from the north, but she is concerned if there is not another option.

Mayor Pro Tem Harris, noting the staff report affirmed the developer has obtained final site plan approval, asked why this issue surfaced late in game and was not part of the site plan review.

City Manager Valentine explained when the development process started a different plan was anticipated. When the developer went to DTE after receiving site plan approval, DTE could not relocate the wires as per the plan under current regulations. City Manager Valentine agreed site plan approval should perhaps be contingent on utility approval.

Commissioner Boutros remarked:

- He would like to figure out a way to move the project forward.
- Thanked DTE for cooperating in developing a proposal which reduced the number of trees to be removed from 50 to 14.
- He would like residents to be given a choice as to where the replacement trees are planted. Taking the wires underground is not just a matter of money, it is also a matter of digging up Old Woodward for 8 months to a year.
- A decision has to be made, and he believes if the City, DTE, and the developer are doing what is best for the City, he favors project.
- He understands the objections of the residents.

- Having learned on site what DTE has considered, and emphasizing the developer needs to replace every tree, he would like to move this project moving forward.

Commissioner DeWeese noted the Commission could accept the proposed resolution with the provision that the developer agrees to pay \$25,000 of the tree replacement costs and agrees to replace a minimum of 14 trees, but the Commission could also request tree replacement be based on inch for inch replacement.

Mr. Jacunski explained:

- Bringing lines from the north would put 900 residents and businesses at risk of outages.
- The expectation is that if a lengthy repair is needed, DTE provides a duplicate source of power in order for residents not to be without electricity for an extended period of time.
- Therefore, the line must continue through to the south to back up the line from the north.
- The switching capabilities are used often.

Mr. Jacunski clarified for Mayor Nickita that DTE is not normally responsible for tree replacement.

Mayor Nickita noted:

- DTE's site plans are deficient, and suggested DTE needs to work on providing better plans.
- The project involves public land, and the Commission as stewards of it, must be careful not to use public land for anything which does not benefit the City.
- He is in favor of development of the subject site, but, although the site plan has been agreed to by the Planning Board and is in concurrence with the City's master plan, the Commission has to proceed cautiously because the project affects property which is basically City park land.
- If the City is adjusting its park land, the Commission has to be assured the City is receiving benefit.

Developer Frank Simon, FLS Properties #5, LLC, noted:

- The development site is very challenging, and soil testing has revealed it is more highly contaminated than anticipated.
- He would like to move the project forward and turn what has been an eyesore for many years into a gem in that part of Birmingham.
- He is willing to contribute to tree replacement and, although he is already way above budget, will be happy to work out a reasonable arrangement which makes sense with the City, but he can't agree to an unknown.

Commissioner Sherman calculated approximately 200 caliper inches of trees are slated to be removed, which, on an inch per inch basis, will require replacement by 50 4" caliper trees. He suggested postponing the issue until August 14<sup>th</sup>, and have Mr. Simon and the City negotiate an agreement on replacement of trees, which will become part of the Commission's resolution.

Commissioner DeWeese expressed support of postponing a decision until an agreement is negotiated that is inclusive and provides a proper visual blockage from both sides of the river.

Drew Dettling presented several points:

- The project should go back to the Planning Board.

- Replacement of trees should be inch for inch as opposed to number of trees.
- It is clear that approval of the proposed resolution benefits DTE and helps the developer, but he believes the City is valuing green space and trees less than other City land.
- There is no precedent in the City to use public land to support private development.
- He requests the work start no earlier than after the Dream Cruise.
- The proposal creates visual eyesore at eye level from his house.
- The green space is already a sparse barrier when the leaves have fallen.
- He believes DTE will come back in the future to remove more trees and/or limbs because they pose danger to the lines, resulting in a clear cut 50' stretch.
- He favored using the west side for relocating the poles.
- He requested the Commission reject the proposed easement.

Ben Gill remarked:

- He was a developer for a time and sometimes was required, as part of site plan approval, to replace trees on site or pay into a fund for tree replacement.
- The area is better used as a rough natural area, and perhaps the City could put down wood chips and benches.
- Before a site plan is approved, every tree should be accounted for and agreed upon.
- He is in favor of development, but feels the City might get a different answer from a private contractor than from a corporation.
- He hopes the City is firm with all involved to obtain what the City wants.
- Asked that the residents could see the tree replacement plan before it is approved.

Sam Ball, representing his daughter who lives on Brookside, noted:

- He is an electrical engineer.
- The project being discussed is to benefit the developer who is building the City's tax base, but the public would have to give up property.
- There are ways to possibly relocate the lines differently, such as putting lines underground from poles A1 to A5, or going around the property with a trench.

Mr. Jacunski explained:

- This is a main line with 900 customers, so the support system is the same as outside a substation.
- The options suggested would require poles in Parking Lot No. 6 and more poles on Oak.
- The lines could not be put under the river, but would have to go around the front to Old Woodward, requiring a 10' easement for conduit and 20' easement for manholes, resulting in a greater loss of trees from the necessary trench through the wooded side of the river.
- Three cable poles are required and must be accessible by a bucket truck, and there is not sufficient room behind the commercial buildings for conduit.

Commissioner Sherman asked that staff be directed to negotiate an agreement with the developer pursuant to the discussion held and bring it back to the Commission when it is done. He also noted species besides oak and maple are involved and those species should be matched in the replacement trees to maintain diversity.

No action was taken.

**VI. NEW BUSINESS**

**07-208-17 RESOLUTION FOR CONFIRMING S.A.D. # 879 – 2017-2018  
CAPESEAL**

Deputy Treasurer Klobucar reported:

- S.A.D. No. 879, for purposes of public street maintenance improvements, would specially benefit the following properties:

<b>Larchlea</b>	Lincoln to Maple
<b>Westchester</b>	Lincoln to Maple
<b>Berwyn</b>	Midvale to Avon
<b>Radnor</b>	Maple to Berwyn
<b>Avon</b>	Radnor to S. Glenhurst
<b>Bryn Mawr</b>	Cranbrook to Radnor
<b>Puritan</b>	Maple to Pine
<b>Willow Lane</b>	Midland to Raynale
<b>Fairfax</b>	Raynale to Suffield

- Comments during the hearing of confirmation are limited to those questions specifically addressing the assessment roll pursuant to Section 94-9 of the City Code.
- The hearing declaring the necessity of the Special Assessment District was held at the City Commission meeting of July 10th, 2017.

Mayor Nickita opened the public hearing at 8:52 p.m.

Commissioner Hoff commented the proposal calls for one payment, although sometimes assessments are payable in multiple payments. Deputy Treasurer Klobucar confirmed the subject assessment would be payable in one payment.

Brittney Johnson requested an explanation of the \$8 difference in rates listed in the notification letter to residents.

DPS Manager Filipski explained the actual cost is based on the actual dimensions of the street and the scope of work being done, and indicated residents may contact the Department of Public Services for an exact cost. It was estimated the cost for Ms. Johnson's property is \$1523.03.

Mayor Nickita closed the public hearing at 8:57 p.m.

**MOTION:** Motion by Commissioner Hoff, seconded by Commissioner Bordman:  
To ratify and confirm Special Assessment Roll No. 879, and instruct the City Clerk to endorse said roll, showing the date of confirmation thereof, and to certify said assessment roll to the City Treasurer for collection at or near the time of construction of the improvement. Further, that special assessments shall be payable in one (1) payment as provided in Section 94-10 of the Code of the City of Birmingham at five and a quarter percent (5.25%) annual interest.  
*Formal resolution appended to minutes as Attachment A.*

VOTE:           Yeas,       7  
                  Nays,       0  
                  Absent,    0

## **07-209-17 PUBLIC HEARING FOR REVISED WINDOW STANDARDS**

Senior Planner Baka noted the definitions of glazing, based on industry standards, are:

Clear	82% visible light transmittance (VLT)
Lightly tinted	70% visible light transmittance (VLT)

Mayor Nickita opened the public hearing at 9:06 p.m.

Discussion ensued regarding the amended regulation, "Windows shall not be blocked with opaque materials or the back of shelving units or signs". Senior Planner Baka explained:

- Current use of opaque materials will be grandfathered, meaning what is being done now may continue.
- Specific references to things such as chairs were removed because they are covered under the term "opaque materials".
- Blinds are allowed only on upper stories, not on the first floor, but blinds currently in place will be grandfathered.

Commissioner DeWeese was in support of the regulation, noting it is in line with our intent, and said he would like to see more enforcement of current blockages.

Concerns were expressed about businesses affected by glare with the rising or setting of the sun.

Mayor Nickita had an objection to businesses, such as Starbucks, which keep the blinds closed all day making the business appear closed.

Doug Fehan suggested first floor opaque coverings from the bottom up to 4' would be helpful for hiding undesirable items such as employees' dirty shoes and lunches.

Mayor Pro Tem Harris felt the language in 4.90 should be clearer to explain the exception is allowed by a majority vote of any of the three applicable boards.

Commissioner Bordman, noted 4.90 A.2. is the only place that allows lightly tinted glazing in neutral colors, which is inconsistent.

Mayor Nickita closed public hearing at 9:16 p.m.

The Commission discussed the regulation pertaining to opaque materials:

- Mayor Nickita asked if the wording "opaque materials" is too vague and if some specifics, such as furniture, should be included.
- Senior Planner Baka indicated the discussion was that anything you cannot see through is opaque.
- Commissioner Hoff did not feel furniture and products should be considered as opaque materials, noting that if a business is selling furniture or other products those items should be displayed in the windows.
- Commissioner Hoff, noting the importance of blinds to protect patrons from the glare of the rising or setting sun, suggested regulating how long blinds can be down.
- Mayor Nickita reiterated the problem with businesses, such as Starbucks, leaving screens down all day resulting in the store appearing closed.

- Commissioner Boutros felt the ordinance has to take into consideration the fact that the sun can jeopardize products and suggested something is needed to protect the display of products being sold. He felt it was a separate issue from advertising in windows.
- Mayor Nickita noted when ordinances are examined precedent is considered. He suggested if a product is jeopardized by the sun, the product does not belong in the window. He agreed that screening for restaurants might be different. He said he was comfortable adopting the proposed ordinances.

Mayor Pro Tem Harris requested Article 04, Section 4.90 E. be clarified to denote that a modification to the standards does not necessarily require approval by all three boards listed, just by those boards required to review the request. Commissioner DeWeese requested further clarification that modification to the standards must be approved by a majority of the board members appointed and serving, rather than just by a majority of those board members in attendance at the meeting.

**MOTION:** Motion by Commissioner Bordman, seconded by Mayor Nickita:  
To approve the following Zoning Ordinance amendments with additional changes to Article 04 Development Standards, Section 4.90, WN-01 as noted under "c." below:

- Article 03 Downtown Overlay District, Section 3.04(e) Architectural Standards to require clear glazing at the first floor façade;
- Article 03 Triangle Overlay District, Section 3.09, commercial/mixed use architectural requirements to require clear glazing at the first floor façade;
- Article 04 Development Standards, Section 4.90, WN-01 (Window Standards) to alter the required glazing on commercial buildings, with the following additional changes:
  - Under A.2. delete the words "in neutral colors";
  - Revise the language of E. to read: "To allow flexibility in design, these standards may be modified by a majority vote of *those appointed and serving on the appropriate reviewing body, including the Planning Board, Design Review Board, and/or Historic District Commission for architectural design considerations provided that the following conditions are met:*
- Article 07 Architectural Design Requirements, Section 7.05, Requirements, to remove inconsistent provisions; and
- Article 9, Section 9.02, Definitions, to add definitions for clear glazing and lightly tinted glazing.

VOTE:           Yeas,       7  
                  Nays,       0  
                  Absent,   0

**07-210-17                   RECOMMENDATION BY THE AD HOC BIRMINGHAM BRAND DEVELOPMENT COMMITTEE (BBDC) FOR A NEW BIRMINGHAM CITY LOGO**

Assistant to the City Manager Haines reported:

- The Ad Hoc BBDC is comprised of one member from the Parks and Recreation Board, one member from the Birmingham Shopping District (BSD), one member from the Planning Board, two City Commissioners, and two at-large members drawn from different neighborhoods.
- The goal of the rebranding initiative is to establish a new brand (logo) that communicates Birmingham's image in a positive, evolving and refreshing way.

- McCann Detroit was selected on October 17, 2016 to design a new city logo using the process determined by the City, which included McCann conducting three stakeholder meetings, which took place December 13, 14 and 15th, 2016, designed to gather input about Birmingham from three core stakeholder groups, one representing residents, a second representing business owners, and a third representing current board or committee members.
- During these meetings, participants were asked a series of questions such as what Birmingham means to them, and what makes Birmingham different from other cities.
- McCann presented their first designs to the Ad Hoc Committee on January 30, 2017, and the Committee held a total of nine public meetings, evaluating more than 50 logo designs.
- The Committee directed McCann to focus on specific words to use as logo guideposts which included: Timeless/Classic, Distinctive/Unique, Fresh, Clean, Sophisticated/Refined, and to focus on the iconic historic side of Birmingham for inspiration.
- The Committee narrowed their logo selection down to three, and voted to recommend Logo #1 as their preferred recommendation, with Logo 2 and 3 as alternates in order of preference.
  - Logo #1 uses an icon modelled after the Marshall Frederick's sculpture in Shain Park, along with the words "Birmingham" and "A Walkable City" tagline beneath the icon.
  - Logo #2 uses the words only of Birmingham, with an elongated R, and tagline.
  - Logo #3 uses a square icon resting above the word Birmingham, and includes the tagline.

McCann Detroit representative Susan Stallings explained the process of public input and development of the final three logo designs by Ad Hoc BBDC. Ms. Stallings described the inspiration for each of the three final logos:

- Logo # 1 is inspired by Birmingham resident Marshall Frederick's "Freedom of the Human Spirit" sculpture. The distinctive icon captures the essence and energy of this focal point of Shain Park. When combined with a classic font for the city name, and balanced with the simple tagline, this logo embodies the modern yet timeless nature of the city itself. This logo is versatile. The elements can be used together, separately or arranged differently, depending upon the specific application.
- Logo #2 uses a classic font that has been customized to represent the distinctive, unique nature of the city. It has a fresh, sophisticated feel that lends itself to numerous applications.
- Logo #3 uses an icon that represents the downtown as the center of the city surrounded by its neighborhoods. When combined with a classic serif font in upper and lowercase, it creates a clean, approachable look for the city. The elements can be used together, separately or arranged differently, depending upon the specific application.

Commissioner Bordman asked what a city logo is, what it is supposed to do, who the intended audience is, and if a brand is effective without an icon.

Ms. Stallings explained a logo is a branded identity, is not just for visitors, and can be effective without an icon if it is customized.

Doug Fehan, member of the Ad Hoc BBDC, reported:

- The AD Hoc BBDC included architects, marketing and advertising professionals, an artist and a calligraphy expert.

- The Committee had spirited conversations, considered 50 iterations, and met all criteria set.
- He characterized the work of the Committee as exhaustive.
- Logo #1 creates the image of the City, and, like the Nike swoosh, will become known through branding and use.

Peter Hollinshead, member of the Ad Hoc BBDC, thanked Ms. Stallings for an excellent presentation and her wonderful work with the committee throughout the process. He explained:

- A logo and a graphic identity for a governmental body should be a device that reaches not only visitors and outsiders but also residents and users of City services.
- It should draw on things that will resonate with those audiences.
- The Committee worked to avoid a logo that was dated or trendy.

Commissioner DeWeese felt Logo #3 was too complicated because it requires explanation of the square. He said Logo #1 may have captured the spirit of the City, noting it represents something unique about Birmingham.

Commissioner Hoff commended McCann Detroit for their leadership. She was not certain Logo #1 was the best for Birmingham and commented that she personally does not believe the logo is right yet.

Mayor Pro Tem Harris said he prefers Logo #1 and indicated initial ignorance of what the icon is does not detract from the logo.

Commissioner Boutros echoed Mayor Pro Tem Harris' statements, and said he personally prefers Logo #1 from a design standpoint. He questioned why the typeface is not sans serif which is more modern. Ms. Stallings explained the feeling of most people was that the modern look of sans serif would eventually date the logo, so a combination of styles was used to make the logo more approachable.

Mayor Nickita commented on the thorough approach to the development of the logos. He noted the majority of icons and logos use imagery which is meant to be ultimately identified with a product.

**MOTION:** Motion by Commissioner DeWeese, seconded by Mayor Pro Tem Harris:  
To approve Logo # 1 as the preferred logo by the Ad Hoc BBDC as the new Birmingham city logo.

Commissioner Sherman agreed with Commissioner Hoff that none of the three are ready to be the Birmingham logo. He said they are a starting point, but are not an ending point, and commented that none of the three logos made him think "Birmingham".

Commissioner Bordman said she attended a few of the Committee meetings, knows how hard the members worked on the project, recognizes they are very attached to the results, and she extended the City's appreciation. She commented that she does not understand the icon on Logo #1 and does not support it. She thinks neither of the other two logos really depict Birmingham. Commissioner Bordman agreed with Commissioners Hoff and Sherman that the three logos presented don't do what they need to do.

Commissioner Sherman stated he does not want a split decision on the City's logo.



Mayor Nickita was comfortable with Logo #1, but agreed a unified agreement by the Commission was preferred.

Brief discussion ensued regarding options for next steps.

Commissioner DeWeese strongly supported an icon in the logo. He stated he will vote against his own motion because the Commission should be unified in the decision. Commissioner DeWeese commented the logo needs to be something people will accept and identify with.

Commissioner Deweese moved to withdraw his motion. Mayor Pro Tem Harris did not support the motion to withdraw.

VOTE:           Yeas,        2 (Harris, Boutros)  
                  Nays,        5 (Bordman, DeWeese, Hoff, Nickita, Sherman)  
                  Absent,     0

Motion failed.

Mark Canavan, McCann Detroit, explained that identity of a logo is a day-forward process, meaning a logo gains meaning with every touchpoint and is meant to grow over 10 or 20 years.

Mayor Nickita asked what the next step is that will help build consensus, stating he wants to build on momentum, not falter. He asked if meeting with McCann Detroit or taking City Manager Valentine's suggestion of workshops should be the next step.

The McCann Detroit representatives indicated time is needed to think about the next step. Mayor Nickita felt it would probably be worthy of the effort to have McCann Detroit put together some suggestions for how to move forward to create consensus.

Commissioner Boutros favored focusing on refining Logo #1.

Commissioners Hoff and Bordman expressed interest in showing the logos to other people to gauge reactions. Commissioner Bordman wondered if receiving reactions from others would crystalize her thoughts and help her determine if one of the logos is the right one.

No action was taken.

**07-211-17                   S. ETON RD. CORRIDOR – MAPLE RD. TO LINCOLN AVE. MULTI-MODAL TRANSPORTATION BOARD RECOMMENDATIONS**

City Engineer O'Meara's report to City Manager Valentine, dated July 19, 2017, is excerpted in regard to four suggested changes on the first block of S. Eton Rd.:

*The Ad Hoc Rail District Committee identified four suggested changes on the first block of S. Eton Rd. They are as follows:*

- 1. Relocate the west side curb for the entire block from its current location to a point three feet closer to the center of the road. Relocating the curb takes the extra space currently available on the one southbound lane of S. Eton Rd., and makes it available for an enhanced 8 ft. wide sidewalk (up from the existing 5 ft.). The recommendation came from the fact that the current sidewalk is the main*

walking path for residents who live to the southwest, and wish to walk to other areas east of the railroad tracks. Second, since the current sidewalk is directly adjacent to the traffic lane, the wider pavement would help make the block more pedestrian friendly.

2. **Install an island within the S. Eton Rd. crosswalk.** The original design from the Rail District Committee was sized to accommodate trucks that need up to a 40 ft. turning radius. This was based on the usual convention in the City that most trucks are of this size, or smaller. The island as designed would reduce the distance for pedestrians to have to cross the road unprotected from traffic. Although the traffic signal is timed so that most pedestrians can easily cross on one signal cycle, if for some reason they have to stop in the middle, they would be able to do so. The revised plan attached to this package depicts an island that is able to accommodate trucks with a 50 ft. turning radius.
3. **Install an enlarged pedestrian waiting area adjacent to the handicap ramp on the southeast corner of Maple Rd.** Since additional right-of-way exists in this area, the additional concrete is a relatively low cost improvement that will help make the area more pedestrian friendly.
4. **Install sharrows for bicycles on both the north and southbound lanes.** Several board members expressed concern that it is unfortunate that the City is designing improved biking facilities both north and south of this area, and yet the biking environment on this block could use more improvement. Due to the limited right-of-way, and the clear need to maintain three traffic lanes, no separate bike lane facility can be recommended in this area at this time.

As noted above, three businesses represented at the June 1 public hearing took issue with designing this intersection to a 40 ft. truck turning radius standard. The business people present reminded the Board that Maple Rd. & S. Eton Rd. are the only legal roads that can be used by large trucks to get in and out of the Rail District. (Other routes, such as E. Lincoln Ave. and S. Eton Rd. south to 14 Mile Rd. have restrictions on through truck traffic.) Of particular concern was Adams Towing, which stated they regularly drive larger trucks through the intersection, and that when towing an extremely long vehicle, such as a school bus, even the existing intersection is too small. Bolyard Lumber and Downriver Refrigeration, also represented at the June 1 meeting, made similar representations that they either own and operate, or have deliveries from third parties that regularly use larger trucks.

The Board asked staff to survey all businesses in the district to better understand the frequency of this type of traffic. Over 90 Rail District businesses were sent an email asking for input by answering a short survey about the number and size of trucks that were regularly used by their business. A total of 17 businesses responded. The MMTB reviewed the results at their meeting of July 20, 2017. In order to get as much feedback about this issue as possible, staff invited the three business people that attended the public hearing to come back and discuss the matter further at their July 20 meeting. The following conclusions were drawn:

- When entering the district, trucks with a turning radius in excess of 50 ft. would generally have to enter Eton Rd. heading eastbound only. Attempting to make a left on to Eton Rd. westbound is already not feasible for most of these trucks, due to the height limitations imposed by the adjacent railroad bridge. If the intersection is designed for trucks with a 50 ft. turning radius, trucks will be able to enter the

*district from Maple Rd., heading from either direction (assuming that they can clear the railroad bridge).*

- *When exiting the district, most trucks already make a left turn on to westbound Maple Rd. Making a right turn is difficult or impossible for most large trucks even today, again due to the height and size of the railroad bridge.*
- *With input from F&V, the Board concluded that trucks that require a 62 ft. turning radius are not frequent in this area. Those choosing to use these large trucks will have to use Maple Rd. to the west to enter and exit the area, which they likely already do today, due to the height and location of the adjacent railroad bridge. Designing the intersection for the largest trucks would make the installation of any island impractical.*

*To summarize, the southwest corner of the intersection is being moved in to provide a larger sidewalk area. Moving it any further, however, would restrict the important right turn movement from Maple Rd. on to Eton Rd. Installing the modified island shown on the revised plan takes advantage of the space in the intersection that is not generally used, and will improve the pedestrian crossing for those crossing Eton Rd. on the south side of Maple Rd.*

In response to a question from Commissioner Bordman, City Engineer O'Meara explained:

- The third drawing is the only one being recommended, and the width of the island at the widest point, on the Maple Road frontage, is approximately 11'.
- The island shown in the first two drawings is the same, and is approximately 15' long on the Maple Road frontage.
- The design with the larger island does not accommodate 50' trucks.

Mayor Nickita commented:

- The primary concern for this construction season is the Maple/S. Eton intersection.
- The rest of the street is planned for next season.
- The goal is to accommodate the expected increase in pedestrian traffic when Whole Foods opens, and to provide safety for pedestrians.

In response to questions from Mayor Nickita regarding the deadline for the City Commission to approve the project for the current construction season, City Engineer O'Meara noted:

- The work was bid as a part of the City's 2017 Concrete Sidewalk Program.
- The contractor will be here through all of August.
- It will be tight if the Commission doesn't approve the project until August 14, but he believes the project can still be completed this year.
- Parts 2 and 3 of the S. Eton Road plans require further study.

Mayor Nickita stated the Commission did not receive the drawings from the City Clerk's office until 3:00 today, and it would be inappropriate for the Commission to move forward without having had adequate time to study the drawings.

Commissioner DeWeese asked for better scale in the drawings, and Mayor Nickita asked for the three options to be labeled.

Commission Sherman:

- Received confirmation from City Engineer O'Meara that the majority of the truck traffic is coming from the west and making a right turn onto Eaton.

- Suggested not allowing trucks heading west to make a left turn on that section of Eton, which solves a lot of issues and concerns, because the intersection would only be dealing with automobiles as opposed to 50' trucks.

Mayor Nickita received consensus from the Commission to postpone the decision on the intersection until the August 14, 2017 Commission meeting, but to move forward with discussion with the City's traffic consultant and the public in attendance.

Commissioner Hoff supported having the drawings identified such as version 1, 2, and 3, and asked for some dimensions on the drawings, too, stating they are very hard to read.

Commissioner Sherman pointed out there is a scale on the upper corner of the drawings. Commissioner DeWeese commented the scale cannot be read unless the Commission receives engineering-sized drawings.

Mayor Nickita, addressing traffic consultant Mike Labadie from Fleis & Vandenbrink, stated:

- The key issue is pedestrian safety.
- The subject intersection has no pedestrian relief in the long distance from curb to curb.
- A notable increase in pedestrian traffic will ensue when Whole Foods opens.
- He would like Mr. Labadie to address whether the criteria for the design is pedestrian safety or accommodating trucks.

Mr. Labadie explained there is only one option, and the three different drawings show three different truck sizes.

City Engineer O'Meara clarified the first two drawings show the original 40' truck turning radius, but the recommendation from the Multi-Modal Transportation Board (MMTB) recommends 50' trucks be accommodated because there is enough turning radius.

Mayor Nickita again stated pedestrian safety is priority number one, and asked:

- How will access, which is very important for people who live, work and play in the district, and safety be accommodated while also accommodating the needs of business owners.
- Has the MMTB thoroughly discussed and studied all the options.

Mr. Labadie affirmed the MMTB has studied the options, and commented:

- The two components, truck movements and improving pedestrian movement, or making pedestrians safer by shortening the distance in which they are exposed to traffic, are competing with each other.
- There is the minimum room necessary for a 50' truck to get through the intersection with a pedestrian island.
- The island should not be thought of as a refuge island, because there is going to be a big change at the signal operation when Whole Foods opens which will provide adequate time for pedestrians to cross the intersection.
- The pedestrian island is not needed, and he would hope pedestrians would not use it as a refuge.
- The idea to address the two competing interests is to have both truck and car movements slowed and to encourage more careful driving.
- It can't be made narrower because the trucks won't fit.

Mayor Nickita asked if a study has been conducted on the number of trucks coming from the east and making a left turn at the intersection, and if it is known that it is not a problem for trucks to come from the west to turn. Mayor Nickita confirmed for Mr. Labadie that he would like traffic counts separated by trucks and size of trucks.

Commissioner Sherman noted:

- It appears there is not a lot of truck traffic coming from the east going west and making a left turn.
- Restricting trucks from making a left turn would mean the island could be designed without concern for the radius of trucks.
- We are designing the intersection to make it more pedestrian friendly and safer.
- The issue that remains is if trucks can make a right turn onto Eton, are pedestrians safe and have we made this intersection more user friendly.

Mayor Nickita stated the central island can be designed to accommodate an occasional left turn by using rolling curbs rather than solid curbs. He asked again if the MMTB has explored these options so that safety is maximized for pedestrians on this corner and the concerns of the business community and the public are still addressed.

Mr. Labadie confirmed that is exactly what the MMTB has done. Mayor Nickita disagreed, saying the result doesn't support it. He indicated he'll get into the questions at the next meeting.

Commissioner Bordman supported no left turn by trucks of a certain size, but expressed concern about smaller trucks that can easily make the turn.

Mayor Pro Tem Harris:

- Echoed Mayor Nickita and Commissioner Sherman's remarks, but also cautioned that consideration has to be given to beer trucks, UPS trucks and other types of trucks that can fit and make the turn.
- Said he wants to hear more data and more analysis.
- Received confirmation from City Engineer O'Meara that the proposed crosswalk markings will be consistent with the new policy.

Commissioner DeWeese commented:

- He would like to see a limit on the size of trucks allowed to make a turn, suggesting a limit of 40' or 50' and, noting that some people may cheat, suggested it be built to handle 45'-50' trucks.
- The precedent has already been set in the decisions made for downtown where our fire truck has make turns in a certain direction.
- Expectations for the subject intersection have been applied to the City's fire department.

Commissioner Hoff said that, in addition to trucks, she is very concerned with the amount of traffic and the safety of pedestrians because there will be a big increase in traffic when Whole Foods opens in November. City Engineer O'Meara indicated the intersection would be built in late August.

Jake Bolyard, Bolyard Lumber, explained his business utilizes trucks that are in excess of 68' and the project as proposed is going to prohibit deliveries and impact his business tremendously.

Commissioner Sherman pointed out trucks have to be able to get through the intersection coming from the west. Mayor Pro Tem Harris asked the maximum length of a truck that would be allowed heading east on Maple going south on Eton. City Engineer O'Meara replied a 62' truck is barely clearing on a right turn, so left turns can be banned but we still have to deal with right turns.

Mr. Bolyard noted his trucks cannot go east because of the bridge and estimated his business has six to eight trucks per day. He confirmed for Commissioner Hoff trucks can make it to the business with the way the intersection is currently configured. He verified for Commissioner Hoff that the island is the deterrent.

Mayor Nickita explained if the island has a rolling curb trucks can drive over it and requested a drawing showing a radius for westbound 62' trucks.

Brian Bolyard said he has been attending the MMTB meetings and has the same problem as the Commission understanding the drawings. He noted the need for an updated drawing with a westbound 62' truck to show the effect on the turning radius.

Commissioner DeWeese requested, for the next meeting, a clear understanding of how the transition for bicycles in the second block will work both in theory and in practice, and a report on the safety of the configuration.

The Commission requested the action item be moved to the next meeting agenda.

No action taken.

**07-212-17                    361 E. MAPLE – HISTORIC DESIGNATION REMOVAL REQUEST**

Senior Planner Baka reported:

- The owner of the property located at 361 E. Maple has requested that the City Commission consider removing the historic designation of their building as a contributing historic resource within the City of Birmingham.
- The property owner has submitted an application to the Planning Board requesting to demolish the building as part of a redevelopment proposal.
- The process for removing designation from a property or structure as a contributing historic resource is outlined in section 127-5 of the City Code.
- The first step in the process towards considering eliminating the historic designation of this property is for the City Commission to pass a resolution directing the Historic District Study Committee to commence with the creation of a study committee report as outlined in section 127-4 of the City Code.

**MOTION:** Motion by Commissioner DeWeese, seconded by Commissioner Boutros:  
To adopt the resolution directing the Historic District Study Committee to prepare a study committee report for 361 E. Maple as outlined in section 127-4 of the City Code. *Formal resolution appended to minutes as Attachment B.*

VOTE:            Yeas,        7  
                     Nays,        0  
                     Absent,     0

**07-213-17                    REQUEST FOR CLOSED SESSION – PERFORMANCE EVALUATION**

City Manager Valentine requested the City Commission meet in closed session to consider his personnel evaluation pursuant to Section 8(a) of the Open Meetings Act (Act 267 of 1976).

The Commission was in favor of postponing the City Manager's evaluation until the next meeting, because of the lateness of the hour.

No action taken.

**VII. REMOVED FROM CONSENT AGENDA**

These items were discussed earlier in the agenda.

**VIII. COMMUNICATIONS**

None.

**IX. OPEN TO THE PUBLIC FOR MATTERS NOT ON THE AGENDA**

None.

**X. REPORTS**

**07-214-17 COMMISSIONER REPORTS**

The Commission will appoint members to the Advisory Parking Committee, Design Review Board, and Historic District Commission on Monday, August 14, 2017.

**COMMISSIONER COMMENTS**

Commissioner Bordman requested that Commission members read the Board of Ethics' Advisory Opinion 2016-03, and asked that a resolution be drafted to address the advisory opinion's warnings appointing commissioners to the boards of non-profit organizations, as well as cautions about fundraising activities. She said clarification is needed as to what commissioners are expected to do, and to prepare advising non-profit organizations of the City's position. Responding to a comment from Commissioner Hoff, Commissioner Bordman explained the Board of Ethics believes a commissioner's fiduciary duty to the City as an elected official trumps their fiduciary duty as a member of a board of directors of another organization. Instead of a commissioner being appointed to a non-profit organization's board, a non-voting liaison position should be created, which protects the commissioner against personal liability. Commission Bordman reiterated her request that the guidance of the Opinion be followed to create a resolution for the Commission's edification and for non-profit organizations.

Commissioner Bordman referenced a wonderful letter of thanks from the Pontiac City Council and the Waterford Fire Department for assistance rendered by the City of Birmingham.

Mayor Pro Tem Harris indicated his neighbors and friends have expressed interest in the City having a splash pad, something that should be noted as part of the master planning process with the Recreation Board.

**07-215-17 ADVISORY BOARDS, COMMITTEES, COMMISSIONS' REPORTS AND AGENDAS**

The Commission received Advisory Opinion 2016-03, submitted by the Board of Ethics.

**XII ADJOURN**

Mayor Nickita adjourned the meeting at 11:52 p.m.

---

J. Cherilynn Mynsberge, City Clerk



**RESOLUTION CONFIRMING AND CERTIFYING SPECIAL  
ASSESSMENT ROLL NO. 879**

Moved by: Commissioner Hoff, seconded by Commissioner Bordman:

WHEREAS, notice was given pursuant to Section 94-7 of the City Code, to each owner or party-in-interest of property to be assessed, and

WHEREAS, the Commission has deemed it practicable to cause payment of the cost thereof to be made at a date closer to the time of construction and

Commission Resolution 07-192-17 provided it would meet this 24th day of July, 2017 for the sole purpose of reviewing the assessment roll, and

WHEREAS, at said hearing held this July 24th, 2017, all those property owners or their representatives present have been given an opportunity to be heard specifically concerning costs appearing in said special assessment roll as determined in Section 94-9 of the Code of the City of Birmingham,

NOW, THEREFORE, BE IT RESOLVED, that Special Assessment Roll No. 879 be in all things ratified and confirmed, and that the City Clerk be and is hereby instructed to endorse said roll, showing the date of confirmation thereof, and to certify said assessment roll to the City Treasurer for collection at or near the time of construction of the improvement.

BE IT FURTHER RESOLVED,

that special assessments shall be payable in one (1) payment as provided in Section 94-10 of the Code of the City of Birmingham at five and a quarter percent (5.25%) annual interest.

Parcel Number	Address	Total
19-26-201-003	1633 Quarton Rd.	\$28.68
19-26-201-004	1595 Fairfax Ave.	\$1,246.03
19-26-201-010	1465 Fairfax Ave.	\$1,382.56
19-26-201-011	1427 Fairfax Ave.	\$1,327.30
19-26-201-013	1493 Fairfax Ave.	\$1,210.28
19-26-202-001	1490 Fairfax Ave.	\$1,101.93
19-26-202-002	1444 Fairfax Ave.	\$956.74
19-26-202-003	1420 Fairfax Ave.	\$984.91
19-26-204-010	1393 Fairfax Ave.	\$1,053.17
19-26-204-011	1365 Fairfax Ave.	\$975.16
19-26-204-012	1333 Fairfax Ave.	\$1,246.03
19-26-204-013	1289 Fairfax Ave.	\$1,246.03
19-26-204-014	1261 Fairfax Ave.	\$1,300.21
19-26-204-015	1221 Fairfax Ave.	\$1,300.21
19-26-204-016	1195 Fairfax Ave.	\$866.81
19-26-204-017	1165 Fairfax Ave.	\$866.81
19-26-204-018	1141 Fairfax Ave.	\$866.81
19-26-204-019	1129 Fairfax Ave.	\$832.13

19-26-205-001	1378 Fairfax Ave.	\$1,330.55
19-26-205-002	1356 Fairfax Ave.	\$1,354.39
19-26-205-003	1340 Fairfax Ave.	\$1,137.68
19-26-205-004	1280 Fairfax Ave.	\$1,137.68
19-26-205-005	1252 Fairfax Ave.	\$1,137.68
19-26-205-006	1222 Fairfax Ave.	\$866.81
19-26-205-007	1194 Fairfax Ave.	\$866.81
19-26-205-008	1170 Fairfax Ave.	\$866.81
19-26-205-009	1150 Fairfax Ave.	\$866.81
19-26-205-010	1130 Fairfax Ave.	\$897.14
19-26-277-008	1095 Willow Lane	\$1,004.86
19-26-277-009	1077 Willow Lane	\$1,004.86
19-26-277-010	1053 Willow Lane	\$1,004.86
19-26-277-011	1025 Willow Lane	\$1,004.86
19-26-277-012	1001 Willow Lane	\$1,522.03
19-26-278-001	1084 Willow Lane	\$1,621.17
19-26-278-002	1066 Willow Lane	\$1,098.65
19-26-278-003	1000 Willow Lane	\$1,499.25
19-26-454-020	419 Puritan Ave.	\$935.15
19-26-454-021	385 Puritan Ave.	\$935.15
19-26-454-022	367 Puritan Ave.	\$935.15
19-26-454-023	339 Puritan Ave.	\$935.15
19-26-454-024	319 Puritan Ave.	\$935.15
19-26-454-025	287 Puritan Ave.	\$935.15
19-26-454-026	263 Puritan Ave.	\$935.15
19-26-454-027	245 Puritan Ave.	\$935.15
19-26-454-028	211 Puritan Ave.	\$935.15
19-26-454-029	183 Puritan Ave.	\$935.15
19-26-454-030	165 Puritan Ave.	\$935.15
19-26-454-034	133 Puritan Ave.	\$800.37
19-26-454-035	473 Puritan Ave.	\$899.38
19-26-454-036	Vacant	\$926.39
19-26-476-003	416 Puritan Ave.	\$935.15
19-26-476-004	384 Puritan Ave.	\$935.15
19-26-476-005	364 Puritan Ave.	\$935.15
19-26-476-006	340 Puritan Ave.	\$935.15
19-26-476-007	316 Puritan Ave.	\$935.15
19-26-476-008	286 Puritan Ave.	\$935.15
19-26-476-009	256 Puritan Ave.	\$935.15
19-26-476-010	236 Puritan Ave.	\$935.15
19-26-476-011	212 Puritan Ave.	\$935.15
19-26-476-028	184 Puritan Ave.	\$876.70
19-26-476-029	146 Puritan Ave.	\$1,502.
19-26-476-030	476 Puritan Ave.	\$1,045.
19-26-476-031	452 Puritan Ave.	\$946.84

19-35-101-003	2471 Radnor Dr.	\$1,758.
19-35-101-004	2453 Radnor Dr.	\$1,521.
19-35-101-005	2435 Radnor Dr.	\$1,519.
19-35-101-006	2401 Radnor Dr.	\$2,377.
19-35-101-011	2400 Devon Ln.	\$495.99
19-35-102-010	500 Bryn Mawr	\$1,405.
19-35-102-013	300 Bryn Mawr	\$1,292.
19-35-102-014	334 Bryn Mawr	\$1,236.
19-35-102-015	366 Bryn Mawr	\$1,242.
19-35-102-019	444 Bryn Mawr	\$1,264.
19-35-102-020	488 Bryn Mawr	\$1,616.
19-35-102-021	Vacant	\$983.70
19-35-102-025	394 Bryn Mawr	\$1,967.
19-35-102-026	420 Bryn Mawr	\$983.70
19-35-103-001	2371 Radnor Dr.	\$3,012.
19-35-103-006	365 Bryn Mawr	\$1,124.
19-35-103-007	405 Bryn Mawr	\$1,405.
19-35-103-008	411 Bryn Mawr	\$843.18
19-35-103-009	425 Bryn Mawr	\$1,335.
19-35-103-010	449 Bryn Mawr	\$1,194.
19-35-103-015	525 Bryn Mawr	\$1,682.
19-35-103-018	340 Wellesley Dr.	\$702.57
19-35-103-032	457 Bryn Mawr	\$1,194.
19-35-103-034	333 Bryn Mawr	\$1,686.
19-35-103-037	463 Bryn Mawr	\$1,410.
19-35-103-038	505 Bryn Mawr	\$2,026.
19-35-103-039	275 Bryn Mawr	\$1,363.
19-35-103-040	311 Bryn Mawr	\$885.33
19-35-104-001	325 Wellesley Dr.	\$724.49
19-35-104-014	320 Berwyn Rd.	\$2,058.
19-35-104-017	420 Berwyn Rd.	\$868.69
19-35-104-018	444 Berwyn Rd.	\$856.45
19-35-104-019	468 Berwyn Rd.	\$978.80
19-35-104-023	560 Berwyn Rd.	\$1,449.
19-35-104-025	348 Berwyn Rd.	\$2,071.
19-35-104-026	412 Berwyn Rd.	\$978.80
19-35-104-028	490 Berwyn Rd.	\$1,760.
19-35-104-029	540 Berwyn Rd.	\$1,391.
19-35-105-001	2368 Radnor Dr.	\$1,315.
19-35-105-013	2338 Radnor Dr.	\$2,436.
19-35-105-014	2300 Avon Ln.	\$1,498.
19-35-105-015	2276 Avon Ln.	\$2,497.
19-35-105-016	2234 Avon Ln.	\$1,997.
19-35-105-017	2210 Avon Ln.	\$1,331.

19-35-105-018	2200 Avon Ln.	\$1,331.
19-35-105-019	2180 Avon Ln.	\$1,331.
19-35-105-020	2154 Avon Ln.	\$1,415.
19-35-105-021	2130 Avon Ln.	\$1,581.
19-35-105-022	2120 Avon Ln.	\$666.83
19-35-106-006	2259 Avon Ln.	\$3,367.
19-35-106-007	2215 Avon Ln.	\$2,032.
19-35-106-008	290 Berwyn Rd.	\$2,512.
19-35-107-001	215 Berwyn Rd.	\$1,613.
19-35-107-002	243 Berwyn Rd.	\$856.45
19-35-107-003	271 Berwyn Rd.	\$1,101.
19-35-107-004	285 Berwyn Rd.	\$1,101.
19-35-107-005	293 Berwyn Rd.	\$978.80
19-35-107-006	317 Berwyn Rd.	\$978.80
19-35-107-007	345 Berwyn Rd.	\$1,070.
19-35-107-011	447 Berwyn Rd.	\$1,075.
19-35-107-012	465 Berwyn Rd.	\$1,094.
19-35-107-013	497 Berwyn Rd.	\$1,447.
19-35-107-014	543 Berwyn Rd.	\$966.57
19-35-107-015	575 Berwyn Rd.	\$1,362.
19-35-107-016	212 Argyle St.	\$541.41
19-35-107-030	377 Berwyn Rd.	\$1,547.
19-35-107-031	395 Berwyn Rd.	\$734.10
19-35-107-032	425 Berwyn Rd.	\$734.10
19-35-127-031	2061 Avon Ln.	\$2,164.
19-35-128-018	120 Westchester Way	\$989.77
19-35-128-019	142 Westchester Way	\$778.98
19-35-128-020	164 Westchester Way	\$778.98
19-35-128-021	186 Westchester Way	\$778.98
19-35-128-022	220 Westchester Way	\$778.98
19-35-128-023	250 Westchester Way	\$778.98
19-35-128-024	262 Westchester Way	\$830.91
19-35-128-025	272 Westchester Way	\$1,207.
19-35-128-026	300 Westchester Way	\$1,162.
19-35-128-027	342 Westchester Way	\$1,150.
19-35-128-028	386 Westchester Way	\$1,150.
19-35-128-029	400 Westchester Way	\$767.17
19-35-128-030	440 Westchester Way	\$1,062.
19-35-128-031	466 Westchester Way	\$708.16
19-35-128-032	498 Westchester Way	\$1,062.
19-35-128-035	540 Westchester Way	\$1,298.
19-35-128-036	574 Westchester Way	\$708.16
19-35-128-037	596 Westchester Way	\$741.21
19-35-128-038	510 Westchester Way	\$826.19

19-35-129-002	145 Westchester Way	\$708.75
19-35-129-003	173 Westchester Way	\$877.76
19-35-129-004	181 Westchester Way	\$826.19
19-35-129-005	215 Westchester Way	\$826.19
19-35-129-006	233 Westchester Way	\$826.19
19-35-129-007	255 Westchester Way	\$708.16
19-35-129-008	271 Westchester Way	\$708.16
19-35-129-009	299 Westchester Way	\$708.16
19-35-129-010	307 Westchester Way	\$1,062.
19-35-129-011	347 Westchester Way	\$1,062.
19-35-129-012	367 Westchester Way	\$708.16
19-35-129-013	389 Westchester Way	\$708.16
19-35-129-014	415 Westchester Way	\$708.16
19-35-129-015	431 Westchester Way	\$708.16
19-35-129-016	459 Westchester Way	\$708.16
19-35-129-017	477 Westchester Way	\$708.16
19-35-129-018	499 Westchester Way	\$708.16
19-35-129-019	515 Westchester Way	\$708.16
19-35-129-020	531 Westchester Way	\$708.16
19-35-129-021	565 Westchester Way	\$708.16
19-35-129-022	573 Westchester Way	\$708.16
19-35-129-023	599 Westchester Way	\$708.16
19-35-129-025	142 Larchlea Dr.	\$732.85
19-35-129-026	160 Larchlea Dr.	\$736.32
19-35-129-027	208 Larchlea Dr.	\$736.32
19-35-129-030	264 Larchlea Dr.	\$946.70
19-35-129-031	286 Larchlea Dr.	\$631.13
19-35-129-032	314 Larchlea Dr.	\$631.13
19-35-129-035	360 Larchlea Dr.	\$841.51
19-35-129-039	474 Larchlea Dr.	\$841.51
19-35-129-040	492 Larchlea Dr.	\$841.51
19-35-129-041	518 Larchlea Dr.	\$1,051.
19-35-129-042	550 Larchlea Dr.	\$1,051.
19-35-129-043	590 Larchlea Dr.	\$1,051.
19-35-129-044	438 Larchlea Dr.	\$786.29
19-35-129-045	450 Larchlea Dr.	\$686.36
19-35-129-046	220 Larchlea Dr.	\$946.70
19-35-129-047	328 Larchlea Dr.	\$841.51
19-35-129-048	390 Larchlea Dr.	\$841.51
19-35-129-049	1821 W. Maple Rd.	\$1,760.
19-35-130-001	Vacant	\$340.32
19-35-130-003	Vacant	\$631.13
19-35-130-006	265 Larchlea Dr.	\$946.70
19-35-130-007	287 Larchlea Dr.	\$631.13

19-35-130-008	331 Larchlea Dr.	\$1,262.
19-35-130-009	355 Larchlea Dr.	\$631.13
19-35-130-010	369 Larchlea Dr.	\$631.13
19-35-130-011	395 Larchlea Dr.	\$631.13
19-35-130-012	403 Larchlea Dr.	\$631.13
19-35-130-013	433 Larchlea Dr.	\$631.13
19-35-130-014	455 Larchlea Dr.	\$631.13
19-35-130-015	479 Larchlea Dr.	\$631.13
19-35-130-016	501 Larchlea Dr.	\$946.70
19-35-130-017	527 Larchlea Dr.	\$946.70
19-35-130-018	555 Larchlea Dr.	\$946.70
19-35-130-019	575 Larchlea Dr.	\$946.70
19-35-130-020	231 Larchlea Dr.	\$946.70
19-35-130-021	145 Larchlea Dr.	\$736.32
19-35-130-022	159 Larchlea Dr.	\$736.32
19-35-178-018	612 Westchester Way	\$850.50
19-35-178-019	664 Westchester Way	\$885.20
19-35-178-020	698 Westchester Way	\$885.20
19-35-178-021	732 Westchester Way	\$885.20
19-35-178-022	748 Westchester Way	\$944.21
19-35-178-023	760 Westchester Way	\$885.20
19-35-178-024	784 Westchester Way	\$1,003.
19-35-178-025	820 Westchester Way	\$944.21
19-35-178-026	866 Westchester Way	\$1,144.
19-35-178-027	910 Westchester Way	\$1,180.
19-35-178-028	938 Westchester Way	\$1,180.
19-35-178-029	956 Westchester Way	\$944.21
19-35-178-030	988 Westchester Way	\$944.21
19-35-178-031	1000 Westchester Way	\$944.21
19-35-178-032	1040 Westchester Way	\$944.21
19-35-178-033	1900 W. Lincoln St.	\$416.56
19-35-179-001	619 Westchester Way	\$1,416.
19-35-179-004	695 Westchester Way	\$708.16
19-35-179-005	739 Westchester Way	\$1,003.
19-35-179-006	767 Westchester Way	\$767.17
19-35-179-007	783 Westchester Way	\$708.16
19-35-179-008	811 Westchester Way	\$708.16
19-35-179-009	821 Westchester Way	\$708.16
19-35-179-010	835 Westchester Way	\$708.16
19-35-179-011	851 Westchester Way	\$708.16
19-35-179-012	897 Westchester Way	\$1,062.
19-35-179-013	925 Westchester Way	\$1,062.
19-35-179-014	945 Westchester Way	\$719.96
19-35-179-017	999 Westchester Way	\$826.19

19-35-179-020	608 Larchlea Dr.	\$631.13
19-35-179-021	632 Larchlea Dr.	\$683.73
19-35-179-022	700 Larchlea Dr.	\$894.11
19-35-179-023	708 Larchlea Dr.	\$946.70
19-35-179-028	826 Larchlea Dr.	\$683.73
19-35-179-029	840 Larchlea Dr.	\$683.73
19-35-179-030	852 Larchlea Dr.	\$894.11
19-35-179-031	898 Larchlea Dr.	\$894.11
19-35-179-032	930 Larchlea Dr.	\$946.70
19-35-179-033	950 Larchlea Dr.	\$946.70
19-35-179-034	982 Larchlea Dr.	\$715.29
19-35-179-035	1006 Larchlea Dr.	\$715.29
19-35-179-036	1056 Larchlea Dr.	\$778.40
19-35-179-037	1880 W. Lincoln St.	\$537.13
19-35-179-039	1800 W. Lincoln St.	\$482.08
19-35-179-040	665 Westchester Way	\$1,062.
19-35-179-041	959 Westchester Way	\$932.41
19-35-179-042	732 Larchlea Dr.	\$946.70
19-35-179-043	768 Larchlea Dr.	\$1,262.
19-35-179-044	1045 Westchester Way	\$1,062.
19-35-180-001	621 Larchlea Dr.	\$631.13
19-35-180-002	653 Larchlea Dr.	\$631.13
19-35-180-003	675 Larchlea Dr.	\$631.13
19-35-180-004	695 Larchlea Dr.	\$631.13
19-35-180-005	719 Larchlea Dr.	\$946.70
19-35-180-006	753 Larchlea Dr.	\$946.70
19-35-180-007	799 Larchlea Dr.	\$946.70
19-35-180-008	827 Larchlea Dr.	\$946.70
19-35-180-010	883 Larchlea Dr.	\$788.92
19-35-180-011	925 Larchlea Dr.	\$788.92
19-35-180-012	939 Larchlea Dr.	\$915.14
19-35-180-013	955 Larchlea Dr.	\$978.26
19-35-180-014	1005 Larchlea Dr.	\$946.70
19-35-180-015	1055 Larchlea Dr.	\$946.70
19-35-180-016	1784 W. Lincoln St.	\$482.76
19-35-180-018	855 Larchlea Dr.	\$1,033.
		\$282,82

VOTE:        Yeas,        7  
                  Nays,         0  
                  Absent,      0

I, J. Cherilynn Mynsberge, City Clerk of the City of Birmingham, Michigan, do hereby certify that the foregoing is a true and, correct copy of the resolution adopted by the Birmingham City Commission at its regular meeting held on July 24, 2017.

---

J. Cherilynn Mynsberge, City Clerk



RESOLUTION  
361 E. MAPLE  
HISTORIC DESIGNATION ELIMINATION REQUEST  
JULY 24, 2017

Moved by: Commissioner DeWeese, seconded by Commissioner Boutros:

**WHEREAS**, the owner of the Property located at 361 E. Maple have requested that their property be removed as a contributing resource in the Central Business District Historic District within the City of Birmingham,

**WHEREAS**, The land for which the Historic designation is sought is located on the north side of Maple between Park and N. Old Woodward Ave.,

**WHEREAS**, Section 127-5 of the City Code, Historic Districts, requires that the City Commission pass a resolution directing the Historic District Study Committee to prepare a Study Committee Report;

**WHEREAS**, The Birmingham City Commission has reviewed the request of the property owner and has found that a Study Committee Report to determine the historic merit of the structure at 361 E. Maple is warranted;

**NOW, THEREFORE, BE IT RESOLVED**, The Birmingham City Commission directs the Historic District Study Committee to prepare a Study Committee Report as outlined in section 127-4 of the City Code for the property located at 361 E. Maple:

VOTE:	Yeas,	7
	Nays,	0
	Absent,	0

I, J. Cherilynn Mynsberge, City Clerk of the City of Birmingham, Michigan, do hereby certify that the foregoing is a true and, correct copy of the resolution adopted by the Birmingham City Commission at its regular meeting held on July 24, 2017.

\_\_\_\_\_  
J. Cherilynn Mynsberge, City Clerk

**City of Birmingham**  
**Warrant List Dated 07/26/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251718	*	000855	48TH DISTRICT COURT	100.00
251719	*	000855	48TH DISTRICT COURT	100.00
251720	*	000855	48TH DISTRICT COURT	100.00
251721	*	000855	48TH DISTRICT COURT	100.00
251722	*	000855	48TH DISTRICT COURT	100.00
251723	*	000855	48TH DISTRICT COURT	80.00
251724		002284	ABEL ELECTRONICS INC	1,533.36
251725		002909	ACOM SOLUTIONS, INC.	250.00
251726		MISC	ALBERTI, ALBERTO	500.00
251727	*	006427	ANTEKES	550.00
251728		MISC	AP BUILDERS	300.00
251729		000282	APOLLO FIRE EQUIPMENT	315.20
251730		000500	ARTECH PRINTING INC	159.00
251731		MISC	ARTISAN CONCRETE & CONSTRUCTION	100.00
251732	*	008348	ASM	115.00
251733	*	006759	AT&T	83.64
251734	*	006759	AT&T	41.48
251735	*	007216	AT&T	89.00
251736		MISC	ATTO CONSTRUCTION	200.00
251737		MISC	AVRIPAS CONSTRUCTION	500.00
251738		MISC	B-DRY SYSTEM OF MICHIGAN INC	100.00
251739		MISC	B7 INVESTMENTS LLC	20,000.00
251740		MISC	BABI CONSTRUCTION INC	493.19
251741		003012	BATTERIES PLUS	144.00
251742		007345	BEVERLY HILLS ACE	151.90
251743		007624	BIRMINGHAM OIL CHANGE CENTER, LLC	30.72
251743	*	007624	BIRMINGHAM OIL CHANGE CENTER, LLC	49.97
251744	*	001086	CITY OF BIRMINGHAM	430.19
251746		004465	BMI	342.00
251747		008497	BREHOB CORPORATION	916.00
251748	*	006177	BULLSEYE TELECOM INC	107.10
251749		MISC	BUTCHER & BUTCHER CONSTRUCTION COMP	300.00
251750		006257	C.S. MCKEE LP	4,319.88
251751		003907	CADILLAC ASPHALT, LLC	9,551.20
251752		MISC	CAMPBELL, ANASTACIA M	473.32
251753		007875	CANFIELD EQUIPMENT SERVICE INC.	4,460.59
251754		008035	CAPITAL ONE COMMERCIAL	66.47
251755		007732	CAPITAL TIRE, INC.	279.10
251756	*	000444	CDW GOVERNMENT INC	365.78
251758		MISC	CHAMPINE SERVICES INC	100.00
251759		008306	CHARTER TOWNSHIP OF BLOOMFIELD	103.76
251760		MISC	CHIANAW LEE	100.00
251761		MISC	CHRISTY II, PAUL J	100.00

**City of Birmingham**  
**Warrant List Dated 07/26/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251762		000605	CINTAS CORPORATION	148.04
251763	*	008006	CLEAR RATE COMMUNICATIONS, INC	1,322.69
251764	*	004188	COFFEE BREAK SERVICE, INC.	118.50
251765		MISC	COLE BUSINESS CENTER, LLC	200.00
251766		005074	COMFORT INN & SUITES	759.90
251767	*	000627	CONSUMERS ENERGY	431.21
251768		002668	CONTRACTORS CLOTHING CO	152.10
251769		001367	CONTRACTORS CONNECTION INC	628.80
251770		004386	CYNERGY PRODUCTS	178.00
251771	*	000177	DELWOOD SUPPLY	28.63
251773		004198	DETROIT HITCH CO	35.40
251774		MISC	DG RESIDENTIAL SALES LLC	1,000.00
251775		MISC	DJLI LLC	2,500.00
251776	*	000565	DORNBOS SIGN & SAFETY INC	5,139.50
251777		000190	DOWNRIVER REFRIGERATION	29.76
251779	*	000180	DTE ENERGY	4,741.85
251780		000493	ED RINKE CHEVROLET BUICK GMC	349.99
251781		MISC	ELITE CONTRACTORS INC	100.00
251782		001495	ETNA SUPPLY	250.00
251783		MISC	EVOLUTION POOLS	300.00
251784		000207	EZELL SUPPLY CORPORATION	196.22
251785		008495	FALCON ASPHALT REPAIR EQUIPMENT	24,536.32
251786	*	008469	VICTOR FAVOT	650.00
251787	*	001589	FBINAA MICHIGAN CHAPTER	75.00
251788	*	000936	FEDEX	55.31
251789		007366	FIRST ADVANTAGE OCCUPATIONAL	40.50
251790		007314	FLEIS AND VANDENBRINK ENG. INC	4,327.06
251791		MISC	FULLER CENTRAL PARK PROP LLC	100.00
251792		007172	GARY KNUREK INC	291.00
251793		000243	GRAINGER	452.16
251794		MISC	GREAT LAKES CUSTOM BUILDER	1,000.00
251795		008382	GREAT LAKES PORTABLE STORAGE LLC	169.00
251796		003870	GREAT LAKES TURF, LLC	1,695.75
251798		006346	HARRELL'S LLC	3,737.00
251799		008481	HART INTERCIVIC DEPT 0453	19,500.00
251800		003938	HART PAVEMENT STRIPING CORP	51,690.00
251801		MISC	HARTFORD ROOFING & WARRANTY CO LLC	200.00
251802		MISC	HM HOMES LLC	28,750.00
251803		MISC	HORMEL, RONALD F	100.00
251804		MISC	HUNTER ROBERTS HOMES	250.00
251805		000342	INTERSTATE BATTERY SYSTEM	96.95
251806		002407	J & B MEDICAL SUPPLY	557.50
251807		000261	J.H. HART URBAN FORESTRY	34,179.85

**City of Birmingham**  
**Warrant List Dated 07/26/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251808		000186	JACK DOHENY COMPANIES INC	197.37
251809		MISC	JAL PROPERTIES INC	900.00
251810		MISC	JAMES GIVENS, JR.	121.50
251811		MISC	JAMES RICHARD VERVISCH	500.00
251812	*	002576	JAX KAR WASH	132.00
251813		003823	JAY'S SEPTIC TANK SERVICE	375.00
251814		003458	JOE'S AUTO PARTS, INC.	668.61
251815		MISC	KAREN M CRABILL	1,350.00
251816		MISC	KILLER DECKS & SPAS INC	100.00
251817		004085	KONE INC	1,462.25
251818		005876	KROPF MECHANICAL SERVICE COMPANY	6,820.00
251819		002635	LAZARD ASSET MANAGEMENT LLC	17,579.21
251820		005550	LEE & ASSOCIATES CO., INC.	535.54
251821	*	008518	LERMA	85.00
251822		006817	LEXISNEXIS RISK DATA MANAGEMENT INC	214.25
251825		MISC	LIVE WELL CUSTOM HOMES LLC	4,400.00
251827	*	008467	MAGIC BUS	950.00
251828	*	007273	MAINSTREET SOUL LLC	1,000.00
251829		MISC	MARTIN CAMAJ	1,475.09
251830		000888	MCKENNA ASSOCIATES INC	38,431.25
251831	*	008477	MEDIANEWS - 21CM ADVERTISING	459.05
251832		004479	MEGGITT TRAINING SYSTEMS INC	5.00
251833	*	001660	MICHIGAN CAT	3,712.76
251834		MISC	MICHIGAN HOME RENOVATIONS AND CONST	200.00
251835		000377	MICHIGAN MUNICIPAL LEAGUE	115.80
251836		001104	STATE OF MICHIGAN	737.57
251837	*	006760	STATE OF MICHIGAN	31,673.26
251838		007214	MIDWEST ARBORIST SUPPLIES	477.29
251839		000230	MIKE SAVOIE CHEVROLET INC	257.13
251840		MISC	MILLCREEK CONSTRUCTION MANAGEMENT C	500.00
251841	*	008319	MKSK	44,489.57
251842		MISC	MODERN METHOD CONSTRUCTION INC	900.00
251843		MISC	MURRILL, MATTHEW	1,000.00
251844	*	006289	NATIONAL ELEVATOR CONSULTANTS, INC.	1,600.00
251845	*	006723	NEWMIND GROUP, INC	11,150.00
251846	*	000477	OAKLAND COUNTY	7,172.25
251847		004370	OCCUPATIONAL HEALTH CENTERS	391.00
251848	*	000481	OFFICE DEPOT INC	119.57
251849		002767	OSCAR W. LARSON CO.	250.75
251850		MISC	PARANJPE, NITIN V	100.00
251851		MISC	PARKS INC	100.00
251852		MISC	PELLA WINDOWS AND DOORS	500.00
251854		007146	PLAYWORLD MIDSTATES	169.48

**City of Birmingham**  
**Warrant List Dated 07/26/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251855		MISC	R T CONSTRUCTION INC	200.00
251856		005930	RAPID AIR	756.00
251857		005379	RED WING SHOES	1,622.93
251858		MISC	RICK LAZZELL	100.00
251859	*	003554	RKA PETROLEUM	3,353.54
251860		006497	RNA FACILITIES MANAGEMENT	420.00
251861		MISC	RONNISCH CONSTRUCTION GROUP	500.00
251862		006168	ROWERDINK, INC	135.30
251863		001527	ROYAL OAK TENT & AWNING LLC	130.50
251864		MISC	RUSZKOWSKI CONSTRUCTION	200.00
251865		006832	SAFEWARE INC.	1,876.16
251866		005759	SCHEMA ROOFING & SHEET METAL	445.00
251867	*	008517	SECMAA	35.00
251868		MISC	SHAPES DRESS DESIGN INC	100.00
251869		MISC	sheridan snell	100.00
251870		MISC	STARRS ROOFING	100.00
251871		006376	SUBURBAN CHRYSLER DODGE JEEP - TROY	82.66
251872		001095	SUBURBAN/PRESTIGE GLASS	2,224.00
251873		MISC	T G HOMES LLC	1,000.00
251874		000273	TERMINAL SUPPLY CO.	132.76
251875		MISC	THD AT HOME SERVICES INC	100.00
251877		MISC	THERMAL SHIELD WINDOW & CONSTRUCTIO	500.00
251878		000275	TIRE WHOLESALERS CO INC	167.43
251879		MISC	TOWN BUILDING COMPANY	648.16
251880		000155	TYCO INTEGRATED SECURITY LLC	275.55
251881		005331	UBS FIN SERVICES, INC	15,839.04
251882		MISC	UNITED HOME SERVICES	500.00
251883	*	000158	VERIZON WIRELESS	50.49
251884	*	000158	VERIZON WIRELESS	393.20
251885	*	000158	VERIZON WIRELESS	137.86
251886	*	000158	VERIZON WIRELESS	361.99
251887		MISC	VERT VERDE LLC	200.00
251888	*	MISC	VIVIAN K. PAESANO	1,000.00
251889		MISC	WALLSIDE INC	2,500.00
251890		007374	WESTWOOD TRUST	9,646.23
251891		001262	WICKLANDER-ZULAWSKI & ASSOC.	585.00
251892	*	008468	RAYMOND WISE	400.00
251893		MISC	WITTER CONSTRUCTION LLC	200.00

**City of Birmingham**  
**Warrant List Dated 07/26/2017**

Meeting of 08/14/2017

<u>Check Number</u>	<u>Early Release</u>	<u>Vendor #</u>	<u>Vendor</u>	<u>Amount</u>
			Sub Total Checks:	\$469,762.19
			Sub Total ACH:	\$85,466.82
			Grand Total:	\$555,229.01

All bills, invoices and other evidences of claim have been audited and approved for payment.



Mark Gerber  
Finance Director/ Treasurer

\*-Indicates checks released in advance and prior to commission approval in order to avoid penalty or to meet contractual agreement/obligation.

**City of Birmingham**  
**ACH Warrant List Dated 7/26/2017**

Vendor Name	Transfer Date	Transfer Amount
Automated Benefit Services, Inc.	7/24/2017	81,938.17
Cutwater Asset Management-June	**	3,528.65
<b>TOTAL</b>		85,466.82

\*\*Awaiting approval from Commission.

Cutwater Asset Management provides advisory and reporting services for the City's general investments. It was acquired by Bank of New York Mellon, N.A. in January 2015. As a result of the acquisition, they no longer accept checks as payment for services. Once the Commission approves this warrant list, the City will electronically transmit payment. These invoices will appear once a month on the ACH Warrant List.

**City of Birmingham**  
**Warrant List Dated 08/02/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251894	*	000855	48TH DISTRICT COURT	100.00
251895	*	000855	48TH DISTRICT COURT	100.00
251896	*	000855	48TH DISTRICT COURT	100.00
251897	*	000855	48TH DISTRICT COURT	100.00
251898	*	000855	48TH DISTRICT COURT	100.00
251899	*	000855	48TH DISTRICT COURT	100.00
251900	*	000855	48TH DISTRICT COURT	100.00
251901	*	000855	48TH DISTRICT COURT	750.00
251902	*	000855	48TH DISTRICT COURT	100.00
251903	*	000855	48TH DISTRICT COURT	299,159.00
251904	*	006965	7UP DETROIT	483.95
251905	*	008106	ACUSHNET COMPANY	928.56
251906		007266	AETNA BEHAVIORAL HEALTH LLC	364.78
251907		007233	ALL STAR PRO GOLF	48.60
251908		008431	AMCOBI	14,400.00
251909	*	007112	AMERICAN PAINTING LLC	1,320.00
251910		000167	ANDERSON ECKSTEIN WESTRICK INC	1,000.00
251911	*	MISC	ANTHONY VITALE	200.00
251912		000500	ARTECH PRINTING INC	280.00
251913		007479	ASB DISTRIBUTORS	121.80
251914	*	006759	AT&T	86.76
251915	*	006759	AT&T	120.80
251916	*	006759	AT&T	104.99
251918		004027	AUTOMATED BENEFIT SVCS INC	21,783.47
251919		003012	BATTERIES PLUS	14.40
251920		007345	BEVERLY HILLS ACE	133.05
251921		002231	BILLINGS LAWN EQUIPMENT INC.	24.99
251922	*	001086	CITY OF BIRMINGHAM	686.57
251923	*	MISC	BLOOMFIELD TWP DPW	990.80
251924		007365	BSN SPORTS	815.00
251925	*	008334	DAVID BUTTIGIEG	289.29
251926	*	003947	TIMOTHY CARPENTER	88.71
251927	*	000444	CDW GOVERNMENT INC	46.78
251928	*	008124	CI CONTRACTING, INC.	13,332.00
251929		007284	CINCINNATI TIME SYSTEMS, INC.	92.78
251930		007710	CINTAS CORP	208.72
251931		000605	CINTAS CORPORATION	13.64
251932		004026	COFINITY	1,296.00
251933	*	007625	COMCAST	482.99
251934	*	007774	COMCAST BUSINESS	645.60
251935		000979	COMERICA BANK	17,211.66
251936	*	000626	J. M. CONNAUGHTON	164.95
251937	*	000627	CONSUMERS ENERGY	40.95



**City of Birmingham**  
**Warrant List Dated 08/02/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251938		002668	CONTRACTORS CLOTHING CO	104.30
251939		001367	CONTRACTORS CONNECTION INC	260.25
251940	*	000177	DELWOOD SUPPLY	9.07
251941		006907	DENTEMAX, LLC	137.70
251942		MISC	DIANNE O'CONNOR	1,051.43
251943		000565	DORNBOS SIGN & SAFETY INC	4,175.00
251944	*	000179	DTE ENERGY	19,058.79
251945		001077	DUNCAN PARKING TECH INC	210.41
251946		007702	EASY PICKER GOLF PRODUCTS, INC	2,037.73
251947		MISC	ELAINE MARIE TAYLOR	40.00
251948		008308	ERADICO PEST SERVICES	27.00
251949		008526	ETON HILL TOWNHOUSE ASSOCIATION	2,000.00
251950	*	008524	FBINAA MICHIGAN CHAPTER	285.00
251951	*	000936	FEDEX	64.91
251952		008161	FIERA CAPITAL INC	12,554.73
251953		006181	FIRST CHOICE COFFEE SERV	144.95
251954		004604	GORDON FOOD	1,473.87
251955	*	002917	GOVERNMENT FINANCE OFFICERS ASSN	425.00
251956		000243	GRAINGER	230.04
251957		001531	GUNNERS METER & PARTS INC	1,665.00
251958		003701	HD SUPPLY WATERWORKS, LTD	35.90
251959		007339	HIGHEST HONOR, INC	271.00
251960	*	001956	HOME DEPOT CREDIT SERVICES	1,537.51
251961		000331	HUBBELL ROTH & CLARK INC	118.92
251962	*	003824	THOMAS I. HUGHES	1,000.00
251963		003823	JAY'S SEPTIC TANK SERVICE	655.00
251964		003458	JOE'S AUTO PARTS, INC.	336.20
251965		000347	JOHN R. SPRING & TIRE CENTER INC.	3,439.88
251966		004088	KGM DISTRIBUTORS INC	329.00
251967	*	MISC	KOPACZ, GREGORY MICHAEL	192.16
251968	*	005327	L3 TECHNOLOGIES, INC.	290.00
251969		007800	GREG LELITO	23.93
251970	*	001577	KATE LONG	260.64
251971	*	MISC	LUNGEVITY FOUNDATION	5.00
251972		001417	MAJIK GRAPHICS INC	155.00
251974	*	007402	MIDWESTERN AUDIT SERVICES, INC.	116.75
251975		000230	MIKE SAVOIE CHEVROLET INC	249.09
251976		MISC	MOLLY HAWKINS	150.00
251978		000668	NATIONAL TIME & SIGNAL CORP	616.00
251979		001194	NELSON BROTHERS SEWER	430.00
251980		007469	NIGHT FLYER GOLF	353.05
251981		004370	OCCUPATIONAL HEALTH CENTERS	103.50
251982	*	000481	OFFICE DEPOT INC	840.22

**City of Birmingham**  
**Warrant List Dated 08/02/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
251983		MISC	OLIVER CORDES	127.19
251984		MISC	PEGGY O'BRIEN	50.00
251985	*	001753	PEPSI COLA	775.68
251986		MISC	PETER HOLLINSHEAD	82.50
251987		001277	PHYSIO-CONTROL CORP.	97.50
251988		001883	PIONEER DOOR COMPANY INC	115.00
251989		007146	PLAYWORLD MIDSTATES	169.48
251990		008269	PREMIER SAFETY	471.00
251991	*	008342	RAIN MASTER CONTROL SYSTEMS	29.85
251992	*	008404	PETE REALY	296.88
251993	*	007897	JEFFREY SCAIFE	1.55
251994		003785	SIGNS-N-DESIGNS INC	320.00
251995	*	008073	SITEONE LANDSCAPE SUPPLY, INC	208.66
251996		007907	SP+ CORPORATION	3,500.00
251997		000260	SPARTAN DISTRIBUTORS INC	83.19
251998		001369	SPEEDWAY LLC	318.95
251999		007831	STOPSTICK, LTD.	472.00
252000		000273	TERMINAL SUPPLY CO.	117.80
252001		008159	TORTOISE CREDIT STRATEGIES, LLC	8,505.58
252002		002037	TOTAL ARMORED CAR SERVICE, INC.	714.83
252003		008371	TREDOC TIRE SERVICES	1,442.85
252004		005481	TRI-COUNTY INTL TRUCKS, INC.	8,541.28
252005		000155	TYCO INTEGRATED SECURITY LLC	696.00
252006		007226	VALLEY CITY LINEN	116.20
252007		000931	VARSITY SHOP	57.82
252008	*	000158	VERIZON WIRELESS	1,121.78
252010		000969	VIGILANTE SECURITY INC	85.00
252011		007694	WINNING EDGE	51.00
252012		002088	WM. CROOK FIRE PROTECTION CO.	1,465.00
252013		MISC	WOODWARD BROWN ASSOCIATES LLC	1,420.00
			Sub Total Checks:	\$467,450.09
			Sub Total ACH:	\$5,859,775.83
			Grand Total:	\$6,327,225.92

All bills, invoices and other evidences of claim have been audited and approved for payment.



Mark Gerber  
 Finance Director/ Treasurer

\*-Indicates checks released in advance and prior to commission approval in order to avoid penalty or to meet contractual agreement/obligation.

**City of Birmingham**  
**ACH Warrant List Dated 8/2/2017**

Vendor Name	Transfer Date	Transfer Amount
Birmingham Schools	7/27/2017	2,254,713.64
Oakland County Treasurer	7/27/2017	3,492,031.47
Automated Benefit Services, Inc.	7/27/2017	9,642.63
Automated Benefit Services, Inc.	7/26/2017	103,388.09
<b>TOTAL</b>		<b>5,859,775.83</b>

**City of Birmingham**  
**Warrant List Dated 08/09/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
252014		MISC	3-C CONSTRUCTION	900.00
252015		MISC	3-C PROPERTY INVESTMENTS LLC	5,000.00
252016	*	001285	47TH DISTRICT COURT	500.00
252017	*	000855	48TH DISTRICT COURT	100.00
252018	*	000855	48TH DISTRICT COURT	100.00
252019	*	000855	48TH DISTRICT COURT	29.00
252020	*	000855	48TH DISTRICT COURT	50.00
252021	*	000855	48TH DISTRICT COURT	100.00
252022		002284	ABEL ELECTRONICS INC	8,854.00
252023		004657	AKT PEERLESS	2,370.00
252024		MISC	ALEXANDER HOMES	50,900.00
252025		005795	ALLIE BROTHERS, INC	396.94
252026		007696	AMERICAN CLEANING COMPANY LLC	1,350.00
252027		003272	AMERICAN PLANNING ASSOC	1,326.00
252028		007440	AMICI PET SERVICES, INC	245.00
252029		MISC	ARNOLD, GEORGE A	2,000.00
252030	*	006759	AT&T	121.97
252031	*	005324	THE BANK OF NEW YORK MELLON	750.00
252032		007624	BIRMINGHAM OIL CHANGE CENTER, LLC	48.22
252033	*	001086	CITY OF BIRMINGHAM	479.27
252034	*	001086	CITY OF BIRMINGHAM	860.25
252035		000542	BLUE WATER INDUSTRIAL	21.00
252036		MISC	BRAUN, KAREN GLUKLICK	5,900.00
252037		MISC	BUILDING DECOMMISSION SERVICES LLC	200.00
252038		003907	CADILLAC ASPHALT, LLC	7,081.44
252039		007875	CANFIELD EQUIPMENT SERVICE INC.	510.00
252040		MISC	CAPALDI BUILDERS	200.00
252041	*	007732	CAPITAL TIRE, INC.	1,445.08
252042	*	007933	CARDNO, INC.	1,842.37
252043		MISC	CARPENTRY VENTURES	500.00
252044		MISC	CARTER, JOSEPH D	100.00
252045	*	000444	CDW GOVERNMENT INC	9,591.49
252046		000603	CHEMCO PRODUCTS INC	232.00
252047		MISC	CHRISTINE DALTON	100.00
252048		000605	CINTAS CORPORATION	132.47
252049		MISC	CLARENCE A KAECHLE/PROPERTY ON	200.00
252050	*	007625	COMCAST	354.57
252051		000621	COMSOURCE INC	284.00
252052		MISC	CRETU CONSTRUCTION	100.00
252053		003923	CUMMINS BRIDGEWAY LLC	1,059.85
252054		004386	CYNERGY PRODUCTS	68.00
252055		MISC	CYNTHIA MARIE CALVANESE	10.00
252056		MISC	DAN LYNCH	900.00

**City of Birmingham**  
**Warrant List Dated 08/09/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
252057		000177	DELWOOD SUPPLY	29.54
252058	*	005125	DEVIN DEROECK	80.00
252059		MISC	DJ MURRAY PLUMBING	25.00
252060	*	000179	DTE ENERGY	6,157.53
252061	*	000180	DTE ENERGY	45,907.19
252062		001077	DUNCAN PARKING TECH INC	1,957.95
252063		MISC	EAVESTEC INC	200.00
252064		003942	ENABLEPOINT	2,999.00
252065		001495	ETNA SUPPLY	27,084.00
252066		000207	EZELL SUPPLY CORPORATION	917.41
252067		008495	FALCON ASPHALT REPAIR EQUIPMENT	338.44
252068		008034	CITY OF FARMINGTON HILLS	150.00
252069		MISC	FOUNDATION SYSTEMS OF MICHIGAN INC.	200.00
252070		MISC	FOUR SEASONS GARDEN CENTER	100.00
252071		001056	GALLS, LLC	428.76
252072		MISC	GALYN ASSOCIATES LTD PTNSHP	300.00
252073		002510	GAMCO INVESTORS INC	23,271.00
252074		007172	GARY KNUREK INC	159.00
252075		MISC	GENERATIONS HOME IMPROVEMENT	300.00
252076		005347	GMIS	375.00
252077		000243	GRAINGER	97.11
252078		MISC	GREAT LAKES CUSTOM BUILDER LLC	744.34
252079		MISC	GREAT LAKES ROOFING, INC	829.56
252080		001531	GUNNERS METER & PARTS INC	751.00
252081		007342	H2A ARCHITECTS, INC.	612.50
252082		003938	HART PAVEMENT STRIPING CORP	750.00
252083		MISC	HARTFORD ROOFING SIDING	200.00
252084		000331	HUBBELL ROTH & CLARK INC	11,889.89
252085		000948	HYDROCORP	1,315.00
252086		008441	INTERNATIONAL CODE COUNCIL, INC	240.00
252087		MISC	J WAYNE ENTERPRISES INC	500.00
252088		000261	J.H. HART URBAN FORESTRY	13,361.97
252089	*	002576	JAX KAR WASH	105.00
252090		003823	JAY'S SEPTIC TANK SERVICE	165.00
252091		003458	JOE'S AUTO PARTS, INC.	289.66
252092		MISC	JOHN FRNACIS TETREAU	200.00
252093		MISC	JORGE L MANZANO	100.00
252094		MISC	JUSTIN ISAAC SILVEY	100.00
252095		MISC	K & D ROOFING	30.00
252096		008536	KELLY IT SERVICES LLC	350.00
252097		005350	KLM BIKE & FITNESS INC	130.49
252098	*	008535	STEPHANIE KRIEGER	137.00
252099		006127	LANDSCAPE FORMS, INC	550.00

**City of Birmingham**  
**Warrant List Dated 08/09/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
252100		MISC	LAURA A BURKE LVNG TRUST	100.00
252101		005550	LEE & ASSOCIATES CO., INC.	554.44
252102		000284	LESLIE ELECTRIC COMPANY	611.46
252103		MISC	LISA BRICKMAN	100.00
252104		008142	LITTLE FREE LIBRARY	49.08
252105		MISC	LIVE WELL CUSTOM HOMES LLC	1,000.00
252107		008537	MICHIGAN ASSOCIATION OF COUNTIES	75.00
252108		007010	STATE OF MICHIGAN	1,155.00
252109		001887	STATE OF MICHIGAN	25.00
252110		000230	MIKE SAVOIE CHEVROLET INC	143.78
252111		002671	MMA	350.00
252112		007163	MOBILE HEALTH RESOURCES	1,459.77
252113		000668	NATIONAL TIME & SIGNAL CORP	670.00
252114		MISC	NEW GENERATION SIGNS LLC	200.00
252115		006359	NYE UNIFORM COMPANY	325.99
252116	*	000477	OAKLAND COUNTY	29,347.42
252117		004370	OCCUPATIONAL HEALTH CENTERS	769.25
252118	*	000481	OFFICE DEPOT INC	1,122.21
252119		MISC	OLIVER HATCHER CONSTRUCTION	5,000.00
252120		MISC	OLIVER/HATCHER CONSTRUCTION	500.00
252121		002767	OSCAR W. LARSON CO.	440.20
252122		006625	PACIFIC TELEMANAGEMENT SERVICES	78.00
252123		MISC	PEABODY OWNER LLC	20,000.00
252124		MISC	POWERS BUILDING GROUP LLC	1,000.00
252125		000897	PRINTING SYSTEMS INC	250.98
252126		006697	PROGRESSIVE IRRIGATION, INC	1,250.00
252127		MISC	R CHRISTIE CONSTRUCTION CO INC	300.00
252128		MISC	R M L DECORATIVE CONCRETE	100.00
252130		000478	ROAD COMM FOR OAKLAND CO	5,199.24
252131		MISC	RONNISCH CONSTRUCTION GROUP	15,800.00
252132		001181	ROSE PEST SOLUTIONS	71.00
252133		MISC	ROSENZWIEG, ADAM	100.00
252134		000218	ROYAL OAK P.D.Q. LLC	164.93
252135		MISC	SCOTT QUALITY HOMES II LLC	200.00
252136		MISC	SINGH CONSTRUCTION	300.00
252137		008150	SITEIMPROVE, INC	2,488.50
252138		008144	SMARTDEPLOY	1,080.00
252139		000254	SOCRRA	61,960.00
252140	*	001097	SOCWA	264,992.98
252141		005787	SOUTHEASTERN EQUIPMENT CO. INC	665.00
252142		005238	SUNTEL SERVICES	3,761.50
252143		007087	TECHRADIUM, INC	166.50
252144		001255	TEKNICOLORS INC	834.07

**City of Birmingham**  
**Warrant List Dated 08/09/2017**

Meeting of 08/14/2017

Check Number	Early Release	Vendor #	Vendor	Amount
252145		MISC	THC INVESTORS LP	100.00
252146		MISC	THORNTON & GROOMS INC.	1,000.00
252147		000275	TIRE WHOLESALERS CO INC	570.95
252148		MISC	TOWER CONSTRUCTION LLC	500.00
252149		MISC	TOWN BUILDING COMPANY	1,000.00
252150		MISC	TRADEMARK BUILDING COMPANY INC	2,000.00
252151		MISC	TRESNAK CONSTRUCTION INC	100.00
252152		MISC	UNITED HOME SERVICES	500.00
252153		007706	UTEC	208.20
252154		000931	VARSITY SHOP	28.52
252155	*	000158	VERIZON WIRELESS	820.81
252156	*	000158	VERIZON WIRELESS	1,261.42
252157	*	000158	VERIZON WIRELESS	76.02
252158	*	000158	VERIZON WIRELESS	197.78
252159	*	000158	VERIZON WIRELESS	141.99
252160		007278	WHITLOCK BUSINESS SYSTEMS, INC.	1,579.95
252161		MISC	WHITTIER BUILDING COMPANY LLC	200.00
252162		003925	WIZBANG PRODUCTS CO	945.90
252163		MISC	WOODWARD DEVELOPMENT COMPANY LLC	6,000.00
252164		007083	XEROX CORPORATION	796.86
Sub Total Checks:				\$694,530.96
Sub Total ACH:				\$119,697.93
Grand Total:				\$814,228.89

All bills, invoices and other evidences of claim have been audited and approved for payment.



Mark Gerber  
 Finance Director/ Treasurer

\*-Indicates checks released in advance and prior to commission approval in order to avoid penalty or to meet contractual agreement/obligation.

**City of Birmingham**  
**8/9/2017**

Vendor Name	Transfer Date	Transfer Amount
Automated Benefit Services, Inc.	8/4/2017	119,697.93
<b>TOTAL</b>		119,697.93





# MEMORANDUM

City Clerk's Office

**DATE:** August 7, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** J. Cherilynn Mynsberge, City Clerk

**SUBJECT:** Special Event Request  
Halloween Parade & Pumpkin Patch

Attached is a special event application submitted by the Birmingham Bloomfield Chamber and the Junior League of Birmingham requesting permission to hold the annual Pumpkin Patch from 1:00 PM to 4:00 PM, followed by the Halloween Parade from 4:00 PM – 4:20 PM on Sunday, October 29, 2017.

The parade route begins at the corner of Martin and Bates, travels north on Bates to Maple, east on Maple to S. Old Woodward, right on Merrillwood to Merrill, right on Pierce, left on Martin and ends at the corner of Bates and Martin. The Pumpkin Patch takes place in Shain Park.

The application has been circulated to the affected departments and approvals and comments have been noted.

The following event has been approved by the Commission to be held in October.

Event Name	Date	Location
Farmers Market	Sundays	Municipal Lot #6

**SUGGESTED RESOLUTION:**

To approve a request submitted by the Birmingham Bloomfield Chamber and Junior League of Birmingham requesting permission to hold the annual Halloween Parade and Pumpkin Patch on Sunday, October 29, 2017 in downtown Birmingham, contingent upon compliance with all permit and insurance requirements and payment of all fees, and further, pursuant to any minor modifications that may be deemed necessary by administrative staff at the time of the event.

17-50011037

RECEIVED BY  
JUL 21 2017  
CITY CLERK'S OFFICE  
CITY OF BIRMINGHAM

CITY OF BIRMINGHAM  
APPLICATION FOR SPECIAL EVENT PERMIT  
PARKS AND PUBLIC SPACES

**I. EVENT DETAILS**

- Incomplete applications will not be accepted.
- Changes in this information must be submitted to the City Clerk, in writing, at least three weeks prior to the event

**FEES:**            **FIRST TIME EVENT:**            **\$200.00**  
                         **ANNUAL APPLICATION FEE:**            **\$165.00**

(Please print clearly or type)

Date of Application Friday, July 21, 2017

Name of Event 81st Annual Halloween Parade & 24th Annual Pumpkin Patch

Detailed Description of Event (attach additional sheet if necessary) \_\_\_\_\_

The Pumpkin Patch is an afternoon for families to partake in Halloween activities and games. After the Patch families march in costume in the parade.

Location Pumpkin Patch inside Shain Park from 1-4 p.m. Parade, in streets

Date(s) of Event Sunday, October 29, 2017 Hours of Event Patch 1-4 p.m. Parade 4-4:20 p.m.

Date(s) of Set-up Sunday, October 29, 2017 Hours of Set-up 9:00 a.m.

Date(s) of Tear-down Sunday, October 29, 2017 Hours of Tear-down 4:30-5:30 p.m.

Organization Sponsoring Event Birmingham Bloomfield Chamber & Jr. League of Birmingham

Organization Address Chamber: 725 S. Adams, Suite 130 League: 460 N. Old Woodward

Organization Phone Chamber: (248) 430-7688 League: (248) 644-3163

Contact Person Andrea Foglietta-Chamber (248) 430-7688

Contact Phone Karen Cresap-League (248) 644-3163

Contact Email andrea@bbcc.com karenresap@howardhanna.com

## II. EVENT INFORMATION

1. Organization Type Chamber & Nonprofit partnering event  
(city, non-profit, community group, etc.)
  
2. Additional Sponsors or Participants (Provide name, address, contact person, status, etc. for all additional organizations sponsoring your event. ) Sponsors TBD, in past years, Whole Foods Troy, Birmingham 8, Dance City  

---

---

---
  
3. Is the event a fundraiser?  YES  NO  
List beneficiary Birmingham Bloomfield Chamber, Jr. League of Birmingham  
List expected income Less than \$1,000  
Attach information about the beneficiary.
  
4. First time event in Birmingham? YES   NO  
If no, describe No, annual community event (rain or shine)  

---
  
5. Total number of people expected to attend per day 200-500
  
6. The event will be held on the following City property: (Please list)  
 Street(s) Parade (see map for street route)  

---

 Sidewalk(s) \_\_\_\_\_  

---

 Park(s) Shain Park (see map)  

---
  
7. Will street closures be required?  YES  NO
  
8. What parking arrangements will be necessary to accommodate attendance? Chester Street Structure will be used and on-street parking will be used.

Question 7

Page 3

**\*Closing: Sunday, October 29 at 9 a.m.**  
**Bates closed from Merrill St. Baldwin Library to Martin St.**  
**Henrietta closed from Merrill St. to Martin ST.**

**\*Re-opening: Sunday, October 29 at 5 p.m.**

Begin at corner of Martin and Bates and travel North on Bates to Maple. East on Maple to S. Old Woodward, right on Merrillwood to Merrill, right on Pierce, left on Martin and will end at the corner of Bates and Martin. (See map for detailed parade route.)

**LIST OF VENDORS/PEDDLERS**

(attach additional sheet if necessary)

VENDOR NAME	GOODS TO BE SOLD	WATER HOOK-UP REQUIRED?	ELECTRIC REQUIRED?

### **III. EVENT LAYOUT**

- Include a map showing the park set up, street closures, and location of each item listed in this section.
- Include a map and written description of run/walk route and the start/finish area

1. Will the event require the use of any of the following municipal equipment?  
(show location of each on map)

<b>EQUIPMENT</b>	<b>QUANTITY</b>	<b>COST</b>	<b>NOTES</b>
Picnic Tables		6 for \$200.00	A request for more than six tables will be evaluated based on availability.
Trash Receptacles	8	\$4.00 each	Trash box placement and removal of trash is the responsibility of the event. Additional cost could occur if DPS is to perform this work.
Dumpsters	4	\$200.00 per day	Includes emptying the dumpster one time per day. The City may determine the need for additional dumpsters based on event requirements.
Utilities (electric)	___ # of vendors requiring utilities	Varies	Charges according to final requirements of event.
Water/Fire Hydrant		Contact the Fire Department.	Applicant must supply their own means of disposal for all sanitary waste water. Waste water is NOT allowed to be poured into the street or on the grass.
Audio System		\$200.00 per day	Must meet with City representative.
Meter Bags / Traffic Cones / Barricades	# to be determined by the Police Department.		

2. Will the following be constructed or located in the area of the event? YES NO  
(show location of each on map) NOTE: Stakes are not allowed.

<b>TYPE</b>	<b>QUANTITY</b>	<b>SIZE</b>
Tents/Canopies/Awnings (A permit is required for tents over 120 sq ft)	2	1-20x40 other tent TBD
Portable Toilets		
Rides		
Displays		
Vendors		
Temporary Structure (must attach a photo)		
Other (describe)	Pumpkin Display and tables for sponsors	

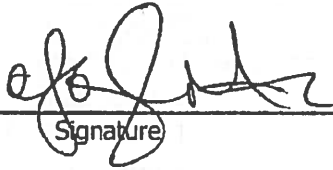
**SIGNATURE OF APPLICANT REQUIRED**

EVENT NAME 81st Annual Halloween Parade & 24th Annual Pumpkin Patch

EVENT DATE Sunday, October 29, 2017

The Birmingham City Commission shall have sole and complete discretion in deciding whether to issue a permit. Nothing contained in the City Code shall be construed to require the City Commission to issue a permit to an applicant and no applicant shall have any interest or right to receive a permit merely because the applicant has received a permit in the past.

As the authorized agent of the sponsoring organization, I hereby agree that this organization shall abide by all conditions and restrictions specific to this special event as determined by the City administration and will comply with all local, state and federal rules, regulations and laws.

  
Signature

7/14/17  
Date

---

**IV. SAMPLE LETTER TO NOTIFY ANY AFFECTED PROPERTY/BUSINESS OWNERS**

- Organizer must notify all potentially affected residential property and business owners of the date and time this application will be considered by the City Commission. *(Sample letter attached to this application.)*
- Attach a copy of the proposed letter to this application. The letter will be reviewed and approved by the Clerk's Office. The letter must be distributed at least two weeks prior to the Commission meeting.
- A copy of the letter and the distribution list must be submitted to the Clerk's Office at least two weeks prior to the Commission meeting.
- If street closures are necessary, a map must be included with the letter to the affected property/business owners.



THE  
**Birmingham  
Bloomfield**  
CHAMBER

## **SPECIAL EVENT REQUEST NOTIFICATION**

July 21, 2017

To: Property/Business Owner

The Birmingham City Code requires that we receive approval from the Birmingham City Commission to hold the following special event. The code further requires that we notify any property owners or business owners that may be affected by the special event of the date and time that the city commission will consider our request so that the opportunity exists for comments prior to this approval.

**NAME OF EVENT:** 81<sup>st</sup> Annual Parade and 24<sup>th</sup> Annual Patch

**LOCATION:** Streets surrounding Shain Park

**DESCRIPTION OF EVENT:** Family Halloween activities, games and parade.

**DATES/TIMES:** Set-up Sunday, October 29, 2017 at 9 a.m.

Pumpkin Patch Hours: 1 – 4 p.m. Parade Hours: 4 – 4:15 p.m.

Tear down: Sunday, October 29, 2017 5 p.m.

**DATE/TIME OF CITY COMMISSION MEETING:** Monday, August 14, 2017 at 7:30 p.m.

The City commission meets in room 205 of the Municipal Building at 151 Martin at 7:30 p.m. **A complete copy of the application to hold this special event is available for your review at the City Clerk's Office (248/530-1880).** Log on to [www.bhamgov.org/events](http://www.bhamgov.org/events) for a complete list of special events.

**EVENT ORGANIZER:** Birmingham Bloomfield Chamber 725 S. Adams, Suite 130  
Birmingham MI 48009 (248) 430-7688

**FOR QUESTIONS ON DAY OF EVENT, CONTACT: ANDREA FOGLIETTA**  
**CELL PHONE: (586) 216-1897**



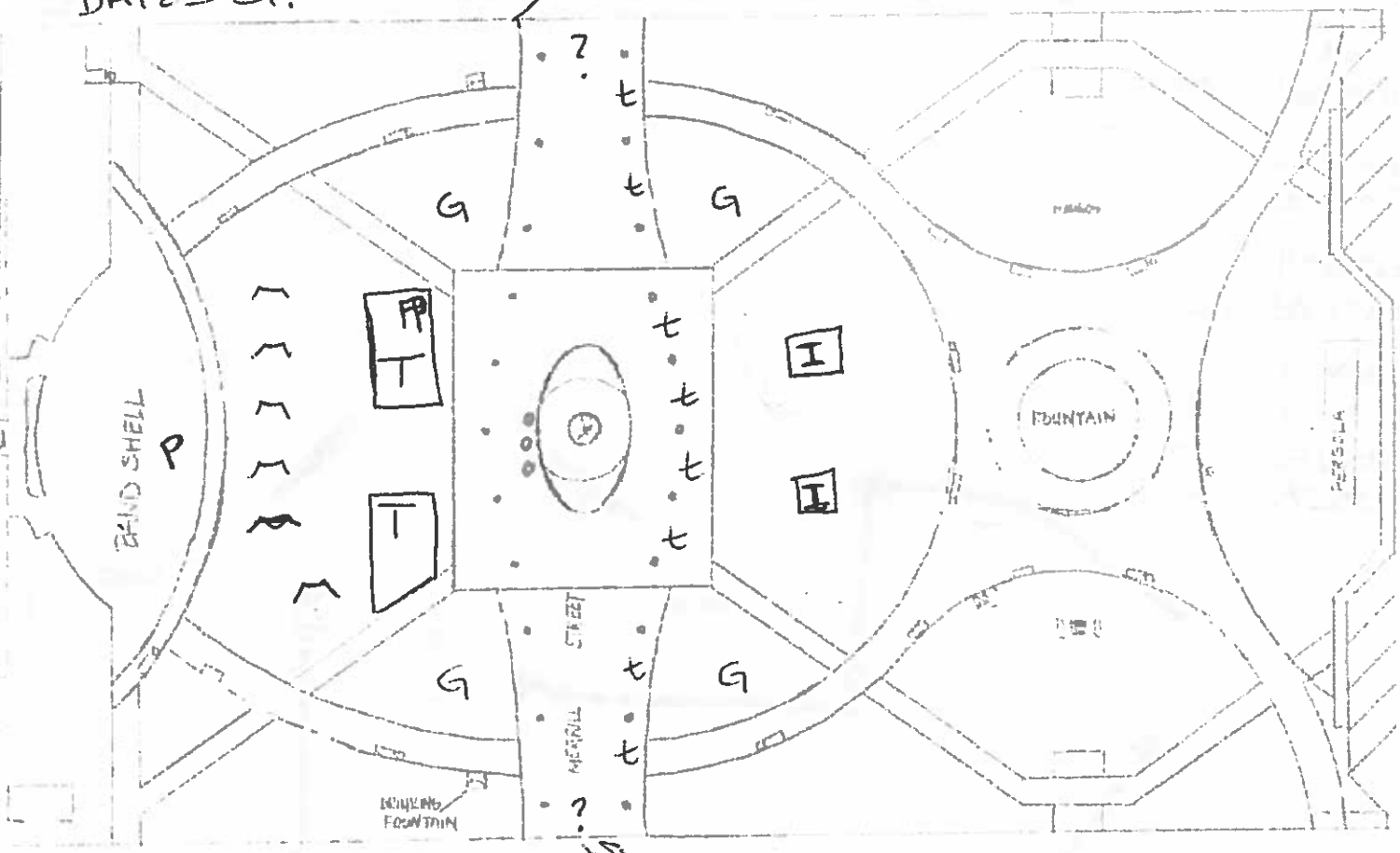
TOWNSEND STREET

BATES ST.

STREET CLOSURE D

D

MARTIN STREET



? = info tables

t = 6ft/8ft tables for sponsors

P = performances (dance)

I = inflatables

G = kid games

T = tents (will pull permit)

D = Dumpsters  
4 total





FP = face painting

ooo = pumpkin display

^ = picnic table

← WINDY ON THURSDAY, 10/29/2017

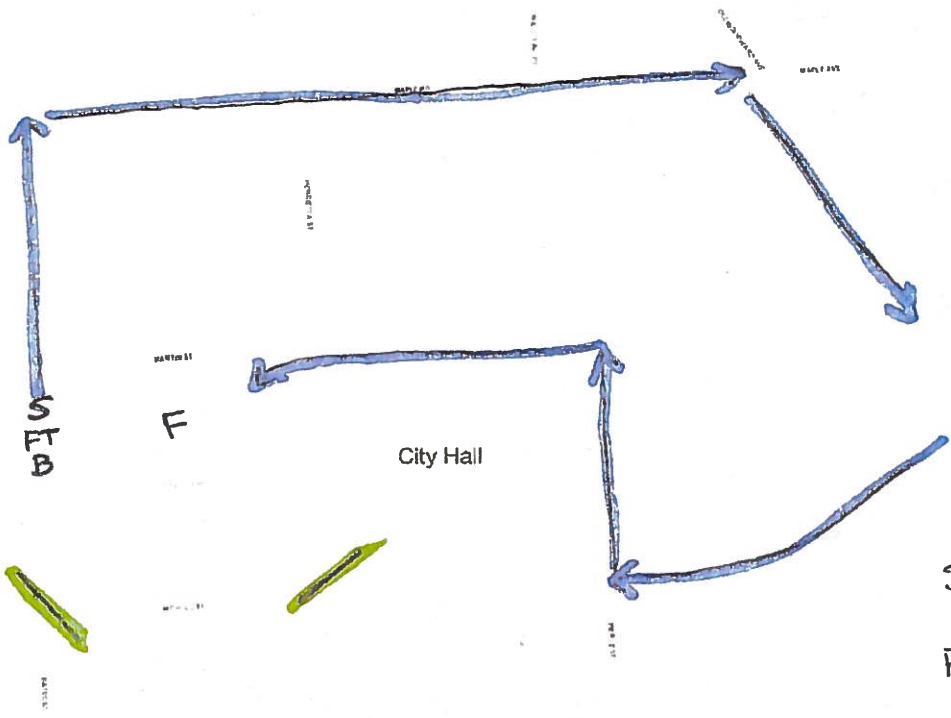
# Birmingham Map



- Legend
-  City Boundary
  -  Lakes and Rivers
  -  Streams
  -  Parcels



Library

City Hall



- S = PARADE STARTS
- FT = FIRE TRUCK LEADS PARADE
- B = BAND MARCHES IN PARADE
- F = PARADE FINISHES
-  = BARRICADES
- STREETS CLOSED
-  = PARADE ROUTE



**DISCLAIMER**  
 The information provided on this site is for convenience only and is compiled from numerous public, public, private, and other public records and data. Much of the data was not compiled or created by the City of Birmingham. In the preparation of this report, extensive efforts have been made to offer the most current, correct, and clearly explained information possible. However, inadvertent errors, inaccuracies, and omissions can occur. Official versions should be used as a primary information source for verification of the information provided on these pages. Users are advised that their use of any of this information is at their own risk. The City of Birmingham, its consultants and data providers, do not assume, and hereby disclaim, legal responsibility for the information contained herein which is provided "as is" with no warranty of any kind whether such errors, inaccuracies or omissions result from negligence, accident or any other cause.

SUNDAY OCTOBER 29, 2017



THE  
**Birmingham  
Bloomfield**  
CHAMBER

## HOLD-HARMLESS AGREEMENT

"To the fullest extent permitted by law, the **Birmingham Bloomfield Chamber** and any entity or person for whom the **Birmingham Bloomfield Chamber** is legally liable, agrees to be responsible for any liability, defend, pay on behalf of, indemnify, and hold harmless the City of Birmingham, its elected and appointed officials, employees and volunteers and others working on behalf of the City of Birmingham against any and all claims, demands, suits, or loss, including all costs and reasonable attorney fees connected therewith, and for any damages which may be asserted, claimed or recovered against or from the City of Birmingham, its elected and appointed officials, employees, volunteers or others working on behalf of the City of Birmingham, by reason of personal injury, including bodily injury and death and/or property damage, including loss of use thereof, which arises out of or is in any way connected or associated with this activity/event. Such responsibility shall not be construed as liability for damage caused by or resulting from the sole act or omission of the City of Birmingham, its elected or appointed officials, employees, volunteers or others working on behalf of the City of Birmingham."

Applicant's signature



BIRMBLO-01

SHORNYAK

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
07/14/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Emerson-Prew 30800 Telegraph Rd, Ste 3110 Bingham Farms, MI 48025	<b>CONTACT NAME:</b> Shari Hornyak <b>PHONE (A/C, No, Ext):</b> (248) 203-1817 <b>FAX (A/C, No):</b> <b>E-MAIL ADDRESS:</b> shornyak@spl-ins.com
	<b>INSURER(S) AFFORDING COVERAGE</b>
<b>INSURED</b>  Birmingham Bloomfield Chamber of Commerce 725 S. Adams, Suite 130 Birmingham, MI 48009	<b>INSURER A:</b> West Bend Mutual Insurance Company <b>NAIC #</b> 15350
	<b>INSURER B:</b> Accident Fund Insurance Company of America <b>10166</b>
	<b>INSURER C:</b>
	<b>INSURER D:</b>
	<b>INSURER E:</b>
	<b>INSURER F:</b>

**COVERAGES**      **CERTIFICATE NUMBER:**      **REVISION NUMBER:**

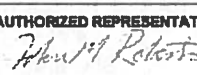
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INBR LTR	TYPE OF INSURANCE	ADOL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC <input type="checkbox"/> OTHER.	X		A04349103	06/29/2017	06/29/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (EA occurrence) \$ 200,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (EA accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> <b>UMBRELLA LIAB</b> <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0			A04349103	06/29/2017	06/29/2018	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
B	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WCV8011508	06/29/2017	06/29/2018	PER STATUTE    OTH-ER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**  
 The City of Birmingham including all Elected Appointed Officials; All Employees & Volunteers, Board Members, Employees & Volunteers are Named as Additional Insured.

This Coverage Shall be Primary and Non-Contributory

Event: Annual Halloween Parade - Shain Park & Adjoining Streets, City of Birmingham, MI, Sunday, October 29, 2017

<b>CERTIFICATE HOLDER</b>  City of Birmingham 151 Martin P. O. Box 3001 Birmingham, MI 48009	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
---	--

# DEPARTMENT APPROVALS

EVENT NAME HALLOWEEN PARADE & PUMPKIN PATCH

LICENSE NUMBER #17-00011032

COMMISSION HEARING DATE: AUG. 14, 2017

**NOTE TO STAFF:** Please submit approval by **AUGUST 2, 2017**

DATE OF EVENT: OCT. 29, 2017

DEPARTMENT	APPROVED	COMMENTS	PERMITS REQUIRED (Must be obtained directly from individual departments)	ESTIMATED COSTS (Must be paid two weeks prior to the event. License will not be issued if unpaid.)	ACTUAL COSTS (Event will be invoiced by the Clerk's office after the event)
<b>PLANNING</b> 101-000.000-634.0005 248.530.1855	SC	No comments.	N/A	\$0	
<b>BUILDING</b> 101-000.000.634.0005 248.530.1850		Pending approval			
<b>FIRE</b> 101-000.000-634.0004 248.530.1900	JMC	<ol style="list-style-type: none"> <li>1. No Smoking in any tents or canopy. Signs to be posted.</li> <li>2. All tents and Canopies must be flame resistant with certificate on site.</li> <li>3. No open flame or devices emitting flame, fire or heat in any tents. Cooking devices shall not be permitted within 20 feet of the tents.</li> <li>4. Tents and Canopies must be properly anchored for the weather conditions, no stakes allowed.</li> <li>5. Clear Fire Department access of 12 foot aisles must be maintained, no tents, canopies or other obstructions in the access</li> </ol>		\$40	

		<p>aisle unless approved by the Fire Marshal.</p> <ol style="list-style-type: none"><li>6. Pre-event site inspection required.</li><li>7. A prescheduled inspection is required for food vendors through the Bldg. dept. prior to opening.</li><li>8. All food vendors are required to have an approved 5lbs. multi-purpose (ABC) fire extinguisher on site and accessible.</li><li>9. Cords, hoses, etc. shall be matted to prevent trip hazards.</li><li>10. Exits must be clearly marked in tents/structures with an occupant load over 50 people.</li><li>11. Paramedics will respond from the fire station as needed. Dial 911 for fire/rescue/medical emergencies.</li><li>12. A permit is required for Fire hydrant usage.</li><li>13. Do Not obstruct fire hydrants or fire sprinkler connections on buildings.</li><li>14. Provide protective barriers between hot surfaces and the public.</li><li>15. All cooking hood systems that capture grease laden vapors must have an approved suppression system and a K fire extinguisher in addition to the ABC Extinguisher.</li><li>16. Suppression systems shall be inspected, tested, and properly tagged prior to the event. All Sprinkler heads shall be of the 155 degree Quick Response type unless serving an area of high heat and approved by the Fire</li></ol>			
--	--	--	--	--	--

		Marshal. The suppression system shall have a continuous water supply as well as a secondary back up supply. Activation of the suppression system will shut down the ride and cause illumination of the exits.			
<b>POLICE</b> 101-000.000.634.0003 248.530.1870	SG	Personnel and Barricades, block roads and direct traffic.		\$0	\$0
<b>PUBLIC SERVICES</b> 101-000.000-634.0002 248.530.1642	CL 8/3/2017 revised	Additional costs could occur for trash pick-up.		\$510	
<b>ENGINEERING</b> 101-000.000.634.0002 248.530.1839	A.F.	No damage to any pavement allowed for tents, inflatables, stages, etc... Maintain 5' clear pedestrian access route on all sidewalks	None	\$0	\$0
<b>SP+ PARKING</b>		Forwarded to SP+ 08/01/17 – A.F.			
<b>INSURANCE</b> 248.530.1807	CA	Approved	None	\$0	\$0
<b>CLERK</b> 101-000.000-614.0000 248.530.1803		Notification letters mailed by applicant on 7/21/17. Notification addresses on file in the Clerk's Office. Evidence of required insurance must be on file with the Clerk's Office no later than 10/13/17.	Applications for vendors license must be submitted no later than 10/13/17.	\$165 (pd)	
				<b>TOTAL DEPOSIT REQUIRED</b>  <b>\$550.00</b>	<b>ACTUAL COST</b>

**FOR CLERK'S OFFICE USE**

Deposit paid \_\_\_\_\_



# MEMORANDUM

Finance Department

**DATE:** August 4, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Mark Gerber, Director of Finance/Treasurer  
**SUBJECT:** Auditing Services Agreement

---

Attached is a three-year contract (with an option for two more years) with the accounting firm Plante & Moran to perform the required annual audit of the City's financial statements. If approved, Plante & Moran's contract with the City would cover the fiscal years ending June 30, 2017, 2018, and 2019 with the options for 2020 and 2021.

The contract with Plante & Moran is for professional services. Professional service contracts are not required to be bid although on occasion they have been. The City has had a long standing audit relationship with Plante & Moran. As such, they are familiar with the City's books and accounting records.

The proposed audit fee to be charged by Plante & Moran for the fiscal year ending June 30, 2017, totals \$70,975 which represents the base fee and represents an increase of .9% over last fiscal year's fee of \$70,340. The base fee under the agreement is to be adjusted by the Headlee inflation factor for years two and three. This fee also includes the Baldwin Public Library and Retirement System financial statements.

We have found their fees to be competitive and their services outstanding. It is therefore recommended that the three-year contract with Plante & Moran be approved.

**Suggested Action:** To approve the audit contract with Plante & Moran to include fiscal years ending June 30, 2017 through June 30, 2019 with options for June 30, 2020 and 2021 in the amount of \$70,975 for the fiscal year ending June 30, 2017 and an annual increase not to exceed the Headlee inflation factor for years two and three and option years four and five and further to authorize the Mayor and the City Clerk to sign the agreement on behalf of the City.



## AUDITING SERVICES AGREEMENT

This AGREEMENT, made this 25<sup>th</sup> day of July 2017, by and between THE CITY OF BIRMINGHAM, having its principal municipal office at 151 Martin Street, Birmingham, MI (hereinafter called "CITY"), and PLANTE & MORAN, PLLC, having its principal office at 27400 Northwestern Highway, P.O. Box 307, Southfield, Michigan 48037, (hereinafter called the "AUDITOR"), provides as follows:

### WITNESSETH:

**WHEREAS**, the CITY has a need for a qualified firm of certificated public accountants to audit its financial statements for the fiscal years ending June 30, 2017, June 30, 2018 and June 30, 2019, with a two-year renewal option for the years ended June 30, 2020 and June 30, 2021; and

**WHEREAS**, this Agreement is for the audit services as described below. Each fiscal year audited hereunder shall be considered a separate engagement agreement subject to the terms and conditions hereof. Upon completion of the audit and delivery of the audit report for a fiscal year covered by this Agreement, the engagement for that fiscal year will be deemed complete and a new engagement covering the succeeding fiscal year will commence unless this Agreement expires by its terms or is otherwise terminated in accordance with the terms and conditions hereof.

**NOW, THEREFORE, IN CONSIDERATION** of the agreements contained herein, the CITY and AUDITOR agree as follows:

I. RESPONSIBILITIES OF THE AUDITORS.

A. AUDITOR shall audit the CITY's financial statements for the fiscal years ending June 30, 2017, June 30, 2018 and June 30, 2019, with a two-year renewal option for the years ended June 30, 2020 and June 30, 2021. Whenever reference is made herein to the CITY's financial statements, it shall include, in addition to the CITY's individual reports, those of Baldwin Public Library.

B. For each year of this Agreement, the AUDITORS shall give their written opinion on the fair presentation of the CITY's basic financial statements in conformance with generally accepted accounting principles. A compliance audit in order to meet the Single Audit requirements shall be performed if it is deemed necessary at the sole option of the CITY. At the conclusion of said audit, a letter of comments and recommendations shall be submitted to the CITY to include a summary of the audit findings and recommendations for changes in accounting procedures and methods of internal control.

1. In their review of such basic financial statements, the AUDITORS shall review the CITY's financial report for compliance with Government Finance Officers Association (GFOA) Certificate of Achievement for Excellence in Financial Reporting program requirements.

C. The AUDITORS will coordinate their on-site work schedules with the CITY's Finance Director. The Finance Director is responsible for all the CITY's accounting records and will be the direct contact during the course of the audit.

D. All audits shall be performed in accordance with generally accepted auditing standards as set forth by the American Institute of Certified Public Accountants, and the requirements of Act 2, P.A. of 1968, as amended, and the related Bulletin for Audits Local Units of Government in Michigan. If a compliance audit is required in order to meet the requirements of Title 2 U.S. Code of Federal Regulations Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), then the audit shall also be performed in accordance with the standards for financial audits in the U.S. Government Accountability Office's (GAO) Government Auditing Standards.

E. The CITY shall prepare the Comprehensive Annual Financial Report and the AUDITORS shall be responsible for reviewing and printing 35 copies for delivery to the CITY. The AUDITORS shall prepare the Baldwin Library financial statements and deliver 25 copies to the Library. At the end of the audit, the AUDITORS shall also prepare 20 copies of any required communications to the governing body of the City or Library. Such communication would include (a) the results of audit communication required by audit standard AU-C 260; (b) any internal control deficiencies required by audit standard AU-265; or (c) any additional comments or recommendations to be made to the city commission (e.g., a "management letter").

F. All working papers and reports must be retained, at the AUDITOR's expense, for a minimum of three (3) years, unless the AUDITOR is notified in writing by the City of Birmingham of the need to extend the retention period. The AUDITOR will be required to make working papers available, upon request, to the following parties or their designees:

City of Birmingham

U.S. Government Accountability Office (GAO)

Parties designated by the federal or state governments or by the City of Birmingham as part of an audit quality review process

Auditors of entities of which the City of Birmingham is a subrecipient of grant funds.

In addition, the AUDITOR shall respond to the reasonable inquiries of successor auditors and allow successor auditors to review working papers relating to matters of continuing accounting significance.

## II. RESPONSIBILITIES OF THE CITY.

A. The CITY shall pay to the AUDITOR for services under this Agreement in accordance with the AUDITOR's Audit Fee Proposal as follows:

1. The fee quoted by the AUDITOR for the fiscal year ending June 30, 2017 is \$70,975, which represents the base fee.

2. The base fee will be adjusted by the AUDITOR by the Headlee inflation inflation factor for years two (2) and three (3) of the contract, which are for the fiscal years ending June 30, 2018 and June 30, 2019, and for the years four (4) and five (5), at the City's option, which are for the fiscal years ending June 30, 2020 and June 30, 2021.

B. Such payments shall be made on a monthly basis upon receipt of an itemized invoice from the AUDITOR.

## III. GENERAL PROVISIONS.

A. The AUDITOR warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the AUDITOR, to solicit or secure this Agreement, and that it has not paid or agreed to pay any company or person, other than a bona fide employee of the AUDITOR, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award of making of this Agreement. For breach or violation of this warranty, the CITY shall have the right to annul this Agreement without liability.

B. To the fullest extent permitted by law, the AUDITOR agrees to be responsible for, defend, pay on behalf of, indemnify, and hold harmless the CITY OF BIRMINGHAM, its elected and appointed officials, employees and volunteers and others working on behalf of the CITY OF BIRMINGHAM against any and all claims, liabilities, demands, suits, or loss, including all costs and reasonable attorney fees connected therewith, and for any damages which may be asserted, claimed or recovered against or from and the CITY OF BIRMINGHAM, its elected and appointed officials, employees, volunteers or others working on behalf of the CITY OF BIRMINGHAM, by reason of personal injury, including bodily injury and death and/or property damage, including loss of use thereof, which is established to arise solely out of the negligent acts or omissions of the AUDITOR. Such responsibility shall not be construed as liability for damage caused by or resulting from the sole act or omission of its elected or appointed officials, employees, volunteers or others working on behalf of the CITY OF BIRMINGHAM.

C The AUDITOR shall not commence work under this Agreement until it has, at its sole expense, obtained the insurance required under this paragraph. All coverages shall be with insurance carriers licensed and admitted to do business in the State of Michigan. All coverages shall be with insurance carriers acceptable to the City of Birmingham.

1. Workers' Compensation Insurance: The AUDITOR shall procure and maintain during the life of this Agreement, Workers' Compensation Insurance, including Employers Liability Coverage, in accordance with all applicable statutes of the State of Michigan.
2. Commercial General Liability Insurance: The AUDITOR shall procure and maintain during the life of this Agreement, Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence combined single limit, Personal Injury, Bodily Injury and Property Damage. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent; E Deletion of all Explosion, Collapse and Underground (XCU) Exclusions, if applicable; (F) Annual per contract aggregate.
3. Motor Vehicle Liability: The AUDITOR shall procure and maintain during the life of this Agreement Motor Vehicle Liability Insurance, including all applicable no-fault coverages, with limits of liability of not less than \$ 1,000,000 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.
4. Additional Insured: Commercial General Liability and Motor Vehicle Liability Insurance, as described above, shall include an endorsement stating the following shall be *Additional Insureds*: The City of Birmingham including all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and board members, including employees and volunteers thereof. This coverage shall be primary to any coverage that may be available to the additional insured, whether any other available coverage be primary, contributing or excess.
5. Professional Liability Insurance: The AUDITOR shall procure and maintain during the life of this Agreement Professional Liability (Errors and Omissions) insurance with minimum limits of liability of not less than \$500,000 per claim.

6. Cancellation Notice: The AUDITOR shall provide at least 30 days advance written notice to the City of Birmingham of any cancellation or non-renewal of the following coverages: Workers' Compensation Insurance, Commercial General Liability Insurance, Motor Vehicle Liability Insurance, and Professional Liability Insurance. Such notice(s) shall be sent to: Chris Underwood City of Birmingham, P.O. Box 3001, 151 Martin Street, Birmingham, Michigan 48012.
7. Proof of Insurance Coverage: The AUDITOR shall provide the City of Birmingham at the time the contracts are returned for execution, Certificates of Insurance and/or policies, acceptable to the City of Birmingham, as listed below.
  - a. Two (2) copies of Certificate of Insurance for Workers' Compensation;
  - b. Two (2) copies of Certificate of Insurance for Commercial General Liability;
  - c. Two (2) copies of Certificate of Insurance for Vehicle Liability Insurance;
  - d. Two (2) copies of Certificate of Insurance for Professional Liability Insurance;
  - e. If so requested, Certified Copies of all policies mentioned above will be furnished.
8. Coverage Expiration: If any of the above coverages expire during the term of this Agreement, the AUDITOR shall deliver renewal certificates and/or policies to the City of Birmingham at least (10) days prior to the expiration date.

D. The AUDITOR shall not assign any interest under this Agreement and shall not transfer any interest in the same without prior written consent of the CITY.

E. No reports, information, or data given to or prepared by the AUDITOR shall be made available to any individual or organization by the AUDITOR without the prior written approval of the CITY.

F. The AUDITOR shall, in the performance of this Agreement, comply with and give all stipulations and representations required by all applicable federal, state and local laws, ordinances and regulations and shall require such compliance, stipulations and

representations by all other persons with who it shall enter into any contract pertaining to the work hereunder.

G. The CITY shall have the right to terminate this Agreement with or without cause on thirty (30) days written notice. In the event of termination, the AUDITOR shall receive compensation at its standard hourly rates for any work performed to up to and including the effective date of any such termination and the CITY shall be entitled to retain and, to the extent finalized, use all audits, reports and recommendations prepared by the AUDITORS until such date.

H. If, after the effective date of the Agreement, any official of the City, or spouse, child, parent or in-law of such official or employee shall become directly or indirectly personally interested in this Agreement or obtain an ownership interest or become an employee (hereafter a “disqualifying interest”) of the AUDITOR, the City shall have the right to terminate this Agreement without further liability to the AUDITOR if the disqualifying interest has not been removed within thirty (30) days after the City has given the AUDITOR notice of the disqualifying interest. Ownership of less than one percent (1%) of the stock or other equity interest in a corporation or partnership shall not be a disqualifying interest.

I. If AUDITOR fails to perform its obligations hereunder, the City may take any and all remedial actions provided by the general specifications or otherwise permitted by law.

J. Any controversy or claim arising out of or relating to this Agreement, or the breach thereof, shall be settled either by commencement of a suit in Oakland County Circuit Court, the 48<sup>th</sup> District Court or by arbitration. If both parties elect to have the dispute resolved by



arbitration, it shall be settled pursuant to Chapter 50 of the Revised Judicature Act for the State of Michigan and administered by the American Arbitration Association with one arbitrator being used, or three arbitrators in the event any party's claim exceeds \$1,000,000. Each party shall bear its own costs and expenses and an equal share of the arbitrator's and administrative fees of arbitration. Such arbitration shall qualify as statutory arbitration pursuant to MCL §600.5001 et. seq., and the Oakland County Circuit Court or any court having jurisdiction shall render judgment upon the award of the arbitrator made pursuant to this Agreement. This Agreement shall be governed by the laws of the State of Michigan and the arbitration shall take place in Oakland County, Michigan. In the event that the parties elect not to have the matter in dispute arbitrated, any dispute between the parties may be resolved by the filing of a suit in the Oakland County Circuit Court or the 48<sup>th</sup> District Court.

K. If AUDITOR fails to perform its obligations hereunder, the City may take any and all remedial actions provided by the general specifications or otherwise permitted by law.

L. This Agreement shall be governed by and performed, interpreted and enforced in accordance with the laws of the State of Michigan. The AUDITOR agrees to perform all services provided for in this Agreement in accordance with and in full compliance with all applicable local, state and federal laws and regulations.

M. If any provision of this Agreement is declared invalid, illegal or unenforceable, such provision shall be severed from this Agreement and all other provisions shall remain in full force and effect.

N. This Agreement shall be binding upon the successors and assigns of the parties hereto, but no such assignment shall be made by the AUDITOR without the prior written

consent of the City. Any attempt at assignment without prior written consent shall be void and of no effect.

O. The AUDITOR shall not discriminate against any employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment because of race, color, religion, national origin, age, sex, height, weight or marital status. The AUDITOR shall inform the City of all discrimination claims or suits asserted against it by the AUDITOR's employees who work pursuant to this Agreement. The AUDITOR shall provide the City with periodic status reports consisting of publically-available information concerning all such claims or suits, at intervals reasonably established by the City.

P. This AGREEMENT, together with the terms and conditions attached hereto as Exhibit A, constitute the entire agreement between the parties with respect to the subject matter. In the event of conflict between this document and Exhibit A that cannot be reconciled, this document shall take precedence.

Q. Fair Procurement Opportunity: Procurement for the City of Birmingham will be handled in a manner providing fair opportunity for all businesses without abrogation or sacrifice of quality and as determined to be in the best interest of the City of Birmingham

**IN WITNESS WHEREOF**, the said parties have caused this Agreement to be executed as of the date and year above written.

WITNESSES:

PLANTE & MORAN, PLLC

\_\_\_\_\_


By: \_\_\_\_\_

IN WITNESS WHEREOF, the said parties have caused this Agreement to be executed as of the date and year above written.

WITNESSES:

PLANTE & MORAN, PLLC

  
\_\_\_\_\_

  
By: \_\_\_\_\_  
Douglas G. Bohrer, Partner

CITY OF BIRMINGHAM


\_\_\_\_\_

By: \_\_\_\_\_  
Mark Nickita, Mayor

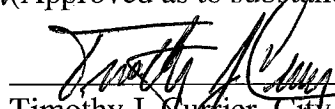
\_\_\_\_\_

By: \_\_\_\_\_  
Cherilynn Brown, City Clerk

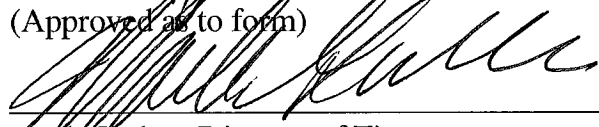
Approved:

  
\_\_\_\_\_

Joseph A. Valentine, City Manager  
(Approved as to substance)

  
\_\_\_\_\_

Timothy J. Cuffier, City Attorney  
(Approved as to form)

  
\_\_\_\_\_

Mark Gerber, Director of Finance  
(Approved as to financial obligation)

## **Exhibit A-Professional Services Agreement – Audit Services Addendum to Plante & Moran, PLLC Engagement Letter**

This Professional Services Agreement is part of the engagement letter for audit services dated July 25, 2017 between Plante & Moran, PLLC (referred to herein as “PM”) and City of Birmingham (referred to herein as “City”).

1. **Financial Statements** – The financial statements of City being audited by PM are to be presented in accordance with accounting principles generally accepted in the United States of America (GAAP).
2. **Management Responsibilities** – City management is responsible for the preparation and fair presentation of these financial statements in accordance with the applicable financial reporting framework, including compliance with the requirements of accounting principles generally accepted in the United States of America and the completeness and accuracy of the information presented and disclosed therein. Management is also responsible for the capability and integrity of City personnel responsible for City’s underlying accounting and financial records.

City personnel will provide PM, in a timely and orderly manner, with access to all information of which management is aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, and other matters and additional information that the auditor may request from management for the purpose of the audit. This includes providing assistance and information PM requests during the course of its audit, including retrieval of records and preparation of schedules, analyses of accounts, and confirmations. A written request for information to be provided will be submitted under separate cover and supplemented by additional written and oral requests as necessary during the course of PM’s audit. In addition, City will provide PM with all information in its possession that has a material impact on any material transaction and that information will be complete, truthful, and accurate. City will allow PM unrestricted access to personnel within City from whom PM determines it necessary to obtain audit evidence.

Management is responsible for making all management decisions and performing all management functions relating to the financial statements, supplementary financial information, and related notes and for accepting full responsibility for such decisions, even if PM provides advice as to the application of accounting principles or assists in drafting the financial statements, supplementary financial information, and related notes. City has designated Mr. Mark Gerber to oversee financial statement related services PM provides. Management will be required to acknowledge in the management representation letter that it has reviewed and approved the financial statements, supplementary financial information, and related notes prior to their issuance and have accepted responsibility for the adequacy of the financial statements.

Management is responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing PM about all known or suspected fraud affecting City involving (a) management, (b) employees who have significant roles in internal control, and (c) others where the fraud could have a material effect on the financial statements. Management’s responsibilities include informing PM of its knowledge of any allegations of fraud or suspected fraud affecting City received in communications from employees, former employees, regulators, or others. In addition, management is responsible for identifying and ensuring that the entity complies with applicable laws and regulations.

3. **Objective of an Audit of Financial Statements** – The objective of PM’s audit is the expression of an opinion on the City financial statements specified in the accompanying engagement letter. PM offers no guarantee, express or implied, that its opinion will be unmodified or that it will be able to form an opinion about these financial statements in the event that City’s internal controls or accounting and financial records prove to be unreliable or otherwise not auditable. If PM’s opinion is to be modified, PM will discuss the reasons with City management in advance of the issuance of its audit report. If, for any reason, PM is prevented from completing its audit or is unable to form an opinion on these financial statements, PM may terminate the engagement and decline to issue a report.
4. **Supplementary Information** – In any document that contains supplementary information to the basic financial statements that indicates that the auditor has reported on such supplementary information, management agrees to include the auditor’s report on that supplementary information. In addition, management agrees to present the supplementary information with the audited financial statements or to make the audited financial statements readily available no later than the date of issuance by City of the supplementary information and the auditor’s report thereon.
5. **Internal Controls** – City is responsible for the design, implementation, and maintenance of internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, including controls established for the purpose of preventing or detecting errors in financial reporting, preventing fraud or misappropriation of assets, and identifying and complying with applicable laws and regulations. PM, in making its risk assessments, will consider internal control relevant to City’s preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. PM’s audit will not be designed to provide assurance on the design or operating effectiveness of

## **Professional Services Agreement – Audit Services**

City's internal controls or to identify all conditions that represent significant deficiencies in those internal controls. PM will communicate all significant deficiencies and material weaknesses in internal controls relevant to the audit of the financial statements, instances of fraud, or misappropriation of assets that come to PM's attention.

6. **Audit Procedures and Limitations** – PM's audit will be conducted in accordance with auditing standards generally accepted in the United States of America (GAAS) and will include examination, on a test basis, of evidence supporting the amounts and disclosures in the City financial statements specified in this engagement letter. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. An audit in accordance with GAAS involves judgment about the number of transactions to be tested and the overall approach to testing in each area. As a result, PM's audit can only be designed to provide reasonable rather than absolute assurance that these financial statements are free from material misstatement. In addition, an audit in accordance with GAAS is not designed to detect errors or fraud that are immaterial to the financial statements. Because of the inherent limitations of an audit, together with the inherent limitations of internal control, an unavoidable risk that some material misstatements may not be detected always exists, even in an audit properly planned and performed in accordance with GAAS. In recognition of these limitations, City acknowledges that PM's audit cannot guarantee that all instances of error or fraud will be identified.
7. **Auditor Communications** – PM is obligated to communicate certain matters related to the audit to those responsible for governance of City, including instances of error or fraud and significant deficiencies and material weaknesses in internal control that PM identifies during its audit. PM will communicate these matters to the members of City's governing commission, and City acknowledges and agrees that communication in this manner is sufficient for City's purposes.

Communication to Group Auditor – In instances where PM has been engaged as a component auditor for the purposes of a Group Audit, the terms of the engagement may include communication of certain matters related to the audit to the Group Auditor. City permits such communication. PM will discuss matters being communicated with those responsible for governance of City.

8. **Accounting and Financial Records** – City agrees that it is responsible for providing PM with accounting and financial records that are closed, complete, accurate, and in conformity with the requirements of GAAP, for providing schedules and analyses of accounts that PM requests, and for making all City financial records and related information available to PM for purposes of PM's audit. Where PM has provided estimates of the timing of its work and completion of PM's engagement and issuance of PM's report, those estimates are dependent on City providing PM with all such accounting and financial records, schedules, and analyses on the date PM's work commences. PM will assess the condition of City's accounting and financial records, schedules, and analyses of accounts prior to commencing its work. In the event that such records, schedules, and analyses are not closed, complete, accurate, or in conformity with GAAP, PM may have to reschedule its work, including the dates on which PM expects to complete its on-site procedures and issue its audit report.

In any circumstance where PM's work is rescheduled due to City's failure to provide information as described in the preceding paragraph, PM offers no guarantee, express or implied, that PM will be able to meet any previously established deadlines related to the completion of the audit work or issuance of its audit report. Because rescheduling audit work imposes additional costs on PM, in any circumstance where PM has provided estimated fees, those estimated fees may be adjusted for the additional time PM incurs as a result of rescheduling its work. These fee adjustments will be determined in accordance with the Fee Adjustments provision of this agreement.

9. **Audit Adjustments** – PM will recommend adjustments to City's accounting records that PM believes are appropriate. City management is responsible for adjusting City accounting records and financial statements to correct material misstatements and for affirming to PM in writing that the effects of any unrecorded adjustments identified during PM's audit are immaterial, both individually and in the aggregate, to the City financial statements specified in this agreement.
10. **Management Representations** – City is responsible for the financial statements being audited and the implicit and explicit representations and assertions regarding the recognition, measurement, presentation, and disclosure of information therein. During the course of the audit, PM will request information and explanations from City officers, management, and other personnel regarding accounting and financial matters, including information regarding internal controls, operations, future plans, and the nature and purpose of specific transactions. PM will also require that management make certain representations to PM in writing as a precondition to issuance of PM's report.

PM's audit procedures will be significantly affected by the representations and assertions PM receives from management and, accordingly, false representations could cause material error or fraud to go undetected by PM's procedures. Accordingly, City acknowledges and agrees that it will instruct each person providing information, explanations, or representations to an auditor to provide true and complete information, to the best of his or her

## **Professional Services Agreement – Audit Services**

knowledge and belief. It is also agreed that any deliberate misrepresentation by any director, officer, or member of management, or any other person acting under the direction thereof ("City of Birmingham Personnel"), intended to influence, coerce, manipulate, or mislead PM in the conduct of its audit of the financial statements will be considered a material breach of this agreement. In addition, as a condition of its audit engagement, City agrees to indemnify and hold PM and its partners, affiliates, and employees harmless from any and all claims, including associated attorneys' fees and costs, based on PM's failure to detect material misstatements in City financial statements resulting in whole or in part from deliberate false or misleading representations, whether oral or written, made to PM by City of Birmingham Personnel. This indemnity will be inoperative only if, and to the extent that, a court having competent jurisdiction has determined that PM failed to conduct its audit in accordance with generally accepted auditing standards and such failure resulted in PM not determining such misrepresentation by City of Birmingham Personnel was false.

- 11. Use of Report** – PM's report on the financial statements must be associated only with the financial statements that were the subject of PM's audit engagement. City may make copies of the audit report, but only if the entire financial statements (including related footnotes and supplemental information, as appropriate) are reproduced and distributed with that report. City agrees not to reproduce or associate PM's audit report with any other financial statements, or portions thereof, that are not the subject of this engagement.

If PM's report on the financial statements being audited is to be published in any manner or if City intends to make reference to PM in a publication of any type, City agrees to submit proofs of the publication to PM for review prior to such publication and cooperate with PM in PM's performance of any additional audit procedures PM deems necessary in the circumstances, the nature and extent of which will be at PM's sole discretion. City acknowledges and agrees that additional fees for such work will be determined in accordance with the Fee Adjustments provision of this agreement. With regard to the electronic dissemination of audited financial statements, including financial statements published electronically on City's Internet website, City understands that electronic sites are a means to distribute information and, therefore, PM is not required to read the information contained in these sites or to consider the consistency of other information in the electronic site with the original document.

- 12. Securities Offerings** – PM's audit does not contemplate, and does not include, any services in connection with any offering of securities, whether registered or exempt from registration. In the event City elects to incorporate or make reference to PM's report in connection with any offering of debt or equity securities and request PM's consent to such incorporation or reference, City understands that PM must perform additional procedures, the nature and extent of which will be at PM's sole discretion, and agrees that additional fees for such work will be determined based on the actual time that PM staff expend at current hourly rates, plus all reasonable and necessary travel and out-of-pocket costs incurred, and that payment for all such additional fees will be made in accordance with the payment terms provided in this agreement.
- 13. Tax Return Preparation** – This engagement does not include preparation of any tax returns or filings. If City requires tax services, including tax consulting or preparation of tax returns, those services will be detailed in a separate engagement letter.
- 14. Confidentiality, Ownership, and Retention of Workpapers** – During the course of this engagement, PM and PM staff may have access to proprietary information of City, including, but not limited to, information regarding trade secrets, business methods, plans, or projects. PM acknowledges that such information, regardless of its form, is confidential and proprietary to City, and PM will not use such information for any purpose other than its audit or disclose such information to any other person or entity without the prior written consent of City.

In the interest of facilitating PM's services to City, PM may communicate or exchange data by internet, e-mail, facsimile transmission, or other electronic method. While PM will use its best efforts to keep such communications and transmissions secure in accordance with PM's obligations under applicable laws and professional standards, City recognizes and accepts that PM has no control over the unauthorized interception of these communications or transmissions once they have been sent, and consents to PM's use of these electronic devices during this engagement.

Professional standards require that PM create and retain certain workpapers for engagements of this nature. All workpapers created in the course of this engagement are and shall remain the property of PM. PM will maintain the confidentiality of all such workpapers as long as they remain in PM's possession.

Both City and PM acknowledge, however, that PM may be required to make its workpapers available to regulatory authorities or by court order or subpoena in a legal, administrative, arbitration, or similar proceeding in which PM is not a party. Disclosure of confidential information in accordance with requirements of regulatory authorities or pursuant to court order or subpoena shall not constitute a breach of the provisions of this agreement. In the event that a request for any confidential information or workpapers covered by this agreement is made by regulatory authorities or pursuant to a court order or subpoena, PM agrees to inform City in a timely manner of such request and to cooperate with City should it attempt, at City's cost, to limit such access. This provision will survive the

## **Professional Services Agreement – Audit Services**

termination of this agreement. PM's efforts in complying with such requests will be deemed billable to City as a separate engagement. PM shall be entitled to compensation for its time and reasonable reimbursement of its expenses (including legal fees) in complying with the request.

Both City and PM acknowledge that upon completion of the audit PM is required to send an electronic copy of City's financial report, PM's official letter of comments and recommendations, and auditing procedures report directly to the State of Michigan pursuant to Michigan Department of Treasury Regulations. City authorizes and directs PM to provide such information and disclosure of such information shall not constitute a breach of the provisions of this agreement.

PM reserves the right to destroy, and it is understood that PM will destroy, workpapers created in the course of this engagement in accordance with PM's record retention and destruction policies, which are designed to meet all relevant regulatory requirements for retention of workpapers. PM has no obligation to maintain workpapers other than for its own purposes or to meet those regulatory requirements.

Upon City's written request, PM may, at its sole discretion, allow others to view any workpapers remaining in its possession if there is a specific business purpose for such a review. PM will evaluate each written request independently. City acknowledges and agrees that PM will have no obligation to provide such access or to provide copies of PM's workpapers, without regard to whether access had been granted with respect to any prior requests.

**15. Consent to Disclosures to Service Providers** – In some circumstances, PM may use third-party service providers to assist with its services. In those circumstances, PM will require any such third-party service provider to: (i) maintain the confidentiality of any information furnished; and (ii) not use any information for any purpose unrelated to assisting with PM's services for City. In order to enable these service providers to assist PM in this capacity, City, by its duly authorized signature on the accompanying engagement letter, consents to PM's disclosure of all or any portion of City's information to such service providers to the extent such information is relevant to the services such third-party service providers may provide and agrees that PM's disclosure of such information for such purposes shall not constitute a breach of the provisions of this agreement. City's consent shall be continuing until the services provided for this engagement agreement are completed.

**16. Fee Quotes** – In any circumstance where PM has provided estimated fees, ("Fee Quotes"), these Fee Quotes are based on information provided by City regarding the nature and condition of its accounting, financial, and tax records; the nature and character of transactions reflected in those records; and the design and operating effectiveness of its internal controls. City acknowledges that the following circumstances may result in an increase in fees:

- Failure by City to prepare for the audit as evidenced by accounts and records that have not been subject to normal year-end closing and reconciliation procedures;
- Failure by City to complete the audit preparation work by the applicable due dates;
- Significant unanticipated or undisclosed transactions, audit issues, or other such unforeseeable circumstances;
- Delays by City causing scheduling changes or disruption of fieldwork;
- After audit or post fieldwork circumstances requiring revisions to work previously completed or delays in resolution of issues that extend the period of time necessary to complete the audit;
- Issues with the prior audit firm, prior year account balances, or report disclosures that impact the current year engagement;
- An excessive number of audit adjustments.

PM will advise City in the event these circumstances occur, however it is acknowledged that the exact impact on the estimated fees may not be determinable until the conclusion of the engagement. Such fee adjustments will be determined in accordance with the Fee Adjustments provision of this agreement.

**17. Payment Terms** – PM's invoices for audit services are due upon receipt. In the event any of PM's invoices are not paid in accordance with the terms of this agreement, PM may elect, at PM's sole discretion, to suspend work until PM receives payment in full for all amounts due or terminate this engagement. In the event that work is suspended, for nonpayment or other reasons, and subsequently resumed, PM offers no guarantee, express or implied, that PM will be able to meet any previously established deadlines related to the completion of PM's audit work or issuance of PM's audit report upon resumption of PM's work. City agrees that in the event PM stops work or terminates this Agreement as a result of City's failure to pay fees on a timely basis for services rendered by PM as provided in this Agreement, or if PM terminates this Agreement for any other reason, PM shall not be liable for any damages that occur as a result of PM ceasing to render services.

**Professional Services Agreement – Audit Services**

18. **Fee Adjustments** – Any fee adjustments for reasons described elsewhere in this agreement will be determined based on the actual time expended by PM staff at PM's current hourly rates, plus all reasonable and necessary travel and out-of-pocket costs incurred, and included as an adjustment to PM's invoices related to this engagement. City acknowledges and agrees that payment for all such fee adjustments will be made in accordance with the payment terms provided in this agreement.
19. **Exclusion of Certain Damages** – In no event shall either party be liable to the other, whether a claim be in tort, contract, or otherwise, for any indirect, consequential, punitive, exemplary, lost profits, or similar damages in claims relating to PM's services provided under this engagement.
20. **Receipt of Legal Process** – In the event PM is required to respond to a subpoena, court order, or other legal process (in a matter involving City but not PM) for the production of documents and/or testimony relative to information PM obtained and/or prepared during the course of this engagement, City agrees to compensate PM for the affected PM staff's time at such staff's current hourly rates, and to reimburse PM for all of PM's out-of-pocket costs incurred associated with PM's response unless otherwise reimbursed by a third party.
21. **Subsequent Discovery of Facts** – After the date of PM's report on the financial statements, PM has no obligation to make any further or continuing inquiry or perform any other auditing procedures with respect to the audited financial statements covered by PM's report, unless new information that may affect the report comes to PM's attention. If PM becomes aware of information that relates to these financial statements but was not known to PM at the date of its report, and that is of such a nature and from such a source that PM would have investigated it had it come to PM's attention during the course of the audit, PM will, as soon as practicable, undertake to determine whether the information is reliable and whether the facts existed at the date of PM's report. In this connection, PM will discuss the matter with City and request cooperation in whatever investigation and modification of the financial statements that may be necessary. Additional fees for such work will be determined based on the actual time that PM staff expend at PM's current hourly rates, plus all reasonable and necessary travel and out-of-pocket costs incurred, and City acknowledges and agrees that payment for all such additional fees will be made in accordance with the payment terms provided in this agreement.
22. **Termination of Engagement** – This agreement may be terminated by either party upon written notice. Upon notification of termination, PM's services will cease and PM's engagement will be deemed to have been completed. City will be obligated to compensate PM for all time expended and to reimburse PM for all out-of-pocket expenditures through the date of termination of this engagement.
23. **Entire Agreement** – This engagement agreement is contractual in nature, and includes all of the relevant terms that will govern the engagement for which it has been prepared. The terms of this letter supersede any prior oral or written representations or commitments by or between the parties. Any material changes or additions to the terms set forth in this letter will only become effective if evidenced by a written amendment to this agreement, signed by all of the parties.
24. **Severability** – If any provision of this engagement agreement (in whole or part) is held to be invalid or otherwise unenforceable, the other provisions shall remain in full force and effect.
25. **Governing Law** – This agreement shall be governed by and construed in accordance with the laws of the State of Michigan, and jurisdiction over any action to enforce this agreement, or any dispute arising from or relating to this agreement shall reside exclusively within the State of Michigan.

**End of Professional Services Agreement – Audit Services**





111 West Campbell Street, 4<sup>th</sup> Floor  
Arlington Heights, IL 60005

### VERIFICATION OF INSURANCE

We, the undersigned Insurance Brokers, hereby verify that Lloyd's London & Various Insurers have issued the following described insurance which is in force as of the date thereof-

#### PROFESSIONAL INDEMNITY INSURANCE

NAME OF INSURED: Plante & Moran, PLLC and others as more fully described in the policy.  
POLICY NUMBER: IM1701869  
PERIOD OF INSURANCE: 12:01 a.m. June 15, 2017 to 12:01 a.m. June 15, 2018  
SUM INSURED: \$10,000,000 Each Claim and in the aggregate including costs, charges and expenses.

#### SUBJECT TO ALL TERMS, CONDITIONS AND LIMITATIONS OF THE POLICY

This document is furnished to you as a matter of information only and is not insurance coverage. Only the formal policy and applicable endorsements offer a comprehensive review of the coverage in place. The issuance of this document does not make the person or organization to whom it is issued an additional insured, nor does it modify in any manner the contract of insurance between the Insured and the Insurer. Any amendment, change or extension of such contract can only be effected by specific endorsement attached thereto. Should the above described Policy be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Issued at Chicago, Illinois

Integro Insurance Brokers

Date: June 15, 2017

Per:

Managing Principal



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
8/1/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> Marsh & McLennan Agency LLC 15415 Middlebelt Road Livonia MI 48154-3805	<b>CONTACT NAME:</b> Amy Micallef, CIC, CISR, LIC, AAI, AIS <b>PHONE (A/C, No, Ext):</b> 734-525-2445 <b>FAX (A/C, No):</b> 734-525-1841 <b>E-MAIL ADDRESS:</b> amicallef@mma-mi.com													
	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A: Federal Insurance Company</td> <td>20281</td> </tr> <tr> <td>INSURER B: Great Northern Insurance Company</td> <td>20303</td> </tr> <tr> <td>INSURER C:</td> <td></td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Federal Insurance Company	20281	INSURER B: Great Northern Insurance Company	20303	INSURER C:		INSURER D:		INSURER E:		INSURER F:
INSURER(S) AFFORDING COVERAGE	NAIC #													
INSURER A: Federal Insurance Company	20281													
INSURER B: Great Northern Insurance Company	20303													
INSURER C:														
INSURER D:														
INSURER E:														
INSURER F:														
<b>INSURED</b> PMHOLDI P&M Holding Group, LLP & Subsidiaries; Plante & Moran, PLLC c/o Bonnie Kozikowski 26300 Northwestern Hwy., #120 Southfield MI 48076-3750														

**COVERAGES** CERTIFICATE NUMBER: 2091093119 REVISION NUMBER:

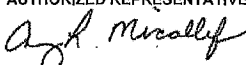
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> \$100,000 Deduct. GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:	Y		35756613	3/13/2017	3/13/2018	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$1,000,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
A	<input type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY	Y		73263017	3/13/2017	3/13/2018	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			79833330	3/13/2017	3/13/2018	EACH OCCURRENCE \$1,000,000 AGGREGATE \$1,000,000 \$
B	<input type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		Y/N N/A	71653087	3/13/2017	3/13/2018	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

City of Birmingham, all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and board members including employees and volunteers thereof are included as additional insureds for general liability coverage on a primary and non-contributory basis to the extent provided in the attached form #80-02-2367 and additional insured for auto liability to the extent provided in the attached form #16-02-0292.

**CERTIFICATE HOLDER** **CANCELLATION**

City of Birmingham 151 Martin Street Birmingham MI 48012-3001	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
---	---

© 1988-2015 ACORD CORPORATION. All rights reserved.

## COMMERCIAL AUTOMOBILE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

### COMMERCIAL AUTOMOBILE BROAD FORM ENDORSEMENT

This endorsement modifies insurance provided under the following:

#### BUSINESS AUTO COVERAGE FORM

This endorsement modifies the Business Auto Coverage Form.

##### 1. EXTENDED CANCELLATION CONDITION

Paragraph A.2.b. -- CANCELLATION - of the COMMON POLICY CONDITIONS form IL 00 17 is deleted and replaced with the following:

- b. 60 days before the effective date of cancellation if we cancel for any other reason.

##### 2. BROAD FORM INSURED

###### A. Subsidiaries and Newly Acquired or Formed Organizations As Insureds

The Named Insured shown in the Declarations is amended to include:

1. Any legally incorporated subsidiary in which you own more than 50% of the voting stock on the effective date of the Coverage Form. However, the Named Insured does not include any subsidiary that is an "insured" under any other automobile policy or would be an "insured" under such a policy but for its termination or the exhaustion of its Limit of Insurance.
2. Any organization that is acquired or formed by you and over which you maintain majority ownership. However, the Named Insured does not include any newly formed or acquired organization:
  - (a) That is an "insured" under any other automobile policy;
  - (b) That has exhausted its Limit of Insurance under any other policy; or
  - (c) 180 days or more after its acquisition or formation by you, unless you have given us written notice of the acquisition or formation.

Coverage does not apply to "bodily injury" or "property damage" that results from an "accident" that occurred before you formed or acquired the organization.

###### B. Employees as Insureds

Paragraph A.1. -- WHO IS AN INSURED -- of SECTION II -- LIABILITY COVERAGE is amended to add the following:

- d. Any "employee" of yours while using a covered "auto" you don't own, hire or

borrow in your business or your personal affairs.

##### C. Lessors as Insureds

Paragraph A.1. -- WHO IS AN INSURED -- of SECTION II -- LIABILITY COVERAGE is amended to add the following:

- e. The lessor of a covered "auto" while the "auto" is leased to you under a written agreement if:
  - (1) The agreement requires you to provide direct primary insurance for the lessor; and
  - (2) The "auto" is leased without a driver. Such leased "auto" will be considered a covered "auto" you own and not a covered "auto" you hire. However, the lessor is an "insured" only for "bodily injury" or "property damage" resulting from the acts or omissions by:
    1. You;
    2. Any of your "employees" or agents; or
    3. Any person, except the lessor or any "employee" or agent of the lessor, operating an "auto" with the permission of any of 1. and/or 2. above.



##### D. Persons And Organizations As Insureds Under A Written Insured Contract

Paragraph A.1 -- WHO IS AN INSURED -- of SECTION II -- LIABILITY COVERAGE is amended to add the following:

- f. Any person or organization with respect to the operation, maintenance or use of a covered "auto", provided that you and such person or organization have agreed under an express provision in a written "insured contract", written agreement or a written permit issued to you by a governmental or public authority to add such person or organization to this policy as an "insured". However, such person or organization is an "insured" only:

- (1) with respect to the operation, maintenance or use of a covered "auto"; and
- (2) for "bodily injury" or "property damage" caused by an "accident" which takes place after:
  - (a) You executed the "insured contract" or written agreement; or
  - (b) The permit has been issued to you.

**3. FELLOW EMPLOYEE COVERAGE**

EXCLUSION B.5. - FELLOW EMPLOYEE - of SECTION II – LIABILITY COVERAGE does not apply.

**4. PHYSICAL DAMAGE – ADDITIONAL TEMPORARY TRANSPORTATION EXPENSE COVERAGE**

Paragraph A.4.a. – TRANSPORTATION EXPENSES – of SECTION III – PHYSICAL DAMAGE COVERAGE is amended to provide a limit of \$50 per day for temporary transportation expense, subject to a maximum limit of \$1,000.

**5. AUTO LOAN/LEASE GAP COVERAGE**

Paragraph A. 4. – COVERAGE EXTENSIONS - of SECTION III – PHYSICAL DAMAGE COVERAGE is amended to add the following:

**c. Unpaid Loan or Lease Amounts**

In the event of a total "loss" to a covered "auto", we will pay any unpaid amount due on the loan or lease for a covered "auto" minus:

1. The amount paid under the Physical Damage Coverage Section of the policy; and
2. Any:
  - a. Overdue loan/lease payments at the time of the "loss";
  - b. Financial penalties imposed under a lease for excessive use, abnormal wear and tear or high mileage;
  - c. Security deposits not returned by the lessor;
  - d. Costs for extended warranties, Credit Life Insurance, Health, Accident or Disability Insurance purchased with the loan or lease; and
  - e. Carry-over balances from previous loans or leases.

We will pay for any unpaid amount due on the loan or lease if caused by:

1. Other than Collision Coverage only if the Declarations indicate that Comprehensive Coverage is provided for any covered "auto";
2. Specified Causes of Loss Coverage only if the Declarations indicate that Specified Causes of Loss Coverage is provided for any covered "auto"; or
3. Collision Coverage only if the Declarations indicate that Collision Coverage is provided for any covered "auto".

**6. RENTAL AGENCY EXPENSE**

Paragraph A. 4. – COVERAGE EXTENSIONS – of

SECTION III – PHYSICAL DAMAGE COVERAGE is amended to add the following:

**d. Rental Expense**

We will pay the following expenses that you or any of your "employees" are legally obligated to pay because of a written contract or agreement entered into for use of a rental vehicle in the conduct of your business:

**MAXIMUM WE WILL PAY FOR ANY ONE CONTRACT OR AGREEMENT:**

1. \$2,500 for loss of income incurred by the rental agency during the period of time that vehicle is out of use because of actual damage to, or "loss" of, that vehicle, including income lost due to absence of that vehicle for use as a replacement;
  2. \$2,500 for decrease in trade-in value of the rental vehicle because of actual damage to that vehicle arising out of a covered "loss"; and
  3. \$2,500 for administrative expenses incurred by the rental agency, as stated in the contract or agreement.
  4. \$7,500 maximum total amount for paragraphs 1., 2. and 3. combined.
- 7. EXTRA EXPENSE – BROADENED COVERAGE**  
Paragraph A.4. – COVERAGE EXTENSIONS – of SECTION III – PHYSICAL DAMAGE COVERAGE is amended to add the following:
- e. Recovery Expense**  
We will pay for the expense of returning a stolen covered "auto" to you.
- 8. AIRBAG COVERAGE**  
Paragraph B.3.a. - EXCLUSIONS – of SECTION III – PHYSICAL DAMAGE COVERAGE does not apply to the accidental or unintended discharge of an airbag. Coverage is excess over any other collectible insurance or warranty specifically designed to provide this coverage.
- 9. AUDIO, VISUAL AND DATA ELECTRONIC EQUIPMENT - BROADENED COVERAGE**  
Paragraph C.2. – LIMIT OF INSURANCE - of SECTION III - PHYSICAL DAMAGE is deleted and replaced with the following:
2. \$2,000 is the most we will pay for "loss" in any one "accident" to all electronic equipment that reproduces, receives or transmits audio, visual or data signals which, at the time of "loss", is:
    - a. Permanently installed in or upon the covered "auto" in a housing, opening or other location that is not normally used by the "auto" manufacturer for the installation of such equipment;
    - b. Removable from a permanently installed housing unit as described in Paragraph 2.a. above or is an integral part of that equipment; or

# Liability Insurance

## Endorsement

Policy Period

Effective Date

Policy Number

Insured

Name of Company

Date Issued

---

This Endorsement applies to the following forms:

### GENERAL LIABILITY

---

Under Who Is An Insured, the following provision is added.

#### Who Is An Insured

##### Additional Insured - Scheduled Person Or Organization

Persons or organizations shown in the Schedule are insureds; but they are insureds only if you are obligated pursuant to a contract or agreement to provide them with such insurance as is afforded by this policy.

However, the person or organization is an insured only:

- if and then only to the extent the person or organization is described in the Schedule;
- to the extent such contract or agreement requires the person or organization to be afforded status as an insured;
- for activities that did not occur, in whole or in part, before the execution of the contract or agreement; and
- with respect to damages, loss, cost or expense for injury or damage to which this insurance applies.

No person or organization is an insured under this provision:

- that is more specifically identified under any other provision of the Who Is An Insured section (regardless of any limitation applicable thereto).
  - with respect to any assumption of liability (of another person or organization) by them in a contract or agreement. This limitation does not apply to the liability for damages, loss, cost or expense for injury or damage, to which this insurance applies, that the person or organization would have in the absence of such contract or agreement.
-

---

**Liability Endorsement**

(continued)

Under Conditions, the following provision is added to the condition titled Other Insurance.

**Conditions**

**Other Insurance –  
Primary, Noncontributory  
Insurance – Scheduled  
Person Or Organization**

If you are obligated, pursuant to a contract or agreement, to provide the person or organization shown in the Schedule with primary insurance such as is afforded by this policy, then in such case this insurance is primary and we will not seek contribution from insurance available to such person or organization.

---

**Schedule**

Persons or organizations that you are obligated, pursuant to a contract or agreement, to provide with such insurance as is afforded by this policy.

All other terms and conditions remain unchanged.

Authorized Representative





## **MEMORANDUM**

City Clerk's Office

**DATE:** July 31, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Cherilynn Mynsberge, City Clerk

**SUBJECT:** Designation of Voting Delegates for the  
Michigan Municipal League Annual Meeting

---

The City of Birmingham is a member of the Michigan Municipal League (MML). The MML is holding its annual election to elect six members to its Board of Trustees at its annual meeting in Holland, MI on September 13, 2017. Information on the candidates will be provided at the annual meeting.

A resolution is required to designate a voting delegate and alternate voting delegate to cast the ballot on behalf of the City. The deadline to submit the delegate information is August 14<sup>th</sup>. However, due to the late receipt of the letter, the MML will allow the City to submit the delegate information on August 15<sup>th</sup>.

Commissioner Bordman will be in attendance at the MML Annual Meeting.

**SUGGESTED RESOLUTION:**

To appoint Commissioner Patty Bordman as the Birmingham City Commission's official voting delegate at the Michigan Municipal League Annual Meeting to be held in Holland, Michigan on September 13, 2017.

July 27, 2017

Michigan Municipal League Annual Meeting Notice

(Please present at the next Council, Commission or Board Meeting)

Dear Official:

The Michigan Municipal League Annual Convention will be held in Holland, September 13-15, 2017. The League's "Annual Meeting" is scheduled for 1:30 pm on Wednesday, September 13 in Ballroom I & II at the Haworth Inn and Conference Center. The meeting will be held for the following purposes:

1. Election of Trustees. To elect six members of the Board of Trustees for terms of three years each (see #1 on page 2).
2. Policy. A) To vote on the Core Legislative Principles document

In regard to the proposed League Core Legislative Principles, the document is available on the League website at <http://www.mml.org/delegate>. If you would like to receive a copy of the proposed principles by fax, please call Monica Drukis at the League at 800-653-2483.

B) If the League Board of Trustees has presented any resolutions to the membership, they also will be voted on. (See #2 on page 2.)

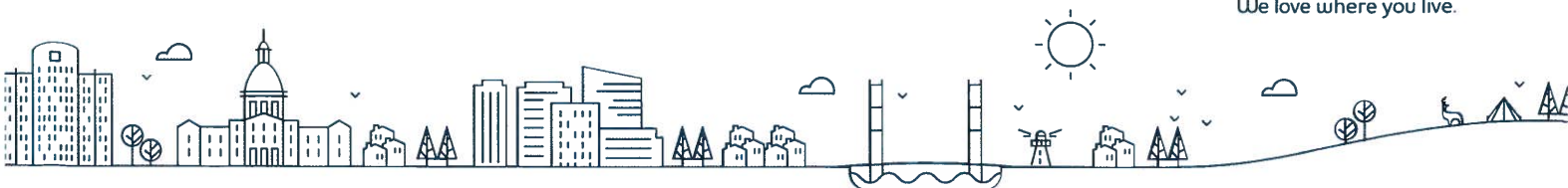
In regard to resolutions, member municipalities planning on submitting resolutions for consideration by the League Trustees are reminded that under the Bylaws, they must be submitted to the Trustees for their review by August 14, 2017.

3. Other Business. To transact such other business as may properly come before the meeting.

Designation of Voting Delegates

Pursuant to the provisions of the League Bylaws, you are requested to designate by action of your governing body one of your officials who will be in attendance at the Convention as your official representative to cast the vote of the municipality at the Annual Meeting, and, if possible, to designate one other official to serve as alternate. Please submit this information through the League website by visiting <http://www.mml.org/delegate> no later than August 14, 2017.

We love where you live.





Regarding the designation of an official representative of the member to the annual meeting, please note the following section of the League Bylaws:

“Section 4.4 - Votes of Members. Each member shall be equally privileged with all other members in its voice and vote in the election of officers and upon any proposition presented for discussion or decision at any meeting of the members. Honorary members shall be entitled to participate in the discussion of any question, but such members shall not be entitled to vote. The vote of each member shall be cast by its official representative attending the meeting at which an election of officers or a decision on any proposition shall take place. Each member shall, by action of its governing body prior to the annual meeting or any special meeting, appoint one official of such member as its principal official representative to cast the vote of the member at such meeting, and may appoint one official as its alternate official representative to serve in the absence or inability to act of the principal representative.”

#### 1. Election of Trustees

Regarding election of Trustees, under Section 5.3 of the League Bylaws, six members of the Board of Trustees will be elected at the annual meeting for a term of three years. The regulations of the Board of Trustees require the Nominations Committee to complete its recommendations and post the names of the nominees for the Board of Trustees on a board at the registration desk at least four hours before the hour of the business meeting.

#### 2. Statements of Policy and Resolutions

Regarding consideration of resolutions and statements of policy, under Section 4.5 of the League Bylaws, the Board of Trustees acts as the Resolutions Committee, and “no resolution or motion, except procedural and incidental matters having to do with business properly before the annual meeting or pertaining to the conduct of the meeting, shall be considered at the annual meeting unless it is either (1) submitted to the meeting by the Board of Trustees, or (2) submitted in writing to the Board of Trustees by resolution of the governing body of a member at least thirty (30) days preceding the date of the annual meeting.” Thus the deadline this year for the League to receive resolutions is **August 14, 2017**. Please submit resolutions to the attention of Daniel P. Gilmartin, Executive Director/CEO at 1675 Green Rd., Ann Arbor, MI 48105. Any resolution submitted by a member municipality will go to the League Board of Trustees, serving as the resolutions committee under the Bylaws, which may present it to the membership at the Annual Meeting or refer it to the appropriate policy committee for additional action.

Further, “Every proposed resolution submitted by a member shall be stated in clear and concise language and shall be accompanied by a statement setting forth the reasons for recommending the proposed resolution. The Board shall consider the proposal at a Board meeting prior to the next annual meeting and, after consideration, shall make a recommendation as to the advisability of adopting each such resolution or modification thereof.”

We love where you live.



### 3. Posting of Proposed Resolutions and Core Legislative Principles

The proposed Michigan Municipal League Core Legislative Principles and any new proposed Resolutions recommended by the Board of Trustees for adoption by the membership will be available on the League website, or at the League registration desk to permit governing bodies of member communities to have an opportunity to review such proposals and delegate to their voting representative the responsibility for expressing the official point of view of the member at the Annual Meeting.

The Board of Trustees will meet on Tuesday, September 13 at CityVu Events located on the top floor of CityFlatsHotel for the purpose of considering such other matters as may be requested by the membership, in addition to other agenda items.

Sincerely,



Rosalynn Bliss  
President  
Mayor of Grand Rapids



Daniel P. Gilmartin  
Executive Director & CEO





# **MEMORANDUM**

Department of Public Service

**DATE:** August 3, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Lauren A. Wood, Director of Public Services  
**SUBJECT:** Code Enforcement – Ford Transit Connect Purchase

---

In preparing its portion of the approved 2017-18 budget, the Building Department within Community Development allocated funds for the purchase of a new code enforcement vehicle. In consultation with the Department of Public Services, it was determined that a Ford Transit Connect van would best meet the operational needs of the code enforcement division.

This van - nearly identical to one currently in use by the Building Maintenance Department - is available for purchase from Gorno Ford of Woodhaven, MI through the State of Michigan Mi-Deal Extendable Purchasing Contract #071B1300005 for a total cost of \$23,836.00. Funds for this purchase are available in the Building Department Equipment and Machinery account.

Delivery is expected within two weeks of purchase approval.

**SUGGESTED RESOLUTION:**

To approve the purchase of a new 2017 Ford Transit Connect cargo van from Gorno Ford through the State of Michigan extendable purchasing contract #071B1300005 in the amount of \$23,836.00 from account #101-371.000-971.0100.



# MEMORANDUM

Department of Public Services

**DATE:** August 3, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Lauren A. Wood, Director of Public Services  
**SUBJECT:** Leaf Claw Replacement

---

The Department of Public Services uses two front-end-loader-mounted hydraulic claw scoops for its annual leaf collection operations. This equipment is pushed along curb lines where it directs large piles of leaves into the center of its scoop. Leaf debris can then be held securely by its pincer jaws while being deposited into trucks for hauling, reducing the time required to complete a full leaf collection cycle.

The existing equipment is over 20 years old and has undergone several overhauls. Recently, as a result of its age and condition, DPS mechanics have resorted to welding makeshift wear plates onto the scoops to prolong their useful life. The Department of Public Services, in order to ensure uninterrupted leaf removal operations, determined it necessary to replace one of the scoops and published a request for quotations on the Michigan Intergovernmental Trade Network. Specifically, the RFQ sought a bid price for a new model Tink 520 Claw, including one additional set of wear blades, wear shoes, and related hardware. The results are as follows:

Southeastern Equipment, Inc	\$16,020
Michigan CAT	\$13,648
<b>Alta Equipment Company</b>	<b>\$11,395</b>

The Department of Public Services recommends replacing one of the leaf scoops with a Tink Model 520 Claw from Alta Equipment Company of New Hudson, MI. Funds for this purchase are available in the Automotive Equipment Fund, account #641-441.006-971.0100. Delivery is expected within five weeks of purchase approval.

The replaced equipment will be placed into parts inventory for use in repairing the remaining old model claw, should the need arise.

**SUGGESTED RESOLUTION:**

To approve the purchase of one (1) Tink Model 520 Claw from Alta Equipment Company in the amount of \$11,395.00 from account 641-441.006-971.0100.



# MEMORANDUM

Birmingham Museum

**DATE:** August 14, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Leslie Pielack, Museum Director  
Carlos Jorge, Building Maintenance Supervisor

**SUBJECT:** Replacement of the Siding and Trim at Allen House

---

For many years, the city has maintained the existing painted cedar siding on the Allen House through spot repair and painting every few years. However, the cedar shingles have been deteriorating over time with exposure to moisture, sun, and general aging to the point that repair and repainting is no longer an option. In addition, the painted wood trim around the windows, doors, and dormer areas is similarly deteriorating and requires attention to prevent further damage and water intrusion.

On June 22, 2016, the Museum Board voted unanimously to pursue a Request for Proposals to repair and/or replace the siding and trim according to the State Historic Preservation Office (SHPO) guidelines for the treatment of historic properties.

On March 22, 2017, the City hired certified historical architect Jackie Hoist of H2A Architects to prepare bidding documents for this project. The work involved a feasibility study, the development of specifications, bid documents, and bidder qualifications, as well as oversight of the installation up to final inspection.

Following the consulting architect's preparation of documents, a Request for Proposals was posted on June 2, 2017 for repair and replacement of the siding and the trim for the Allen House. Interested firms were required to register to attend a mandatory pre-bid meeting. The pre-bid meeting was scheduled to review, tour the facility and answer any questions regarding the request for proposal. Three interested firms attended.

Two bids were received, as follows:

Grunwell-Cashero Co.	\$ 175,900.00
L.G.K. Building, Inc.	\$ 57,430.00

All bids were reviewed for compliance with the City's Request for Proposal (RFP) requirements.

After reviewing the submitted bids, each bidder was interviewed to request additional information and clarification of their proposals. Based on their responses, the City and the consulting architect, Jackie Hoist from H2A Architects, found that the low bidder met the requirements outlined in the RFP.

It is recommended that the contract for the Repair and Replacement of the Siding and Trim at the Allen House be awarded to L.G.K. Building, Inc., for \$ 57,430.00, consistent with the bid specifications.

This project was budgeted in 2015-2016 but not started; therefore, a budget amendment will be required for this project for 2017-2018. There is \$80,000 available for this project in the Capital Projects Fund.

**Suggested Resolution:**

To approve a service agreement with L.G.K. Building, Inc., for the replacement of Siding and Trim for the Allen House in the amount of \$ 57,430.00, to be charged to account 401-804.002-977.0000, and to direct the Mayor and City Clerk to sign the agreement on behalf of the City; further, to approve the appropriation and amendment to the 2017-2018 Capital Projects Fund budget as follows:

Capital Projects Fund

Revenues:

Draw from Fund Balance 401-000.000-400.0000	\$57,430
---	----------

Expenditures:

Buildings - Allen House 401-804.002-977.0000	\$57,430
--	----------

**ATTACHMENT B - BIDDER'S AGREEMENT**  
**For Repair/Replacement of Siding and Trim for the Birmingham Museum-Allen House**

---

In submitting this proposal, as herein described, the Contractor agrees that:

1. They have carefully examined the specifications, terms and Agreement of the Request for Proposal and all other provisions of this document and understand the meaning, intent, and requirement of it.
2. They will enter into a written contract and furnish the item or items in the time specified in conformance with the specifications and conditions contained therein for the price quoted by the proponent on this proposal.

---

Alex Lek Kalaj	07/06/2017
<b>PREPARED BY</b> (Print Name)	<b>DATE</b>

---

President	
<b>TITLE</b>	<b>DATE</b>

---

	Lgkbuilding@gmail.com
<b>AUTHORIZED SIGNATURE</b>	<b>E-MAIL ADDRESS</b>

---

L.G.K Building Inc.	
<b>COMPANY</b>	

---

1851 Lone Pine Road. Bloomfield Hills, Mi. 48302	(248) 757-3155
<b>ADDRESS</b>	<b>PHONE</b>

---

Same	
<b>NAME OF PARENT COMPANY</b>	<b>PHONE</b>

---

<b>ADDRESS</b>	
----------------	--

## ATTACHMENT C - COST PROPOSAL

### For Repair/Replacement of Siding and Trim for the Birmingham Museum-Allen House

In order for the bid to be considered valid, this form must be completed in its entirety. The cost for the Scope of Work as stated in the Request for Proposal documents shall be a lump sum, as follows:

COST PROPOSAL	
ITEM	BID AMOUNT
Demolition and Disposal	\$ 4,700
Replacement Siding	\$ 17,180
Replacement Trim	\$ 1,900
Staging Materials & Equipment	\$ 2,350
Miscellaneous (Attach Detailed Description)	\$ 31,300
<b>TOTAL BID AMOUNT</b>	<b>\$ 57,430</b>
UNIT PRICES	
Demolition and Disposal per Sq. Ft.	\$ 2.50/sq.f.
Replacement Siding per Sq. Ft.	\$ 9.50/sq.f.
Replacement Trim per Lineal Ft	\$ 3.75/l.f

Firm Name: L.G.K Building Inc.

Authorized signature:  Date: 07/06/2017

Printed Name: Alex Lek Kalaj

Phone: (248) 757-3155 Email: Lgkbuilding@gmail.com



**L.G.K Building Inc.**  
 1851 Lone Pine Road  
 Bloomfield Hills, Mi. 48302  
 Phone: (248) 757-3155

# PROPOSAL

No.1247

**TO:**  
 City of Birmingham  
 Allen House Renovation

**Job Loc:**  
 Allen House Renovation  
 556 Maple Road

**Date:**  
 07/06/2017

Scope of work.	Amount
<p>Allen House renovation:</p> <ol style="list-style-type: none"> <li>1. Remove shutters \$900</li> <li>2. Remove gutters and downspouts for repairs/repaint and re-install same back after repairs/paint complete \$1,900</li> <li>3. Replace 14 columns base 1x10 synthetic wood board \$1,900</li> <li>4. Spout prime and paint entire house all paintable areas \$17,200</li> <li>5. Repair brick per plans \$ 1,850</li> <li>6. Caulker all items per addendum # 1. \$ 3,800</li> <li>7. Remove and replace step flashing and apron flashing round dormer walls as well as replace shingles around to accommodate for proper flashing \$3,750</li> </ol> <p><b>Total \$31,300</b></p>	<p>\$31,300</p>
<p>We hereby propose to furnish labor and material to complete in accordance with the above specifications for the sum of _____ Dollars ( _____ )          with payment to be made as follows: _____</p> <p>All material is guaranteed to be as specified. All work to be completed in workmanlike according to standards practices all alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents, or delays beyond our control. This proposal subject to acceptance within ( 14 ) days and is void thereafter at the option of estimator.</p> <p style="text-align: center;">Authorized Signature _____</p>	
<p>ACCEPTANCE OF PROPOSAL</p>	
<p>The above prices, specifications and conditions are hereby accepted. You are authorized to do the work as specified. Payments will be made as outlined above.</p> <p>Home Owner: _____ Date: _____</p>	

**ATTACHMENT D - IRAN SANCTIONS ACT VENDOR CERTIFICATION FORM  
For Repair/Replacement of Siding and Trim for the Birmingham Museum-Allen  
House**

Pursuant to Michigan Law and the Iran Economic Sanction Act, 2012 PA 517 ("Act"), prior to the City accepting any bid or proposal, or entering into any contract for goods or services with any prospective Vendor, the Vendor must certify that it is not an "Iran Linked Business", as defined by the Act.

By completing this form, the Vendor certifies that it is not an "Iran Linked Business", as defined by the Act and is in full compliance with all provisions of the Act and is legally eligible to submit a bid for consideration by the City.

Alex lek Kalaj	07/06/2017
<b>PREPARED BY</b> (Print Name)	<b>DATE</b>
President	
<b>TITLE</b>	<b>DATE</b>
	Lgkbuilding@gmail.com
<b>AUTHORIZED SIGNATURE</b>	<b>E-MAIL ADDRESS</b>
L.G.K Building Inc.	
<b>COMPANY</b>	
1851 Lone Pine Road. Bloomfield Hills, Mi. 48302	(248) 757-3155
<b>ADDRESS</b>	<b>PHONE</b>
Same	
<b>NAME OF PARENT COMPANY</b>	<b>PHONE</b>
<b>ADDRESS</b>	
30-0836796	
<b>TAXPAYER I.D.#</b>	

## **ATTACHMENT A – AGREEMENT**

### **For Repair/Replacement of Siding and Trim for the Birmingham Museum-Allen House**

---

This AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 2017, by and between CITY OF BIRMINGHAM, having its principal municipal office at 151 Martin Street, Birmingham, MI (hereinafter sometimes called "City"), and L.G.K. Building, Inc., having its principal office at 1851 Lone Pine Road, Bloomfield Hills, MI 48302 (hereinafter called "Contractor"), provides as follows:

#### **WITNESSETH:**

**WHEREAS**, the City of Birmingham, through its Maintenance Department, is desirous of seeking services to remove, to replace and to install of new siding and trim for the Allen House facility located at the Birmingham Museum in the city of Birmingham.

**WHEREAS**, the City has heretofore advertised for bids for the procurement and performance of services required to repair, to replace and to install of new siding and trim for the Allen House facility located at the Birmingham Museum, and in connection therewith has prepared a request for sealed proposals ("RFP"), which includes certain instructions to bidders, specifications, terms and conditions.

**WHEREAS**, the Contractor has professional qualifications that meet the project requirements and has made a bid in accordance with such request for cost proposals to repair, to replace and to install of new siding and trim for the Allen House facility located at the Birmingham Museum.

**NOW, THEREFORE**, for and in consideration of the respective agreements and undertakings herein contained, the parties agree as follows:

1. It is mutually agreed by and between the parties that the documents consisting of the Request for Proposal to repair, to replace and to install of new siding and trim for the Allen House facility located at the Birmingham Museum and the Contractor's cost proposal dated July 6, 2017 shall be incorporated herein by reference and shall become a part of this Agreement, and shall be binding upon both parties hereto. If any of the documents are in conflict with one another, this Agreement shall take precedence, then the RFP.
2. The City shall pay the Contractor for the performance of this Agreement in an amount not to exceed \$ 57,430.00, as set forth in the Contractor's July 6, 2017 cost proposal.
3. This Agreement shall commence upon execution by both parties, unless the City exercises its option to terminate the Agreement in accordance with the Request for Proposals.
4. The Contractor shall employ personnel of good moral character and fitness in performing all services under this Agreement.

5. The Contractor and the City agree that the Contractor is acting as an independent Contractor with respect to the Contractor 's role in providing services to the City pursuant to this Agreement, and as such, shall be liable for its own actions and neither the Contractor nor its employees shall be construed as employees of the City. Nothing contained in this Agreement shall be construed to imply a joint venture or partnership and neither party, by virtue of this Agreement, shall have any right, power or authority to act or create any obligation, express or implied, on behalf of the other party, except as specifically outlined herein. Neither the City nor the Contractor shall be considered or construed to be the agent of the other, nor shall either have the right to bind the other in any manner whatsoever, except as specifically provided in this Agreement, and this Agreement shall not be construed as a contract of agency. The Contractor shall not be entitled or eligible to participate in any benefits or privileges given or extended by the City, or be deemed an employee of the City for purposes of federal or state withholding taxes, FICA taxes, unemployment, workers' compensation or any other employer contributions on behalf of the City.
6. The Contractor acknowledges that in performing services pursuant to this Agreement, certain confidential and/or proprietary information (including, but not limited to, internal organization, methodology, personnel and financial information, etc.) may become involved. The Contractor recognizes that unauthorized exposure of such confidential or proprietary information could irreparably damage the City. Therefore, the Contractor agrees to use reasonable care to safeguard the confidential and proprietary information and to prevent the unauthorized use or disclosure thereof. The Contractor shall inform its employees of the confidential or proprietary nature of such information and shall limit access thereto to employees rendering services pursuant to this Agreement. The Contractor further agrees to use such confidential or proprietary information only for the purpose of performing services pursuant to this Agreement.
7. This Agreement shall be governed by and performed, interpreted and enforced in accordance with the laws of the State of Michigan. The Contractor agrees to perform all services provided for in this Agreement in accordance with and in full compliance with all local, state and federal laws and regulations.
8. If any provision of this Agreement is declared invalid, illegal or unenforceable, such provision shall be severed from this Agreement and all other provisions shall remain in full force and effect.
9. This Agreement shall be binding upon the successors and assigns of the parties hereto, but no such assignment shall be made by the Contractor without the prior written consent of the City. Any attempt at assignment without prior written consent shall be void and of no effect.
10. The Contractor agrees that neither it nor its subcontractors will discriminate against any employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to

employment because of race, color, religion, national origin, age, sex, height, weight or marital status. The Contractor shall inform the City of all claims or suits asserted against it by the Contractor's employees who work pursuant to this Agreement. The Contractor shall provide the City with periodic status reports concerning all such claims or suits, at intervals established by the City.

11. The Contractor shall not commence work under this Agreement until it has, at its sole expense, obtained the insurance required under this paragraph. All coverages shall be with insurance companies licensed and admitted to do business in the State of Michigan. All coverages shall be with carriers acceptable to the City of Birmingham.
12. The Contractor shall maintain during the life of this Agreement the types of insurance coverage and minimum limits as set forth below:
  - A. Workers' Compensation Insurance: Contractor shall procure and maintain during the life of this Agreement, Workers' Compensation Insurance, including Employers Liability Coverage, in accordance with all applicable statutes of the State of Michigan.
  - B. Commercial General Liability Insurance: Contractor shall procure and maintain during the life of this Agreement, Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than **\$1,000,000** per occurrence combined single limit, Personal Injury, Bodily Injury and Property Damage. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent; (E) Deletion of all Explosion, Collapse and Underground (XCU) Exclusions, if applicable.
  - C. Motor Vehicle Liability: Contractor shall procure and maintain during the life of this Agreement Motor Vehicle Liability Insurance, including all applicable no-fault coverages, with limits of liability of not less than \$1,000,000 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.
  - D. Additional Insured: Commercial General Liability and Motor Vehicle Liability Insurance, as described above, shall include an endorsement stating the following shall be *Additional Insureds*: The City of Birmingham, including all elected and appointed officials, all employee and volunteers, all boards, commissions and/or authorities and board members, including employees and volunteers thereof. This coverage shall be primary to any other coverage that may be available to the additional insured, whether any other available coverage by primary, contributing or excess.
  - E. Professional Liability: Professional liability insurance with limits of not less than \$1,000,000 per claim if Contractor will provide service that are customarily subject to this type of coverage.

- F. Pollution Liability Insurance: Contractor shall procure and maintain during the life of this Agreement Pollution Liability Insurance, with limits of liability of not less than \$1,000,000, per occurrence preferred, but claims made accepted.
- G. Owners Contractors Protective Liability: The Contractor shall procure and maintain during the life of this contract, an Owners Contractors Protective Liability Policy with limits of liability not less than \$3,000,000 per occurrence, combined single limit, Personal Injury, Bodily Injury and Property Damage. The City of Birmingham shall be "Name Insured" on said coverage. Thirty (30) days Notice of Cancellation shall apply to this policy.
- H. Cancellation Notice: Workers' Compensation Insurance, Commercial General Liability Insurance and Motor Vehicle Liability Insurance (and Professional Liability Insurance, if applicable), as described above, shall include an endorsement stating the following: "Thirty (30) days Advance Written Notice of Cancellation or Non-Renewal, shall be sent to: Finance Director, City of Birmingham, PO Box 3001, 151 Martin Street, Birmingham, MI 48012-3001.
- I. Proof of Insurance Coverage: Contractor shall provide the City of Birmingham at the time the Agreement is returned for execution, Certificates of Insurance and/or policies, acceptable to the City of Birmingham, as listed below.
- 1) Two (2) copies of Certificate of Insurance for Workers' Compensation Insurance;
  - 2) Two (2) copies of Certificate of Insurance for Commercial General Liability Insurance;
  - 3) Two (2) copies of Certificate of Insurance for Vehicle Liability Insurance;
  - 4) Two (2) copies of Certificate of Insurance for Professional Liability Insurance;
  - 5) If so requested, Certified Copies of all policies mentioned above will be furnished.
- J. Coverage Expiration: If any of the above coverages expire during the term of this Agreement, Contractor shall deliver renewal certificates and/or policies to the City of Birmingham at least (10) days prior to the expiration date.
- K. Maintaining Insurance: Upon failure of the Contractor to obtain or maintain such insurance coverage for the term of the Agreement, the City of Birmingham may, at its option, purchase such coverage and subtract the cost of obtaining such coverage from the Agreement amount. In obtaining such coverage, the City of Birmingham shall have no obligation to procure the most cost-effective coverage but may contract with any insurer for such coverage.
13. To the fullest extent permitted by law, the Contractor and any entity or person for whom the Contractor is legally liable, agrees to be responsible for any liability, defend, pay on behalf of, indemnify, and hold harmless the City of Birmingham, its elected and appointed officials, employees and volunteers and others working on behalf of the City of Birmingham against any and all claims, demands, suits, or loss, including all costs and reasonable attorney fees connected therewith,

and for any damages which may be asserted, claimed or recovered against or from and the City of Birmingham, its elected and appointed officials, employees, volunteers or others working on behalf of the City of Birmingham, by reason of personal injury, including bodily injury and death and/or property damage, including loss of use thereof, which arises out of or is in any way connected or associated with this Agreement. Such responsibility shall not be construed as liability for damage caused by or resulting from the sole act or omission of its elected or appointed officials, employees, volunteers or others working on behalf of the City of Birmingham.

14. If, after the effective date of this Agreement, any official of the City, or spouse, child, parent or in-law of such official or employee shall become directly or indirectly interested in this Agreement or the affairs of the Contractor, the City shall have the right to terminate this Agreement without further liability to the Contractor if the disqualification has not been removed within thirty (30) days after the City has given the Contractor notice of the disqualifying interest. Ownership of less than one percent (1%) of the stock or other equity interest in a corporation or partnership shall not be a disqualifying interest. Employment shall be a disqualifying interest.
15. If Contractor fails to perform its obligations hereunder, the City may take any and all remedial actions provided by the general specifications or otherwise permitted by law.
16. All notices required to be sent pursuant to this Agreement shall be mailed to the following addresses:

City of Birmingham  
Attn: Carlos Jorge  
151 Martin Street  
Birmingham, MI 48009  
248-530-1882


L.G.K. Building, Inc. Attn:  
Alex Lek Kalaj  
1851 Lone Pine Road  
Bloomfield Hills, MI 48302  
248-757-3155

17. Any controversy or claim arising out of or relating to this Agreement, or the breach thereof, shall be settled either by commencement of a suit in Oakland County Circuit Court, the 48th District Court or by arbitration. If both parties elect to have the dispute resolved by arbitration, it shall be settled pursuant to Chapter 50 of the Revised Judicature Act for the State of Michigan and administered by the American Arbitration Association with one arbitrator being used or three arbitrators in the event any party's claim exceeds \$1,000,000. Each party shall bear its own costs and expenses and an equal share of the arbitrator's and administrative fees of arbitration. Such arbitration shall qualify as statutory arbitration pursuant to MCL§600.5001 et. seq., and the Oakland County Circuit Court or any court having jurisdiction shall render judgment upon the award of the arbitrator made pursuant to this Agreement. The laws of the State of Michigan shall govern this Agreement, and the arbitration shall take place in Oakland County, Michigan. In the event that the parties elect not to have the matter in dispute arbitrated, any dispute between the parties may be resolved by the filing of a suit in the Oakland County Circuit Court or the 48th District Court.

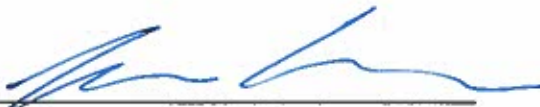
18. FAIR PROCUREMENT OPPORTUNITY: Procurement for the City of Birmingham will be handled in a manner providing fair opportunity for all businesses. This will be accomplished without abrogation or sacrifice of quality and as determined to be in the best interest of the City of Birmingham.

IN WITNESS WHEREOF, the said parties have caused this Agreement to be executed as of the date and year above written.

WITNESSES:

  
\_\_\_\_\_  
Cheryl Lynn Brown

L.G.K. Building, Inc.

By:   
\_\_\_\_\_  
Alex Lek Kalaj  
Its: President

CITY OF BIRMINGHAM

\_\_\_\_\_


By: \_\_\_\_\_  
Mark Nickita  
Its: Mayor


\_\_\_\_\_

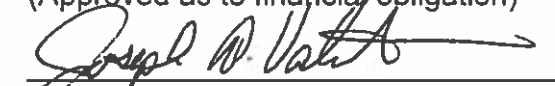
By: \_\_\_\_\_  
Cheryl Lynn Brown  
Its: City Clerk

Approved:

  
\_\_\_\_\_  
Carlos Jorge, Building Superintendent  
(Approved as to substance)

  
\_\_\_\_\_  
Timothy J. Currier, City Attorney  
(Approved as to form)

  
\_\_\_\_\_  
Mark Gerber, Director of Finance  
(Approved as to financial obligation)

  
\_\_\_\_\_  
Joseph A. Valentine, City Manager  
(Approved as to substance)



## Resignation from Design Review Board and Historic District Committee

Shelli Weisberg <sweisberg@aclumich.org>

Jul 25

to Cherilynn

Hi Cherilynn. Thank you for this information. I do not wish to reapply.

Shelli  
Sent from my iPhone

Cherilynn Brown <cbrown@bhamgov.org>

Jul 25

to sweisberg

Dear. Ms. Weisberg:

Thank you for your service on the *Design Review Board* and the *Historic District Commission*. Your term will expire on September 25, 2017. If you would like to continue serving on one or both of these boards, please complete an application for each board for which you would like to be considered for reappointment. The application form and the *Ethics Affidavit and Disclosure Statement* form are attached.

### SUGGESTED RESOLUTION:

To accept the resignation of Shelli Weisberg from the Design Review Board and the Historic District Commission, to thank her for her service, and to direct the Clerk to begin the process of filling the vacancy.

Cherilynn Brown <[cbrown@bhamgov.org](mailto:cbrown@bhamgov.org)>

---

**Fwd: City Board Meetings**1 message

---

----- Forwarded message -----

From: **Sean Campbell** <[scampbell@bhamgov.org](mailto:scampbell@bhamgov.org)>  
Date: Wed, Aug 2, 2017 at 1:00 PM  
Subject: Fwd: City Board Meetings  
To: cheryl arft <[carft@bhamgov.org](mailto:carft@bhamgov.org)>

Hi Cheryl,

One of the PAB student representatives, Sarah Evans, has tendered her resignation. Please see her email below. Should you require no further information, you can go ahead and remove her name from the roster. We will send her a thank you letter on behalf of the PAB and City.

----- Forwarded message -----

From: **Sarah Evans** <[sarahshaus@hotmail.com](mailto:sarahshaus@hotmail.com)>  
Date: Sun, Jul 30, 2017 at 8:50 PM  
Subject: City Board Meetings  
To: Sean Campbell <[scampbell@bhamgov.org](mailto:scampbell@bhamgov.org)>

Dear Mr. Campbell,

I regret to inform you and the rest of the Birmingham Public Arts Board that I will no longer be able to attend the meetings. I recently found out that I was a scholarship recipient to study abroad in Germany next school year.

Thank you so much for the wonderful opportunity. Although my time on the board was short, I learned so much more that I did not know about Birmingham in the past.  
Once again, thank you very much,  
-Sarah Evans

--  
Sean Campbell  
Assistant Planner  
City of Birmingham  
(248) 530-1855

**SUGGESTED RESOLUTION:**

To accept the resignation of Sarah Evans, Student Representative, from the Public Arts Board, and to direct the City Clerk to thank her for her service on behalf of the City of Birmingham and to present her with a Certificate of Appreciation.



# MEMORANDUM

Police Department

**DATE:** August 9, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Mark H. Clemence, Chief of Police

**SUBJECT:** Purchase of (17) Armor Express RAZOR Vests For Auxiliary Police Officers

---

The police department identified the purchase of (17) bullet resistant body armor vests for auxiliary police officers in the 2017-18 Police General Fund uniform allowance budget. This project was initiated due to age and condition of the vests assigned to the auxiliary police officers as body armor should be replaced every five years.

The proposed equipment purchase includes (17) Armor Express RAZOR level II vests with ARA-SHOCK ICW (In Conjunction With) composite plates. The ARA-SHOCK plates when used in conjunction with the RAZOR vest provides an upgrade in protection to ballistic level IIIA for increased stopping power. The Armor Express RAZOR has been the department's ballistic body vest body armor for the past several years.

Equipment manufacturer Armor Express has documented that there are only two authorized factory direct dealers for the State of Michigan – CMP Distributors (Lansing) and On Duty Gear (Clinton Township). Quotes were obtained from each of these vendors as follows:

CMP Distributors, Inc.	\$ 12,602.00
On Duty Gear, L.L.C.	\$ 13,685.00

The police department recommends waiving the formal bid process for this purchase as there are only two authorized vendors in the State of Michigan and both have submitted price quotes. The department therefore recommends approval of the purchase of (17) Armor Express RAZOR level II vests with ARA-SHOCK ICW composite plates from CMP Distributors in the amount of \$12,602.00. CMP has provided excellent quality sales and service of body armor for the police department for many years. Auxiliary officers will be custom fitted by the Armor Express regional manager and delivery of the new vests is approximately five weeks from date of order.

It should be noted that the police department has submitted the necessary documentation to obtain a federal grant from the U.S. Department of Justice Bulletproof Vest Partnership. The City is required to pay the total costs up front for the body armor. Upon approval of the grant, the Justice Department will reimburse the City for 50% of the total cost of the Razor vests.

SUGGESTED RESOLUTION:

To waive the formal competitive bid process and approve the purchase of (17) Armor Express RAZOR vests with ARA-SHOCK ICW plates in the amount of \$12,602.00 from CMP Distributors, Inc. further, to authorize this budgeted expenditure from uniform allowance account number 101-301.000-743.0000.



16753 Industrial Parkway  
 Lansing, MI 48906  
 Phone # 5177210970  
 Fax # 517-721-0974

# QUOTE

Date	Quote #
8/1/2017	5273

Bill To
Birmingham Police Department 151 Martin Birmingham, MI 48012

Ship To
Birmingham Police Department 151 Martin Birmingham, MI 48012 USA

Sales Rep	Account #	Terms	Expiration Date	Shipping Terms
CMP	878	Net 30	8/31/2017	

Description	Qty	Cost	Total
Armor Express Razor Threat Level II Concealable Vest- Includes (2) Revolution Carrier with Bloodtag and Tails (NIJ Model No. RZRG2-A-II)	17	736.00	12,512.00T
Shipping and Handling	1	90.00	90.00T

**Shipping & Handling Terms:**  
 - Freight to be added at time of shipment  
 - Ships UPS Ground

<b>Sales Tax (0.0%)</b>	\$0.00
<b>Total</b>	\$12,602.00

This is a quotation on the goods named, subject to the conditions noted below:  
 1. Pricing is good for 30 days unless otherwise noted.  
 2. Please include the quote number on all correspondence to insure proper pricing when ordered.  
 3. To accept this quotation, please sign and return.

Customer Signature \_\_\_\_\_



# MEMORANDUM

Engineering & Planning Divisions

**DATE:** August 4, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Paul T. O'Meara, City Engineer  
Jana L. Ecker, Planning Director

**SUBJECT:** Multi-Modal Transportation Consulting Services  
Request for Proposals

---

The Multi-Modal Transportation Board (MMTB) was originally authorized in the spring of 2014. The Board was preceded by a Multi-Modal Transportation Steering Committee, which had been created in 2013 to oversee the preparation of the Multi-Modal Transportation Master Plan. Once the plan was finalized and adopted, the original steering committee was disbanded. The new MMTB was charged with overseeing all City street projects, ensuring that they complied with the new Master Plan. They also were charged with overseeing new initiatives of a multi-modal nature, particularly those recommended in the Master Plan. Finally, the new Board was also charged with taking over the duties of the former Traffic & Safety Board.

In 2014, the City issued a Request for Qualifications (RFQ) seeking traffic engineering services, supplemented with knowledge and understanding of designing and advising for multi-modal transportation concepts, particularly in an urban setting. In September 2014, the firm of Fleis and Vandenbrink was selected as the City's traffic consultant, and has acted as a multi-modal transportation consultant to the MMTB and the City Commission. However, this contract has now expired.

On July 24, 2017, the City Commission directed staff to issue a Request for Proposals (RFP) to seek qualified consulting firms, and extended the previous contract with Fleis and Vandenbrink for six months to allow staff time to go through the RFP process.

On August 3, 2017, the MMTB reviewed the draft RFP. The MMTB requested that language be added in the context sensitive planning section of the RFP encouraging creativity, innovation, and best practices. Board members also asked that the italics be removed from the headings, and that the word advice on the first page should be changed to advise. The MMTB voted unanimously to recommend approval of the RFP to the City Commission.

Please find attached a draft RFP document for your review and comment. The City Commission may wish to direct staff to issue the RFP at this time.

**SUGGESTED RESOLUTION:**

To direct staff to issue the Request for Proposals for the solicitation of qualified firms to provide multi-modal transportation consulting services to assist the MMTB and the City Commission in reviewing all transportation-related projects with the changes noted.

**CITY OF BIRMINGHAM, MICHIGAN  
REQUEST FOR PROPOSALS FOR  
MULTI-MODAL TRANSPORTATION  
CONSULTING SERVICES**

**INTRODUCTION**

The City of Birmingham has a long history of maintaining and improving its infrastructure as it strives to be a premier community within Metro Detroit. As a part of that effort, in 2011, Birmingham adopted a Complete Streets resolution to improve multi-modal transportation by creating better conditions for walking, biking and transit. In November, 2013, the City accepted a Multi-Modal Transportation Master Plan (MMTP), as created by the Ann Arbor, MI firm of Greenway Collaborative.

As one of the first significant actions suggested in the Master Plan, the City created a Multi-Modal Transportation Board (MMTB). The board held its first meeting in June, 2014. The purpose of this standing committee is to review all transportation and transportation-related infrastructure projects and issues and to provide the following:

- (1) Advise on the implementation of the city's Multi-Modal Transportation Plan to the city commission.
- (2) Review of the Multi-Modal Transportation Plan to assure that it remains current with citywide multi-modal transportation movements and regional transportation plans and initiatives.
- (3) An objective and technical multi-modal evaluation of plans for all road reconstruction and road resurfacing projects, sidewalk and pedestrian crossing projects, intersection or bridge projects, bicycle and transit facility improvement projects.
- (4) An objective and technical evaluation of transportation issues brought to the attention of or identified by the board.
- (5) An objective and technical evaluation of the transportation plan submitted for proposed development or redevelopment, as referred to the board by the planning board.
- (6) An objective and technical multi-modal evaluation of site plans submitted for proposed development or redevelopment, as referred to the board by the planning board.
- (7) An objective and technical multi-modal evaluation of any ordinance amendments related to transportation issues, as referred to the board by the planning board or city commission.
- (8) The application of accepted transportation engineering practices, multimodal transportation planning and complete streets practices and national standards, including those published by the American Association of State Highway and Transportation Officials, in solving and preventing transportation problems.
- (9) Objective and technical recommendations regarding transportation engineering safety issues to the city commission.
- (10) A forum for the voluntary coordination of groups interested in transportation issues.
- (11) A forum to review and decide appeals of administrative decisions made by the Police Department on transportation-related regulatory requests under Article VII of this chapter.

The City of Birmingham is seeking a multi-modal transportation consultant(s) to provide professional consulting services to City staff, the City Commission, the MMTB and any other



boards or committees as required, and to act as the City's Traffic Engineer. The City regularly budgets and constructs several road improvement projects each year. Prior to final design, the MMTB is asked to review the street segments planned for improvement. The consultant will be asked to study various components of particular street segments, and to provide technical expertise and guidance on how various multi-modal improvements can be implemented, and how each change will impact all users of the street. The consultant may be required to prepare written reports, draw plans for transportation projects, conduct traffic modelling, conduct public presentations and assist City staff in all aspects of the review and final approval process.

## **CONSULTANT SKILLS & EXPERIENCE**

The successful multi-modal transportation consultant submitting a proposal under this RFP must be able to demonstrate professional knowledge and experience in the following areas of expertise to assist the City of Birmingham:

### 1. MULTI-MODAL MOBILITY PLANNING

The consultant must have experience in designing public infrastructure projects with multi-modal elements, reviewing and evaluating the impacts of pedestrian, bicycle, vehicle and transit improvements on the level of service of all modes of transportation, and experience implementing multi-modal master plans in other urban areas. Prior experience implementing new and innovative transportation designs is preferred.

### 2. TRAFFIC ENGINEERING

The successful consultant must have traffic engineering skills and experience evaluating both signalized and non-signalized roadways in urban areas, and the consultant's team must include at least one licensed traffic engineer. The consultant should be able to demonstrate experience in another community acting as the City's Traffic Engineer under the Uniform Traffic Code (as prepared by the Michigan State Police, see Attachment A). The consultant must have experience using traffic simulation computer models to evaluate multi-modal improvements at signal-controlled intersections.

### 3. CONTEXT SENSITIVE PLANNING AND URBAN DESIGN

The consultant must demonstrate experience designing and implementing transportation projects that are responsive to the context of the surrounding environment, through the use of unique design elements to enhance the urban aesthetic or to preserve historic resources/views, extensive stakeholder input to ensure a final design that supports the community's core values and a collaborative, interdisciplinary approach. The consultant's team must include at least one urban planning or urban design professional. Preference will be given to consultants with experience designing and implementing innovative solutions that push the envelope of standard practice and look to future changes and technological developments for design guidance.

It is expected that the selected multi-modal transportation consultant will assist the City in reviewing and evaluating all transportation infrastructure projects and transportation-related issues with reference to and guidance from the following:

- The Birmingham MMTP;

- The 2010 Highway Capacity Manual;
- The U.S. Department of Transportation's ("USDOT") Manual on Uniform Traffic Control Devices for Streets and Highways;
- The Transportation Research Board's ("TRB") Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis;
- The National Association of City Transportation Officials' ("NACTO") Urban Street Design Guide;
- The Institute of Transportation Engineers' ("ITE") Designing Walkable Urban Thoroughfares: A Context Sensitive Approach;
- The American Association of State Highway and Transportation Officials' ("AASHTO") Guide for the Planning, Design, and Operation of Pedestrian Facilities;
- The Michigan Department of Transportation's ("MDOT") Best Design Practices for Walking and Bicycling in Michigan;
- The MDOT Complete Streets Policy 2012; and
- Any other related traffic, bicycle, pedestrian or transit guidelines used in other urban areas.

The successful multi-modal transportation consultant will be expected to attend all MMTB meetings (monthly), and any City Commission, Planning Board or other City meetings as required, and to conduct presentations and answer questions as needed.

## **SCHEDULE**

The MMTB is currently working with a consulting firm that is operating under a contract that can be terminated with 30 days notice. The MMTB continues to meet and review projects that will be designed and built in 2018. At least one of these projects will require study from the consultant selected under this RFP. It is hoped that once authorized, the selected consultant will be prepared to begin working with the City as soon as practical.

## **CONTENT AND FORMAT OF PROPOSALS**

If you are interested in working with the City on this project, please submit a proposal to the City of Birmingham, including a Statement of Qualifications containing the following information:

### DESCRIPTION OF THE TEAM AND TEAM LEADER

The City prefers to select a diverse consulting team that will utilize a collaborative and interdisciplinary approach to reviewing and evaluating transportation projects. As noted above, at least one member of the consulting team must be a licensed engineer, and one member must be an urban planner or urban design professional. In addition, the consultant should select a team leader who will be assigned to oversee and personally assist in all activities that involve the Board. The team leader shall be regularly available to attend Board meetings, currently being held on the first Thursday of each month, at 6:00 P.M. The statement should describe the proposed consultant team composition by indicating how it intends to perform the work (e.g.: as an independent company, a partnership, a joint venture, or a combination of prime and sub-consultants). The role of each participating entity shall be fully described. The

qualifications and experience of each participating entity shall be identified in the Statement of Qualifications, especially as they relate to the particular areas of expertise that they will bring to this project.

#### QUALIFICATIONS OF TEAM PERSONNEL

The Statement of Qualifications must describe the experience and education of the specifically required team members, the team leader, and all other supporting team members by including summary resumes of key personnel, including experience and education in multi-modal mobility planning, traffic engineering services, context sensitive planning and urban design. The Statement of Qualifications shall outline other jurisdictions that the consultant has worked for, and include descriptions of multi-modal and context sensitive transportation projects that the consultant has been involved with in other urban areas.

#### OTHER CLIENTS

The City requires a consultant that will have the City of Birmingham as its first priority when assisting the City on issues that involve other municipalities, road agencies or other private interests. The consultant shall provide a statement that clarifies:

1. The average percentage of income earned by the consulting firm for the firm's past three fiscal years from the MI Dept. of Transportation.
2. The average percentage of income earned by the consulting firm for the firm's past three fiscal years from the Road Commission for Oakland Co.
3. The average percentage of income earned by the consulting firm for the firm's past three fiscal years from developers or private firms that are involved in the development of private projects within Oakland Co.

As a part of this disclosure, the consultant shall verify in writing that should they be selected for this position, the consultant shall be prepared to phase out all relationships with developers that are currently active in the development of private properties within the City of Birmingham.

#### CONSULTANT APPROACH

The Statement of Qualifications shall provide a paragraph that summarizes the philosophy of the consulting firm(s) on the team, and how it/they will approach the various assignments given to it as the Multi-Modal Transportation Consultant assisting in addressing the various technical needs of the MMTB and the City of Birmingham.

#### CONSULTING FEES

Since there is a very broad scope of services to be provided on this project, compensation for the consultant's work is expected to be based upon the hourly rates, plus reimbursable expenses for travel, copying, etc. The Statement of Qualifications shall include the prospective consultant's proposed hourly rates for all personnel or subconsultants that are expected to work on various assignments, along with rates for typical reimbursable expenses expected in the execution of these duties.

## **DUE DATE**

Prospective CONSULTANTS shall submit **seven (7) copies** of their Statement of Qualifications containing the information noted above by **4:00 PM on September 22, 2017**.

## **CITY REVIEW AND CONSULTANT SELECTION**

It is expected that the full membership of the MMTB will review each Statement of Qualifications based on a pre-determined set of criteria. The Board will then prepare a short list of candidates that will be invited to be interviewed in October. The City will select a consultant based upon the approach to the described tasks, the qualifications of the firm(s), and the experience of the proposed project team. The City may request additional information from prospective consultants in their review of the materials.

A sample agreement for professional consulting services is attached for your reference. The final form of the consulting agreement and price may be negotiated based upon the final scope of the project.

The City reserves the right to reject all Statements of Qualification. The City is not responsible for any costs incurred by prospective consultants in submitting a Statement of Qualifications.

## **CONTACT INFORMATION**

Please direct all responses to this Request for Proposals to the following address:

City of Birmingham  
P.O. Box 3001  
Birmingham, MI 48012

**Attn: Paul O'Meara, Jana Ecker, & Scott Grewe**

Questions and requests for clarifications on this Request for Proposals should be sent by email to all three of the following contacts:

Paul O'Meara, P.E.

City Engineer

[pomeara@bhamgov.org](mailto:pomeara@bhamgov.org)

Jana Ecker

Planning Director

[jecker@bhamgov.org](mailto:jecker@bhamgov.org)

Comm. Scott Grewe

Police Dept.

[sgrewe@bhamgov.org](mailto:sgrewe@bhamgov.org)

Responses will be in writing, and will be sent to all prospective consultants. No phone calls please.

## **ATTACHMENTS**

Attachment A – Rule 125 and 126 of the Uniform Traffic Code (enumerating the duties of a municipal traffic engineer)

Attachment B – C. 110, Articles II and VII of the City Code (enumerating the duties of the Multi-Modal Transportation Board)

Attachment C - Sample Professional Consulting Agreement

Attachment D – Final approved Multi-Modal Transportation Master Plan for the City of Birmingham

**ATTACHMENT A**  
**EXCERPT FROM THE MICHIGAN UNIFORM VEHICLE CODE**

**R28.1125 Rule 125. Traffic engineer.**

- (1) The office of traffic engineer is hereby established. The traffic engineer shall be appointed in a manner prescribed by the ordinance making body and shall exercise the powers and duties provided in this code in a manner that is consistent with prevailing traffic engineering and safety practices and that is in the best interest of this governmental unit. If a traffic engineer is not appointed, then the authority of the engineer shall be vested in the chief of police.
- (2) The traffic engineer is responsible for any duties specifically delegated to the local authority by the Act, unless another office is specifically designated by the Act or by this code or is by its nature the more appropriate office.

**R28.1126 Rule 126. Duties of traffic engineer.**

- (1) The general duties of the traffic engineer are as follows:
  - (a) To plan and determine the installation and proper timing and maintenance of traffic-control devices.
  - (b) To conduct engineering analysis of traffic accidents and to devise remedial measures.
  - (c) To conduct engineering investigations of traffic conditions.
  - (d) To plan the operation of traffic on the streets of this governmental unit, including parking areas.
  - (e) To cooperate with other officials of this governmental unit in the development of ways and means to improve traffic conditions.
  - (f) To carry out the additional powers and duties imposed by the act and ordinances of this governmental unit.
  - (g) To otherwise regulate the movement and parking of vehicles within the municipality consistent with the act.
- (2) All duties carried out by the traffic engineer shall be in accordance with standard and accepted engineering practices as found in the Traffic Engineering Handbook, Fifth Edition, which is adopted by reference in these rules. The Handbook may be reviewed at the East Lansing Headquarters of the Michigan State Police, Special Operations Division, Traffic Services Section. The Handbook may be purchased from the Institute of Transportation Engineers, 1099 14<sup>th</sup> St., N.W., Suite 300 West, Washington DC, 20005-3438, or from the Michigan Dept. of State Police, Special Operations Division, Traffic Services Division, Traffic Services Section, 714 S. Harrison Road, East Lansing, MI 48823, at a cost as of the time of adoption of these rules of \$110 each.

**ATTACHMENT B  
EXCERPT FROM THE BIRMINGHAM CITY CODE**

- **ARTICLE II. - MULTI-MODAL TRANSPORTATION BOARD**

- **Sec. 110-26. - Composition.**

(a)

The multi-modal transportation board shall consist of nonvoting ex officio members and seven members appointed by the city commission. The nonvoting ex officio members shall be appointed by the city manager. They may include the city engineer, city planner, police chief, or their designated representative, or other representatives as the city manager deems appropriate. Insofar as possible, the city commission shall appoint members as follows:

(1)

One pedestrian advocate member;

(2)

One member with a mobility or vision impairment;

(3)

One member with traffic-focused education and/or experience;

(4)

One bicycle advocate member;

(5)

One member with urban planning, architecture or design education and/or experience; and

(6)

Two members at large living in different geographical areas of the city.

At least five board members shall be electors or property owners in the city. The remaining board members may or may not be electors or property owners in the city.

(b)

The city commission may appoint two alternate members to serve as needed on the multi-modal transportation board during their term of appointment. An alternate member may be called on a rotating basis to sit as a regular member of the multi-modal transportation board in the absence of a regular member. An alternate member may also be called to service in the place of a regular member for the purpose of reaching a decision on a case in which the regular member has abstained for reasons of conflict of interest. An alternate member having been appointed shall serve in the case until a final decision has been made. An alternate member shall have the same voting rights as a regular member of the multi-modal transportation board.

(Ord. No. 2138, 2-10-14; Ord. No. 2200, 9-12-16; Ord. No. 2203, 10-10-16)

- **Sec. 110-27. - Terms of members.**

Initial members of the multi-modal transportation board shall serve for the following terms: two members shall be appointed for one-year terms, two members shall be appointed for two-year terms, and three members shall be appointed for three-year terms. Thereafter, all appointments, except to fill vacancies, shall be for a term of three years. All appointments for the purpose of filling vacancies occurring otherwise than by expiration of term of office shall be for the unexpired term.

(Ord. No. 2138, 2-10-14)

- **Sec. 110-28. - Compensation.**

All members of the multi-modal transportation board shall serve without compensation.

(Ord. No. 2138, 2-10-14)

- **Sec. 110-29. - Organization.**

The multi-modal transportation board shall, from its appointed members, elect a chair who shall be the presiding officer of the board, and a vice-chair who shall serve in the absence of the chair. A secretary, who shall keep and maintain the proceedings of the board, shall be appointed by the board. The secretary need not be a member of the board. The terms of office for such officers shall be one year and until their successors have been elected. The ex officio members of the board may not act as the chair or vice-chair but may serve as secretary.

(Ord. No. 2138, 2-10-14)

- **Sec. 110-30. - Meetings and quorum.**

The multi-modal transportation board shall hold meetings at such time and place as may be established by the board. Special meetings may be called by the secretary at the written request of the chair or any three members of the board on at least two days' notice. A quorum for the transaction of business at the regular and special meetings shall be four appointed members and at least one ex officio member or their designated representative.

(Ord. No. 2138, 2-10-14)

- **Sec. 110-31. - Scope of authority.**

The multi-modal transportation board is a non-administrative board serving solely in an advisory capacity. In that capacity the board may make recommendations to the city commission but may not assume any legislative or administrative authority of the city commission or any department or board established by the city commission except as specifically provided in this chapter. The multi-modal transportation board is not authorized to expend city funds.

(Ord. No. 2138, 2-10-14)

- **Sec. 110-32. - Purpose and duties.**

The purpose of the multi-modal transportation board shall be to assist in maintaining the safe and efficient movement of motorized and non-motorized vehicles and pedestrians on the streets and walkways of the city and to advise the city commission on the implementation of the multi-modal transportation plan, including reviewing project phasing and budgeting. In furtherance of its purpose, the board shall endeavor to provide the following:

- (1) Advice on the implementation of the city's multi-modal transportation plan to the city commission.
- (2) Review of the multi-modal transportation plan to assure that it remains current with citywide multi-modal transportation movements and regional transportation plans and initiatives.
- (3) An objective and technical multi-modal evaluation of plans for all road reconstruction and road resurfacing projects, sidewalk and pedestrian crossing projects, intersection or bridge projects, bicycle and transit facility improvement projects.
- (4) An objective and technical evaluation of transportation issues brought to the attention of or identified by the board.

- (5) An objective and technical evaluation of the transportation plan submitted for proposed development or redevelopment, as referred to the board by the planning board.
- (6) An objective and technical multi-modal evaluation of site plans submitted for proposed development or redevelopment, as referred to the board by the planning board.
- (7) An objective and technical multi-modal evaluation of any ordinance amendments related to transportation issues, as referred to the board by the planning board or city commission.
- (8) The application of accepted transportation engineering practices, multi-modal transportation planning and complete streets practices and national standards, including those published by the American Association of State Highway and Transportation Officials, in solving and preventing transportation problems.
- (9) Objective and technical recommendations regarding transportation engineering safety issues to the city commission.
- (10) A forum for the voluntary coordination of groups interested in transportation issues.
- (11) A forum to review and decide appeals of administrative decisions made by the police department on transportation-related regulatory requests under article VII of this chapter.

(Ord. No. 2138, 2-10-14)

- **Secs. 110-33—110-55. - Reserved.**

- **ARTICLE VII. - TRANSPORTATION REGULATORY REQUESTS<sup>[4]</sup>**

- **Sec. 110-191. - Purpose.**

The purpose of this article is to maintain the effective functioning of the city's transportation system for all users, of all ages and abilities.

(Ord. No. 2139, 2-10-14)

- **Sec. 110-192. - Review.**

Applications for all transportation related regulatory requests, including but not limited to, regulatory signs, signals, markings and devices, and the regulation of commercial and residential parking, shall be submitted to the police department for administrative review.

(Ord. No. 2139, 2-10-14)

- **Sec. 110-193. - Application.**

Each transportation related regulatory request submitted to the police department under this article shall be on such forms and contain such information as the police department shall determine necessary, including but not limited to an explanation of the request, the reason(s) for the request, and a basic site plan of the conditions of the area in question.

(Ord. No. 2139, 2-10-14)

- **Sec. 110-194. - Application fee.**

An application fee as established by the city commission shall be payable upon submitting an application for a transportation related request.

(Ord. No. 2139, 2-10-14)



- **Sec. 110-195. - Decision on request.**

After reviewing the transportation related regulatory request, the police department may approve the request, approve on a trial basis for a limited period of time, or deny the request.  
(Ord. No. 2139, 2-10-14)

- **Sec. 110-196. - Appeal.**

Any applicant for administrative review under this article aggrieved by a decision of the police department shall have the right to appeal the decision to the multi-modal transportation board.  
(Ord. No. 2139, 2-10-14)

- **Secs. 110-197—110-225. - Reserved.**

[Secs. 110-168—110-190. - Reserved.](#)

**ATTACHMENT C  
SAMPLE CONSULTANT AGREEMENT**

**CITY OF BIRMINGHAM  
NOWAK & FRAUS, PLLC  
ENGINEERING CONSULTANT CONTRACT**

THIS AGREEMENT, made and entered into this [REDACTED] day of [REDACTED], [REDACTED] by and between the CITY OF BIRMINGHAM, a Michigan Municipal Corporation located at 151 Martin Street, Birmingham, Michigan, hereinafter referred to as the CITY, and [REDACTED] located at [REDACTED] 777 Woodward Avenue, Pontiac, Michigan 48342, hereinafter referred to as the CONSULTANT.

**WITNESSETH:**

WHEREAS, the CITY would like to engage the professional services of the CONSULTANT to perform engineering services, including inspections and surveying, and,

WHEREAS, the CONSULTANT is willing to render such services desired by the CITY for the considerations hereinafter expressed.

NOW, THEREFORE, for and in consideration of the mutual undertakings of the parties hereto, all as hereinafter set forth, it is agreed by and between the parties as follows:

1. The CONSULTANT shall perform engineering services for the CITY, including, but not limited to, investigations, studies and preliminary engineering, design engineering, construction engineering and field layout, perform inspection services and surveys, update CITY'S record keeping as directed, obtain detailed "as built" information in the field and properly transfer this information to the CITY'S electronic mapping/GIS system.

Prior to the final acceptance of a project, the design engineer shall submit as-built plans, in both digital and hardcopy format, to the CITY. As-built plans shall be submitted for all projects involving sanitary sewer, storm sewer, and water main installation or modification. As-builts shall adhere to the CITY of Birmingham CAD/GIS submittal standards found under separate cover.

The CONSULTANT will provide said services only when requested to do so by the City Engineer.

2. The CONSULTANT shall perform all work under the direction of the City Engineer or a designated representative.

3. The CITY agrees to pay the CONSULTANT for services rendered on the basis of an hourly fee as set forth in Exhibit A which is attached hereto and made a part hereof. The hourly fee may be reviewed and adjusted annually by mutual consent of both parties in writing. The CONSULTANT shall submit billings on a regular basis, but no more than once a month.

4. This Agreement shall commence on April 1, 2015, and shall terminate on March 31, 2020. However, notwithstanding the term of the agreement, the City shall have the right to

terminate this Agreement on ten (10) days written notice. In the event of termination, the CONSULTANT shall receive compensation for services to the date the termination takes effect and the City shall be entitled to retain and use the results to the date the termination takes effect and the City shall be entitled to retain and use the results of all information, documents and recommendations prepared by the CONSULTANT through such date.

5. If the CONSULTANT fails to perform its obligations hereunder, the CITY may take any and all remedial actions permitted by law.

6. The CONSULTANT shall hire personnel of good character and fitness to perform the duties under this Agreement.

7. The CONSULTANT agrees that neither it nor its subcontractors will discriminate against any employee or applicant for employment with respect to hire, tenure, terms, conditions or privileges of employment, or a matter directly or indirectly related to employment because of race, color, religion, national origin, age, sex, height, weight or marital status. The CONSULTANT shall inform the CITY of all claims or suits asserted against it by the CONSULTANT'S employees who work pursuant to this Agreement. The CONSULTANT shall provide the CITY with periodic status reports concerning all such claims or suits, at intervals established by the CITY.

8. Any controversy or claim arising out of or relating to this Agreement, or the breach thereof, shall be settled either by commencement of a suit in Oakland County Circuit Court, the 48<sup>th</sup> District Court or by arbitration. If both parties elect to have the dispute resolved by arbitration, it shall be settled pursuant to Chapter 50 of the Revised Judicature Act for the State of Michigan and administered by the American Arbitration Association with one arbitrator being used, or three arbitrators in the event any party's claim exceeds \$1,000,000. Each party shall bear its own costs and expenses and an equal share of the arbitrator's and administrative fees of arbitration. Such arbitration shall qualify as statutory arbitration pursuant to MCL §600.5001 et. seq., and the Oakland County Circuit Court or any court having jurisdiction shall render judgment upon the award of the arbitrator made pursuant to this Agreement. The laws of the State of Michigan shall govern this Agreement, and the arbitration shall take place in Oakland County, Michigan. In the event that the parties elect not to have the matter in dispute arbitrated, any dispute between the parties may be resolved by the filing of a suit in the Oakland County Circuit Court or the 48<sup>th</sup> District Court.

9. To the fullest extent permitted by law, the CONSULTANT and any entity or person for whom the CONSULTANT is legally liable, agrees to be responsible for any liability, defend, pay on behalf of, indemnify, and hold harmless the City of Birmingham, its elected and appointed officials, employees and volunteers and others working on their behalf against any and all claims, demands, suits, or loss, including all costs and reasonable attorney fees connected therewith, and for any damages which may be asserted, claimed or recovered against or from the CITY, its elected and appointed officials, employees, volunteers or others working on their behalf, by reason of personal injury, including bodily injury and death and/or property damage, including loss of use thereof, which arise out of the acts, errors or omissions of the CONSULTANT including its employees and agents, in the performance of this Agreement.

Such responsibility shall not be construed as liability for damage caused by or resulting from the sole act or omission of its elected or appointed officials, employees, volunteers or others working on behalf of the CITY.

The CITY agrees that the contractors shall be solely responsible for job site safety and all contractors shall be required in the CITY'S contract with such contractors to indemnify the CONSULTANT for any liability incurred by the CONSULTANT as a result of the contractor's negligent acts or omissions. However, such indemnification shall not extend to liability resulting from the negligence of the CONSULTANT.

10. The CONSULTANT shall not commence work under this Agreement until it has, at its sole expense, obtained the insurance required by this paragraph. All certificates of insurance shall be with insurance carriers licensed and admitted to do business in the State of Michigan. All coverages shall be with insurance carriers acceptable to the City of Birmingham. The CONSULTANT shall maintain during the life of this Agreement the types of insurance coverage and minimum limits as set forth below:

- A. Workers' Compensation Insurance: CONSULTANT shall procure and maintain during the life of this Agreement, Workers' Compensation Insurance, including Employers Liability Coverage, in accordance with all applicable statutes of the State of Michigan.
- B. Commercial General Liability Insurance: CONSULTANT shall procure and maintain during the life of this Agreement, Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence combined single limit, Personal Injury, Bodily Injury and Property Damage. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent; (E) Deletion of all Explosion, Collapse and Underground (XCU) Exclusions, if applicable.
- C. Motor Vehicle Liability Insurance: CONSULTANT shall procure and maintain during the life of this Agreement Motor Vehicle Liability Insurance, including all applicable no-fault coverages, with limits of liability of not less than \$ 1,000,000 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.
- D. Additional Insured: The Commercial General Liability and Motor Vehicle Liability, as described above, shall include an endorsement stating the following shall be *Additional Insureds*: The City of Birmingham including all elected and appointed officials, all employees, all boards, commissions and/or authorities and board members. This coverage shall be primary and any other insurance maintained by the additional insureds

shall be considered to be excess and non-contributing with this insurance required from CONSULTANT under this Section.

- E. Professional Liability Insurance: If Professional Liability Insurance is available, Professional Liability Insurance with limits of not less than \$2,000,000 per claim if CONSULTANT will provide service that are customarily subject to this type of coverage.
  
- F. Cancellation Notice: Workers' Compensation Insurance, Commercial General Liability Insurance, Professional Liability Insurance and Motor Vehicle Liability Insurance as described above, shall include an endorsement stating the following: "Thirty (30) days Advance Written Notice of Cancellation or Non-Renewal shall be sent to: Director of Finance, City of Birmingham, P.O. Box 3001, 151 Martin Street, Birmingham, Michigan 48012.
  
- G. Proof of Insurance Coverage: CONSULTANT shall provide the CITY at the time the Agreement is returned for execution, Certificates of Insurance and/or policies, acceptable to the City, as listed below.
  - 1) Two (2) copies of Certificate of Insurance for Workers' Compensation Insurance;
  - 2) Two (2) copies of Certificate of Insurance for Commercial General Liability Insurance;
  - 3) Two (2) copies of Certificate of Insurance for Vehicle Liability Insurance;
  - 4) Two (2) copies of Certificate of Insurance for Professional Liability Insurance;
  
- H. Coverage Expiration: If any of the above coverages expire during the term of this Agreement, CONSULTANT shall deliver renewal certificates and/or policies to the City at least (10) days prior to the expiration date.

11. If, after the effective date of this Agreement, any official of the CITY, or spouse, child, parent or in-law of such official or employee shall become directly or indirectly interested in this Agreement or the affairs of the CONSULTANT, the CITY shall have the right to terminate this Agreement without further liability to the CONSULTANT if the disqualification has not been removed within thirty (30) days after the CITY has given the CONSULTANT notice of the disqualifying interest. Ownership of less than one percent (1%) of the stock or other equity interest in a corporation or partnership shall not be a disqualifying interest. Employment shall be a disqualifying interest.

12. The CONSULTANT and the CITY agree that the CONSULTANT is acting as an independent contractor with respect to the CONSULTANT'S role in providing services to the CITY pursuant to this Agreement, and as such, shall be liable for its own actions and neither the CONSULTANT nor its employees shall be construed as employees of the CITY. Nothing contained in this Agreement shall be construed to imply a joint venture or partnership and neither party, by virtue of this Agreement, shall have any right, power or authority to act or create any obligation, express or implied, on behalf of the other party, except as specifically outlined herein. Neither the CITY nor the CONSULTANT shall be considered or construed to be the agent of the other, nor shall either have the right to bind the other in any manner whatsoever, except as specifically provided in this Agreement, and this Agreement shall not be construed as a contract of agency. The CONSULTANT shall not be considered entitled or eligible to participate in any benefits or privileges given or extended by the CITY, or be deemed an employee of the CITY for purposes of federal or state withholding taxes, FICA taxes, unemployment, workers' compensation or any other employer contributions on behalf of the CITY.

13. The CONSULTANT agrees that it will apply for and secure all permits and approvals as may be required from the CITY in accordance with the provisions of applicable laws and ordinances of the CITY, State of Michigan or federal agencies.

14. This Agreement shall be binding upon and apply and inure to the benefit of the parties hereto and their respective successors or assigns. The covenants, conditions, and the agreements herein contained are hereby declared binding on the CITY and CONSULTANT. It is further agreed that there shall be no change, modification, or alteration hereof, except in writing, signed by both of the parties hereto. Neither party shall assign any of the rights under this Agreement without prior approval, in writing, of the other. Any attempt at assignment without prior written consent shall be void and of no effect.

15. The CITY shall be the owner of all the drawings, specifications or other documents prepared by the CONSULTANT. Any modifications made to the drawings by the CITY shall be clearly marked as such on the modified document. The CITY may not use these documents for any purpose other than pursuant to the activities provided for in this Agreement.

16. Notices shall be given to:

- a. City of Birmingham  
151 Martin Street  
P.O. Box 3001  
Birmingham, MI 48012-3001  
Attention: Ms. Laura Pierce

With copies to:

Timothy J. Currier, City Attorney  
Beier Howlett, P.C.  
200 E. Long Lake Road, Ste. #110  
Bloomfield Hills, MI 48304

b.

[REDACTED]  
[REDACTED]  
[REDACTED]  
Attention: [REDACTED]

17. The CONSULTANT acknowledges that in performing services pursuant to this Agreement, certain confidential and/or proprietary information (including, but not limited to, internal organization, methodology, personnel and financial information, etc.) may become involved. The CONSULTANT recognizes that unauthorized exposure of such confidential or proprietary information could irreparably damage the CITY. Therefore, the CONSULTANT agrees to use reasonable care to safeguard the confidential and proprietary information and to prevent the unauthorized use or disclosure thereof. The CONSULTANT shall inform its employees of the confidential or proprietary nature of such information and shall limit access thereto to employees rendering services pursuant to this Agreement. The CONSULTANT further agrees to use such confidential or proprietary information only for the purpose of performing services pursuant to this Agreement.

18. This Agreement shall be governed by and performed, interpreted and enforced in accordance with the laws of the State of Michigan. The CONSULTANT agrees to perform all services provided for in this Agreement in accordance with and in full compliance with all local, state and federal laws and regulations.

19. If any provision of this Agreement is declared invalid, illegal or unenforceable, such provision shall be severed from this Agreement and all other provisions shall remain in full force and effect.

FAIR PROCUREMENT OPPORTUNITY: Procurement for the City of Birmingham will be handled in a manner providing fair opportunity for all businesses. This will be accomplished without abrogation or sacrifice of quality and as determined to be in the best interest of the City of Birmingham.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

CITY OF BIRMINGHAM

  
Stuart Lee Sherman, Mayor

  
Laura Pierce, Clerk



## **DRAFT MULTI-MODAL TRANSPORTATION BOARD MINUTES**

**THURSDAY, AUGUST 3, 2017**

### **5. MULTI-MODAL TRANSPORTATION CONSULTING SERVICES REQUEST FOR PROPOSALS**

Ms. Ecker recalled that in 2014, the City issued a Request for Proposals ("RFP") seeking traffic engineering services, supplemented with knowledge and understanding of designing and advising for multi-modal transportation concepts, particularly in an urban setting.

In September 2014, the firm of Fleis and Vandenbrink ("F&V") was selected as the City's traffic consultant, and has acted as a multi-modal transportation consultant to the MMTB and the City Commission. However, this contract has now expired. On July 24, 2017, the City Commission directed staff to issue an RFQ to seek qualified consulting firms, and extended the previous contract with Fleis and Vandenbrink for six months to allow staff time to go through the RFP process.

Accordingly, the City will again be issuing an RFP to solicit multi-modal transportation consulting services to assist the MMTB and the City Commission in reviewing all transportation related projects. The revised RFP includes bringing in some broader planning perspectives and making sure that pedestrians, bicycles and vehicles are included. Ms. Ecker asked the MMTB to review and comment on the draft. Ultimately it will be up to the City Commission to determine whether to direct this board to issue the RFP. The RFP will go out to bid and then there will be a response time for respondents to submit their proposals. Interviews will be done by the MMTB and the top one or two will be sent to the City Commission who again makes the final decision on which consultant they would like to pick.

It was discussed that the interviews will be televised, as this is a public meeting. However, the competitors will not be allowed to watch the interviews of their fellow consultants. Ms. Ecker thought this board could recommend that the contract expire in three years as was recommended last time, however the City Commission may prefer a different term for the contract.

As a general statement, board members talked about encouraging creativity, innovation, and best practices in the context sensitive planning section of the RFP in order to prepare Birmingham to be a city of the future. It was noted that firms could partner with other firms if they didn't have the required skillsets and knowledge within their own staff.

It was noted that if Chairperson Adams' firm is interested in submitting she should have a discussion with the City Attorney regarding a potential conflict of interest.

General consensus was that the draft RFP should lose the italics on headings, and that the word advice on the first page should be changed to advise.

#### **Motion by Ms. Slanga**

**Seconded by Ms. Folberg to recommend that the RFP for professional multi-modal transportation consulting services, go to the City Commission with the text revisions discussed.**

**Motion carried, 5-0.**

VOICE VOTE

Yeas:

Nays:

Absent:



## MEMORANDUM

Planning Division

**DATE:** August 4, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Jana L. Ecker, Planning Director

**SUBJECT:** Set Public Hearing for 375 S. Eton – District Lofts  
Special Land Use Permit and Final Site Plan

---

The subject site, District Lofts, is located at 375 S. Eton, on the east side of Eton north of Villa. The parcel is zoned MX, Mixed Use. The applicant is applying for a Special Land Use Permit ("SLUP") to allow a commercial use greater than 6000 sq.ft. in the MX zoning district. The proposed commercial use is a 10,039 sq.ft. office for Oppenheimer Financial. This space was previously proposed to be used as retail/residential, broken up into four tenant spaces, with each one under 6000 sq.ft. in size.

Article 2, section 2.39, MX (Mixed Use) District requires that any permitted principal use with a total floor area greater than 6,000 sq.ft. shall obtain a Special Land Use Permit. Accordingly, the applicant is required to obtain a recommendation from the Planning Board on the Final Site Plan and Special Land Use Permit, and then obtain approval from the City Commission for the Final Site Plan and Special Land Use Permit.

On July 26, 2017, the Planning Board conducted a public hearing to discuss a request by the applicant to allow a commercial use greater than 6000 sq.ft. in the MX zoning district. The Planning Board voted unanimously to recommend approval to the City Commission of the Special Land Use Permit ("SLUP") and Final Site Plan for 375 S. Eton, District Loft, with no conditions.

Thus, the Planning Division requests that the City Commission set a public hearing date for **August 28, 2017** to consider approval of the Final Site Plan and Special Land Use Permit to allow a commercial use greater than 6,000 sq.ft. at 375 S. Eton. Please find attached the staff report presented to the Planning Board, along with the relevant meeting minutes for your review.

### **SUGGESTED ACTION:**

To set a public hearing date of August 28, 2017 to consider the Final Site Plan and Special Land Use Permit for 375 S. Eton to allow a commercial use greater than 6,000 sq.ft. at 375 S. Eton.

**HDDRC Minutes  
January 4, 2006**

**245-375 S. Eton  
Eton Street Lofts  
Birmingham Grand Trunk Western Railroad Depot Landmark**

Chairman Rinschler opened the public hearing at 8:14 p.m.

Zoning: B-2B General Business

Proposal: The applicant proposes to develop two residential loft buildings and a parking structure that will house 250 cars. The development will also have an off-street surface parking area, loading areas, and landscaped areas. The new development will be located on the south end of the triangular site of the Birmingham Grand Trunk Western Railroad Depot Landmark which is bordered by S. Eton on the west, Villa Street on the south, and the railroad on the east. The Big Rock Chop house and the Reserve are also located on the site. The applicant proposes to demolish an existing office building at 375 S. Eton at the corner of S. Eton and Villa Streets.

The proposed three-story parking deck will be located on the east side of the property. It will be constructed of brick veneer with pre-cast concrete caps with metal screen grill openings.

Ms. Bashiri read from the Ordinance the boundaries of the Historic District.

Chairman Rinschler commented it is hard for him to imagine that the whole parking lot was intended to be part of the Historic District. Therefore the commission should address the issue as to what size the Historic District should be prior to final site plan approval. Ms. Rowbottom recalled that when the Historic District was designated they talked about using the original property lines of the Grand Trunk Railroad. She agreed the issue should be decided.

Mr. Victor Saroki, the architect for the project, was present along with Mr. Mark Farlow principal from his office; and Mr. J.C. Cataldo, of Mocher Dolan Cataldo & Kelly Building and Development Company. Mr. Norman LePage, the property owner, was not present this evening. Mr. Saroki noted that the site falls within two zoning districts, MX and B-2B, and perhaps the demarcation line between the two zoning districts would make sense for the delineation of the Historic District.

At this point, Mr. Saroki walked the board through his report. It is his understanding they will be before the HDDRC for preliminary historic design review, and before the Planning Board for preliminary site plan approval along with a CIS application approval. They would then go back to the Planning Board for final site plan approval and come back to the HDDRC for final historic design approval.

The site circulation pattern for both the Big Rock and the Reserve will be quite similar to what it is now. Both of these operations use a valet service. The parking deck is not meant to serve the loft buildings. The lofts will be supported by underground parking that will house 50 cars and some surface parking. The residential traffic will all come in off of Villa Street. They hope to develop some one-car garages in addition to the 50 parking spaces underground. The proposal is for 47 loft units ranging in size from 1,000 sq. ft. up to about 2,000 sq. ft. Each building will have an

---

opportunity for retail uses on the first level. The first-floor loft units that front on Villa Street are intended to be work/live units. The applicants believe that they meet all of the requirements of the Zoning Ordinance. Mr. Saroki presented an overview showing the massing of the buildings along Eton.

They propose warehouse-like loft buildings that would fit into the Rail District. Their material pallet favors what has been used on the Train Station. The parking structure will be located at the rear of the site so that it parallels the train tracks. All of the parking needs for the Big Rock and the Reserve are satisfied. They think their proposal is in the spirit of the MX District and that it recognizes the historical character of that whole area.

Chairman Rinschler had difficulty with the massing and intrusion of the parking structure and its close proximity to the historic structure. There needs to be some architectural way to minimize the effect of the parking deck. Mr. Hewer suggested making the parking structure mixed-use. Mr. Saroki thought they may be able to create a very dense greenbelt screen as a buffer. From the standpoint of the residents and sales, they have to make sure that the deck is very pleasing. When they build the deck in brick with stone accents, add the mullion patterns, break down the amount of light through either louvers or an opaque surface, and add landscaping, it will diminish the whole deck area.

Discussion followed with respect to adding a roof on top of the deck. Mr. Saroki explained it would raise the mass of the deck and intrude into the required distance from the ITC transmission lines overhead. Mr. Farlow said that a portion of the parking deck lies within the B-2B District and that portion must abide by the lower height requirement for that District. Therefore, they have two districts to deal with, as well as the transmission lines.

Chairman Rinschler said it sounds to him that the area to work on is ways to minimize the massing and the visual impact of the parking deck. That is what the commission would like to see when the proposal comes back, because the deck is so incongruous with historic preservation. He feels they are going in the right direction with the lofts.

Ms. Weisberg thought the deck will be a nice relief from the parking lot that currently exists. Personally, she would like to see more of an industrial edge to the loft buildings.

In response to a question from Ms. Rowbottom, Mr. Saroki explained the retail will park either on Villa Street or in the structure. She suggested a tie-in to the neighborhoods with the species of trees that are planted. Mr. Saroki indicated his intention to present a landscape plan at final review.

Mr. Saroki explained that the property line angles, and that necessitates their buildings to be set back. The loft building will start to create some building edges which will help the Reserve not to look like it is set out in the street. On another subject, their proposal for lighting on the site will take on an industrial look.

**Motion by Chairman Rinschler**

**Seconded by Mr. Hewer to approve the preliminary historic review application for 245-375 S. Eton, Eton Street Lofts, provided that the applicant comes back with proposals**

---

**to soften the impact of the parking structure and the commission has a resolution of the specific bounds of the Historic District to guide it in its final approval.**

No one from the public wished to comment on the motion at 9:10 p.m.

Motion carried, 5-0.

VOICE VOTE

Yeas: Rinschler, Hewer, Deyer, Rowbottom, Weisberg

Nays: None

Absent: Henke, Sadowski

---

**Planning Board Minutes**  
**January 25, 2006**

**PRELIMINARY SITE PLAN REVIEW AND COMMUNITY IMPACT STUDY ("CIS")**

**245,325, 375 S. Eton**

**The District Lofts**

**Construction of mixed-use development, including residential lofts, retail space and two-story parking deck on the site of the Big Rock Chop House and the Reserve**

CIS

Ms. Ecker offered background information. The subject parcels are located on the site of the existing Big Rock Chop House, the Reserve banquet facility, and an office building. The site has a total land area of 3.54 acres. It is located on the southeast corner of S. Eton and Maple Road, and extends down to Villa Street to the south. The applicant is proposing to demolish the existing office building and surface parking lot to construct a mixed-use development that would include the Big Rock Chop House, the Reserve banquet facility, two new four-story buildings containing retail space, residential loft units, live/work units, as well as a three-story parking deck on the rear of the site.

Ms. Ecker advised that the applicant was required to prepare a CIS as they are proposing two new buildings containing more than 20,000 sq. ft. of gross floor area. The CIS discusses the proposed use of the site; access and circulation; sub-area plan; building and parking placement; design; land development issues; utilities, noise and air issues; environmental design and historic values; refuse, sewer and water; public safety; transportation issues; parking issues; natural features; and includes an associated soils report, an environmental report, a traffic report, and a noise study. The site is zoned B-2B General Business at the north end on the site of the existing Big Rock Chop House, and is zoned MX Mixed Use on the southern portion.

Ms. Ecker reviewed all details of the proposed development and the corresponding studies for the Planning Board. Mr. Potts asked if there is sufficient capacity in the proposed parking deck and in the adjacent surface parking area to accommodate a full max out of all of the uses contemplated in the three areas. Ms. Ecker indicated it meets the City parking requirements.

Mr. Victor Saroki, architect for the District Lofts, was present with Mr. Norman LePage, owner of the Big Rock Chop House and the Reserve banquet facility; Messrs. Mark Egott and Johannes from his office; and Mr. Rod Arroyo, Traffic Consultant from Birchler, Arroyo. Mr. Saroki assured the board that all of the items required in the CIS will be complied with prior to final site plan review. He went on to discuss the Clayton Environmental Report which was developed in 1998 for Mr. LePage when he was proposing the Reserve banquet facility. They have not prepared a new report because nothing has changed on the site except for the Reserve getting built. Erb Lumber was a lumber yard, so he does not see it as an issue needing any additional extensive environmental testing. Also, if there is a water table issue involving basements, they will deal with it at the time of construction and excavation. They always employ geotechnical engineers and soil engineers to help with the design of the buildings and footings.

Mr. Potts confirmed that Mr. Saroki is satisfied that there are no environmental concerns at this point. Mr. Saroki said that if anything does come to light during construction they will take the

---

proper caution and hire an environmental consultant to help them. Mr. Norman LePage established that all of the storage facilities for the lumber yard actually were from Crosswinds on back. So, as far back as he can remember there was no storage of any kind taking place on his property. Also, Mr. Saroki added that their lender is satisfied with the environmental report. Further, the developers are satisfied that the environmental survey is acceptable for a residential development. They are obligated by law that if anything is found they will stop, investigate, bring in experts, and remediate.

Ms. Dorothy Conrad spoke to say that the Crosswinds property was cleaned up prior to construction beginning. Chairman Boyle cautioned that wolmanized timber may have been stored on the site.

Mr. Rod Arroyo, whose firm prepared the Traffic Impact Assessment, said there were three issues raised by TetraTech and one issue raised by the Engineering Division.

1. Birchler, Arroyo is recommending a two-way left turn lane in the area north of Yosemite. They believe it would be a safety and a capacity improvement to provide a two-way left turn lane so that southbound traffic on Eton can get into a left-turn lane to turn into the main driveway which serves the entire facility. From what they have observed, only about 75 ft. of storage is needed in the north-bound left turn lane. They are recommending that 100 ft. be a two-way left turn lane. That leaves another 175 ft. for north-bound left turns. Right now, if a car is south bound on Eton and wants to turn left and there is traffic coming north bound, there is no choice but to block through traffic south bound on Eton and wait for a gap to make the left turn. The two-way left turn lane allows cars to get out of the way so that south-bound traffic can continue. They think that is a significant improvement.
2. Regarding the one-way drive that is used by the valets, Mr. Arroyo's understanding is there will be no additional impact on that. It will still operate as it does today.
3. With respect to site obstructions on Eton Street on the east side, parking should be prohibited and there should be appropriate signage added to clarify that so that clear site distance can be maintained to the south as cars turn out.
4. The Engineering Division does not agree with their recommendation to limit parking on Villa Street to one side only, given the demand for parking to support the Amtrack train station. Birchler, Arroyo went out to re-evaluate that and found that parking on both sides would leave an 18 ft. travel way for two-way traffic. If it turns out that it becomes problematic, re-striping could fix that problem by removing parking on one side of the street. They would leave it up to the City in terms of what they believe is correct.

Further, to have three lanes at the villa approach to Eton Road would be a very tight configuration. Mr. Arroyo doesn't believe the delays are going to be enough to require that, but once again the City could make a change in striping.

Mr. Blaesing said that anything dealing with the public streets, either Villa or Eton, doesn't necessarily have to be tied as a requirement of the final site plan. It is not something that would prohibit the Planning Board from accepting the CIS. It would be a recommendation to the City's other boards to go ahead and try it out.

Mr. Saroki provided details regarding the proposed separation and collection of recycled materials on-site. In both buildings there are trash chutes that lead down to trash rooms in the parking garage.

---



**Motion by Mr. Potts**

**Seconded by Mr. Blaesing to accept the CIS for 245, 325, 375 S. Eton, the District Lofts, with the understanding that the applicant will address all of the issues as represented.**

Chairman Boyle asked if members of the public wished to comment on this motion at 10:40 p.m.

Ms. Dorothy Conrad observed that currently on both sides of Maple Road the traffic is much greater than normal. That is because of the closing of the bridge at Adams Road. If these traffic volumes are being used as a measuring stick they are probably the highest that Maple Road will ever get.

**Motion carried, 6-0.**

ROLL CALL VOTE

Yeas: Potts, Blaesing, Boyle, Dilgard, Haberman, Nickita

Nays: None

Absent: None

Preliminary Site Plan Review

Ms. Ecker advised that a Special Land Use Permit ("SLUP") was granted on September 22, 2003 to allow construction of the Reserve banquet facility as it exceeds 7,000 sq. ft. in size, and proposed hours of operation past 11 p.m.

Ms. Ecker advised that on October 26, 2005, the applicant appeared before the Planning Board for a pre-application discussion. The Planning Board suggested that the applicant consider decreasing the size of the units and suggested that more live/work units be offered, along with more retail and/or office space.

On January 4, 2006, the HDDRC conducted a preliminary review of the development and approved the preliminary historic review application for the site, with the conditions that the applicant comes back with a proposal to soften the impact of the parking structure, and that the Planning Division provide a map of the specific boundaries of the Historic District located on the site.

The applicant meets the majority of the height, area, and placement requirements for the MX Zoning District. However, the Planning Board will have to approve the location of the principal pedestrian entrances on Villa Street as they are proposed 3 ft. back from the frontage line and are required to be on the frontage line. **In addition, the applicant will be required to increase the first-floor ceiling heights to provide a 12 ft. clear space from finished floor to finished ceiling, or obtain a variance from the BZA.** The applicant advised that they had altered their plans to meet this requirement. This is a result of the Eton Road Corridor Plan which envisions having spaces that could be converted from residential to commercial in order to accommodate a multitude of uses over time.

Mr. Saroki passed out a colored rendering setting forth the elevations. They listened to the Planning Board's comments at the pre-application discussion. They have added additional retail space and some live/work units. They are now up to 47 loft units. The approach they took with the

---

architectural aesthetic of their elevations is to develop exteriors that are warehouse-like with large panels of glass with mullions and windows as one would see in manufacturing and industrial buildings. The buildings relate also to the train station with the brick color and the limestone. The buildings set back 3 ft. from the street. That allows a softening green belt across the front of the residential units. The parking structure is a background building that is set back parallel to the tracks.

One parking space is allowed underground for each loft unit and a second enclosed space can be purchased. It was an intentional move on their part to isolate the commercial traffic from the residential traffic. The parking garage is being developed to support parking for the Reserve banquet facility and Big Rock Chop House. Mr. Saroki believes the 380 spaces on the site are enough to sustain all of the operations if everything is going at maximum capacity. They have been very creative in finding every parking space they can on this site.

Mr. Saroki advised that there will be screening for the mechanical units on the roof, they will meet the 12 ft. height for the first-floor retail spaces, and they are not going to request any variances. Further, they will provide 12 ft. light standards in the parking lot. They intend to be extra careful with lighting in the parking structure because it is next to residential. Louvers, metal grills and translucent panels are being contemplated and different designs are being studied.

Mr. Nickita stated that he thinks street parking is very important. It always slows traffic and it creates a better pedestrian environment. He sees Villa Street as being wider than almost all of the residential streets throughout the City. Therefore, he advocates parking on both sides of the street. It would still allow sufficient ingress and egress to the project.

Mr. Nickita went on to discuss the issue of circulation within the site. He does not think dead-end situations are best for traffic flow. Also, he noted that pedestrians will need to have a path in order to traverse the site. Mr. Saroki said they will try to designate good pedestrian movement. Addressing the traffic circulation, he said they are concerned that the heavy commercial traffic would interfere with the comfort of the residential buildings. Therefore they feel that Villa Street should just be for the residential.

**Motion by Mr. Blaesing**

**Seconded by Mr. Dilgard to extend the meeting to 11:30 p.m.**

**Motion carried, 6-0.**

Yeas: Blaesing, Dilgard, Boyle, Haberman, Nickita, Potts

Nays: None

Absent: None

Mr. Saroki said the units will measure from 850 sq. ft. to 2,000 sq. ft. The prices will probably range from \$400 thousand to \$800 thousand. Everything is one-level loft living with 10 ft. finished ceilings on the upper floors.

Mr. Blaesing said that as a resident he would appreciate the separation of vehicular movement because he would want some privacy from the commercial district so that people are not driving through his parking lot at 2 a.m. trying to find their way out. He thanked the applicant for listening

---

at the pre-application discussion and he appreciates the changes that were made as a result. He is sure that when all of this gets done it will feel like a neighborhood.

Mr. Potts urged the applicant to soften the garage to improve the visual perspective as people enter the MX District off of Maple. Mr. Saroki indicated they could do that and add a significant landscape plan.

Ms. Ecker said she believes the City Manager is advocating to keep the train station on the Birmingham side rather than moving it to Troy. Ms. Dorothy Conrad said plans are moving forward for a transportation hub that is to be built in Troy. She thought the Community Development Department ought to contact the City of Troy to ask them exactly what is going on and what they have in mind.

Mr. Nickita pointed out that the front doors are not really accessible by a drop-off/pick-up situation. There is not adequate pedestrian circulation between the buildings and between the Reserve. What happens is that someone who is dropped off in the back of the units would then have to walk around to the front. Mr. Saroki explained that a car could pull into a parking space in the front, let someone get out, and then leave. He thought they could develop a striped spot that is not a parking space that would allow someone to pull in and back out. Mr. Boyle pointed out that most people would probably pull into the Reserve to pick up or drop off, short of it being a peak time.

**Motion by Mr. Blaesing**

**Supported by Mr. Potts to approve the Preliminary Site Plan as presented for 245, 325, 375 S. Eton, the District Lofts. The approval should include:**

- 1. Approval by the board to allow a 3 ft. setback of the building on Villa Street;**
- 2. That all of the first-floor units have 12 ft. ceiling heights;**
- 3. That the sidewalk constructed on Villa extend eastward to the train loading station; and**
- 4. That the applicant consider a more thorough design of the pedestrian and vehicular circulation throughout the site.**

Mr. Nickita went on record as saying he recommends that the City consider allowing parking on both sides of Villa Street.

There was no public comment on the motion at 11:25 p.m.

Motion carried, 6-0.

**Yeas: Blaesing, Potts, Boyle, Dilgard, Haberman, Nickita**

**Nays: None**

**Absent: None**

---

## **Planning Board Minutes**

**March 22, 2006**

### **FINAL SITE PLAN AND DESIGN REVIEW**

245, 325 and 375 S. Eton Street

Construction of new loft buildings and parking deck

Ms. Ecker advised that this project has been before the Planning Board several times. It is the site of the existing Big Rock Chop House, The Reserve banquet facility, and an office building. The site has a total land area of 3.54 acres. It is located on the southeast corner of S. Eton and Maple Road, and extends down to Villa Street to the south. The applicant is proposing to demolish the existing office building and surface parking lot to construct a mixed-use development that would include the Big Rock Chop House; The Reserve banquet facility; two new four-story buildings containing retail space, residential loft units, and live/work units; as well as a three-story parking deck on the rear of the site.

Ms. Ecker advised that the applicant was required to prepare a Community Impact Study in accordance with Article 7, section 7.27 (E) of the Zoning Ordinance as they are proposing two new buildings containing more than 20,000 sq. ft. of gross floor area. As the Big Rock Chop House is listed in the City's inventory of historic properties, this application must also be reviewed and approved by the Historic District and Design Review Committee ("HDDRC").

A Special Land Use Permit ("SLUP") permit was granted on September 22, 2003 to allow construction of The Reserve banquet facility and to allow the proposed hours of operation past 11 p.m. An amendment to this SLUP will be required to permit construction of the proposed development, to allow the proposed 7,000 sq. ft. of commercial space, and to allow any new business on the site to operate past 11 p.m.

On October 26, 2005, the applicant appeared before the Planning Board for a pre-application discussion. Since the pre-application discussion, the applicant heeded the suggestions of the board members and increased the number of units from 45 to 47, and is proposing that five of those units be live/work units along Villa Street. Two commercial spaces are now proposed along Eton Street.

On January 4, 2006, the HDDRC conducted a preliminary review of the proposed development and approved the preliminary historic review application provided the applicant comes back with a proposal to soften the impact of the parking structure, and that the Planning Division provide a map of the specific boundaries of the Historic District located on the site. Since that time the applicant has added more landscaping based on the comments of the HDDRC to soften the view of the parking structure from Eton Street and Maple Road.

On January 25, 2006, the Planning Board conducted a preliminary review of the proposed development and a complete review of the Community Impact Study ("CIS"). The Planning Board

---

approved the CIS with the condition that the applicant address all of the issues outlined in the staff report. The Planning Board also approved the Preliminary Site Plan with several conditions.

Ms. Ecker advised that since the Preliminary Site Plan was approved, the applicant has shifted the buildings to be 2 ft. rather than 3 ft. back off the property line along Villa St. which was previously approved by the Planning Board. The applicant has modified the plans to extend the sidewalk on Villa eastward to the train station, and has added a pedestrian connection from the proposed loft buildings across the site to the big Rock Chop House restaurant. The applicant indicated at the preliminary site plan review that they would increase the ceiling heights for all first-floor units to be 12 ft. clear from finished floor to finished ceiling. A new section has been provided that clearly shows a full 12 ft. The applicant has not altered the vehicular circulation pattern on the site.

The Planning Board will have to approve the new location of the principal pedestrian entrances on Villa Street as they are now proposed 2 ft. back from the frontage line. *In addition, the applicant will be required to decrease the height of that portion of the parking structure located in the B-2B Zone District, or obtain a variance from the Board of Zoning Appeals ("BZA").*

**Motion by Mr. Dilgard**

**Seconded by Mr. Blaesing to extend the meeting to 11:30 p.m.**

**Motion carried, 5-0.**

#### **VOICE VOTE**

**Yeas: Dilgard, Blaesing, Boyle, Nickita, Potts**

**Nays: None**

**Absent: Haberman**

Mr. Victor Saroki, from Victor Saroki & Associates, Architects, was present along with Mr. Norman LePage, the property owner; Mr. J.C. Cataldo of Mosher, Dolan, Cataldo and Kelly, the general contractors; and Mr. Michael Dul, the landscape architect. Mr. Saroki indicated they are happy to sit down with the Fire Marshal and discuss the turning radius for the Fire Department's largest vehicle to access the site from both Villa and Eton. He noted the existing loading space immediately adjacent to the Big Rock Chop House is somewhat screened by the landscaping, but it cannot accommodate a masonry screenwall because it would prohibit the trucks from turning in. Ms. Ecker said that as long as it is an existing loading space a variance will not be needed.

Mr. Saroki said to soften the parking deck they are proposing a brick veneer for the outside that matches both of the loft buildings. Only a portion of the stairwell on the deck requires a variance from the building height limitation.

---

Chairman Boyle commented he would like to see an occasional flash of color because this development lies within an industrial area.

**Motion by Mr. Dilgard**

**Seconded by Mr. Nickita to extend the meeting to 11:45 p.m.**

**Motion carried, 5-0.**

**VOICE VOTE**

**Yeas: Dilgard, Nickita, Blaesing Boyle, Potts**

**Nays: None**

**Absent: Haberman**

**Chairman Boyle took discussion to the public for comments and no one spoke at 11:30 p.m.**

Motion by Mr. Blaesing

Seconded by Mr. Dilgard to recommend approval to the City Commission of the SLUP Amendment and Final Site Plan, and support the staff recommendations for the approval of the lofts at 245, 325, and 375 S. Eton Street. The board supports a variance for the stairwell on the parking deck that happens to fall in the B-2B District. The staff recommendations are as follows:

1. The Planning Board provide approval for the new location of the principal pedestrian entrances on Villa Street 2 ft. back from the frontage line;
  2. Decrease the height of that portion of the parking structure located in the B-2B Zone District, or obtain a variance from the BZA;
  3. Increase the first-floor ceiling heights to provide a 12 ft. clear space from finished floor to finished ceiling or obtain a variance from the BZA;
  4. Provide screening for the existing dumpsters and clean up the debris surrounding them immediately;
  5. Provide details on the proposed rooftop mechanical equipment;
  6. Replace all proposed Stella D'Oro Daylilies with Happy Returns Daylilies;
  7. Replace all proposed Euonymus with another hardy groundcover;
  8. Provide a photometric plan that includes all proposed lighting;
  9. Provide information regarding the location of fire hydrants, Fire Department water connections, the ability of the largest emergency vehicle to access the site from both Villa and Eton, and the sufficiency of the proposed fire lanes;
  10. Extend the screenwall between The Reserve and loft Eton Building to connect to The Reserve; and
  11. Submit all requested changes for administrative approval by the Planning Division.
-

12. Provide an 8.5 ft. sidewalk along the north side of Villa Street with tree wells and no grass boulevard to match the south side of Villa Street to reduce maintenance issues. Administrative approval of the sidewalk.

Motion carried, 5-0.

**ROLL CALL VOTE**

**Yeas: Blaesing, Dilgard, Boyle, Nickita, Potts**

**Nays: None**

**Absent: Haberman**

---

## Planning Board Minutes

March 22, 2006

01-07-15

### **FINAL SITE PLAN REVIEW 245, 325 and 375 S. Eton District Lofts, Building B Construction of a new four-story, mixed-use building to include commercial space and residential loft units**

Ms. Ecker explained the subject site, 375 S. Eton, is part of a larger site including the existing Big Rock Chop House, Big Rock Chop House parking deck, the Reserve banquet facility, and the District Lofts - Villa Street Building (Building A), and has a total land area of 3.54 acres. It is located on the southeast corner of S. Eton and Maple Rd., and extends down to Villa St. to the south. A Special Land Use Permit ("SLUP") was granted for the Reserve on September 22, 2003 as it exceeds 6,000 sq. ft. in size, and has hours of operation past 11 p.m. The applicant was also required to prepare a Community Impact Study ("CIS") in accordance with section 7.27(E) of the Zoning Ordinance at the time that the entire site was originally approved (when Building A was to be constructed), and the CIS was accepted by the Planning Board on January 25, 2006. As the Big Rock Chop House is also listed in the City's inventory of historic properties, the entire site was also previously reviewed and approved by the Historic District and Design Review Committee ("HDDRC").

The applicant is proposing to construct the final phase of the entire development which was originally approved on August 6, 2006. This final phase includes the proposed construction of a four-story, mixed-use building containing 18 residential loft units, two live/work ground floor units and two commercial spaces on the first floor (Building B). Building B is not located in a Historic District. All of the underground parking will be under the footprint of the new loft building and accessed from the existing loft building. The units range in size from 924 sq. ft. to 2,800 sq. ft.

The applicant meets the majority of the bulk, height, area and placement requirements for the MX Zoning District. However, the applicant will be required to reduce the height of the building or obtain a variance from the Board of Zoning Appeals to allow the mechanical tower and other equipment to exceed 50 ft. in height. The applicant is proposing 58 ft. including the mechanical and four stories. They have advised that they wish to seek a variance from the BZA to allow the stair and elevator tower to provide access to the rooftop, and to seek a variance to allow a rooftop deck with a pergola and an enclosed exercise room and a restroom if the Planning Board is supportive of this use.

Design Review The proposed building design matches the contemporary style of the existing District Lofts building next door, while using some traditional style materials to blend in with the historic Big Rock Restaurant and The Reserve to create a building design that is harmonious with both the Mixed-Use District on the east side of Eton and the Single- Family Residential District on the west side of Eton. Overall, the proposed design of Building A is compatible with the vision for the MX District contained in the Eton Road Corridor Plan. All of the materials match what is on the existing loft building.

Mr. Victor Saroki, the architect for this development, was present along with Mr. Scott LePage, the developer; and Mr. John Kelly, the general contractor. The new building is exactly the same as originally proposed, except for the roof terrace. The original building has been very successful and

---



there is a waiting list to get in. This building has some nice retail spaces that front right on Eton. The materials and aesthetic details are meant to resemble updated warehouses. The project meets all parking requirements and an additional 34 underground spaces are proposed for the new building. They are happy to work with staff to identify street furniture along Eton and the appropriate spaces for lighting along both Eton and Villa.

They see the roof terrace as a nice element to introduce into this project. Serviceability for the mechanical equipment is a practical consideration for allowing the stairs and elevator to go to the roof. In the MX District the allowable building height is 45 ft. and only 5 ft. more is permitted for mechanical. All the other zoning districts in town permit 10 ft. for mechanical. So with only 5 ft. permitted, the only way to get to the roof is to climb up a ladder and through a hatch. In summary, the rooftop terrace is a small element that is practical for service and it is good for the residents. Mr. Saroki thinks that use of the roofs should be encouraged, but it cannot be done with only 5 ft. allowed above the building height.

Ms. Whipple-Boyce thought the rooftop area is somewhat like a fifth story. She suggested they could achieve what they want by taking half of an end unit and turning it into a terrace. Mr. Saroki replied if they are not successful at the BZA, the terrace won't happen.

Mr. Koseck likes the aesthetic of the building. He was surprised at the 5 ft. limit on rooftop screening, the same with stairs and an elevator. Mr. Saroki showed the circulation through the site and explained how people can go in and out comfortably.

Mr. DeWeese said he finds it very hard to support the uses, given the way the ordinance is written; but again, it is not clear why it is that way because the 5 ft. height allowance for screening is not practical.

In response to Chairman Clein, Mr. Saroki stated there is no intention to add an enclosure to allow for all season use. This is truly a sun deck.

The Chairman called for comments from members of the public at 9:55 p.m.

Mr. J. Colman, 521 Lewis, asked where all the cars will park. Ms. Ecker verified that the applicant complies with the parking requirement. Mr. Saroki said they have 397 spaces on-site, which is an excess of 60 spaces, not including street parking. Mr. Williams noted that people always want to park on the streets.

**Motion by Ms. Whipple-Boyce Seconded by Mr. Share to approve the Final Site Plan and Design Review for 375 S. Eton subject to the following conditions:**

- 1) Reduce the height of the building or obtain a variance from the BZA to allow the mechanical tower and other equipment to exceed 50 ft. in height;**
  - 2) Remove all uses above 40 ft. in height (deck, exercise room and restroom) or obtain a variance from the BZA;**
  - 3) Provide specification sheets for the proposed rooftop mechanical equipment and identify the proposed roofing material;**
  - 4) Add one street tree along Villa and provide street lights every 40 ft. on S. Eton and every 80 ft. on Villa all along the north side, adjacent to Buildings A and B, with all locations to be administratively approved; and**
-

**5) Add benches, trash receptacles and bike racks, with locations to be administratively approved.**

**There were no comments from the audience on the motion at 10:03 p.m.**

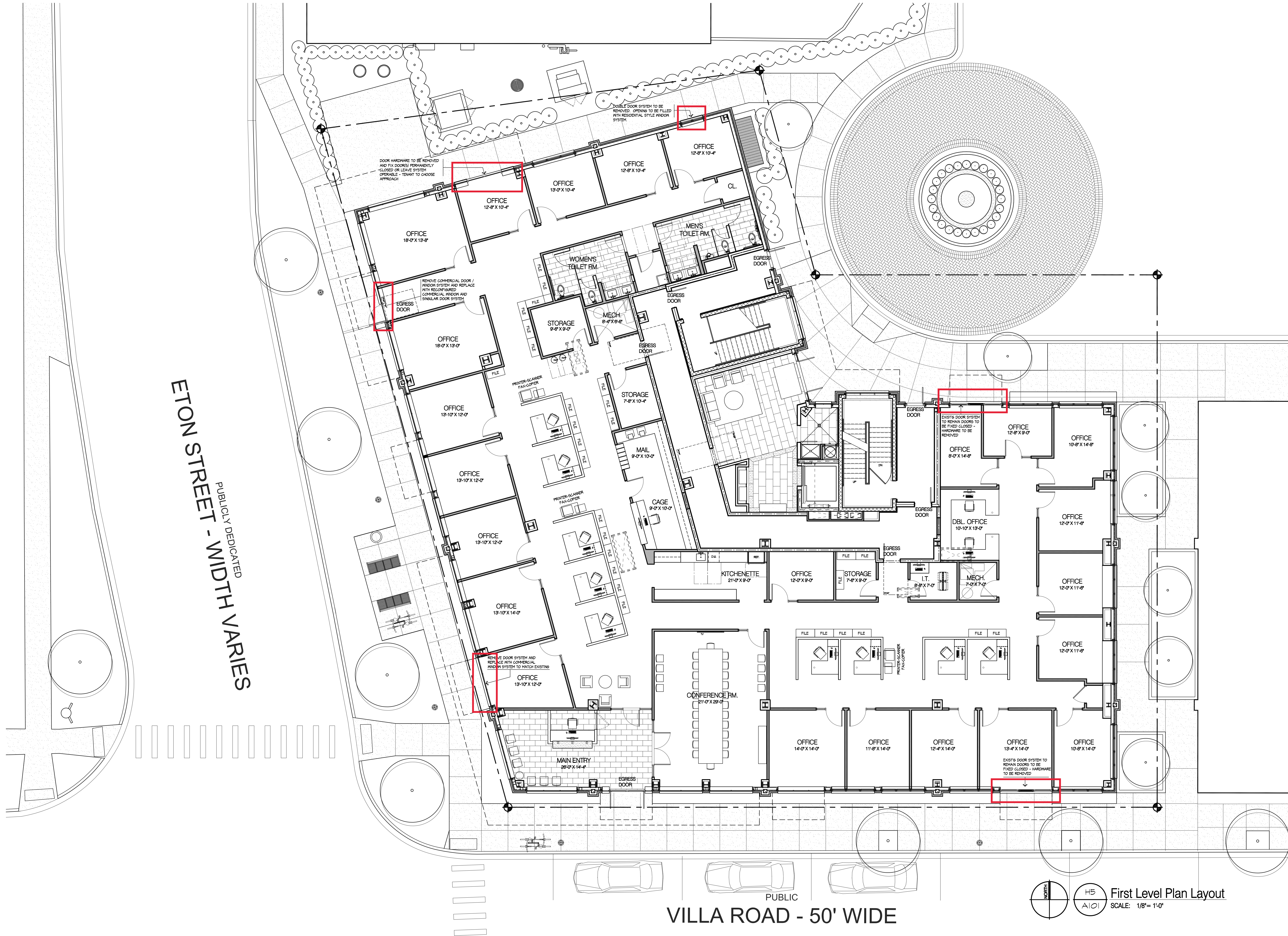
**Motion carried, 7-0.**

**VOICE VOTE Yeas: Whipple-Boyce, Share, Clein, DeWeese, Koseck, Lazar, Williams  
Nays: None Absent: Boyle**

---



A  
B  
C  
D  
E  
F  
G  
H



ETON STREET - PUBLICLY DEDICATED  
WIDTH VARIES

VILLA ROAD - 50' WIDE



 H5 First Level Plan Layout  
 A101 SCALE: 1/8" = 1'-0"

**SAROKI**  
 ARCHITECTURE  
 430 N. OLD WOODWARD  
 BIRMINGHAM, MI 48009  
 P. 248.258.5707  
 F. 248.258.5515  
 SarokiArchitecture.com

**Project:**  
 District Lofts -  
 Eton Street Building  
 Birmingham, Michigan  
**Date:** Issued For:  
 05-08-2017 Tenant Layout Review  
 06-13-2017 Tenant Layout Review

**Sheet No.:**  
  
**A101**  
 FIRST LEVEL PLAN  
 OPPENHEIMER TENANT LAYOUT



A  
B  
C  
D  
E  
F  
G  
H



**SAROKI**  
ARCHITECTURE  
430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

**Project:**  
District Lofts -  
Eton Street Building  
Birmingham, Michigan

**Date:**      **Issued For:**  
05-08-2017    Tenant Layout Review  
06-13-2017    Tenant Layout Review

D9  
A200 Existing South Building Elev.  
SCALE: 3/16" = 1'-0"

**Sheet No.:**  
  
**A200**  
SOUTH EXTERIOR ELEVATION

1    |    2    |    3    |    4    |    5    |    6    |    7    |    8    |    9    |    10

A  
B  
C  
D  
E  
F  
G  
H



D9  
A201 Existing West Building Elev.  
SCALE: 3/16" = 1'-0"

**SAROKI**  
ARCHITECTURE  
430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

Project:  
District Lofts -  
Eton Street Building  
Birmingham, Michigan  
Date: Issued For:  
05-08-2017 Tenant Layout Review  
06-13-2017 Tenant Layout Review

Sheet No.:

**A201**  
WEST EXTERIOR ELEVATION

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10



DOUBLE DOOR SYSTEM TO BE REMOVED. OPENING TO BE FILLED WITH RESIDENTIAL STYLE WINDOW SYSTEM.

DOOR HARDWARE TO BE REMOVED AND FIX DOOR(S) PERMANENTLY CLOSED OR LEAVE SYSTEM OPERABLE - TENANT TO CHOOSE APPROACH

D9 Existing North Building Elev.  
A202 SCALE: 3/16" = 1'-0"

**SAROKI**  
ARCHITECTURE  
430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

**Project:**  
District Lofts -  
Eton Street Building  
Birmingham, Michigan

**Date:** 05-08-2017  
**Issued For:** Tenant Layout Review  
06-13-2017 Tenant Layout Review

Sheet No.:

**A202**  
NORTH EXTERIOR ELEVATION

A  
B  
C  
D  
E  
F  
G  
H



REMOVE DOOR HARDWARE  
AND FIX DOOR(S)  
PERMANENTLY CLOSED

D9  
A203 Existing North Building Elev.  
SCALE: 3/16"=1'-0"

**SAROKI**  
ARCHITECTURE  
430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

**Project:**  
District Lofts -  
Eton Street Building  
Birmingham, Michigan  
**Date:** 05-08-2017 **Issued For:** Tenant Layout Review  
06-13-2017 Tenant Layout Review

Sheet No.:

**A203**  
NORTH EXTERIOR ELEVATION

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10



# MEMORANDUM

Planning Division

**DATE:** July 17, 2017

**TO:** Jana Ecker, Planning Director

**FROM:** Nicholas Dupuis, Planning Intern

**SUBJECT:** 375 S. Eton – The District Lofts  
Final Site Plan & Special Land Use Permit Review – District Lofts  
Building B

---

## Introduction

The subject site, 375 S. Eton is part of a larger site including the existing Big Rock Chop House, Big Rock Chop House parking deck, the Reserve banquet facility, and the District Lofts- Villa Street Building (Building A), and has a total land area of 3.54 acres. It is located on the southeast corner of S. Eton and Maple Road, and extends down to Villa Street to the south. A Special Land Use Permit was granted for the Reserve on September 22, 2003 as it exceeds 6,000 ft<sup>2</sup> in size, and has hours of operation past 11:00 pm. The applicant was also required to prepare a Community Impact Study in accordance with Article 7, section 7.27(E) of the Zoning Ordinance at the time that the entire site was originally approved (when Building A was to be constructed), and the CIS was accepted and the Preliminary Site Plan was approved by the Planning Board on January 25, 2006. As the Big Rock Chop House is also listed in the City's inventory of historic properties, the entire site was also previously reviewed and approved by the Historic District and Design Review Committee ("HDDRC").

The applicant is completing construction of the final phase of the entire development which was originally approved on August 6, 2006. This final phase includes a four story mixed use building containing 18 residential loft units, and office space on the first floor (Building B). Building B is not located in a historic district. A single office tenant (Oppenheimer Financial) is now proposing to occupy 10,039 ft<sup>2</sup> of space on the first floor of Building B. The first floor use is now proposed to change from retail/residential to office use. As the single office user wishes to occupy more than 6000 sq.ft., a Special Land Use Permit and approval from the Planning Board and City Commission is required.

### 1.1 Land Use and Zoning

- 1.2 Existing Land Use – The existing land uses on the site include the Big Rock restaurant, The Reserve banquet facility, a parking structure, surface parking and a two mixed use buildings.
-



- 1.2 Zoning - The northern portion of the parcel is zoned B-2B, General Business, and the southern portion of the site is zone MX, Mixed Use. The existing use and surrounding uses appear to conform to the permitted uses of their respective Zoning Districts.
- 1.3 Summary of Adjacent Land Use and Zoning - The following chart summarizes existing land use and zoning adjacent to and/or in the vicinity of the subject site, including the proposed 2016 Regulating Plan zones.

	<b>North</b>	<b>South</b>	<b>East</b>	<b>West</b>
<b>Existing Land Use</b>	Big Rock Restaurant, The Reserve	Crosswinds Development	Loft Building A, Railroad	Commercial, Multi-family Residential
<b>Existing Zoning District</b>	B-2B Neighborhood Business, MX – Mixed Use	MX - Mixed Use	MX – Mixed Use, PP – Public Property	B-1 – Neighborhood Business, R-6 – Multiple-Family Residential
<b>Downtown Overlay Zoning District</b>	N/A	N/A	N/A	N/A

## 2.0 Setback and Height Requirements

The attached summary analysis provides the required and proposed bulk, area, and placement regulations for the proposed project. The applicant meets all of the bulk, height, area and placement requirements for the MX Zoning District.

Please see the attached Zoning Compliance Summary Sheet for detailed zoning compliance information.

## 3.0 Screening and Landscaping

3.1 Dumpster Screening – The applicant is not proposing any changes to the existing two trash compactors/ dumpsters on the site: one at the southeast corner of the site to service the residential loft units, and one on the north elevation of the parking structure to service Big Rock and The Reserve. The existing screening: 8’ high brick screen wall, with a 4” limestone cap and wooden gates are sufficient. Trash rooms are also located within Building B.

3.2 Parking Lot Screening –All parking facilities must be screened in accordance with Article 4, section 4.49 of the Zoning Ordinance with a minimum 32” high masonry screen wall. All surface parking is either adequately screened by a masonry screen wall or located to the rear or underneath the existing loft buildings and thus fully screened. The opening

between loft buildings A and B contains a pedestrian walkway and staggered planting beds to effectively screen any views of the surface parking lot through the opening. All other parking is screened within parking structures above and below ground.

3.3 Mechanical Equipment Screening – Mechanical equipment is located on the parking level of loft building B and on the roof of the proposed building. The mechanical equipment is screened. **No changes are proposed at this time.**

3.4 Landscaping – The applicant has extensive landscaping throughout the site. The landscaping is clustered into different areas to accomplish various goals. **There are no changes proposed to the landscaping plan.**

3.5 Streetscape – The streetscape on Villa was designed to match the existing streetscape in front of Building A, which includes sidewalk from curb to building. The applicant has included seating, trash receptacles and bicycle racks on the Final Site Plan to enhance the streetscape along S. Eton and Villa. **No changes are proposed to the streetscape plan.**

#### 4.0 **Parking, Loading and Circulation**

4.1 Parking – In accordance with Article 4, section 4.42 of the Zoning Ordinance, 166 parking spaces are required for the Big Rock restaurant (12,402 ft<sup>2</sup> /75), 90 spaces are required for The Reserve (540 people capacity/6), 33 spaces are required for the proposed new office space (10,039 ft<sup>2</sup> /300), 55 parking spaces are required for the proposed 44 residential units, and 4 spaces are required for the train station, pursuant to an earlier agreement with the City. Thus, a total of 348 parking spaces are required for the proposed mix of uses on this site. The applicant is providing a total of 430 parking spaces. All parking spaces meet the minimum size requirement of 180 ft<sup>2</sup>.

Article 4, section 4.48 of the Zoning Ordinance provides that off-street parking contained in the first story shall not be permitted within 10' of the any building façade on a frontage line or between the building façade and the frontage line. The applicant is not proposing any parking to be contained within the first story of any building. No parking is proposed between the building facades and the frontage lines. All parking is located behind The Reserve and the loft buildings, in the parking deck and underground. A small amount of surface parking is also located behind building A. **No changes are proposed at this time.**

4.2 Loading – In accordance with Article 4, section 4.21LD-01 of the Zoning Ordinance, two loading spaces are required for the proposed development, which must be 12' by 40' in size, and must be screened from the public view with 6' high screening. Existing loading spaces are located behind the loft buildings and are fully screened from public view by the buildings themselves. **No changes are required, nor proposed.**

4.3 Vehicular Circulation and Access – **No changes are required, nor proposed.**

4.4 Pedestrian Circulation and Access – **No changes are required, nor proposed.**

---

## 5.0 Lighting

The applicant is proposing to maintain the existing Gardco arm mounted Square Form Ten cut off fixtures that are mounted on 12' high posts to light the surface parking areas. The metal halide fixtures are 14" square and provide 175 watts of light per fixture.

Wall mounted Catania G fixtures are used for the building lighting on Building B. These fixtures are manufactured by Hess America, and are the same fixtures that were used on Building A. These fixtures provide 100 watts of LED light each, and are satin anodized aluminum with translucent acrylic lenses. **No lighting changes are required, nor proposed.**

## 6.0 Departmental Reports

6.1 Engineering Division – The Engineering Division has no concerns.

6.2 Department of Public Services – DPS has no concerns.

6.3 Fire Department – The Fire Marshall has provided the following comments:

1. **Knox Box Required**
2. **NFPA 13 Fire Suppression System required**
3. **Fire Alarm required.**

6.4 Police Department – The Police Department has no concerns.

6.5 Building Division – Standard comments were received by the Building Division.

## 7.0 Conformance with the Eton Road Corridor Plan

The subject site is located within the boundaries of the Eton Road Corridor Plan. The vision of the Eton Road Corridor Plan ("ERCP") was to encourage high density, multi-family residential uses mixed with new, small scale commercial uses in a scale that is compatible with the surrounding neighborhood to create an eclectic, mixed use district. The ERCP specifically encourages development that is visually compatible with the adjacent neighborhoods, use quality architecture and provide streetscape enhancement to improve pedestrian circulation within the district and through the district.

The ERCP also provides design guidelines to ensure that this vision is realized, including the following:

- moving buildings close to the road with little or no front parking;
  - moving parking to the rear of buildings and providing screening;
  - providing entrance features to buildings, using high quality building materials and pedestrian-scaled building details;
  - encouraging landscaping between buildings and the road and the conversion of all interior area between buildings into landscaped open space; and
-

- encouraging lighting to accent architecture and improve the pedestrian environment while maintaining light levels that are compatible with neighborhood ambient light levels.

The existing building includes eighteen residential loft units and first floor office space on S. Eton and is compatible in scale and height with adjacent buildings. The proposed location and footprint of the building is as recommended on the Future Land Use Plan, and parking is provided at the rear of the building only. The applicant used stone and brick for the lower level and metal paneling on portions of the upper levels. Front walks are provided from the sidewalk to front entries for commercial office space. Landscaping is proposed between the building and the right-of-way, and on either end of the building. Lighting provided will be minimal and compatible with neighborhood ambient light levels.

The single office tenant proposing to utilize 10,039 sq.ft., is larger than the size recommended in the Eton Road Corridor Plan (6,000 sq.ft.). However, the MX District regulations permit any commercial use over 6,000 sq.ft. in size to be permitted if approved under a Special Land Use Permit. The Planning Commission and City Commission may wish to approve the SLUP if:

1. The use is consistent with and will promote the intent and purpose of this Zoning Ordinance.
2. The use will be compatible with adjacent uses of land, the natural environment, and the capabilities of public services and facilities affected by the land use.
3. The use is consistent with the public health, safety and welfare of the city.
4. The use is in compliance with all other requirements of this Zoning Ordinance.
5. The use will not be injurious to the surrounding neighborhood. 6. The use is in compliance with state and federal statutes.

The larger single use square footage, although over twice the envisioned amount in the Eton Road Corridor Plan (ERCP), does not introduce a scale that is detrimental to the pedestrian experience, nor does it introduce an incompatibility with the neighboring community. The urban form of the area is still cohesive and intact, especially with the identical completed District Lofts Building A adjacent to the in-process Building B. The area also boasts the wide range of uses that were envisioned in the ERCP.

## **8.0 Design Review**

The proposed building design matches the contemporary style of the existing District Lofts building next door, while using some traditional style materials to blend in with the historic Big Rock Restaurant and The Reserve to create a building design that is harmonious with both the mixed use district on the east side of Eton and the single family residential district on the west side of Eton. Overall, the proposed design of Building B is compatible with the vision for the MX district contained in the Eton Road Corridor Plan, as previously approved by the Planning Board.

---

The only design changes that are proposed at this time with the proposed conversion from retail/residential to office use on the first floor are the proposed decommissioning of several doors along all elevations. Specifically, two previously approved double entrance doors are proposed to be removed and replaced with windows (one on the north elevation facing The Reserve and one on the west elevation facing S. Eton). Three other previously approved double entrance doors are proposed to be fixed in the closed position and all of the existing hardware is to be removed (one on the north elevation facing The Reserve, one on the north elevation facing the parking deck, and one on the south elevation facing Villa). Finally, one previously approved double entry on the west elevation along S. Eton is proposed to be removed and replaced with a single door and windows. The only office entrance open to the public is proposed at the southwest corner of the building, facing Villa Street. **The Planning Board may wish to require the doors to be replaced with windows, or to require one or more entrances along S. Eton.**

Signage: The applicant has submitted plans that now depict signage on the west and south elevations. The name letter signs are placed 12 feet above finish grade. They are 18 inches high and 9 feet long signs. The sign will feature the tenant, Oppenheimer, on painted or brushed stainless steel metal lettering. The lettering will be attached to the metal canopy over the west and south elevations. The total square footage of the signs will be 31.40 ft<sup>2</sup>. The applicant is in compliance with the Birmingham Sign Ordinance that allows 1 ft<sup>2</sup> of signage for every linear foot of building frontage.

## **9.0 Approval Criteria**

In accordance with Article 7, section 7.27 of the Zoning Ordinance, the proposed plans for development must meet the following conditions:

- (1) The location, size and height of the building, walls and fences shall be such that there is adequate landscaped open space so as to provide light, air and access to the persons occupying the structure.
  - (2) The location, size and height of the building, walls and fences shall be such that there will be no interference with adequate light, air and access to adjacent lands and buildings.
  - (3) The location, size and height of the building, walls and fences shall be such that they will not hinder the reasonable development of adjoining property nor diminish the value thereof.
  - (4) The site plan, and its relation to streets, driveways and sidewalks, shall be such as to not interfere with or be hazardous to vehicular and pedestrian traffic.
  - (5) The proposed development will be compatible with other uses and buildings in the neighborhood and will not be contrary to the spirit and purpose of this chapter.
  - (6) The location, shape and size of required landscaped open space is such as to provide adequate open space for the benefit of the inhabitants of the building and the surrounding neighborhood.
-

**10.0 Recommendation**

Based on a review of the site plan revisions submitted, the Planning Division finds that the proposed Final Site Plan meets the requirements of Article 7, section 7.27 of the Zoning Ordinance and recommends that the Planning Board recommend APPROVAL of the Final Site Plan and Special Land Use Permit for 375 S. Eton with the following conditions:

- 1) The applicant replace the doors to be decommissioned with windows;
- 2) The applicant add one or more entrances along S. Eton and obtain Administrative approval for same; and
- 3) Provide specifications on the proposed signage.

**11.0 Sample Motion Language**

Motion to recommend APPROVAL of the Final Site Plan and Special Land Use Permit for 375 S. Eton subject to the following conditions:

- 1) The applicant replace the doors to be decommissioned with windows;
- 2) The applicant add one or more entrances along S. Eton and obtain Administrative approval for same; and
- 3) Provide specifications on the proposed signage.

OR

Motion to POSTPONE the Final Site Plan and Special Land Use Permit for 375 S. Eton pending receipt of the following:

- 1) The applicant replace the doors to be decommissioned with windows;
- 2) The applicant add one or more entrances along S. Eton and obtain Administrative approval for same; and
- 3) Provide specifications on the proposed signage.

OR

Motion to recommend the DENIAL of the Final Site Plan and Special Land Use Permit for 375 S. Eton. for the following reasons:

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

**Zoning Compliance Summary Sheet  
Final Site Plan & Special Land Use Permit  
375 S. Eton – Eton Street Lofts – Building B**

**Existing Site:** District Lofts – Mixed Use Buildings

Zoning: MX, Mixed Use  
Land Use: Loft building: residential/ retail

**Existing Land Use and Zoning of Adjacent Properties:**

	North	South	East	West
<b>Existing Land Use</b>	Big Rock Restaurant, The Reserve	Crosswinds Development	Loft Building A, Railroad	Commercial, Multi-family Residential
<b>Existing Zoning District</b>	B-2B Neighborhood Business, MX – Mixed Use	MX - Mixed Use	MX – Mixed Use, PP – Public Property	B-1 – Neighborhood Business, R-6 – Multiple-Family Residential
<b>Downtown Overlay Zoning District</b>	NA	NA	NA	NA

**Land Area:** *Existing:* 0.37 acres, 41,971 ft<sup>2</sup> (Bldg. B only)  
*Proposed:* Same as existing

**Minimum Lot Area:** *Required:* N/A  
*Proposed:* N/A

**Minimum Floor Area:** *Required:* N/A  
*Proposed:* N/A

**Maximum Total Floor Area:** *Required:* 100% for entire lot, 6000 ft<sup>2</sup> max per commercial space without a SLUP  
*Proposed:* 100% for entire lot, 12,348 ft<sup>2</sup> office space

**Minimum Open Space:** *Required:* N/A  
*Proposed:* N/A

**Maximum Lot Coverage:** *Required:* N/A  
*Proposed:* N/A

<b>Front Setback:</b>	<i>Required:</i>	0 ft.
	<i>Proposed:</i>	0 ft. (existing)
<b>Side Setbacks:</b>	<i>Required:</i>	0 ft.
	<i>Proposed:</i>	0 ft. (existing)
<b>Rear Setback:</b>	<i>Required:</i>	10 ft.
	<i>Proposed:</i>	>100 ft. (existing)
<b>Max. Bldg. Height:</b>	<i>Permitted:</i>	45' for flat roofs, 50' including mechanical & 4 stories
	<i>Proposed:</i>	50' including mechanical & 4 stories (existing)
<b>Minimum Eave Height:</b>	<i>Required:</i>	18' along Eton Street
	<i>Proposed:</i>	45' on Building B along Eton Street (existing)
<b>First Floor Ceiling:</b>	<i>Required:</i>	12 ft. minimum clearance finished floor to finished ceiling on first floor
	<i>Proposed:</i>	12 ft. unfinished floor to unfinished ceiling (existing)
<b>Front Entry:</b>	<i>Required:</i>	Principal pedestrian entrance on frontage line, Planning Board may adjust.
	<i>Proposed:</i>	Office spaces have principal pedestrian entrance on the frontage line on Villa Street.
<b>Parking:</b>	<i>Required:</i>	348 off-street spaces
	<i>Proposed:</i>	430 off-street spaces, all 180 ft <sup>2</sup> in area (existing)
<b>Loading Area:</b>	<i>Required:</i>	20,001 – 50,000 ft <sup>2</sup> commercial – 2 Must be located in rear open space per s. 4.23 LD-03
	<i>Proposed:</i>	2, located in rear open space (existing)
<b>Screening:</b>		
<u>Parking:</u>	<i>Required:</i>	Minimum 32" high masonry wall with stone cap
	<i>Proposed:</i>	Screened entirely by building, staggered planting beds and landscaping (existing)
<u>AC/Mech. units:</u>	<i>Required:</i>	Screening to compliment the building
	<i>Proposed:</i>	Metal panels (existing)
<u>Elect. Transformer:</u>	<i>Required:</i>	Fully screened from public view
	<i>Proposed:</i>	Screened with 4' to 5' high Arborvitae shrubs (existing)
<u>Dumpster:</u>	<i>Required:</i>	6' high capped masonry wall with wooden gates
	<i>Proposed:</i>	8' high brick screen wall with stone cap and wooden gates (existing).

---



**DRAFT Planning Board Minutes  
July 26, 2017**

**SPECIAL LAND USE PERMIT ("SLUP") REVIEW  
FINAL SITE PLAN AND DESIGN REVIEW**

**375 S. Eton, District Lofts  
Request for approval of a commercial office use over 6,000 sq. ft. in size**

Ms. Ecker explained the subject site is part of a larger site including the existing Big Rock Chop House, the parking deck, the Reserve banquet facility, and the District Lofts Villa St. Building A and Building B (currently under construction), and has a total land area of 3.54 acres. It is located on the southeast corner of S. Eton and Maple Rd., and extends down to Villa St. to the south.

The applicant is completing construction of the final phase of the entire development which was originally approved on August 6, 2006. This final phase includes a four-story mixed-use building containing 18 residential loft units, and office space on the first floor (Building B). A single office tenant (Oppenheimer Financial) is now proposing to occupy approximately 10,000 sq. ft. of space on the first floor of Building B. The first-floor use is now proposed to change from retail/residential to office use. As the single office user wishes to occupy more than 6,000 sq. ft., a SLUP and approval from the Planning Board and City Commission is required.

*Design Review*

The proposed building design matches the contemporary style of the existing District Lofts building next door, while using some traditional style materials to blend in with the historic Big Rock Restaurant and The Reserve to create a building design that is harmonious with both the Mixed-Use ("MX") District on the east side of Eton and the Single-Family Residential District on the west side of Eton. Overall, the proposed design of Building B is compatible with the vision for the MX District contained in the Eton Road Corridor Plan. The only design changes that are proposed at this time with the proposed conversion from retail/residential to office use on the first floor are the proposed decommissioning of several doors along all elevations. The only office entrance open to the public is proposed at the southwest corner of the building, facing Villa St. The residential entrance is on the east elevation.

Signage: The applicant has submitted plans that depict signage on the west and south elevations. The name letter signs are proposed to be placed 12 ft. above finish grade and are 18 in. high and 9 ft. long. The signs will feature the name of the tenant, Oppenheimer, in brushed stainless steel metal lettering. The lettering will be attached to the metal canopy over the west and south elevations. The signs will be 31.40 sq. ft. which is well under the maximum allowed by the Birmingham Sign Ordinance for that building.

Mr. Victor Saroki, Architect, was present with Messrs. John Kelly and J.C. Cataldo, the contractors representing ownership. Oppenheimer will employ approximately thirty people in Birmingham. They plan to take out a few doors and replace them with windows that are consistent with the existing storefront windows. In their opinion this is a good use and it meets the design guidelines that were intended for the Eton Rd. Corridor Plan. He passed around a sample of the brushed stainless sign material.

---

**Motion by Mr. Boyle**

**Seconded by Mr. Koseck to recommend approval of the Final Site Plan and Special Land Use Permit for 375 S. Eton subject to the following condition:**

**1) The applicant adds one or more entrances along S. Eton and obtain Administrative Approval for same.**

There were no comments from the public regarding the motion at 7:50 p.m.

**Motion carried, 4-0.**

VOICE VOTE

Yeas: Boyle, Koseck, Lazar, Whipple-Boyce

Nays: None

Absent: Clein, Jeffares, Williams

**07-143-17**

**FINAL SITE PLAN AND DESIGN REVIEW**

**298 S. Old Woodward Ave. (former Doctors House Call Building)**

**Request for approval of a new five-story hotel with commercial and residential uses**

Vice-Chairperson Ms. Lazar indicated she is recusing herself regarding substantive issues on this matter due to a familial relationship with the applicant. However, the City Attorney has advised that her presence may be counted towards a quorum and that she may vote on this procedural matter so long as no substantive issues are discussed.

**Motion by Ms. Whipple-Boyce**

**Seconded by Mr. Boyle to postpone the matter of 298 S. Old Woodward Ave. to August 9, 2017.**

**Motion carried, 4-0.**

VOICE VOTE

Yeas: Whipple-Boyce, Boyle, Koseck, Lazar

Nays: None

Absent: Clein, Jeffares, Williams

---



# MEMORANDUM

Office of the City Manager

**DATE:** August 10, 2017  
**TO:** City Commission  
**FROM:** Joseph A. Valentine, City Manager  
**SUBJECT:** DTE easement and tree replacement

---

On July 24, 2017, a site visit was conducted by the City Commission to evaluate the proposed easement location and tree removals necessitated by the relocation of the DTE power line to service the development at 856 N. Old Woodward. Further discussion on this easement occurred during the regular City Commission meeting on this same date. As part of this discussion, concerns arose from the developer's contribution for tree removal and replacement in the easement. Given these concerns no action was taken and the item was to be brought back with a plan at the earliest opportunity. Subsequent to that meeting, additional discussions have occurred with the developer to bring their contribution in line with the costs related to the impact and use of the public property. As a result, the developer has agreed to contribute \$50,000 towards to city's tree fund.

An agreement for this arrangement is attached for your consideration as part of the approval for the easement to relocate the power line on public property. Also attached is the report from the prior meeting for consideration of the easement with DTE.

## Suggested Action

To authorize the Mayor to sign DTE Electric Company Overhead Easement No. 47698093-47698095, located on Lot 91 of Assessor's Plat #29, located in the northwest ¼ corner of Section 25, City of Birmingham

AND

To authorize the Mayor to sign the Tree Replacement Agreement with FLS Properties #5, LLC on behalf of the City of Birmingham.

## **TREE REPLACEMENT AGREEMENT**

**THIS AGREEMENT** is made this \_\_\_\_ day of \_\_\_\_\_, by and between the **CITY OF BIRMINGHAM**, whose address is 151 Martin Street, Birmingham, Michigan, hereinafter sometimes referred to as "City", and **FLS PROPERTIES #5, LLC** whose address is 2950 Walnut Lake Road, West Bloomfield, Michigan, 48323 hereinafter sometimes referred to as "Developer."

**WHEREAS**, Developer is in the process of constructing a project at 856 North Old Woodward Avenue, Birmingham, MI; and,

**WHEREAS**, the project requires an easement to bring the appropriate amount of power from DTE Energy to the site; and,

**WHEREAS**, DTE has proposed an easement going through City property which will require the removal of fourteen (14) trees and possibly more; and,

**WHEREAS**, this easement is for the benefit of the Developer's project; and,

**WHEREAS**, the fourteen (14) trees that are to be removed have a Diameter Breast Height (DBH) of 133.7 inches; and,

**WHEREAS**, the City estimates it may take up to 30 trees of various species to replace the removed trees; and,

**WHEREAS**, the City maintains a tree fund in accordance with Section 118-25 of the Birmingham City Code.

**WHEREAS**, the parties are desirous to enter into an Agreement for the removal and replacement of the trees.

**NOW, THEREFORE**, the parties hereto agree as follows:

1. The Developer agrees to pay into the City tree fund the sum of Fifty Thousand Dollars (\$50,000.00) in full satisfaction of the developer's obligations pursuant to this Agreement including compensation for the use of City land.

2. The City will use said funds in part for the improvement of the area which include, but are not limited to the removal of dead trees and replacing the trees removed by DTE for purposes of facilitating the easement. Further, the City may use the City tree fund as it deems appropriate for improvements of the public lands throughout the City.

3. Any controversy or claim arising out of or relating to this Agreement, or the breach thereof, shall be settled either by commencement of a suit in Oakland County Circuit Court, the 48th District Court or by arbitration. If both parties elect to have the dispute resolved by arbitration, it shall be settled pursuant to Chapter 50 of the Revised Judicature Act for the State of Michigan and administered by the American Arbitration Association with one arbitrator being used, or three arbitrators in the event any party's claim exceeds \$1,000,000. Each party shall bear its own costs and expenses and an equal share of the arbitrator's and administrative fees of arbitration. Such arbitration shall qualify as statutory arbitration pursuant to MCL§600.5001 et seq., and the Oakland County Circuit Court or any court having jurisdiction shall render judgment upon the award of the arbitrator made pursuant to this Agreement. The laws of the State of Michigan shall govern this Agreement, and the arbitration shall take place in Oakland County, Michigan. In the event that the parties elect not to have the matter in dispute arbitrated, any dispute between the parties may be resolved by the filing of a suit in the Oakland County Circuit Court or the 48th District Court.

4. This Agreement shall be governed by, and performed, interpreted and enforced in accordance with the laws of the State of Michigan. The Developer agrees to perform all

services provided for in this Agreement in accordance with and in full compliance with all local, state and federal laws and regulations.

5. This Agreement shall be binding upon the successors and assigns of the parties hereto. Any assignment of this Agreement shall be made by the Developer with the prior written consent of the City which consent shall not be unreasonably withheld.

**FLS PROPERTIES #5, LLC Developer**

By: Frank R. Simon  
Its: PRESIDENT

**CITY OF BIRMINGHAM**

By: \_\_\_\_\_  
Mark Nickita  
Its: Mayor

By: \_\_\_\_\_  
Cherilynn Brown  
Its: Clerk

Approved:

Joseph A. Valentine  
Joseph A. Valentine, City Manager  
As to Substance

Mark Gerber  
Mark Gerber, Director of Finance  
As to Financial Obligation

Paul T. O'Meara  
~~Paul T. O'Meara, City Engineer~~  
As to Substance

AUSTIN W. FLETCHER  
ASSISTANT CITY ENGINEER

Timothy J. Currier  
Timothy J. Currier, City Attorney  
As to Form



# MEMORANDUM

Engineering Dept.  
Planning Dept.

**DATE:** July 19, 2017

**TO:** Joseph Valentine, City Manager

**FROM:** Paul O'Meara, City Engineer  
Jana Ecker, Planning Director

**SUBJECT:** 856 N. Old Woodward Ave.  
DTE Energy Line Relocation  
Update

---

The above referenced vacant property, directly south of the southeast corner of Oak St., has been vacant for nearly 30 years. The former building, destroyed by fire occupied only a portion of the site. The current owner, known as FLS Properties #5, LLC, has obtained final site plan approval from the Planning Board for the construction of four-story mixed-use building, including two levels of underground parking. Final construction drawings are currently under review.

## OVERHEAD ELECTRIC WIRING CONFLICT

Overhead electric wiring feeding many other properties to the north and south currently obstruct the full use of the property, and must be relocated if it is to be redeveloped to its full potential. The applicant has worked with DTE Energy Co., the two immediate property owners to the north, and City staff to finalize a relocation plan that accomplishes the goal of relocating the overhead wiring closer to the east property line, as well as entirely away from the north property line. In order to relocate the wires in such a manner that construction can proceed, DTE Energy has developed a relocation plan that moves a section of the wiring south of the subject property from its current location further east. Since the relocation involves City property, approval must be obtained from the City Commission. Attached for your reference are the following:

1. Color enhanced route relocation plan prepared by DTE Energy Co.
2. Simplified version of relocation route, imposed on aerial photography.
3. Suggested easement and legal description of route as proposed by DTE Energy Co.
4. Original legal description and ownership records for subject City property.
5. Tree survey of suggested relocation route.
6. Grant of easement to DTE Energy for relocation of overhead wiring on adjacent property known as 35975 Woodward Ave.
7. Written approval for relocation route of overhead wiring from owner of adjacent property known as 900 N. Old Woodward Ave.
8. Most recent site plan for proposed building at street level.
9. Current aerial photography of subject area.

Referring to attachment #1, the following describes the issues relevant in this case.

- A. The existing overhead wires obstruct both the north and east ends of the property. The wires are considered primary in the DTE Energy system, meaning that they cannot just be ended and re-routed elsewhere, rather, they need to continue north and south of this area on some path to ensure proper redundancy both to this new building, and all of the other existing buildings in the immediate corridor.
- B. The existing pole labeled A1 on the drawing, while not in direct conflict with the new building, is situated such that the entire relocation south of the property becomes warranted. Specifically, the wires south of the building cannot remain in place because if a new alignment started north of pole A1, a guy wire would have to extend further north to properly support the remaining wires and poles further south. With the building proposed immediately north of pole A1, there is no room available to create tension for the wires and poles to the south, if they were to remain.
- C. Once the determination was made that a relocation is required, DTE Energy identified three poles that should be relocated, given their current close proximity to the Rouge River (the bases of the poles are situated immediately adjacent to the west bank of the river). Extending the relocation south to the north edge of Parking Lot #6 (at pole #4), the remaining lines further south can then be tensioned with a guy wire without being potentially undermined from the adjacent river bank.
- D. Relocating the lines further east will impact existing trees on a City owned floodplain/natural area. Given its low topography and classification as a floodplain, approving an easement in this area does not represent an impediment to future development of the property. The main focus, then, would be damage to the existing natural environment, particularly in the form of mature trees. In order to avoid such damage, DTE Energy was asked to consider all possible options that could avoid this relocation. The following was considered:
  - Relocation from Parking Lot #6 property directly out to the N. Old Woodward Ave. right-of-way could be considered. Moving the wiring to an important, very visible right-of-way would require an underground installation. Further, given other existing underground utilities in the area, DTE Energy indicated that the wires would have to be moved to the west side of the right-of-way, while feeding each of the existing buildings being fed on the east side via underground connections. While such an effort would improve the overall aesthetics of the area, it would be prohibitively expensive, being roughly estimated at \$2 million (the proposal now being suggested is estimated at about \$220,000, which will be a 100% developer expense).
  - Attempting to locate a source for power relocation to the west of Old Woodward Ave. through existing backyard feeds does not address the issue of feeding the existing buildings to the south.
  - Likewise, attempting to locate a source for power relocation to the east of Woodward Ave. power lines (currently in backyards) again does not address the issue of feeding existing buildings to the south.

Referring to Attachment #3, the proposed easement language has been reviewed and approved both by this office and the City Attorney's office. Of note is that the grant of easement is about



116 ft. long. The remaining relocation would fall within existing Brookside Ave. right-of-way, or river right-of-way, as originally platted (Brookside Ave., while platted, was never built in this area given its floodplain status).

Referring to attachment #4, a record of how these properties were acquired by the City, they can generally be classified into two groups. The northerly floodplain properties were quit claim deeded by their former owners. It is not known what the purpose of the transfers were, but they likely represented a gift to the City due to their status as an undevelopable floodplain. The southerly property acquisitions were generally bought and paid for by the City. While these properties are also prone to flooding, and are encumbered by large sewers, the City's likely interest in ownership was related to providing municipal parking.

Referring to attachment #5, DTE Energy has mapped out the existing location and size of all trees 2" diameter and larger along the proposed route. The original route selected by DTE Energy focused on a natural linear clearing that exists in the area. However, selecting this path resulted in removal of several substantial trees. City staff asked that DTE Energy consider moving the alignment approximately 10 feet west to the alignment now shown, which allowed several larger trees to remain. DTE Energy agreed with this change, and have modified the easement form accordingly.

Attachment #6 is an easement that was provided by the owner of 35975 Woodward Ave. (southwest corner of Oak St.). The relocation will involve relocating overhead wires along the rear property line of this property, should the City Commission approve the alignment further south. The owner of this property (known as August, LLC), had decided to cooperate with the 856 N. Old Woodward Ave. developer to allow their development to move forward.

Attachment #7 is an email from the owner of 900 N. Old Woodward Ave. (Douglas Cleaners). As owner of Douglas Cleaners, David Underdown's property owns the narrow 10 foot strip that extends out to Woodward Ave. (it is currently undeveloped). Overhead wires currently extend over this narrow strip in a similar location, therefore, DTE Energy believes they have the right to slightly modify the location of the wiring without a new written easement from Mr. Underdown. The relocation represents an improvement for the Douglas Cleaners property, as the current wiring extending over the existing building will be removed.

#### ANALYSIS OF VISUAL IMPACT

Referring again to Attachment #1, the proposed electrical work involves a relocation of overhead wiring from pole 9 (located on the northeast corner of Old Woodward Ave. & Oak St., adjacent to Mobil/Tim Horton's), to pole 4, located on City property directly behind 720 N. Old Woodward Ave. The following considers the impacts south and north of pole A1, at the south property line of the subject property.

#### **1. South of Pole A1**

While considering this proposal, City staff and DTE Energy staff have met on the subject City property. The proposed alignment is currently staked as well. The owner of 740 Brookside Dr., the single family home closest to this area, has asked questions about what is proposed. He

has raised questions relative to the visual impact of this proposal. Detailed responses from the City and DTE Energy are attached to this memo.

## **2. North of Pole A1**

Through the Central Business District, electric services to the buildings are generally underground, or located at the rear of buildings in alleys and backyards. The current wiring supported by poles A5, A6, and 9 represent a departure from that norm, with overhead wiring still present at the north end of the Old Woodward Ave. corridor. The proposed relocation would move the overhead wiring between Douglas Cleaners and the new building at 856 N. Old Woodward Ave. on the west side, and the new proposed two-story building planned at 35975 Woodward Ave. on the east side. While overhead wiring would still extend across Oak St. as it currently does, it would be in a less prominent location, and represents an improvement from the current condition. Once electric service is removed from Pole A6, the City will work with telecommunication utilities also located on this pole, with the goal being that Pole A6 can be removed as well.

### SUMMARY

After much analysis and discussion involving all involved parties, it appears that the only feasible solution to removing the encumbrance from 856 N. Old Woodward Ave. will involve the relocation of overhead electric utilities on to adjacent City property currently being maintained as a natural floodplain buffer between commercial and residential areas. The proposed design moves the poles in an area of relatively low visibility, remains economically feasible, and allows redevelopment of this property that has remained vacant for nearly thirty years. A suggested resolution follows.

**On July 10, 2017, the City Commission reviewed the proposed relocation plan for the overhead power lines, along with the survey of trees that would be removed if the relocation was approved. DTE representatives were present to answer questions regarding the service requirements. After much discussion, the City Commission postponed the matter to July 24, 2017 to allow for a site visit by the City Commission. Specifically, the City Commission requested that DTE update the tree survey by adding the river and the adjacent home, and to go out and mark the trees in the field that were proposed for removal should the relocation be approved. DTE representatives also agreed to attend the on site meeting of the City Commission on July 24, 2017 to respond to questions. Please find attached the revised tree survey updated as requested by the City Commission.**

SUGGESTED RESOLUTION:

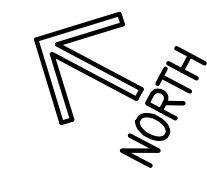
To authorize the Mayor to sign DTE Electric Company Overhead Easement No. 47698093-47698095, located on Lot 91 of Assessor's Plat #29, located in the northwest ¼ corner of Section 25, City of Birmingham.

OR

To deny the request to authorize the DTE Electric Company Overhead Easement No. 47698093-47698095, located on Lot 91 of Assessor's Plat #29, located in the northwest ¼ corner of Section 25, City of Birmingham.

6 1 5 1 4 1 3 1 2 1 1

**NOTES:**  
 DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.  
 THE HORIZONTAL DATUM IS NAD 83 (2011).  
 THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.  
 REFERENCE DRAWINGS: 5SE BIR-001; REV. B: MAP OF OVERHEAD ELECTRIC LINE RELOCATION



**WOODWARD AVENUE (M-1) 200 FT WIDE**

**OAK STREET 60 FT WIDE**

**BROOKSIDE AVENUE**

**ISLAND VIEW DRIVE**

**OLD WOODWARD VARIABLE WIDTH**

ASSESSOR'S PLAT NO. 29  
LIBER 6, PAGE 45

CITY OF BIRMINGHAM PROPERTY  
TAX PARCEL  
19-25-328-037

TAX PARCEL  
19-25-179-003

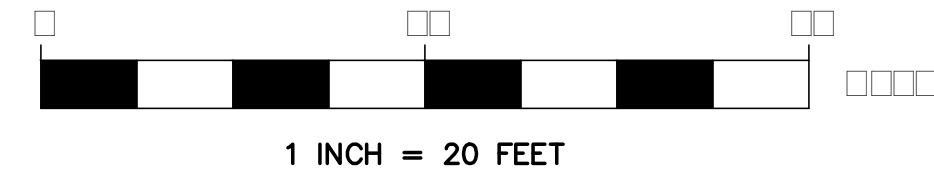
TAX PARCEL  
19-25-179-001

EXISTING BUILDING  
900 N. OLD WOODWARD

TAX PARCEL  
19-25-328-005

ASSESSOR'S PLAT NO. 29  
LIBER 6, PAGE 45

TAX PARCEL  
19-25-179-002



THIS DRAWING AND THE WORK PERFORMED TO CREATE THIS DRAWING ARE A PRODUCT OF:  
**DTE ENERGY'S SURVEYING SERVICES**  
 545 SERVICE BUILDING  
 (313) 235-1461



THREE FULL WORKING DAYS BEFORE YOU DIG, CALL THE MISS DIG SYSTEM AT 1-(800)-482-7171

**DTE Energy - DTE Electric Company** Central Design



PROJ. ENG.	PROJ. DIR.	DATE	DESCRIPTION
C			REVISED THE TREES TO BE REMOVED
B			ADDED BUILDING (900 N. OLD WOODWARD) AND HOUSE, END OF BROOKSIDE AVENUE PAVEMENT. ADDED BAR SCALE
A			CHANGED OVERHEAD ELECTRIC LINE

PROJ. ENG.	PROJ. DIR.	DATE	DESCRIPTION
C.J.Z.		7/20/2017	MADE BY
C.J.Z.		7/17/2017	MADE BY
G.D.S.		7/17/2017	CHK BY

PROJ. ENG.	PROJ. DIR.	DATE	DESCRIPTION
C.J.Z.		6/21/2017	MADE BY
A.C.		6/21/2017	CHK BY

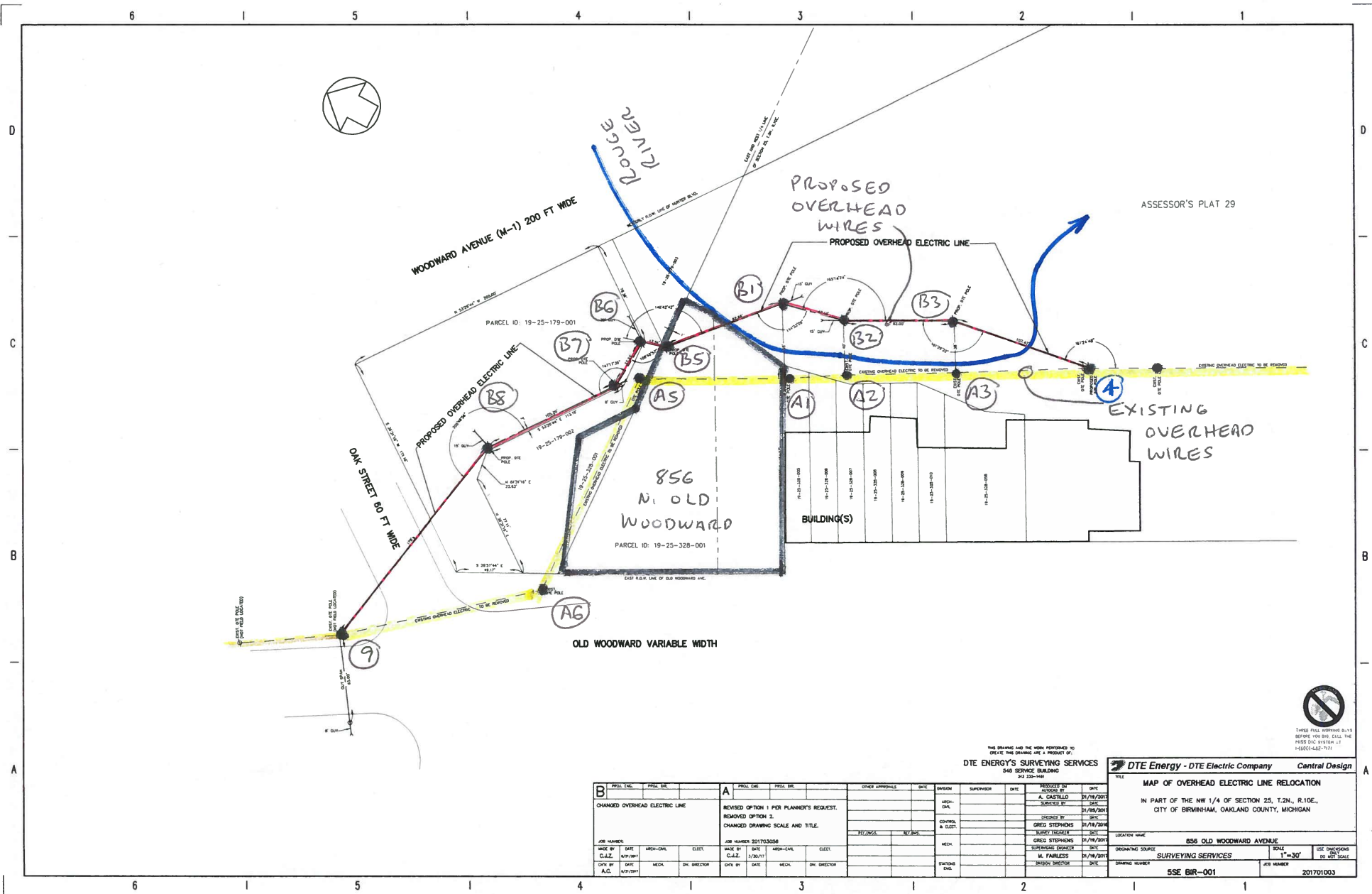
OTHER APPROVALS	DATE	DIVISION	SUPERVISOR	DATE
		ARCH-CIVIL		
		CONTROL & ELECT.		
		MECH.		
		STATIONS ENG.		

PRODUCED ON AUTOCAD BY	DATE
C. ZBOCH	5/24/2017
SURVEYED BY	DATE
S. WLAZLIK, K. BALL	5/15/2017
CHECKED BY	DATE
S. WLAZLIK, K. BALL	5/24/2017
SURVEY ENGINEER	DATE
A. CASTILLO	5/24/2017
SUPERVISING ENGINEER	DATE
M. FAIRLESS	
DIVISION DIRECTOR	DATE

<b>TITLE</b> TREE SURVEY IN PART OF THE WEST 1/2 OF SECTION 25 T. 2 N., R. 10 E., CITY OF BIRMINGHAM, OAKLAND COUNTY, MICHIGAN		
SHEET 1 OF 1		
LOCATION NAME CITY OF BIRMINGHAM		
ORIGINATING SOURCE SURVEYING SERVICES	SCALE 1" = 20'	USE DIMENSIONS ONLY DO NOT SCALE
DRAWING NUMBER 5SE BIR-002	JOB NUMBER 201705086	

6 1 5 1 4 1 3 1 2 1 1



THREE FEET SURVEY ONLY  
 BEFORE YOU BUILD, CALL THE  
 MISSISSIPPI SYSTEM AT  
 1-800-442-7171

DTE ENERGY'S SURVEYING SERVICES  
 340 SERVICE BUILDING  
 301 224-1441











**DTE Energy - DTE Electric Company** Central Design

PROJ. ENG.	PROJ. SUR.	PROJ. CAG.	PROJ. SUR.	OTHER APPROVALS	DATE	DESIGN	SUPERVISOR	DATE	PROCESSED BY	DATE
CHANGED OVERHEAD ELECTRIC LINE		REVISED OPTION 1 FOR PLANNER'S REQUEST. REMOVED OPTION 2. CHANGED DRAWING SCALE AND TITLE.							A. CASTLE	11/14/2011
JOB NUMBER: 201703006		JOB NUMBER: 201703006							GREG STEPHENS	11/14/2011
MADE BY	DATE	ARCH-CAL	ELECT.	MADE BY	DATE	ARCH-CAL	ELECT.		SUPERVISOR	DATE
C.A.Z.	10/17/11			C.A.Z.	11/08/11					11/14/2011
DATE BY	DATE	MECH.	DR. DIRECTOR	DATE BY	DATE	MECH.	DR. DIRECTOR		SUBJECT	DATE
A.C.	10/17/11									

MAP OF OVERHEAD ELECTRIC LINE RELOCATION			
IN PART OF THE NW 1/4 OF SECTION 25, T.2N., R.19E., CITY OF BIRMINGHAM, OKLAHOMA COUNTY, MICHIGAN			
LOCATION NAME	856 OLD WOODWARD AVENUE		
DRAWING SOURCE	SURVEYING SERVICES		
DRAWING NUMBER	55E BR-001	SCALE	1"=30'
JOB NUMBER	201701003		



**LEGEND**

-  EXISTING DECO POLE
-  PROPOSED POLE
-  FOREIGN POLE
-  EXISTING ANCHOR
-  PROPOSED ANCHOR
-  TREE
-  120/240 V LINE
-  4.8 KV LINE
-  13.2 KV LINE
-  40 KV LINE



**DTE Energy**  
 **DTE Electric - Distribution Engineering and Planning**

Service Planner		Work Order Description					
Dababneh, Nurah I		<b>OVERHEAD CONSTRUCTION</b>					
Phone		Work Order #	GIS-DSN	COH	CUL	CUG	PLC
248.427.2946		45709883					
Supervisor		Circuit #1		Circuit #2		PH	SCMAT
Carl L Ford		BIHAM2719					
Phone		Service Center	Worksite City	Worksite Twp		County	
248.427.2937		PON		BLOOMFIELD		Oakland	
Planning Engineer		JU Work to be Performed				JU	RSD
Phone		JU Company	Contact	Email	Phone		
		JU Company	Contact	Email	Phone		
		CUE Number	Ver	Plot Date	Scale	Town	Range
		697974	1	3/29/2017		02N	10E
		Section		Qtr			
		25					



Source: Esri, DigitalGlobe

**DTE Electric Company Overhead Easement (Right of Way) No. 47698093-47698095**

On \_\_\_\_\_, 2017, for the consideration of system betterment, Grantor grants to Grantee a permanent, non-exclusive overhead easement ("Right of Way") in, on, and across that part of Grantor's Land to be referred to herein as the "Right of Way Area".

"Grantor" is: CITY OF BIRMINGHAM, A MICHIGAN MUNICIPAL CORPORATION, WHOSE ADDRESS IS PO BOX 3001, BIRMINGHAM, MI 48012

"Grantee" is: DTE Electric Company, a Michigan corporation, One Energy Plaza Drive, Detroit, Michigan 48226

"Grantor's Land" is in SW 1/4, SEC 25, T2N, R10E, CITY OF BIRMINGHAM, County of OAKLAND, and State of Michigan, and is described as follows:

**T2N, R10E, SEC 25 ASSESSOR'S PLAT NO 29 LOTS 89 TO 92 INCL, ALSO ALL THAT PART OF VAC DRIVEWAY ADJ TO SAME 2-4-03 CORR**

Tax Identification Number(s): 19-25-328-037

The "Right of Way Area" is a ten foot (10') wide easement on part of Grantor's Land. The centerline of the Right of Way Area shall be established in the as-built location of the centerline of Grantee's facilities, and shall be installed on Grantor's Land in the approximate location described as follows:

THE LEGAL DESCRIPTION OR EASEMENT DRAWING IS MORE PARTICULARLY DESCRIBED ON EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Tax Identification Number(s): 19-25-328-037

- 1. Purpose:** The purpose of this Right of Way is to construct, reconstruct, modify, add to, repair, replace, inspect, operate and maintain overhead utility facilities which may consist of poles, guys, anchors, wires, transformers and accessories.
- 2. Access:** Grantee has the right of pedestrian and vehicular ingress and egress to and from the Right of Way Area over and across Grantor's Land.
- 3. Buildings or other Permanent Structures:** No buildings or other permanent structures or improvements may be constructed or placed in the Right of Way Area without Grantee's prior, written consent. Grantor agrees, at its own expense, to remove any improvement that interferes with the safe and reliable operation, maintenance and repair of Grantee's facilities upon the written demand of Grantee. If Grantor fails to comply with such demand, Grantor agrees that Grantee may remove any such improvement and bill Grantor for the cost thereof, which cost Grantor shall pay within thirty (30) days after demand therefor.
- 4. Excavation:** Pursuant to 2013 Public Act 174, MISS DIG (1-800-482-7171 or 811 in some areas) must be called before any excavation in the Right of Way Area may proceed.
- 5. Trees, Bushes, Branches, Roots, Structures and Fences:** Grantee may trim, cut down, remove or otherwise control any trees, bushes, branches and roots growing or that could grow or fall in the Right of Way Area and remove any structures, improvements, fences, buildings or landscaping in the Right of Way Area that Grantee believes could interfere with the safe and reliable construction, operation, maintenance and repair of Grantee's facilities. Grantee shall not be responsible for any damage to, or removal of, landscaping, trees, plant life, structures, improvements and/or fences located in the Right of Way Area.

6. **Restoration:** If Grantee's agents, employees, contractors, subcontractors, vehicles or equipment damage Grantor's Land while entering Grantor's Land for the purposes stated in this Right of Way, then Grantee will restore Grantor's Land as nearly as is reasonably practicable to the condition in which it existed prior to such damage. Restoration with respect to paved surfaces shall consist of asphalt cold patching of the damaged portion of any asphalted surfaces when the weather conditions suggest such use and the cement patching of the damaged portion of any cemented surfaces. Grantee shall have no liability, however, for the restoration or cost of any improvements located within the Right of Way Area, including, but not limited to, parking islands, gutters, fences or landscaping such as trees, bushes, or flowers (but not a simple lawn which, if damaged, will be patched and re-seeded by Grantee) that are damaged by Grantee in the course of constructing, reconstructing, modifying, adding to, repairing, replacing, operating or maintaining its facilities as described in paragraph 1 above.

7. **Successors:** This Right of Way runs with the land and binds and benefits Grantor's and Grantee's successors and assigns.

8. **Exemptions:** This Right of Way is exempt from transfer tax pursuant to MCL 207.505(a) and MCL 207.526(a).

9. **Governing Law:** This Right of Way shall be governed by the laws of the State of Michigan.

**Grantor(s):** City of Birmingham

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title \_\_\_\_\_

Acknowledged before me in \_\_\_\_\_ County, Michigan, on \_\_\_\_\_, 2017,  
by \_\_\_\_\_, Its: \_\_\_\_\_ for City of Birmingham, a Michigan municipal  
corporation.

Notary's  
Stamp \_\_\_\_\_

Acting in \_\_\_\_\_ County, Michigan

Notary's  
Signature \_\_\_\_\_

**Drafted by and when recorded, return to:** Cassandra Dansby, DTE Electric Company, NW Planning & Design, 37849 Interchange Dr., Farmington Hills, MI 48335



# Exhibit A

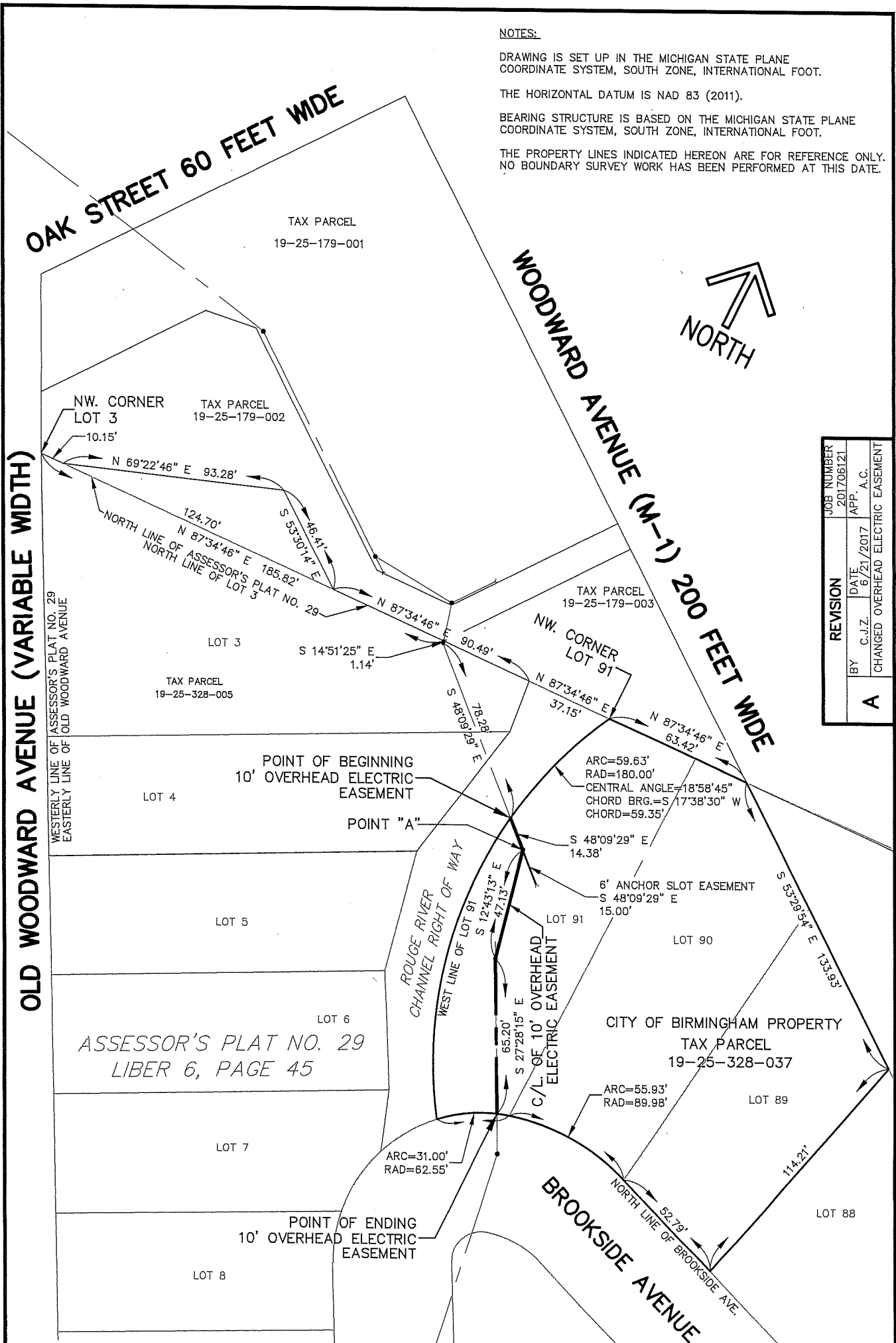
**NOTES:**

DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.

THE HORIZONTAL DATUM IS NAD 83 (2011).

BEARING STRUCTURE IS BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.

THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.



REVISION	DATE	BY	APP.	JOB NUMBER
A	6/21/2017	C.J.Z.		201705081
				201705121

CHANGED OVERHEAD ELECTRIC EASEMENT

**DTE Energy**  
**DTE Electric Company**  
 CENTRAL DESIGN  
 SURVEYING SERVICES  
 545 SERVICE BUILDING

SCALE  
 1 INCH = 50 FEET

**MAP AND DESCRIPTION**  
 OF DTE OVERHEAD ELECTRIC EASEMENT, ON PART OF LOT 91, ASSESSOR'S PLAT NO. 29, CITY OF BIRMINGHAM, OAKLAND COUNTY, MICHIGAN  
**CITY OF BIRMINGHAM PROPERTY**

DRAWN BY  
 C. ZBOCH

SURVEY ENGINEER  
 A. CASTILLO

DATE OF DRAWING  
 5/26/2017

SHEET 1 OF 2

JOB NUMBER  
 201705081



DRAWING NO.  
**SE BIR-002**

# Exhibit A

## 10' OVERHEAD ELECTRIC EASEMENT

A 10 foot wide Overhead Electric Easement in part of the Southwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, and being part of Lot 91, ASSESSOR'S PLAT NO. 29, as recorded in Liber 6 of Plats, Page 45, Oakland County Records, described by its centerline as: Commencing at the Northwest corner of Lot 3 of said Assessor's Plat No. 29, thence North 87°34'46" East, 185.82 feet along the North Line of said Lot 3 also being the North line of said Assessor's Plat No. 29; thence South 14°51'25" East, 1.14 feet; thence South 48°09'29" East, 78.28 feet to a point on the West line of said Lot 91 and the **POINT OF BEGINNING**; said point being distant along the Arc of a curve to the left 59.63 feet, having a Radius of 180.00 feet, a Central Angle of 18°58'45", and a Chord Bearing and Distance of South 17°38'30" West, 59.35 feet from the Northwest corner of said Lot 91; thence from said Point of Beginning, South 48°09'29" East, 14.38 feet to a point hereafter known as Point "A"; thence South 12°43'13" East, 47.13 feet; thence South 27°28'15" East, 65.20 feet to a Point on the North line of Brookside Avenue and the **POINT OF ENDING**.

Together with a 6 foot Anchor Slot Easement described by its centerline as: Beginning at said Point "A"; thence South 48°09'29" East, 15.00 feet to the Point of Ending.

<b>REVISION</b>		JOB NUMBER 201706121	
<b>A</b>	BY C.J.Z.	DATE 6/21/2017	APP. A.C.
	CHANGED OVERHEAD ELECTRIC EASEMENT		
 <b>DTE Energy</b> DTE Electric Company <small>CENTRAL DESIGN SURVEYING SERVICES 545 SERVICE BUILDING</small>		<b>MAP AND DESCRIPTION</b> OF DTE OVERHEAD ELECTRIC EASEMENT, ON PART OF LOT 91, ASSESSOR'S PLAT NO. 29, CITY OF BIRMINGHAM, OAKLAND COUNTY, MICHIGAN <b>CITY OF BIRMINGHAM PROPERTY</b>	
SCALE  1 INCH = N.A. FEET		DRAWN BY C. ZBOCH	SURVEY ENGINEER A. CASTILLO
		DATE OF DRAWING 5/26/2017	SHEET 2 OF 2 JOB NUMBER 201705081 DRAWING NO. <b>SE BIR-002</b>

CITY PROPERTY INVENTORY

Quarter Section SW 25 Assessor's No. 196-2 Site No. 51  
106-20  
106-18A

Name Parking Lot #6 Date of Name \_\_\_\_\_

Street Location E. Woodward- N. of Harmon

Legal Description:

City of Birmingham  
106-2  
SD-BTS-1

"Assessor's Plat No. 29"

Lots 2, 20, 21, 92 and driveway  
Lot 2

Island View Drive, Channel R.O.W. of line 20 ft. N of S line  
Lot #9

E 6 ft. of S 20 ft. Lot 9, E 6 ft. of N 20 ft. Lot 10,  
E 27 ft. of S 30 ft. Lot 10, Lots 11-17, and N 69.42 ft.  
of Lot 19, Lots 18 and 19 S of line 69.42 ft. S of S line  
Lot 17, E 38 ft. of Lot 22

Vacated Park Street between above limits

Area 1.8 A

Area 0.10 A (p1)

Purpose for Acquisition parking lot

Reversion Public Purposes - 10 yr. from 3-10-42

Deed Restrictions \_\_\_\_\_

Dedication \_\_\_\_\_

Present Use Buffer Parking Lot #6

Proposed Development \_\_\_\_\_

Source of Funds for Acquisition General

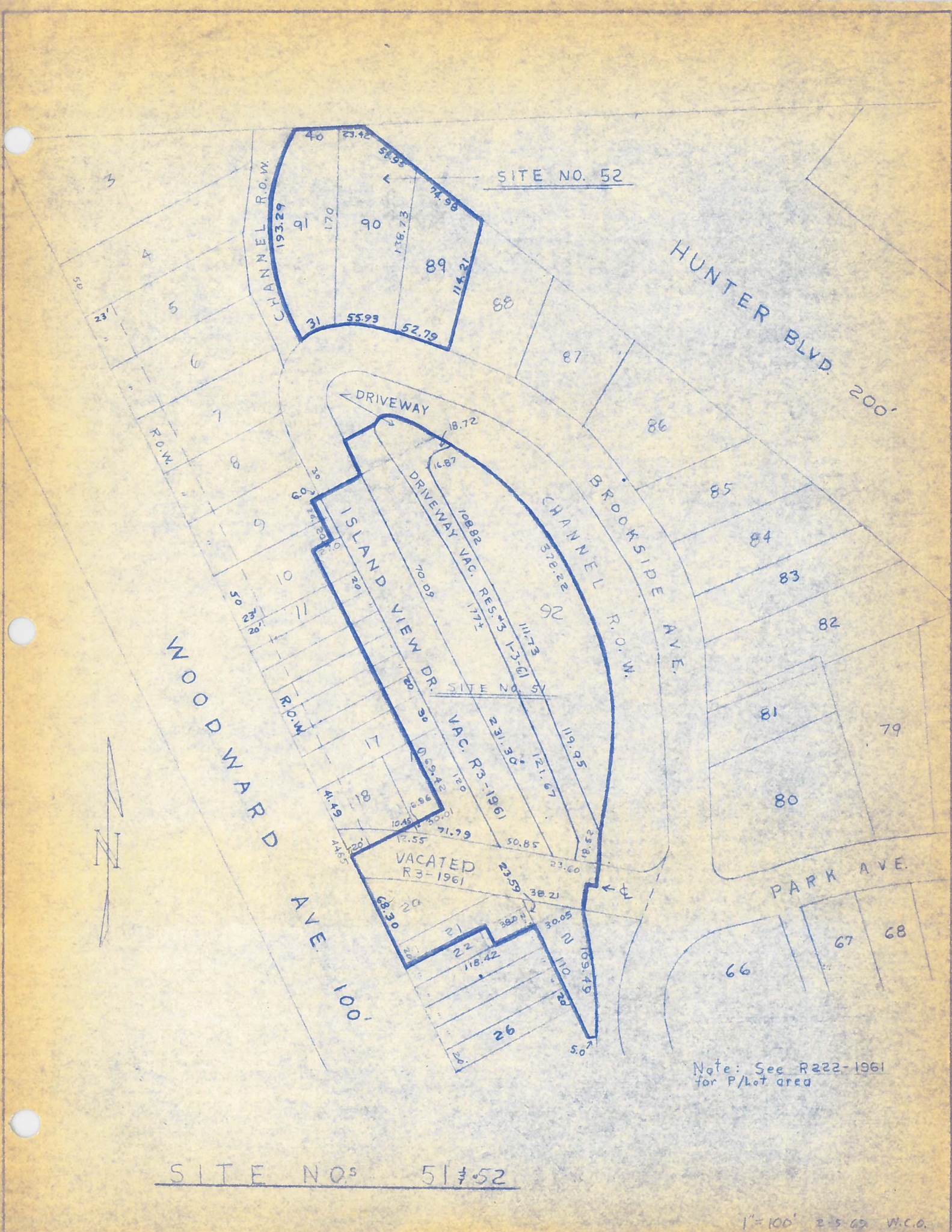
Miscellaneous Information:

O W N E R S H I P   D A T A   S U M M A R Y

Site No. 51

Parcel	Legal File	Lot	Conveyance	Date	Recorded		Consideration	Authority	Remarks
					Liber	Page			
112	4199	2 & 92	Q-C	3-10-42	1397	578		R94-1942	
	A-324	#9 ROW	(slo) Q-C	10-21-60	6	45			Parcel A
	A-324	#11 ROW	Q-C	1-3-61	6	45	2,800		Parcel C
	A-324	Park ROW	Q-C	1-3-61	6	45			
	A-324	Part of 11-17 18 & 19	W-D	1-3-61	6	45	44,500		F, G, H
	A-324	Part of 9 & 10	W-D	10-21-60	6	45	1,700		D
	A-324	Part of 22	W-D	10-19-60	6	45			K
	A-324	Channel ROW Part of 10	Condemn. Verdict	10-5-60	6	45	5,445		E
	A-324	Channel ROW 20 & 21	Condemn. Verdict	10-5-60	6	45	33,000		B & J





SITE NOS 51 & 52

Note: See R222-1961 for P/Lot area

1" = 100' 2-5-62 W.C.O.  
REV 2-7-75



CITY PROPERTY INVENTORY

Quarter Section SW 25 Assessor's No. 106-89 Site No. 52

Name \_\_\_\_\_ Date of Name \_\_\_\_\_

Street Location Brookside & Island View

**Legal Description:**

CITY OF BIRMINGHAM

106-89  
SD-BTS-1

"ASSESSOR'S PLAT NO 29"

LOTS 89 TO ~~92~~<sup>91</sup> INCLUSIVE

Area 89-91 0.59 (pl)

Purpose for Acquisition Park

Reversion Public Purposes - 10 yrs. from 3-10-42

Deed Restrictions \_\_\_\_\_

Dedication \_\_\_\_\_

Present Use Buffer

Proposed Development \_\_\_\_\_

Source of Funds for Acquisition General

Miscellaneous Information:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

OWNERSHIP DATA SUMMARY

Site No. 52

Parcel	Legal File	Lot	Conveyance	Date	Recorded		Consideration	Authority	Remarks
					Liber	Page			
112	4199	89-92	Q-C (slo)	3-10-42	1397	578		R94-1942	

CITY PROPERTY INVENTORY

Quarter Section 24 S2  
 Assessor's No. 106-89  
 Date of Map  
 Site No. 52

Block Location  
 Block Description:  
 CITY OF BIRMINGHAM

Plat No. 20  
 CITY OF BIRMINGHAM

Date of Acquisition

Recorded Liber Page

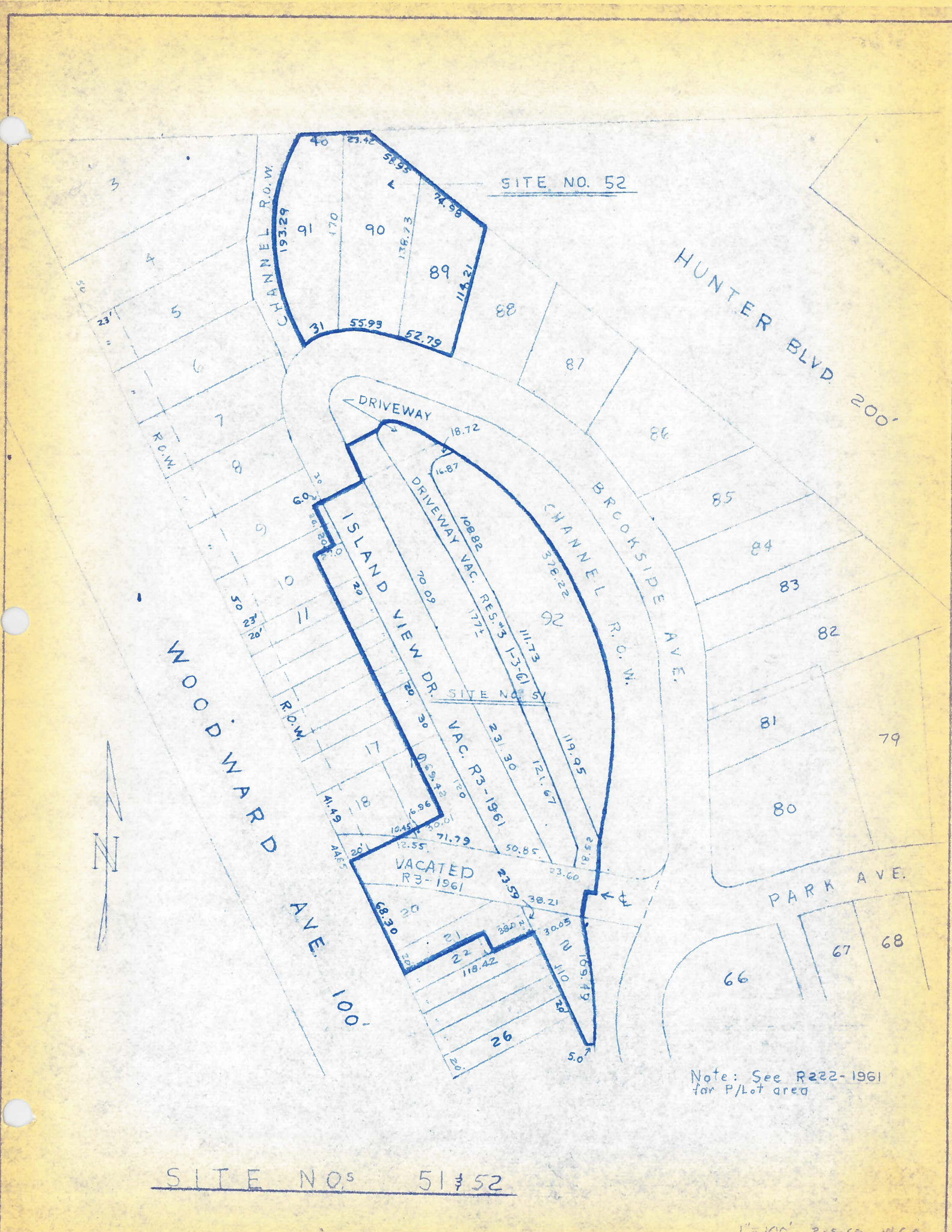
Consideration

Authority  
 Public Purpose - 10 yrs. from 3-10-42

Present Use  
 Proposed Development

Basis of Funds for Acquisition  
 Miscellaneous Information  
 General





SITE NO. 52

HUNTER BLVD. 200'

WOODWARD AVE

BROOKSIDE AVE.

PARK AVE.

100'



VACATED R3-1961

ISLAND VIEW DR.

CHANNEL R.O.W.

SITE NO. 51

VAC. R3-1961

DRIVEWAY

DRIVEWAY

DRIVEWAY VAC. RES. 3-13-61

Note: See R222-1961 for P/Lot area

SITE NOS 51 & 52

1" = 100' 2-5-69 W.C.O.



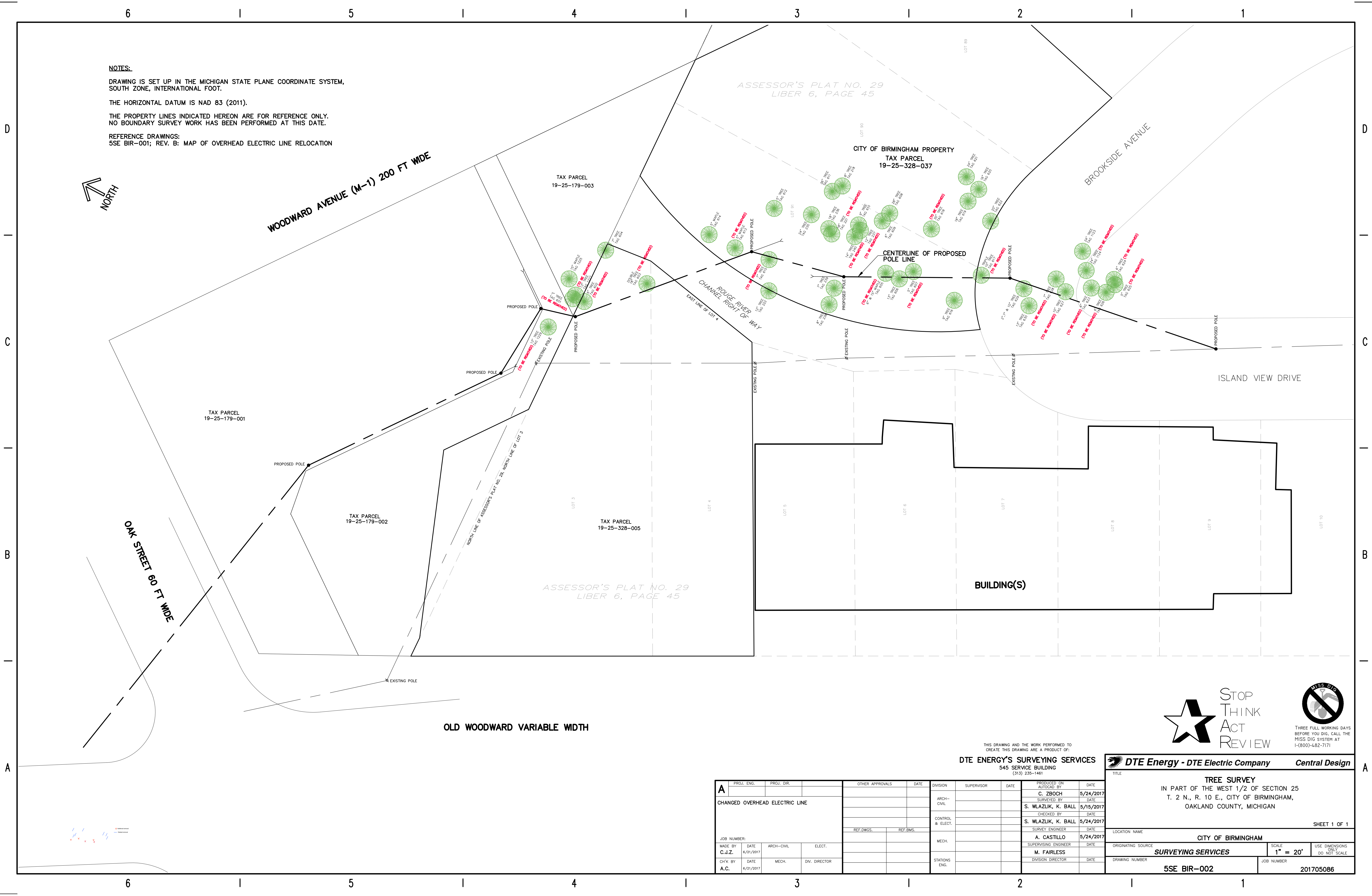
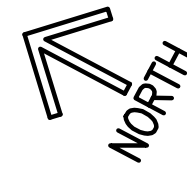
**NOTES:**

DRAWING IS SET UP IN THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, INTERNATIONAL FOOT.

THE HORIZONTAL DATUM IS NAD 83 (2011).

THE PROPERTY LINES INDICATED HEREON ARE FOR REFERENCE ONLY. NO BOUNDARY SURVEY WORK HAS BEEN PERFORMED AT THIS DATE.

REFERENCE DRAWINGS:  
5SE BIR-001; REV. B: MAP OF OVERHEAD ELECTRIC LINE RELOCATION



THIS DRAWING AND THE WORK PERFORMED TO CREATE THIS DRAWING ARE A PRODUCT OF:  
**DTE ENERGY'S SURVEYING SERVICES**  
545 SERVICE BUILDING  
(313) 235-1461

**DTE Energy - DTE Electric Company** Central Design

PROJ. ENG.	PROJ. DIR.	OTHER APPROVALS	DATE	DIVISION	SUPERVISOR	DATE
CHANGED OVERHEAD ELECTRIC LINE				ARCH-CIVIL		
JOB NUMBER:		REF. DWGS.	REF. DIMS.	CONTROL & ELECT.		
MADE BY	DATE	ARCH-CIVIL	ELECT.	MECH.		
C.J.Z.	6/21/2017			STATIONS ENG.		
CHK BY	DATE	MECH.	DN. DIRECTOR			
A.C.	6/21/2017					
PRODUCED ON AUTOCAD BY	DATE	SUPERVISOR				
C. ZBOCH	5/24/2017	DATE				
SURVEYED BY	DATE	SUPERVISOR				
S. WLAZLIK, K. BALL	5/15/2017	DATE				
CHECKED BY	DATE	SUPERVISOR				
S. WLAZLIK, K. BALL	5/24/2017	DATE				
SURVEY ENGINEER	DATE	SUPERVISOR				
A. CASTILLO	5/24/2017	DATE				
SUPERVISING ENGINEER	DATE	SUPERVISOR				
M. FAIRLESS		DATE				
DIVISION DIRECTOR	DATE	SUPERVISOR				
		DATE				

TITLE		CITY OF BIRMINGHAM	
TREE SURVEY		SURVEYING SERVICES	
IN PART OF THE WEST 1/2 OF SECTION 25		SCALE 1" = 20'	
T. 2 N., R. 10 E., CITY OF BIRMINGHAM,		USE DIMENSIONS ONLY DO NOT SCALE	
OAKLAND COUNTY, MICHIGAN		DRAWING NUMBER	
		5SE BIR-002	
SHEET 1 OF 1		JOB NUMBER	
		201705086	



**DTE Electric Company Overhead Easement (Right of Way) No. 45709883-45709888**

On April 11, 2017 ("Effective Date"), for the consideration of system betterment, Grantor grants to Grantee a permanent, non-exclusive overhead easement ("Right of Way") in, on, and across that part of Grantor's Land to be referred to herein as the "Right of Way Area".

"Grantor" is: AUGUST, LLC, a Michigan limited liability company, whose address is c/o Bodman, PLC, 1901 St. Antoine Street, 6<sup>th</sup> floor, Detroit, MI 48223

"Grantee" is: DTE Electric Company, a Michigan corporation, One Energy Plaza Drive, Detroit, Michigan 48226

"Grantor's Land" is in NW 1/4, SEC 25, T2N, R10E, BLOOMFIELD TOWNSHIP, County of OAKLAND, and State of Michigan, and is described as follows:

**T2N, R10E, SEC 25 PART OF NW 1/4 BEG AT PT DIST N 88-16-00 W 659.12 FT & N 49-21-00 W 120.93 FT FROM CEN OF SEC, TH N 49-21-00 W 200 FT, TH S 40-39-00 W 171.16 FT, TH S 22-50-00 E 49.17 FT, TH N 40-39-00 E 77.11 FT, TH N 85-39-00 E 22.63 FT, TH S 49-21-00 E 113.19 FT, TH S 88-16-00 E 34.45 FT, TH N 40-39-00 E 78.36 FT TO BEG 0.54 A**

Tax Identification Number(s): 19-25-179-001

More commonly known as: 35975 Woodward Ave, Birmingham, MI 48009

The "Right of Way Area" is a ten foot (10') wide easement on part of Grantor's Land. The centerline of the Right of Way Area shall be established in the as-built location of the centerline of Grantee's facilities, and shall be installed on Grantor's Land in the approximate location described as follows:

THE LEGAL DESCRIPTION OR EASEMENT DRAWING IS MORE PARTICULARLY DESCRIBED ON EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Tax Identification Number(s): 19-25-179-001

More commonly known as: 35975 Woodward Ave, Birmingham, MI 48009

- 1. Purpose:** The purpose of this Right of Way is to construct, reconstruct, modify, add to, repair, replace, inspect, operate and maintain overhead utility facilities which may consist of poles, guys, anchors, wires, transformers and accessories.
- 2. Access:** Grantee has the right of pedestrian and vehicular ingress and egress to and from the Right of Way Area over and across Grantor's Land.
- 3. Buildings or other Permanent Structures:** No buildings or other permanent structures or improvements may be constructed or placed in the Right of Way Area without Grantee's prior, written consent. Grantor agrees, at its own expense, to remove any improvement that interferes with the safe and reliable operation, maintenance and repair of Grantee's facilities upon the written demand of Grantee. If Grantor fails to comply with such demand, Grantor agrees that Grantee may remove any such improvement and bill Grantor for the cost thereof, which cost Grantor shall pay within thirty (30) days after demand therefor.
- 4. Excavation:** Pursuant to 2013 Public Act 174, MISS DIG (1-800-482-7171 or 811 in some areas) must be called before any excavation in the Right of Way Area may proceed.



5. **Trees, Bushes, Branches, Roots, Structures and Fences:** Grantee may trim, cut down, remove or otherwise control any trees, bushes, branches and roots growing or that could grow or fall in the Right of Way Area and remove any structures, improvements, fences, buildings or landscaping in the Right of Way Area that Grantee believes could interfere with the safe and reliable construction, operation, maintenance and repair of Grantee's facilities. Grantee shall not be responsible for any damage to, or removal of, landscaping, trees, plant life, structures, improvements and/or fences located in the Right of Way Area.

6. **Restoration:** If Grantee's agents, employees, contractors, subcontractors, vehicles or equipment damage Grantor's Land while entering Grantor's Land for the purposes stated in this Right of Way, then Grantee will restore Grantor's Land as nearly as is reasonably practicable to the condition in which it existed prior to such damage. Restoration with respect to paved surfaces shall consist of asphalt cold patching of the damaged portion of any asphalted surfaces when the weather conditions suggest such use and the cement patching of the damaged portion of any cemented surfaces. Grantee shall have no liability, however, for the restoration or cost of any improvements located within the Right of Way Area, including, but not limited to, parking islands, gutters, fences or landscaping such as trees, bushes, or flowers (but not a simple lawn which, if damaged, will be patched and re-seeded by Grantee) that are damaged by Grantee in the course of constructing, reconstructing, modifying, adding to, repairing, replacing, operating or maintaining its facilities as described in paragraph 1 above.

7. **Successors:** This Right of Way runs with the land and binds and benefits Grantor's and Grantee's successors and assigns.

8. **Exemptions:** This Right of Way is exempt from transfer tax pursuant to MCL 207.505(a) and MCL 207.526(a).

9. **Governing Law:** This Right of Way shall be governed by the laws of the State of Michigan.

10. **Maintenance:** Grantee agrees to maintain, repair and replace (when necessary) all installations, structures and improvements made by Grantee pursuant to this Right of Way, at Grantee's sole cost and expense; provided, however, Grantor will reimburse Grantee for any such costs for repairs and or maintenance caused by the negligence of Grantor.

11. **Improvement Costs:** Grantee acknowledges and agrees that Grantor shall have no obligation to pay or reimburse Grantee for any costs Grantee may incur in connection with any of its installations, structures or improvements within the Right of Way Area unless Grantor requests any additional service from Grantee after the Effective Date.

Grantor(s): August, LLC

By: [Signature]  
Name: DIANE WELLS  
Title: MANAGER

Acknowledged before me in Macomb County, Michigan, on April 11, 2017,  
by Diane Wells, Its: Manager for August, LLC, a Michigan limited liability company.

Cynthia DelaVega  
NOTARY PUBLIC - STATE OF MICHIGAN  
COUNTY OF MACOMB  
My Commission Expires Feb. 26, 2024  
Acting in the County of Macomb

Notary's Stamp  
Acting in Macomb County, Michigan

Notary's Signature [Signature]

Drafted by and when recorded, return to: Cassandra Dansby, DTE Electric Company, NW Planning & Design, 37849 Interchange Dr., Farmington Hills, MI 48335





Paul O'Meara &lt;pomeara@bhamgov.org&gt;

---

**DTE easement meeting re: 856.**

1 message

---

**Frank R. Simon** <FSimon@simonattys.com>

Mon, Apr 10, 2017 at 2:06 PM

To: "pomeara@bhamgov.org" &lt;pomeara@bhamgov.org&gt;

Cc: Jana Ecker &lt;jecker@bhamgov.org&gt;, "jvalentine@bhamgov.org" &lt;jvalentine@bhamgov.org&gt;, Nurah I Dababneh &lt;nurah.dababneh@dteenergy.com&gt;

**Paul,****See email response from David Underdown supporting Option #2 and further info below. We have adopted Option #2.****Frank****From:** David Underdown [<mailto:dcunderdown@icloud.com>]**Sent:** Wednesday, March 15, 2017 4:18 PM**To:** Eavan Yaldo <[eyaldo@sarokiarchitecture.com](mailto:eyaldo@sarokiarchitecture.com)>**Subject:** Re: DTE easement meeting

Eavan,

We support option #2. I am happy to repave our customer parking area to match the style of the new surfaces. Aesthetically the additional poles and overhead wires do not bother me nor do I foresee them impeding our ability to operate the dry cleaning business with their presence. I personally feel that the poles and wires blend into the landscape once they are up. Additionally, I think there is great value in each group having complete independence and control of their own project without including Douglas Cleaners in the decision making/planning process. My goal is to run our family business in the same way that it has been operated in this location since 1961. We are supportive and respectful of the large investments and efforts that both groups are undertaking to our neighboring properties. It is disappointing that I will be viewed as a poor and uncooperative neighbor for not surrendering our property use rights in exchange for substantial improvements made to neighboring sites, but hopefully over time we will be viewed as a good neighbor. If there are issues that I need to be made aware in the future, I will always listen and consider them. From a planning standpoint I think it will be most efficient, clear and predictable for you and your teams to operate under the assumption that we will want to use our site in the exact same way it has always been used without changes and we will respect your right to improvement and develop your new sites in the way that you choose. Best wishes for success!

Sincerely,

David C. Underdown

On Mar 14, 2017, at 04:52 PM, Eavan Yaldo <[eyaldo@sarokiarchitecture.com](mailto:eyaldo@sarokiarchitecture.com)> wrote:

Thank you for meeting with us this morning. To recap, we have two (2) different options for the new overhead lines, neither of which will add poles to the Douglas Cleaners property. In both schemes, there will be new overhead lines in a 10' easement along the south property line of the August, LLC parcel. (Both options are attached for your reference.)

**Option #1** provides the best appearance for all properties, as it results in one less pole required, with overhead wires that would run parallel to the Douglas Cleaners storefront and attach to the existing pole in front of the building, just south of the N. Old Woodward access drive. It requires a 10' easement from Douglas Cleaners for overhead wires along the NW property line.

**Option #2** would not require an easement from Douglas Cleaners, but would result in overhead wires running diagonally across the August, LLC property to a new 45' high pole at the corner of North Old Woodward and Oak. This would be highly visible from the Douglas Cleaners storefront, as the wires would run diagonally across the access drive.

In the spirit of cooperation and being a good neighbor, August, LLC is making substantial improvements to the property and all approaches to both properties. The majority of new poles being added will be on the August, LLC parcel. No new poles are proposed for the Douglas Cleaners property. If you select Option #1 and grant the easement, August, LLC is willing to repave your parking area in front of the store when they pave their property.

Unfortunately, we do not have your father's email address to include him on the email. Can you please provide his email?

Thank you,

Eavan



**EAVAN YALDO** | ASSOCIATE | LEED AP

P 248 258 5707 | [EYaldo@SarokiArchitecture.com](mailto:EYaldo@SarokiArchitecture.com)

430 N. OLD WOODWARD, BIRMINGHAM, MI 48009

[SarokiArchitecture.com](http://SarokiArchitecture.com)



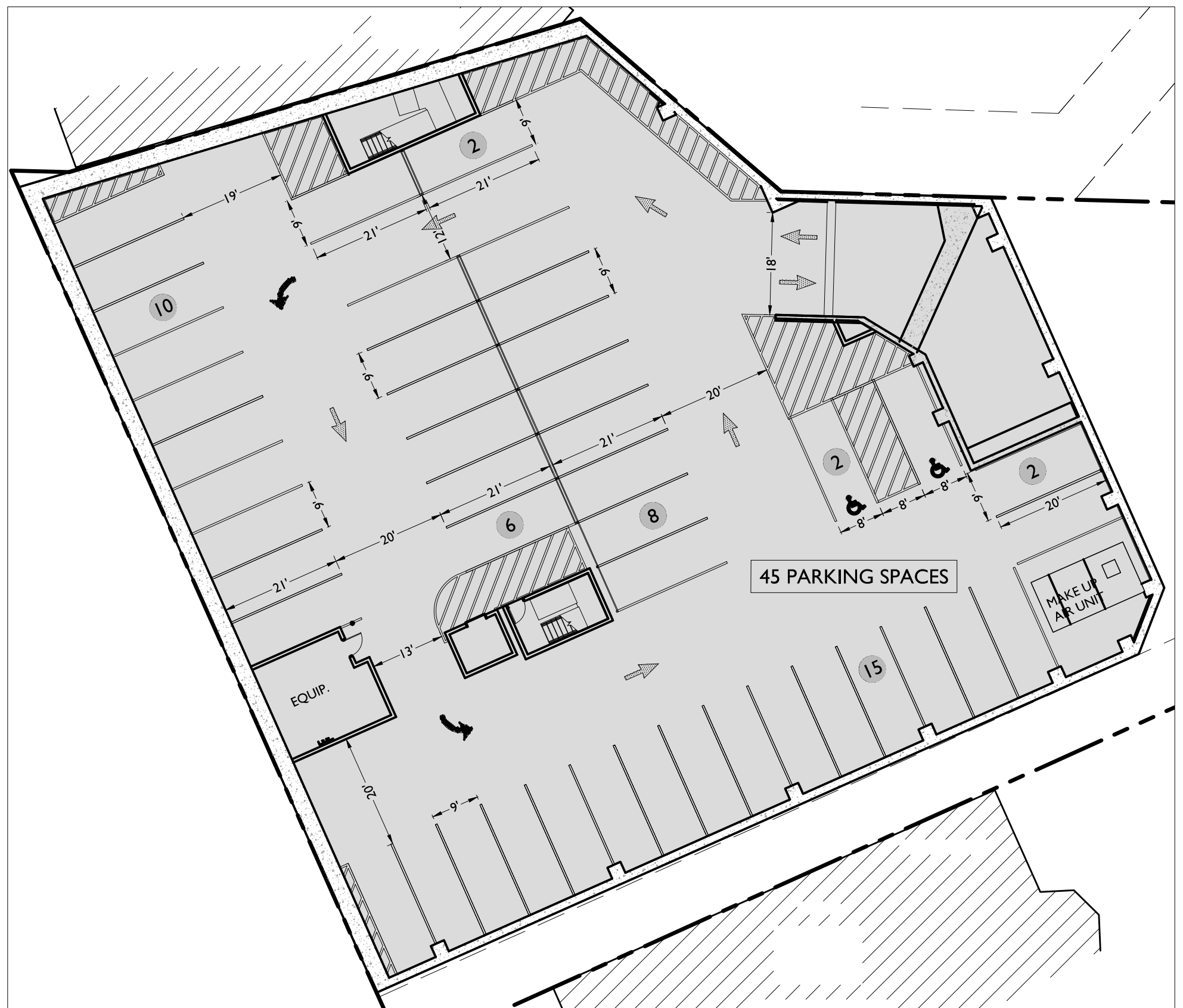
---

## 2 attachments

 **900 N Old Woodward (Option #1).pdf**  
900K

 **35980 Woodward (Option #2).pdf**  
926K





**TABLE OF LAND USE AND ZONING**  
PARCEL ID: 19-25-328-001  
DOWNTOWN BIRMINGHAM OVERLAY DISTRICT (D-2)

PROPOSED USE		PERMITTED USE	
DWELLING-MULTIPLE-FAMILY	RETAIL	RESIDENTIAL (2 OR LESS ROOMS)	RESIDENTIAL (3 OR MORE ROOMS)
ZONING REQUIREMENT	REQUIRED	PROPOSED	
MINIMUM LOT AREA	N/A	24,718 SF (0.56 AC)	
MAXIMUM BUILDING HEIGHT	3 STORIES	4 STORIES (V)	
MAXIMUM OVERALL HEIGHT	56 FT	56 FT	
BUILDING FOOTPRINT AREA	N/A	20,428 SF	
FRONT YARD SETBACK	0 FT	0 FT	
MINIMUM FRONT YARD SETBACK (FACADE)	0 FT	10.8 FT	
MINIMUM SIDE YARD SETBACK	0 FT	0 FT	
MINIMUM REAR YARD SETBACK*	12.8 FT	12.8 FT	

(V) VARIANCE THE NORTHERN ADJACENT BUILDING PROVIDES A 12.8 FT REAR YARD SETBACK PER § 3.04(B)

**OFF-STREET PARKING REQUIREMENTS**

CODE SECTION	REQUIRED	PROPOSED
§ 4.52 PK-08.A	<b>RESIDENTIAL (2 OR LESS ROOMS):</b> 1.5 SPACES PER UNIT (1 UNITS)(1.5 UNITS) = 2 SPACES	20 SPACES AT GROUND LEVEL 45 SPACES ON LOWER LEVEL
	<b>RESIDENTIAL (3 OR MORE ROOMS):</b> 2 SPACES PER UNIT (25 UNITS)(2 UNITS) = 50 SPACES	<b>65 SPACES TOTAL ONSITE</b> 9 SPACES IN PUBLIC R.O.W <b>74 SPACES TOTAL</b>
	<b>RETAIL:</b> 1 SPACES PER 300 SF (4,500 SF)(1/300 SF) = 15 SPACES <b>TOTAL: 2 + 50 + 15 = 67 SPACES</b>	
§ 9-12	PARKING SPACE SIZE: 180 SF	180 SF (9 FT X 20 FT)
§ 3.04-C.7	MAXIMUM PARKING ACCESS WIDTH: 25 FT WIDE	22 FT

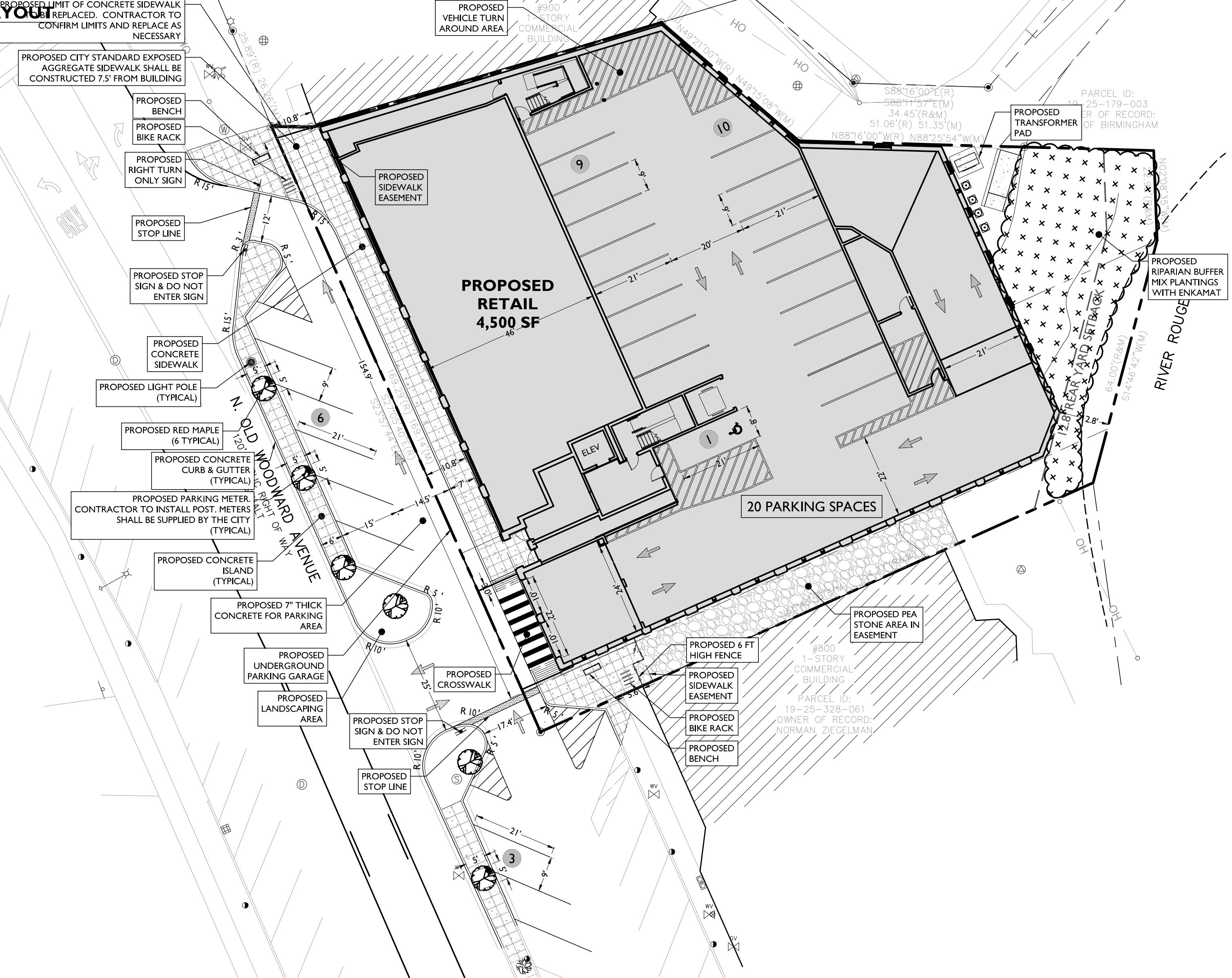
(V) VARIANCE

**SYMBOL** **DESCRIPTION**

— — — — —	PROPERTY LINE
———	PROPOSED CURB
- - - - -	PROPOSED FLUSH CURB
+	PROPOSED SIGN
▭	PROPOSED BUILDING
▭	PROPOSED CONCRETE
→ → → → →	PROPOSED TRAFFIC FLOW MARKINGS
⑫	PARKING STALL COUNTER

- GENERAL NOTES**
- THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC PRIOR TO THE START OF CONSTRUCTION.
  - THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
  - ALL CONTRACTORS WILL TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC AND ITS SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
  - THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
  - THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
  - THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
  - THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTOR'S EXPENSE.
  - THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
  - THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
  - THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
  - THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
  - SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC, BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

**BASEMENT FLOOR LAYOUT**



**ZONING RELIEF TABLE**

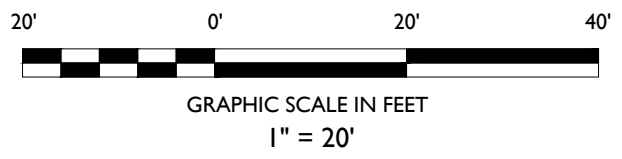
DESIGN STANDARDS	REQUIRED	PROPOSED
§ 3.04-A.1	MAXIMUM BUILDING HEIGHT: 3 STORIES (56 FT)	4 STORIES (56 FT)

(V) VARIANCE

**RIPARIAN PLANTING MIX**

BOTANICAL NAME	COMMON NAME	MIX PERCENTAGE
ELYMUS VIRGINICUS	VIRGINIA WILDRYE	20%
SORGHASTRUM NUTANS	INDIANGRASS	16%
PANICUM CLANDESTINUM	DEERTONGUE	15%
ANDROPOGON GERARDII	BIG BLUESTEM	12.5%
PANICUM VIRGATUM	SWITCHGRASS	8%
CHAMAECRISTA FASCICULATA	PARTURIDGE PEA	5%
AGROSTIS PERENNANS	AUTUMN BENTGRASS	4%
VERBENA HASTATA	BLUE VERVIAN	4%
RUDBECKIA HIRTA	BLACKEYED SUSAN	3%
HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER	3%
ASTER NOVAE-ANGLOE	NEW ENGLAND ASTER	2.3%
JUNCUS EFFUSUS	SOFT RUSH	2%
EUPATORIUM PEROLIATUM	BONESET	1%
EUPATORIUM FISTULOSUM	JOE PYE WEEED	1%
BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	1%
VERNONIA NOYBORACENSIS	NEW YORK IRONWEED	1%
LOBELIA SIPHILTICA	GREAT BLUE LOBELIA	0.5%
MONARDA FISTULOSA	WILD BERGAMOT	0.5%
EUTHAMIA GRAMINIFOLIA	GRASSLEAF GOLDENROD	0.2%

(V) VARIANCE



**REVISIONS**

NO.	DATE	BY	DESCRIPTION
11	04/03/2017	JAM	REVISED PER CITY ENGINEERING COMMENTS
10	02/22/2017	JAM	REVISED PER CITY ENGINEERING COMMENTS
9	01/23/2017	JAM	ISSUED FOR BIDD PERMITS
8	01/04/2017	JAM	UPDATED PER LATEST BUILDING FOOTPRINT
7	08/19/2016	JAM	SUBMISSION FOR ENGINEERING APPROVAL
6	06/24/2016	JAM	REVISED FOR FINAL SITE PLAN APPROVAL
5	04/12/2016	JAM	REVISED PER CITY COMMENTS & ZONING BOARD SUBMISSION
4	03/10/2016	JAM	REVISED PER CITY COMMENTS & ZONING BOARD SUBMISSION
3	02/17/2016	JAM	REVISED PER CITY COMMENTS
2	01/06/2016	JAM	REVISED PER CITY REVIEW LETTER COMMENTS

**NOT APPROVED FOR CONSTRUCTION**

**STONEFIELD engineering & design, llc.**  
Rutherford, NJ · Farmingdale, NY · Royal Oak, MI  
www.stonefielddesign.com  
28454 Woodward Avenue Royal Oak, MI 48067  
Phone 248.247.1115

**SITE DEVELOPMENT PLANS**

**856 OLD NORTH WOODWARD**  
**PROPOSED 4 STORY MULTI-FAMILY BUILDING WITH RETAIL**  
PARCEL ID: 19-25-328-001  
856 NORTH OLD WOODWARD ROAD  
CITY OF BIRMINGHAM  
OAKLAND COUNTY, MICHIGAN

STATE OF MICHIGAN  
**JEFFREY A. MARTELL**  
ENGINEER  
Lic. No. 6201061061  
Lic. No. 201061061

**STONEFIELD engineering & design, llc.**

SCALE: 1" = 20' PROJECT ID: M-15120

TITLE: **FIRST FLOOR SITE PLAN**

DRAWING: **C-3**

VP0201061061-15120-001-REC-001-N. OLD WOODWARD, BIRMINGHAM, MICHIGAN (01/03/2017) 04:55:12







**DATE:** August 4, 2017

**TO:** Joseph Valentine, City Manager

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** Maple Rd. & S. Eton Rd. Intersection  
Multi-Modal Transportation Board Improvements

---

---

At the City Commission meeting of July 28, 2017, a package of recommendations from the Multi-Modal Transportation Board (MMTB) for S. Eton Rd. (Maple Rd. to Lincoln Ave.) was prepared for the agenda. Information prepared at that time did not have complete data relative to current demands for trucks turning in the area. Since the matter was postponed, staff took advantage of the additional time to collect actual truck turning and pedestrian count data for this intersection, which is now attached, and summarized in Appendix A. Also attached is a recommendation from the City's consultant to the MMTB, Fleis & Vandenbrink.

TRAFFIC ISLAND DESIGN

Although more detailed findings are listed in Appendix A, the important findings from the traffic counts are as follows:

- A relatively significant number of trucks use this intersection on a daily basis. Large truck movements to and from the bridge are not as restricted as had been thought from statements made at the previous public hearing. An even more significant number of pedestrians use the intersection, which is expected to increase in the future.
- The design recommended in this package features both a street narrowing on the SW corner of the intersection, and a traffic island that can accommodate a WB-50 truck.
- On the Thursday that was counted, a total of ten trucks in the WB-62 category drove through this intersection. Five of those trips were turning on to S. Eton (three making a right turn, two making a left). Based on the truck turning diagram, the right turn movement will require driving on the island as much or more than the left turn movement. Given the frequency of these movements, installation of a landscape area will be impractical. Likewise, banning left turns into the district would cause additional travel on other streets, as well as inconvenience, while not allowing any improvements to the traffic island design.

Based on the above, the traffic island has been modified to have the following design features:

1. Mountable curbs will be used on all sides so that trucks can drive over it when necessary.
2. The previously proposed landscape area will be removed and replaced with concrete to reduce ongoing maintenance problems. A colored or patterned concrete can be installed in this area if so desired.



3. No signs or upright markers can be installed on the island. Drivers will see the island based on pavement markings, raised concrete, etc.

The other design elements of the S. Eton corridor (other than the area near Maple Rd.) were not discussed at the previous City Commission meeting. This area includes Yosemite to Lincoln. In order to ensure a coordinated corridor, the section of S. Eton from Lincoln to 14 Mile will be brought to the Multi-Modal Transportation Board for review in conjunction with the section from Yosemite to Lincoln. From a timing perspective, we can incorporate the construction of the changes north of Yosemite in the 2017 Sidewalk Contract and have them completed in conjunction with the opening of the Whole Foods project this year. The remaining sections of the corridor will be studied further down to 14 Mile and a complete plan will be presented for approval at a later date.

**S. ETON RD. - MAPLE RD. TO YOSEMITE BLVD.**

SUGGESTED RESOLUTION:

To endorse the Multi-Modal Transportation Board recommendations as modified for S. Eton Rd. from Maple Rd. to Yosemite Blvd., as described below:

1. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
2. Installation of a traffic island at the Maple Rd. & S. Eton Rd. intersection to improve safety for pedestrians crossing on the south side of Maple Rd.
3. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
4. Installation of sharrows on green painted squares for both directions

AND

To confirm that the work on the block south of Maple Rd. shall be included as a part of the 2017 Concrete Sidewalk Program, Contract #3-17(SW), at an estimated total cost of \$70,000, to be charged to account number 202-449.001-981.0100.

AND

To direct the Multi-Modal Transportation Board to study and provide recommendations for bike route improvements for the area of S. Eton Rd. from Lincoln Ave. to 14 Mile Rd., then return to the City Commission with a package of Multi-Modal recommendations for the entire corridor.

August 4, 2017

VIA EMAIL

Mr. Paul O'Meara  
City Engineer  
City of Birmingham  
151 Martin Street  
Birmingham, MI 48012

**RE: Maple Road & S. Eton Proposed Intersection Design**

Dear Mr. O'Meara,

The purpose of this letter is to provide an interpretation of the traffic count information contained in Appendix A and the previously prepared truck turning analysis, road geometrics and user surveys. This interpretation is intended to assist in the decision making process regarding the installation of a channelized right-turn island on the south leg of South Eton at Maple. This improvement was included in the recommendations from the Ad Hoc Rail District Committee as part of the overall multi-modal improvements planned for South Eton in the Rail District.

The Ad Hoc Committee presented recommendations and island design to the Multi-Modal Transportation Board, who subsequently modified the design to accommodate WB-50 truck turning movements at this intersection.

This letter includes a summary of the of "pros" and "cons" associated with the proposed design to aid the City in the consideration of the proposed improvement at this intersection.

**Pros**

- The proposed right-turn island incorporates the following measures traffic calming: 1) Narrowing the real or apparent width of the street and 2) deflecting (introducing curvature to) the vehicle path. A traffic island will calm all traffic movements entering and exiting South Eton at this location. Drivers will be more careful making turns which will cause them to drive more slowly and pay more attention to their surroundings.
- The proposed island is consistent with the City's goal of a multi-modal community by improving the safety of the intersection for all road users, and especially pedestrians which will benefit from the "calmed" traffic movements.
- The proposed raised channelized right-turn island will provide greater detectability of the pedestrians by motorists. In addition, the Federal Highway Administration recommends channelized right-turns at signalized intersections to reduce crashes by providing increased visibility for vehicles turning right and though vehicles coming from the left on the cross-street. (NCHRP Report 500 / Volume 12: *A Guide for Reducing Collisions at Signalized Intersections, Strategy B2*).
- The island will be designed to accommodate all movements of trucks and buses at this intersection and will not be a hazard for snow removal equipment. This design will include an concrete island with mountable curb, no landscaping, and geometric features to accommodate a WB-50 turning radius.

### **Cons**

- To accommodate all movements of trucks at this intersection, there is a need to include mountable curb with no landscaping.
- The island could be perceived to be a “pedestrian refuge” island by pedestrians. The “walk time” provided by the traffic signal at this intersection will allow pedestrians to walk the entire distance across the approach so a pedestrian refuge is not necessary. Considering the paths that the trucks make pedestrians standing on this island would not be appropriate.

### **Recommendation**

- We support placing a channelized right-turn island at this location. The number of pedestrians that cross at this location are higher than the few number of trucks that may use this intersection. In addition, trucks that make this turn should be aware of their surroundings when making turns and should not make their turn if pedestrians are waiting on the island.

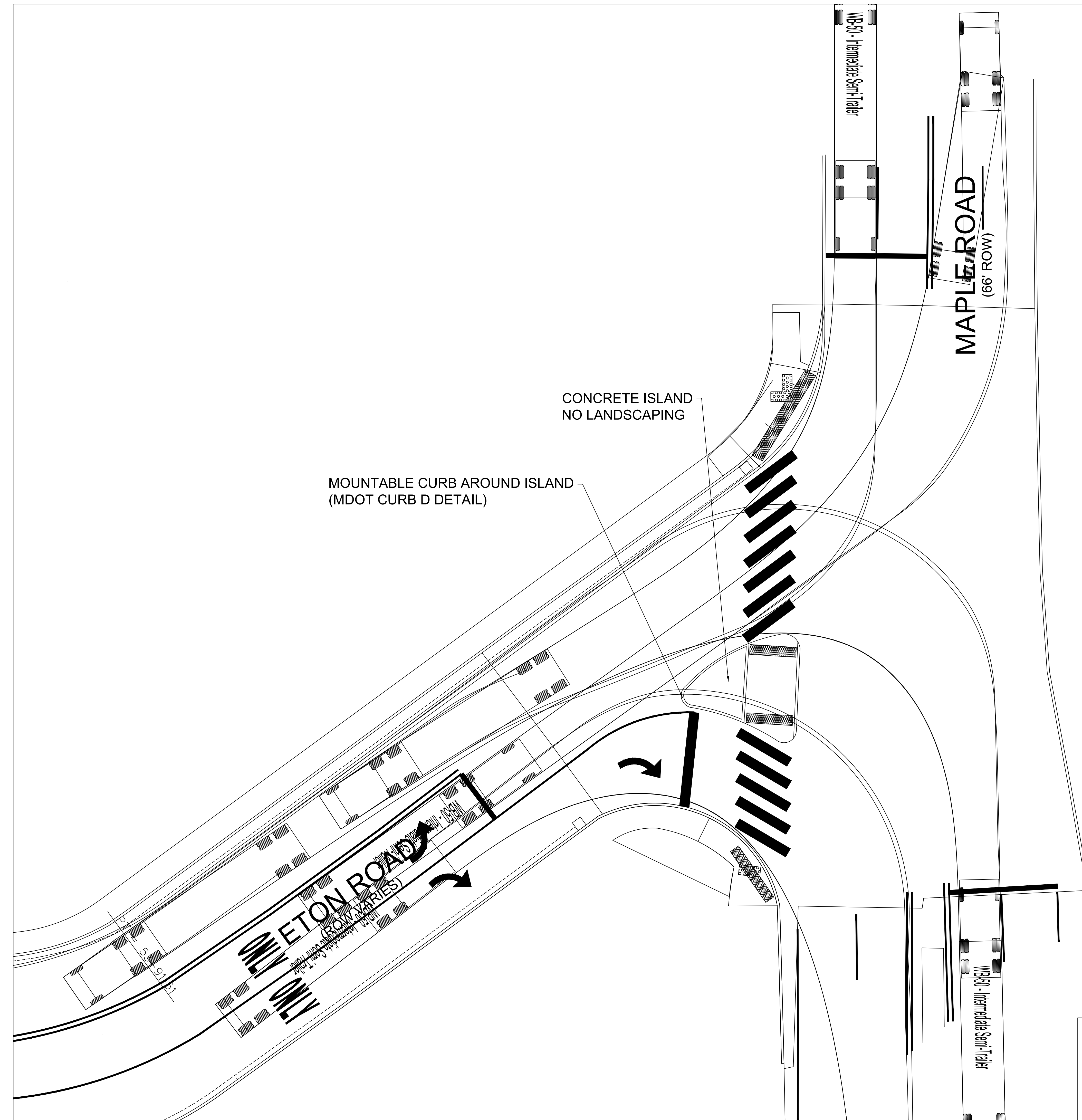
If you have any questions, please feel free to contact us.

Sincerely,

FLEIS & VANDENBRINK

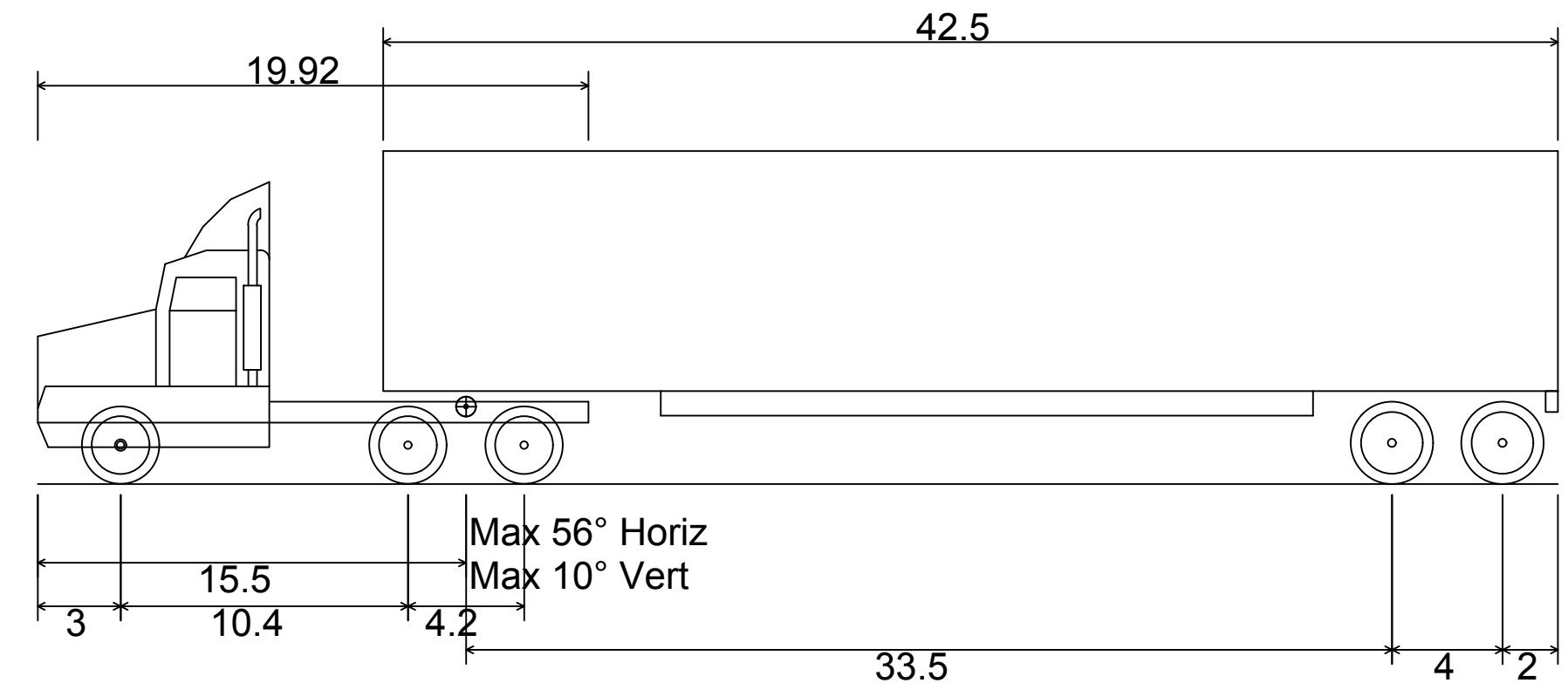


Michael J. Labadie, PE  
Group Manager

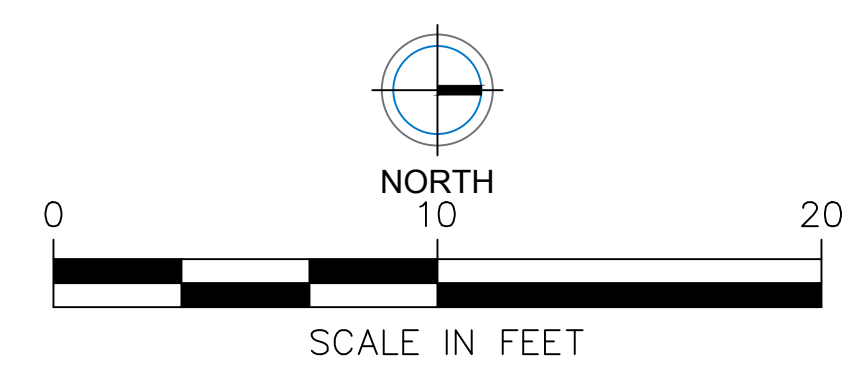


CONCRETE ISLAND  
NO LANDSCAPING

MOUNTABLE CURB AROUND ISLAND  
(MDOT CURB D DETAIL)



WB-50 - Intermediate Semi-Trailer	
Overall Length	55.000ft
Overall Width	8.500ft
Overall Body Height	12.052ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	17.90°

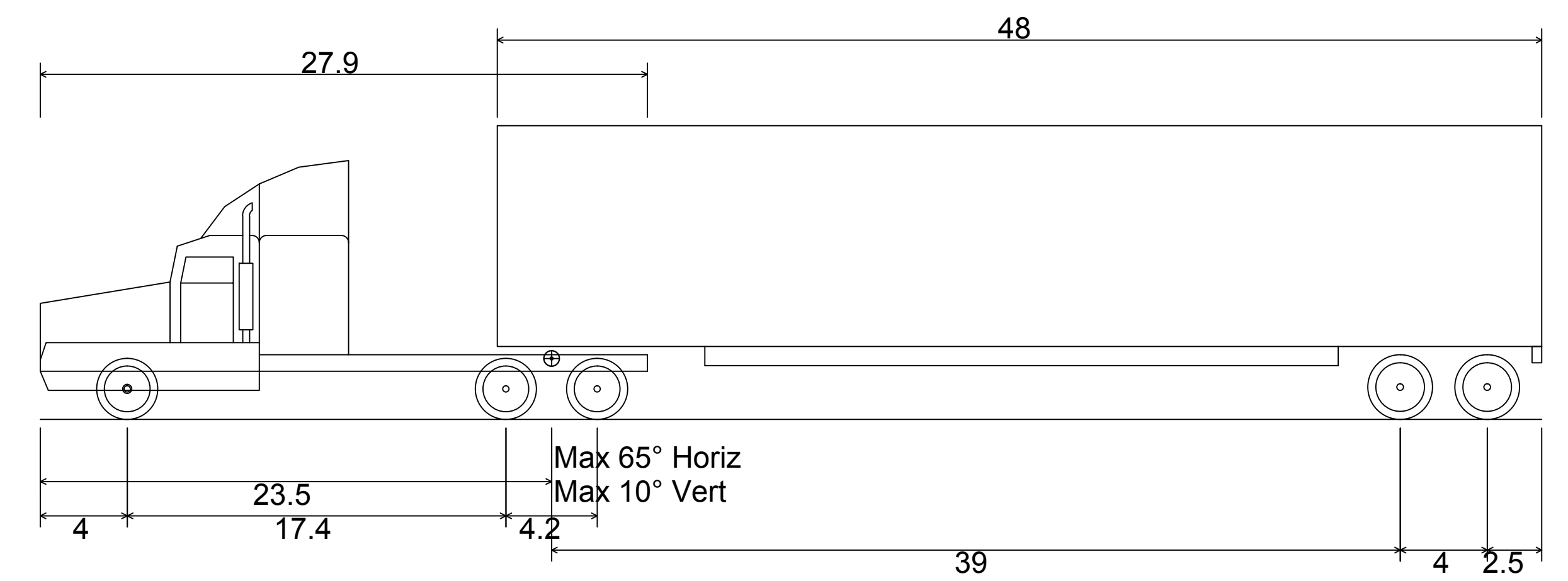
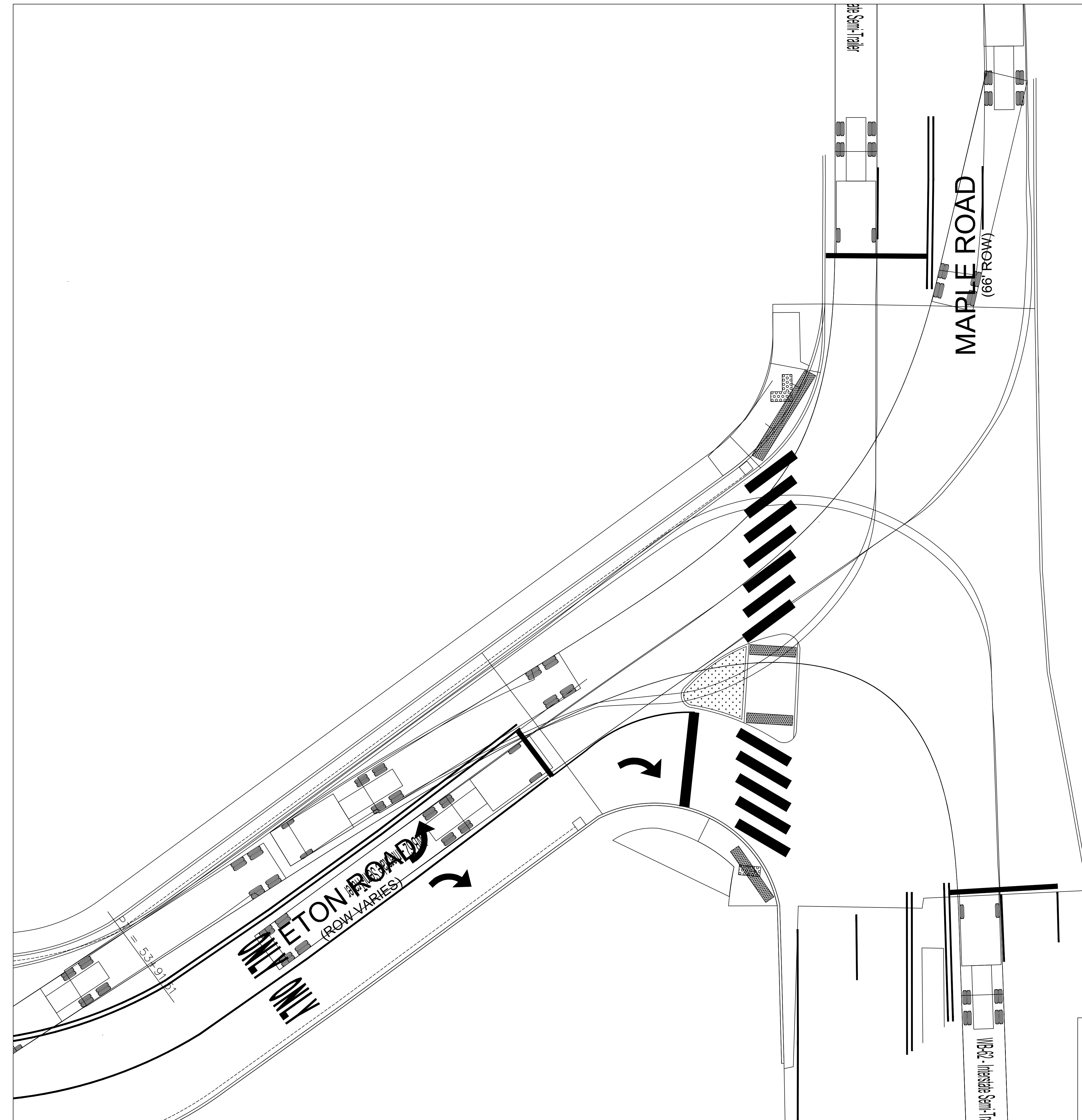


**CITY OF BIRMINGHAM**  
**OAKLAND COUNTY, MICHIGAN**  
**SOUTH ETON AVENUE AT MAPLE ROAD**  
**IMPROVEMENT PLAN - WB-50 TURNING PATHS**

823951  
 F&V PROJECT NO.

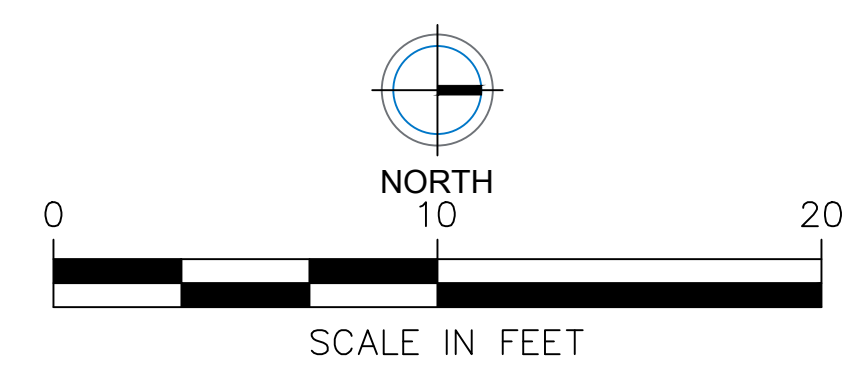






WB-62 - Interstate Semi-Trailer  
 Overall Length  
 Overall Width  
 Overall Body Height  
 Min Body Ground Clearance  
 Max Track Width  
 Lock-to-lock time  
 Max Steering Angle (Virtual)

69.000ft  
 8.500ft  
 13.500ft  
 1.334ft  
 8.500ft  
 6.00s  
 28.40°



MAPLE RD. & S. ETON RD. INTERSECTION  
TRAFFIC COUNT SUMMARY  
APPENDIX A

August 2, 2017

In order to provide more definitive information about the current demand for truck traffic entering and exiting the Rail District commercial area via this intersection, traffic count data was taken using cameras on Thursday, July 27, from 7 AM to 7 PM. Only vehicles traveling on S. Eton directly south of Maple Rd. were counted. Pedestrians were also counted at the intersection, which includes data regarding the total number of people that used the Eton Rd. crosswalk where the channelized right-turn island is proposed and the Maple Rd. crosswalk over the course of the 12-hour period.

Focusing on items of interest with respect to the design of a channelized right-turn island on the south leg of the intersection, the following can be drawn from the data:

- A total of 21 buses were counted, a number that likely increases dramatically when school is in session. School buses are smaller than a WB-40 truck and subsequently requires a smaller turning radius, therefore they are not a determining factor in the design.
- For arterial intersections with collectors, the WB-40 design vehicle is generally appropriate and the WB-50 should be used where specific circumstances warrant. For arterial-arterial intersections, the WB-62 design vehicle should be considered.
- The WB-40 truck category is an intermediate semi-trailer, and we commonly use this category truck to design turning movements in the downtown area. This assumption is used because it is difficult in general to maneuver a truck any larger than this in a dense urban environment, and this is generally understood by the trucking industry. A total of 22 trucks were counted in the 12 hour period. The distribution shows that the various turning movements are relatively evenly distributed:

TURNING MOVEMENT	Quantity	Percentage
W. Bound Left (from under bridge) to S. Bound Eton	4	18%
N. Bound Right (heading under bridge) to E. Bound Maple	6	27%
N. Bound Left to W. Bound Maple	5	23%
E. Bound Right to S. Bound Eton	7	32%

It does not appear that making the turns that involve the adjacent railroad bridge are serving as an impediment for this category. The originally designed channelized right-turn island accommodated all of these turning movements, with little room to spare.

- The WB-50 is also classified as an intermediate semi-trailer and the representation of this category at the intersection was very small. Only 2 trucks were counted during the 12-hour period.
- The WB-62 is an interstate semi-trailer and is the largest truck generally seen on City streets. They are typically used for long distance deliveries and limited access freeway trips. A total of 10 trucks were counted in this category, distributed as described below:

TURNING MOVEMENT	Quantity	Percentage
W. Bound Left (from under bridge) to S. Bound Eton	2	20%
N. Bound Right (heading under bridge) to E. Bound Maple	1	10%
N. Bound Left to W. Bound Maple	4	40%
E. Bound Right to S. Bound Eton	3	30%

After input from Rail District business representatives, the MMTB thought that these trucks could not make it under the bridge, and movements to or from the east could be neglected. During the 12-hours of data collection on the day counted, they represented 30% of the turning movements.

- The pedestrian counts represent the total number of people that used the Eton Rd. crosswalk where the channelized right-turn island is proposed (45), and the total number of people that used the Maple Rd. crosswalk over the course of the 12-hours (76). The counts do not distinguish which direction the pedestrians are walking. The number counted for the Eton Rd. crossing averages to 3.75 people per hour, with a low of 0 for the hour starting at 11:00 AM, and a high of 9 for the hour starting at 2 PM. For the Maple Rd. crossing, the average number of pedestrians was 6.33 people per hour, with a low of 1 for the hour starting at 7:00 AM, and a high of 19 for the hour starting at 5:00 PM. When school returns to session and Whole Foods opens there may be an increase in pedestrian activity at this intersection.

# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

## City of Birmingham, Engineering Dept.



**Project:** Birmingham Truck Study  
**Type:** 12 Hr. Video Turning Movement Count  
**Weather:** Sunny/Pt. Cldy, Dry Deg. 80's  
**Count By:** Miovision Video SCU 34N

**File Name :** TMC\_1 EMaple&SEaton\_7-27-17  
**Site Code :** TMC\_1  
**Start Date :** 7/27/2017  
**Page No :** 1

Groups Printed- Pass Cars - Single Units - Buses - 40 - 50 - 62

Start Time	E. Maple Road Westbound				S. Eaton Street Northbound				E. Maple Road Eastbound				Int. Total
	Thru	Left	Peds	App. Total	Rgt	Left	Peds	App. Total	Rgt	Thru	Peds	App. Total	
07:00 AM	0	41	0	41	34	12	0	46	8	0	0	8	95
07:15 AM	0	48	0	48	40	11	1	52	11	0	1	12	112
07:30 AM	0	47	0	47	44	13	0	57	9	0	0	9	113
07:45 AM	0	71	0	71	48	8	1	57	10	0	0	10	138
Total	0	207	0	207	166	44	2	212	38	0	1	39	458
08:00 AM	0	49	0	49	51	11	1	63	10	0	0	10	122
08:15 AM	0	61	0	61	46	8	0	54	16	0	1	17	132
08:30 AM	0	67	0	67	56	15	0	71	15	0	0	15	153
08:45 AM	0	86	0	86	75	11	1	87	22	0	2	24	197
Total	0	263	0	263	228	45	2	275	63	0	3	66	604
09:00 AM	0	62	0	62	68	19	0	87	10	0	1	11	160
09:15 AM	0	54	0	54	59	12	0	71	17	0	0	17	142
09:30 AM	0	50	0	50	72	17	0	89	15	0	1	16	155
09:45 AM	0	43	0	43	69	14	1	84	15	0	0	15	142
Total	0	209	0	209	268	62	1	331	57	0	2	59	599
10:00 AM	0	59	0	59	67	9	2	78	8	0	1	9	146
10:15 AM	0	46	0	46	56	12	0	68	13	0	1	14	128
10:30 AM	0	45	0	45	59	15	0	74	7	0	2	9	128
10:45 AM	0	56	0	56	65	9	1	75	11	0	1	12	143
Total	0	206	0	206	247	45	3	295	39	0	5	44	545
11:00 AM	0	54	0	54	84	15	0	99	15	0	1	16	169
11:15 AM	0	57	0	57	54	11	0	65	14	0	2	16	138
11:30 AM	0	55	0	55	67	16	0	83	13	0	1	14	152
11:45 AM	0	63	0	63	68	15	0	83	16	0	0	16	162
Total	0	229	0	229	273	57	0	330	58	0	4	62	621
12:00 PM	0	50	0	50	79	18	0	97	15	0	2	17	164
12:15 PM	0	61	0	61	71	10	0	81	13	0	2	15	157
12:30 PM	0	52	0	52	65	15	4	84	12	0	1	13	149
12:45 PM	0	71	0	71	54	18	3	75	7	0	0	7	153
Total	0	234	0	234	269	61	7	337	47	0	5	52	623
01:00 PM	0	49	0	49	80	13	1	94	14	0	0	14	157
01:15 PM	0	69	0	69	76	9	0	85	9	0	2	11	165
01:30 PM	0	62	0	62	61	12	2	75	13	0	4	17	154
01:45 PM	0	57	0	57	73	11	1	85	10	0	0	10	152
Total	0	237	0	237	290	45	4	339	46	0	6	52	628
02:00 PM	0	58	0	58	77	19	7	103	13	0	0	13	174
02:15 PM	0	64	0	64	60	13	0	73	15	0	10	25	162
02:30 PM	0	61	0	61	62	19	0	81	14	0	0	14	156
02:45 PM	0	56	0	56	67	13	2	82	21	0	1	22	160
Total	0	239	0	239	266	64	9	339	63	0	11	74	652
03:00 PM	0	60	0	60	68	23	1	92	13	0	2	15	167
03:15 PM	0	62	0	62	79	11	0	90	11	0	0	11	163
03:30 PM	0	69	0	69	76	10	2	88	9	0	0	9	166
03:45 PM	0	93	2	95	82	17	1	100	19	0	2	21	216
Total	0	284	2	286	305	61	4	370	52	0	4	56	712
04:00 PM	0	57	0	57	67	26	3	96	14	0	4	18	171
04:15 PM	0	85	0	85	76	13	0	89	10	0	4	14	188
04:30 PM	0	71	0	71	88	9	2	99	9	0	0	9	179
04:45 PM	0	79	0	79	90	15	2	107	14	0	3	17	203
Total	0	292	0	292	321	63	7	391	47	0	11	58	741



# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

## City of Birmingham, Engineering Dept.



Project: Birmingham Truck Study  
 Type: 12 Hr. Video Turning Movement Count  
 Weather: Sunny/Pt. Cldy, Dry Deg. 80's  
 Count By: Miovision Video SCU 34N

File Name : TMC\_1 EMaple&SEaton\_7-27-17  
 Site Code : TMC\_1  
 Start Date : 7/27/2017  
 Page No : 2

Groups Printed- Pass Cars - Single Units - Buses - 40 - 50 - 62

Start Time	E. Maple Road Westbound				S. Eaton Street Northbound				E. Maple Road Eastbound				Int. Total
	Thru	Left	Peds	App. Total	Rgt	Left	Peds	App. Total	Rgt	Thru	Peds	App. Total	
05:00 PM	0	83	0	83	104	17	0	121	25	0	1	26	230
05:15 PM	0	112	0	112	98	17	3	118	15	0	3	18	248
05:30 PM	0	110	0	110	84	14	1	99	26	0	6	32	241
05:45 PM	0	101	0	101	108	21	1	130	15	0	9	24	255
Total	0	406	0	406	394	69	5	468	81	0	19	100	974
06:00 PM	0	88	0	88	89	18	0	107	25	0	0	25	220
06:15 PM	0	74	0	74	104	13	1	118	13	0	3	16	208
06:30 PM	0	66	0	66	72	20	0	92	10	0	1	11	169
06:45 PM	0	71	0	71	80	27	0	107	15	0	1	16	194
Total	0	299	0	299	345	78	1	424	63	0	5	68	791
Grand Total	0	3105	2	3107	3372	694	45	4111	654	0	76	730	7948
Aprch %	0	99.9	0.1		82	16.9	1.1		89.6	0	10.4		
Total %	0	39.1	0	39.1	42.4	8.7	0.6	51.7	8.2	0	1	9.2	
Pass Cars	0	3050	2	3052	3308	651	45	4004	605	0	76	681	7737
% Pass Cars	0	98.2	100	98.2	98.1	93.8	100	97.4	92.5	0	100	93.3	97.3
Single Units	0	44	0	44	53	27	0	80	32	0	0	32	156
% Single Units	0	1.4	0	1.4	1.6	3.9	0	1.9	4.9	0	0	4.4	2
Buses	0	5	0	5	4	6	0	10	6	0	0	6	21
% Buses	0	0.2	0	0.2	0.1	0.9	0	0.2	0.9	0	0	0.8	0.3
WB-40	0	4	0	4	6	5	0	11	7	0	0	7	22
% WB-40	0	0.1	0	0.1	0.2	0.7	0	0.3	1.1	0	0	1	0.3
WB-50	0	0	0	0	0	1	0	1	1	0	0	1	2
% WB-50	0	0	0	0	0	0.1	0	0	0.2	0	0	0.1	0
WB-62	0	2	0	2	1	4	0	5	3	0	0	3	10
% WB-62	0	0.1	0	0.1	0	0.6	0	0.1	0.5	0	0	0.4	0.1

Comments: 12 hour video traffic study conducted during typical weekday (Thursday) from 7:00 AM - 7:00 PM peak hours. Signalized "T" intersection, ped. signals for west & south legs. Video SCU camera was located within SW intersection quadrant. Turning movements recorded only by vehicle classification for following six (6) classifications 1) Passenger Cars (cars, pick ups, SUV's) 2) Single Units (SU-30 Delivery Trucks, Cement / Rental / Waste Trucks) 4) AASHTO WB-40 5) AASHTO WB-50 6) AASHTO WB-62 (Interstate Trucks Includes Double Trailers).

# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

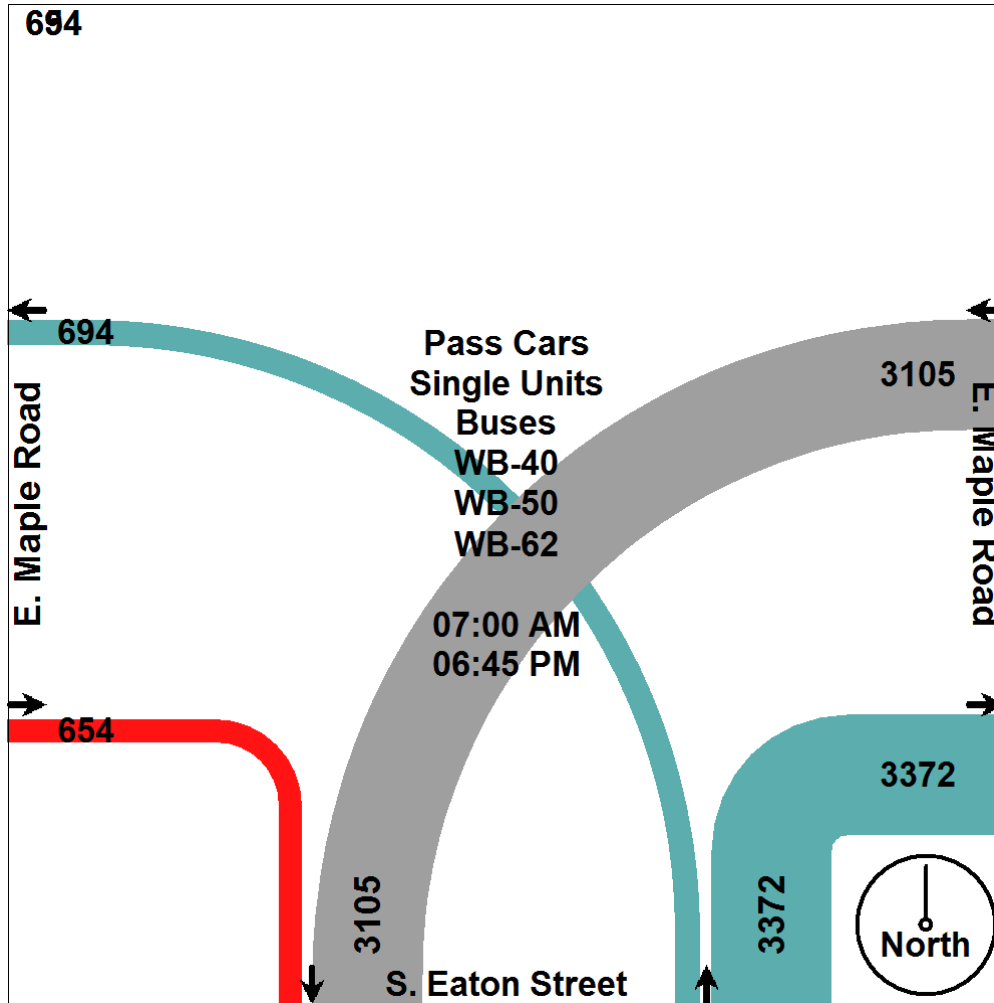
Traffic Study Performed For:

City of Birmingham, Engineering Dept.



Project: Birmingham Truck Study  
Type: 12 Hr. Video Turning Movement Count  
Weather: Sunny/Pt. Cldy, Dry Deg. 80's  
Count By: Miovision Video SCU 34N

File Name : TMC\_1 EMaple&SEaton\_7-27-17  
Site Code : TMC\_1  
Start Date : 7/27/2017  
Page No : 3



# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

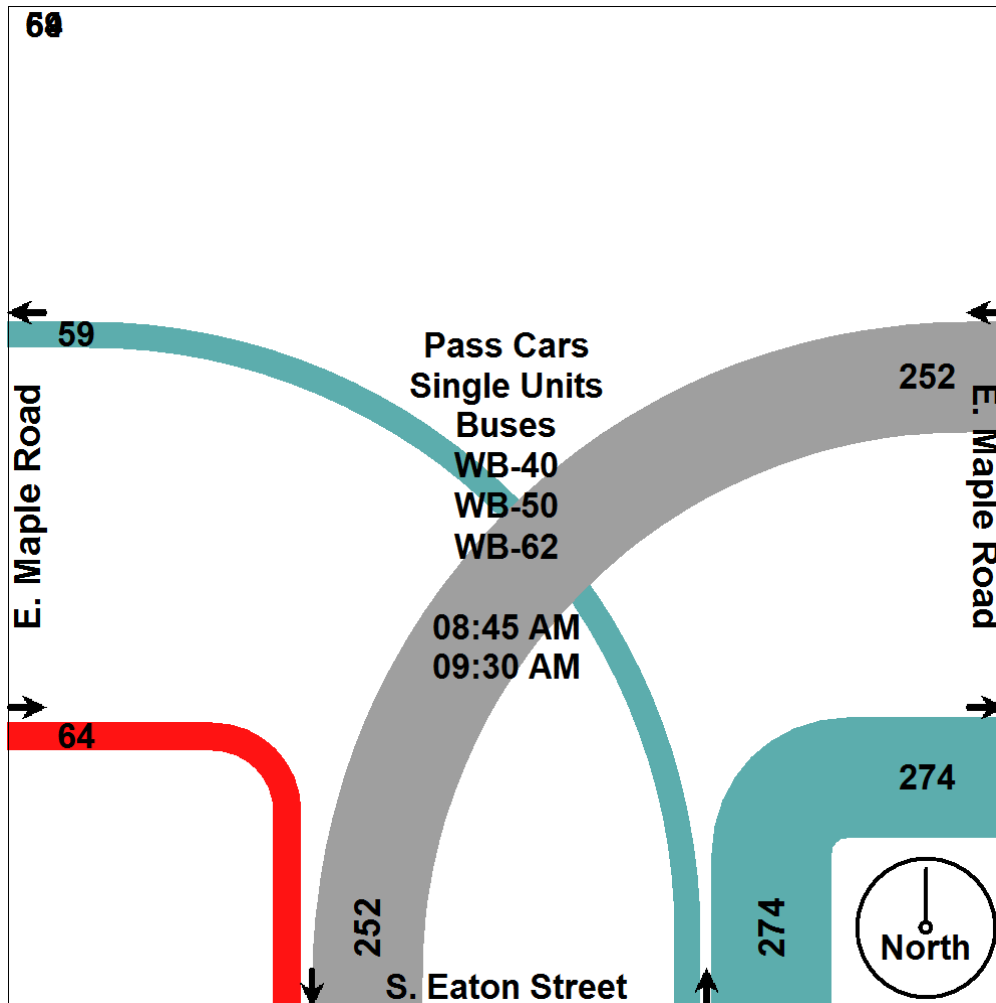
**City of Birmingham, Engineering Dept.**



**Project: Birmingham Truck Study**  
**Type: 12 Hr. Video Turning Movement Count**  
**Weather: Sunny/Pt. Cldy, Dry Deg. 80's**  
**Count By: Miovision Video SCU 34N**

**File Name : TMC\_1 EMaple&SEaton\_7-27-17**  
**Site Code : TMC\_1**  
**Start Date : 7/27/2017**  
**Page No : 4**

Start Time	E. Maple Road Westbound				S. Eaton Street Northbound				E. Maple Road Eastbound				Int. Total
	Thru	Left	Peds	App. Total	Rgt	Left	Peds	App. Total	Rgt	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:45 AM													
08:45 AM	0	86	0	86	75	11	1	87	22	0	2	24	197
09:00 AM	0	62	0	62	68	19	0	87	10	0	1	11	160
09:15 AM	0	54	0	54	59	12	0	71	17	0	0	17	142
09:30 AM	0	50	0	50	72	17	0	89	15	0	1	16	155
Total Volume	0	252	0	252	274	59	1	334	64	0	4	68	654
% App. Total	0	100	0		82	17.7	0.3		94.1	0	5.9		
PHF	.000	.733	.000	.733	.913	.776	.250	.938	.727	.000	.500	.708	.830
Pass Cars	0	247	0	247	269	53	1	323	58	0	4	62	632
% Pass Cars	0	98.0	0	98.0	98.2	89.8	100	96.7	90.6	0	100	91.2	96.6
Single Units	0	5	0	5	5	6	0	11	3	0	0	3	19
% Single Units	0	2.0	0	2.0	1.8	10.2	0	3.3	4.7	0	0	4.4	2.9
Buses	0	0	0	0	0	0	0	0	1	0	0	1	1
% Buses	0	0	0	0	0	0	0	0	1.6	0	0	1.5	0.2
WB-40	0	0	0	0	0	0	0	0	1	0	0	1	1
% WB-40	0	0	0	0	0	0	0	0	1.6	0	0	1.5	0.2
WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
% WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
WB-62	0	0	0	0	0	0	0	0	1	0	0	1	1
% WB-62	0	0	0	0	0	0	0	0	1.6	0	0	1.5	0.2



# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

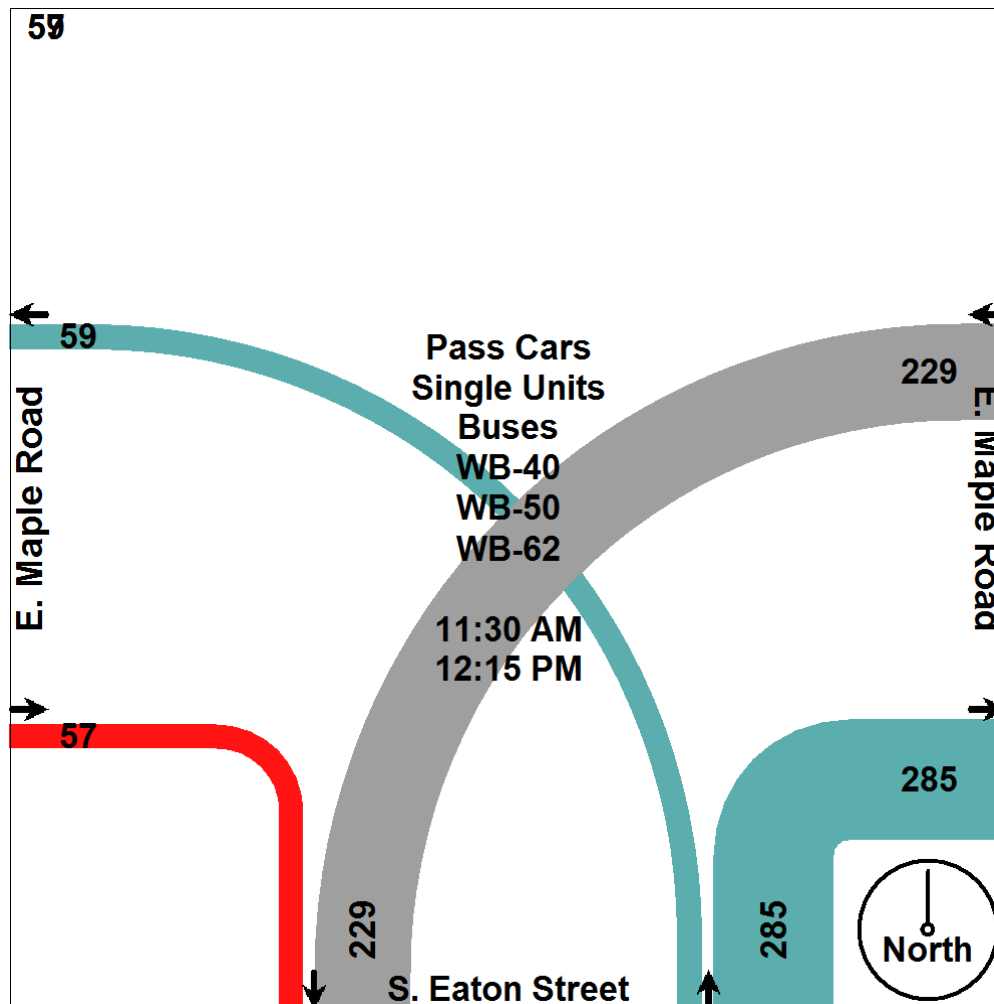
**City of Birmingham, Engineering Dept.**



**Project: Birmingham Truck Study**  
**Type: 12 Hr. Video Turning Movement Count**  
**Weather: Sunny/Pt. Cldy, Dry Deg. 80's**  
**Count By: Miovision Video SCU 34N**

**File Name : TMC\_1 EMaple&SEaton\_7-27-17**  
**Site Code : TMC\_1**  
**Start Date : 7/27/2017**  
**Page No : 5**

Start Time	E. Maple Road Westbound				S. Eaton Street Northbound				E. Maple Road Eastbound				Int. Total
	Thru	Left	Peds	App. Total	Rgt	Left	Peds	App. Total	Rgt	Thru	Peds	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	0	55	0	55	67	16	0	83	13	0	1	14	152
11:45 AM	0	<b>63</b>	0	<b>63</b>	68	15	0	83	<b>16</b>	0	0	16	162
12:00 PM	0	50	0	50	<b>79</b>	<b>18</b>	0	<b>97</b>	15	0	<b>2</b>	<b>17</b>	<b>164</b>
12:15 PM	0	61	0	61	71	10	0	81	13	0	2	15	157
Total Volume	0	229	0	229	285	59	0	344	57	0	5	62	635
% App. Total	0	100	0		82.8	17.2	0		91.9	0	8.1		
PHF	.000	.909	.000	.909	.902	.819	.000	.887	.891	.000	.625	.912	.968
Pass Cars	0	219	0	219	274	51	0	325	49	0	5	54	598
% Pass Cars	0	95.6	0	95.6	96.1	86.4	0	94.5	86.0	0	100	87.1	94.2
Single Units	0	8	0	8	10	6	0	16	6	0	0	6	30
% Single Units	0	3.5	0	3.5	3.5	10.2	0	4.7	10.5	0	0	9.7	4.7
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
WB-40	0	1	0	1	1	2	0	3	1	0	0	1	5
% WB-40	0	0.4	0	0.4	0.4	3.4	0	0.9	1.8	0	0	1.6	0.8
WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
% WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
WB-62	0	1	0	1	0	0	0	0	1	0	0	1	2
% WB-62	0	0.4	0	0.4	0	0	0	0	1.8	0	0	1.6	0.3



# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

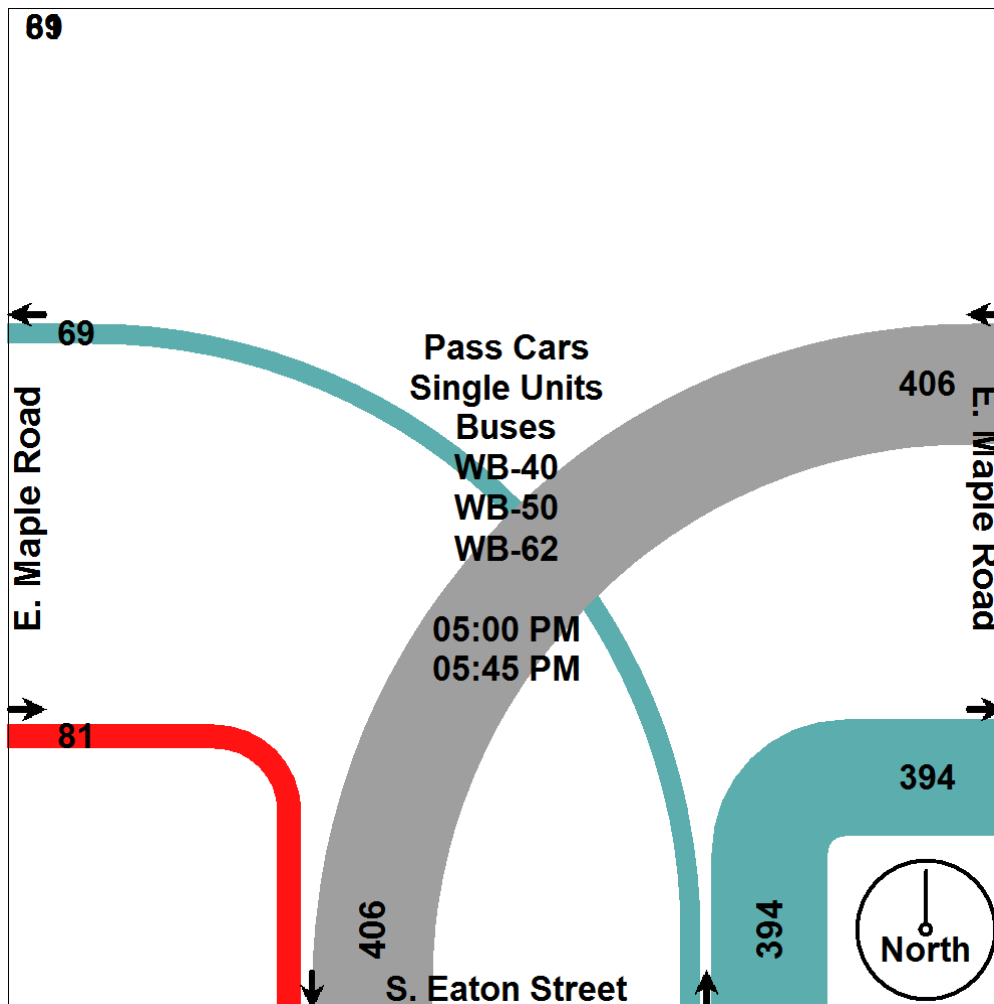
**City of Birmingham, Engineering Dept.**



**Project: Birmingham Truck Study**  
**Type: 12 Hr. Video Turning Movement Count**  
**Weather: Sunny/Pt. Cldy, Dry Deg. 80's**  
**Count By: Miovision Video SCU 34N**

**File Name : TMC\_1 EMaple&SEaton\_7-27-17**  
**Site Code : TMC\_1**  
**Start Date : 7/27/2017**  
**Page No : 6**

Start Time	E. Maple Road Westbound				S. Eaton Street Northbound				E. Maple Road Eastbound				Int. Total
	Thru	Left	Peds	App. Total	Rgt	Left	Peds	App. Total	Rgt	Thru	Peds	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	83	0	83	104	17	0	121	25	0	1	26	230
05:15 PM	0	<b>112</b>	0	<b>112</b>	98	17	<b>3</b>	118	15	0	3	18	248
05:30 PM	0	110	0	110	84	14	1	99	<b>26</b>	0	6	<b>32</b>	241
05:45 PM	0	101	0	101	<b>108</b>	<b>21</b>	1	<b>130</b>	15	0	<b>9</b>	24	<b>255</b>
Total Volume	0	406	0	406	394	69	5	468	81	0	19	100	974
% App. Total	0	100	0		84.2	14.7	1.1		81	0	19		
PHF	.000	.906	.000	.906	.912	.821	.417	.900	.779	.000	.528	.781	.955
Pass Cars	0	404	0	404	392	68	5	465	80	0	19	99	968
% Pass Cars	0	99.5	0	99.5	99.5	98.6	100	99.4	98.8	0	100	99.0	99.4
Single Units	0	2	0	2	1	1	0	2	1	0	0	1	5
% Single Units	0	0.5	0	0.5	0.3	1.4	0	0.4	1.2	0	0	1.0	0.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
WB-40	0	0	0	0	1	0	0	1	0	0	0	0	1
% WB-40	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0.1
WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
% WB-50	0	0	0	0	0	0	0	0	0	0	0	0	0
WB-62	0	0	0	0	0	0	0	0	0	0	0	0	0
% WB-62	0	0	0	0	0	0	0	0	0	0	0	0	0



**Traffic Data Collection, LLC**

**tdccounts.com**

**Phone: (586) 786-5407**

**Traffic Study Peformed For:**

**City of Birmingham, Engineering Dept.**



**Project: Birmingham Truck Study**  
**Type: 12 Hr. Video Turning Movement Count**  
**Weather: Sunny/Pt. Cldy, Dry Deg. 80's**  
**Count By: Miovision Video SCU 34N**

**File Name : TMC\_1 EMaple&SEaton\_7-27-17**  
**Site Code : TMC\_1**  
**Start Date : 7/27/2017**  
**Page No : 7**

**Aerial Photo**





# MEMORANDUM

Engineering Dept.

**DATE:** July 19, 2017

**TO:** Joseph Valentine, City Manager

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** S. Eton Rd. Corridor – Maple Rd. to Lincoln Ave.  
Multi-Modal Transportation Board Recommendations

---

In 2016, the City Commission approved the installation of the Phase I Neighborhood Connector Route, as recommended by the Multi-Modal Transportation Board (MMTB), and originally suggested in the Multi-Modal Master Plan. The Phase I Route was intended to be installed last fall, however, no contractors responded to a bid solicitation for this work. As a result, this year it was added to a street paving project, our Contract #1-17(P), and is expected to be completed no later than September of this year. The Neighborhood Connector Route will be a system of signs and pavement markings that mark a suggested bicycle route that circles around the City. As shown on the attached map, a part of the route is intended to use the above noted half mile segment of S. Eton Rd., through the installation of signs and sharrows.

Also in 2016, the Commission appointed an Ad Hoc Rail District Committee to study the Rail District with respect to parking and traffic issues. A final report of this committee was received in December of last year. Since that time, the MMTB has studied the S. Eton Rd. recommendations at several meetings. A comprehensive set of recommendations was advertised and a public hearing was held at the Board's regularly scheduled meeting of June 1, 2017. (All owners and residents within 300 ft. of the S. Eton Rd. corridor were notified.) At the June 1 meeting, most of the S. Eton Rd. recommendations were endorsed by the Board, with the exception of the proposed pedestrian crossing island designed for the Maple Rd. intersection. Attendees at the hearing that represented Rail District businesses that frequently use large trucks expressed concern that the proposed island would cause undue hardship to their travel in and out of the district caused the Board to hold off on finalizing this area. The Board directed staff to survey and collect data on truck traffic from all the businesses within the Rail District so that a more informed decision could be made relative to how to design this intersection. That information was collected, and the Board met again on July 20 to finalize the design of the Maple Rd. area.

The results of that discussion, as well as a summary of all of the recommendations, follows below, starting from the north end of the corridor, and proceeding south.

Maple Rd. to Yosemite Blvd.

The Ad Hoc Rail District Committee identified four suggested changes on the first block of S. Eton Rd. They are as follows:



- 1. Relocate the west side curb for the entire block from its current location to a point three feet closer to the center of the road.** Relocating the curb takes the extra space currently available on the one southbound lane of S. Eton Rd., and makes it available for an enhanced 8 ft. wide sidewalk (up from the existing 5 ft.). The recommendation came from the fact that the current sidewalk is the main walking path for residents who live to the southwest, and wish to walk to other areas east of the railroad tracks. Second, since the current sidewalk is directly adjacent to the traffic lane, the wider pavement would help make the block more pedestrian friendly.
- 2. Install an island within the S. Eton Rd. crosswalk.** The original design from the Rail District Committee was sized to accommodate trucks that need up to a 40 ft. turning radius. This was based on the usual convention in the City that most trucks are of this size, or smaller. The island as designed would reduce the distance for pedestrians to have to cross the road unprotected from traffic. Although the traffic signal is timed so that most pedestrians can easily cross on one signal cycle, if for some reason they have to stop in the middle, they would be able to do so. The revised plan attached to this package depicts an island that is able to accommodate trucks with a 50 ft. turning radius.
- 3. Install an enlarged pedestrian waiting area adjacent to the handicap ramp on the southeast corner of Maple Rd.** Since additional right-of-way exists in this area, the additional concrete is a relatively low cost improvement that will help make the area more pedestrian friendly.
- 4. Install sharrows for bicycles on both the north and southbound lanes.** Several board members expressed concern that it is unfortunate that the City is designing improved biking facilities both north and south of this area, and yet the biking environment on this block could use more improvement. Due to the limited right-of-way, and the clear need to maintain three traffic lanes, no separate bike lane facility can be recommended in this area at this time.

As noted above, three businesses represented at the June 1 public hearing took issue with designing this intersection to a 40 ft. truck turning radius standard. The business people present reminded the Board that Maple Rd. & S. Eton Rd. are the only legal roads that can be used by large trucks to get in and out of the Rail District. (Other routes, such as E. Lincoln Ave. and S. Eton Rd. south to 14 Mile Rd. have restrictions on through truck traffic.) Of particular concern was Adams Towing, which stated they regularly drive larger trucks through the intersection, and that when towing an extremely long vehicle, such as a school bus, even the existing intersection is too small. Bolyard Lumber and Downriver Refrigeration, also represented at the June 1 meeting, made similar representations that they either own and operate, or have deliveries from third parties that regularly use larger trucks.

The Board asked staff to survey all businesses in the district to better understand the frequency of this type of traffic. Over 90 Rail District businesses were sent an email asking for input by answering a short survey about the number and size of trucks that were regularly used by their business. A total of 17 businesses responded. The MMTB reviewed the results at their meeting of July 20, 2017. In order to get as much feedback about this issue as possible, staff invited the three business people that attended the public hearing to come back and discuss the matter further at their July 20 meeting. The following conclusions were drawn:



- When entering the district, trucks with a turning radius in excess of 50 ft. would generally have to enter Eton Rd. heading eastbound only. Attempting to make a left on to Eton Rd. westbound is already not feasible for most of these trucks, due to the height limitations imposed by the adjacent railroad bridge. If the intersection is designed for trucks with a 50 ft. turning radius, trucks will be able to enter the district from Maple Rd., heading from either direction (assuming that they can clear the railroad bridge).
- When exiting the district, most trucks already make a left turn on to westbound Maple Rd. Making a right turn is difficult or impossible for most large trucks even today, again due to the height and size of the railroad bridge.
- With input from F&V, the Board concluded that trucks that require a 62 ft. turning radius are not frequent in this area. Those choosing to use these large trucks will have to use Maple Rd. to the west to enter and exit the area, which they likely already do today, due to the height and location of the adjacent railroad bridge. Designing the intersection for the largest trucks would make the installation of any island impractical.

To summarize, the southwest corner of the intersection is being moved in to provide a larger sidewalk area. Moving it any further, however, would restrict the important right turn movement from Maple Rd. on to Eton Rd. Installing the modified island shown on the revised plan takes advantage of the space in the intersection that is not generally used, and will improve the pedestrian crossing for those crossing Eton Rd. on the south side of Maple Rd.

#### Yosemite Blvd. to Villa Ave.

Initially, the City's consultant recommended keeping this block as is, except that the extra wide pavement on the northbound side would be marked to incorporate a buffered bike lane. However, the Board felt that this block is in need of pedestrian enhancements. They also felt that having northbound bikes ride on the west side of the street, then transition to a marked bike lane on the east side of the street for just one block was inconsistent. The Board recommended that the road be narrowed in order to provide enhanced sidewalks that are separated by a green space and City trees. The attached cross-section depicts this proposal. Features include:

1. **Install wider sidewalks.** On the west side, adjacent the existing hair salon, a slightly wider City sidewalk, separated from traffic by a 4 ft. wide parkway that could support the installation of new trees.
2. **Reduce the width of the vehicle lanes.** Two narrowed travel lanes at 15 ft. wide. The lane width would be too narrow to support parking, but is wider than the minimum to provide a more comfortable area for bikes to ride on the road. Sharrows would supplement the pavement.
3. **Install parkways on both sides.** On the east side, adjacent the existing banquet hall, a wider sidewalk, separated from traffic by a 4 ft. wide parkway that could support the installation of new trees. The existing planting space between the sidewalk and the banquet hall would also remain.

#### Villa Ave. to Lincoln Ave.

As you may recall, the existing pavement on the majority of S. Eton Rd. consists of two center 10 ft. side travel lanes, supplemented with two 10 ft. wide concrete lanes. While there are

various means to mark the pavement that could potentially work well with one or two bike lanes, the existing pavement material joint lines tend to reduce the number of choices that are available. (It is not advisable to install pavement markings that are in conflict with the pavement joints, as motorists may be confused if asked to drive half of the vehicle on asphalt, and half on concrete.) The Ad Hoc Rail District Committee and the MMTB understand this limitation, and worked within it when considering new pavement marking options for this segment.

After much discussion, the Ad Hoc Rail District Committee recommended keeping parallel parking on both sides of the street. However, as a means to slow vehicles and encourage bicycles, the Committee recommended adding a 3 ft. wide marked buffer area between the travel lane and the parking lane. The buffer area would come from a narrowed parking lane (7 ft.), which would help keep parked cars as close to the edge of the street as possible. The buffer would also make the street feel narrower, which helps reduce speeds of vehicles. Sharrows were also recommended to encourage the sharing of the street between vehicles and bicycles.

The MMTB reviewed this recommendation and ultimately rejected it. The Board asked staff to consider various methods to work again within the limitations of the existing pavement, but to provide a means for an improved bicycle facility.

The MMTB is now proposing improvements that benefit both pedestrians and bicyclists.

1. **Install a two-way bike lane along the west edge of the street.** The MMTB is proposing the removal of parking on the southbound lane throughout the corridor. The extra ten feet of pavement would be marked to support an 8½ ft. wide two-way bike lane adjacent to the west side curb. The remaining 1½ ft. would be a marked buffer, supplemented with raised pavement markers that would help provide a physical separation of this area from the vehicles. If the Commission agrees with this recommendation, staff will study this item closer and provide a final, complete recommendation relative to the buffer method at a future City Commission meeting.

The idea of having northbound bicycles traveling on the west side of the street is unique, but it has been used successfully in other cities. Additional sidewalks and pavement markings would be required at the north and south ends of this segment to encourage the safe movement of bikes needing to enter or exit this area. A detailed discussion of the means of entry and exit will be provided at the meeting.

2. **Install bumpouts on the east side of the street at key intersections throughout the corridor.** The Board recognized the need for improved pedestrian crossings on S. Eton Rd. from one side to the other. With that in mind, pedestrian bumpouts are recommended at the following intersections on the east side of S. Eton Rd., within the proposed parking lane:  
Villa Ave.  
Hazel St.  
Bowers Ave.  
Cole Ave.  
Lincoln Ave.

Bumpouts, if installed, must be designed to accommodate expected truck turning movements, and will often require underground storm sewer changes. Cost estimates for this work have not yet been developed. Bumpouts would not be installed on the west side of S. Eton Rd., as they would conflict with the proposed two-way bike lane.

### Summary

At this time, staff requests direction from the Commission relative to the recommendations being provided. Past discussions have indicated that the pedestrian improvements at the Maple Rd. intersection are of the highest importance. With that in mind, the Maple Rd. work had been bid as a part of the City's 2017 Concrete Sidewalk Program. The contractor for this program is currently working on other parts of the project, and if approval is given, the work identified above for the first block can proceed and be finished this year, at an estimated cost of \$68,000, including inspection. If the Commission approves the conceptual plans for the other blocks, staff will prepare preliminary cost estimates for this work, and return with suggested timetables for budgeting this work. With respect to timing and budgets, it is noted that:

1. The cost to implement the two-way bike facility will be relatively small compared to the significant change it will bring to the corridor.
2. The cost of the suggested changes between Yosemite Blvd. and Villa Ave. will be more substantial. Due to the special benefit that this work would bring to the adjacent properties, a special assessment district will be introduced for this element of the work,
3. The cost of the bumpouts will also be significant. It is assumed that the cost of this work would be charged to the Major Streets Fund, with the exception of the work at Bowers St. In that area, the three-way intersection will result in a longer bumpout improvement that will increase the streetscape area at this intersection, which will provide a benefit to the adjacent property owner.

Finally, it is noted that the MMTB has focused on the commercial segment of S. Eton Rd. partly in response to the Ad Hoc Rail District Committee Report, and partly due to the amount of input received from the public in this area. Nevertheless, the Board is aware that making recommendations about bike route improvements north of Lincoln Ave. raises questions about potential changes to the bike route south of Lincoln Ave. Given the different environment of S. Eton Rd. south of Lincoln Ave., the Board felt that it was best to focus on the commercial section first. Once that is resolved, it is their intent to study the remainder of S. Eton Rd. However, should the Commission feel that the section south of Lincoln Ave. should be studied before final decisions are made, a second resolution to defer this decision is provided below. Given the interest in proceeding with improvements in the area of Maple Rd., both resolutions are the same for that area.

### SUGGESTED RESOLUTION A:

To endorse the Multi-Modal Transportation Board recommendations for S. Eton Rd. from Maple Rd. to Lincoln Ave., as described below:

1. Maple Rd. to Yosemite Blvd.

- a. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
  - b. Installation of a pedestrian island at the Maple Rd. & S. Eton Rd. intersection to improve safety for pedestrians crossing on the south side of Maple Rd.
  - c. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
  - d. Installation of sharrows on green painted squares for both directions.
2. Yosemite Blvd. to Villa Ave.
- a. Removal of the existing parking on the west side of the street.
  - b. Relocation of the curb and gutter on both sides of the street to accommodate 5 to 6.5 ft. wide sidewalks and 4 ft. wide green spaces with new City trees.
  - c. Installation of sharrows on green painted squares for both directions.
3. Villa Ave. to Lincoln Ave.
- a. Removal of the existing parking on the west side of the street, replaced with an 8.5 ft. wide bi-directional bike lane and a 1.5 ft. buffer with raised markers.
  - b. Sidewalk improvements as needed at Villa Ave. and Lincoln Ave. to facilitate the bi-directional bike lane.
  - c. Installation of a 3 ft. wide buffer between the northbound travel lane and 7 ft. parking lane.
  - d. Curbed bumpouts at marked pedestrian crosswalks on the west side of the street, at the intersections of Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave.

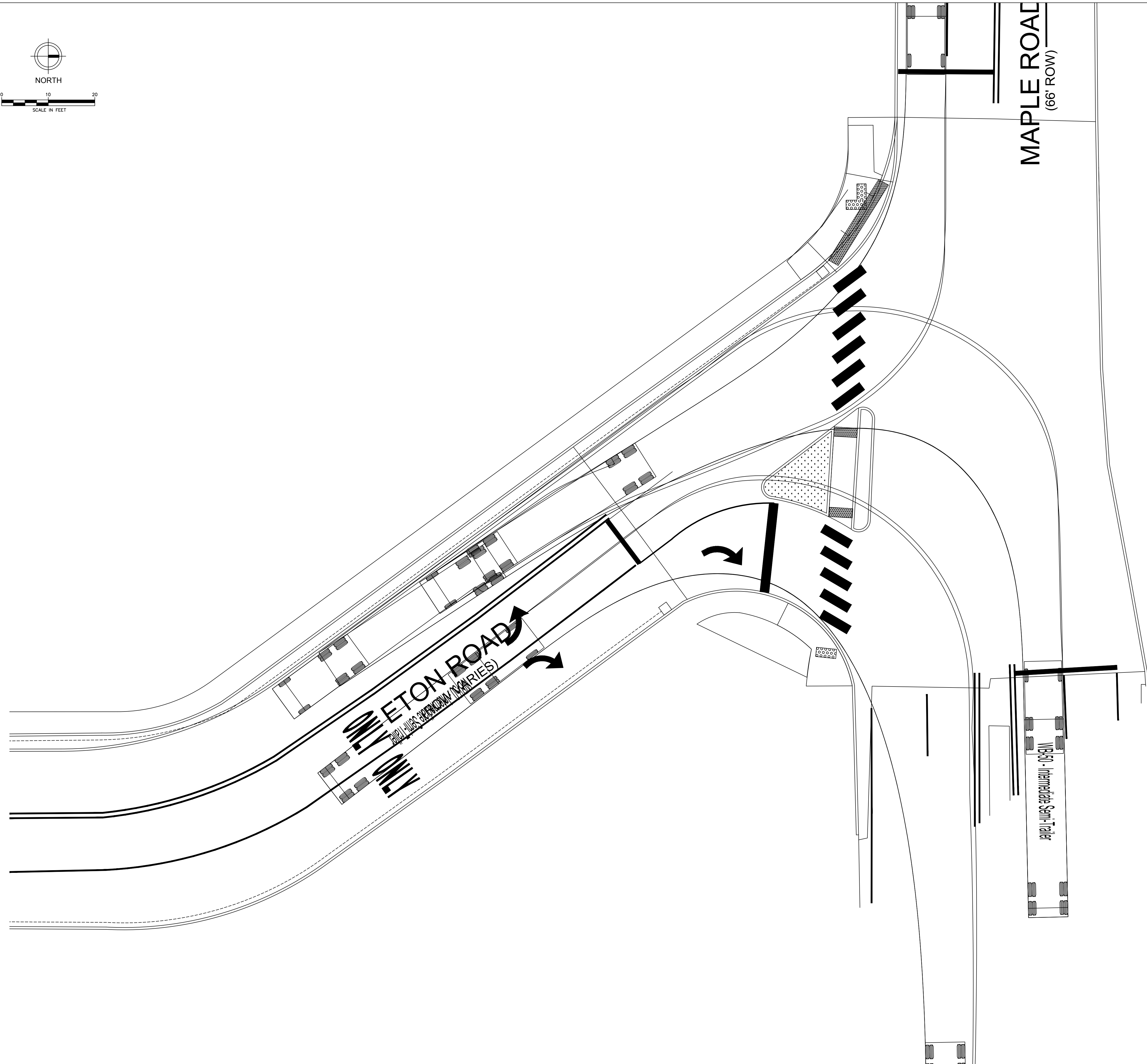
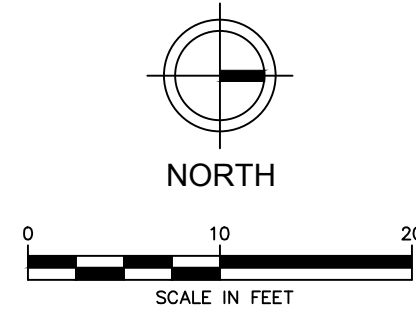
Further, to confirm that the work on the block south of Maple Rd. shall be included as a part of the 2017 Concrete Sidewalk Program, Contract #3-17(SW), at an estimated total cost of \$68,000, to be charged to account number 202-449.001-981.0100. In addition, for the remaining sections, to direct staff to prepare cost estimates and budget recommendations for further consideration by the Commission.

**SUGGESTED RESOLUTION B:**

To endorse the Multi-Modal Transportation Board recommendations for S. Eton Rd. from Maple Rd. to Yosemite Blvd., as described below:

1. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
2. Installation of a pedestrian island at the Maple Rd. & S. Eton Rd. intersection to improve safety for pedestrians crossing on the south side of Maple Rd.
3. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
4. Installation of sharrows on green painted squares for both directions.

Further, to direct the Multi-Modal Transportation Board to study and provide recommendations for bike route improvements for the area of S. Eton Rd. from Lincoln Ave. to 14 Mile Rd.

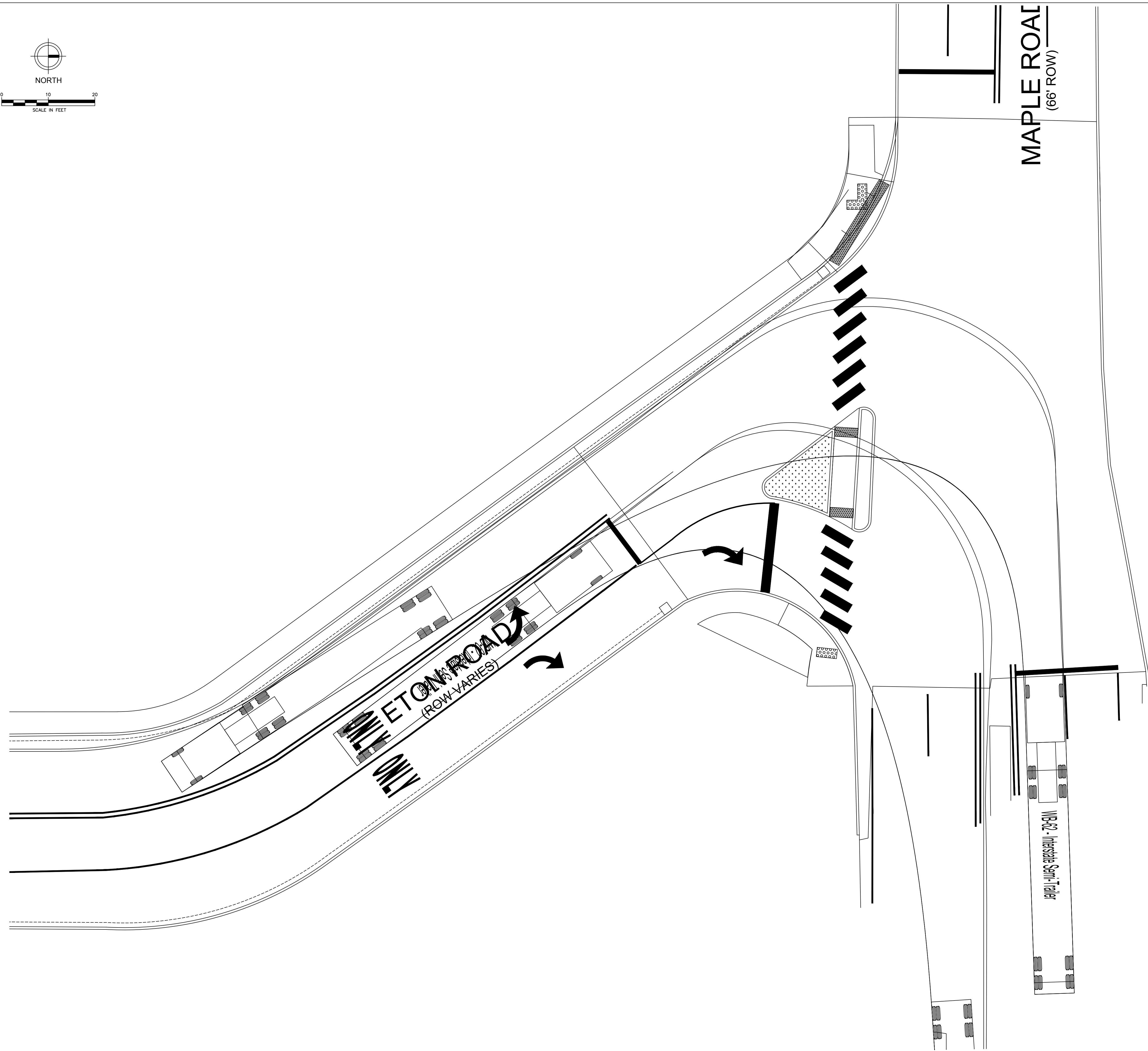
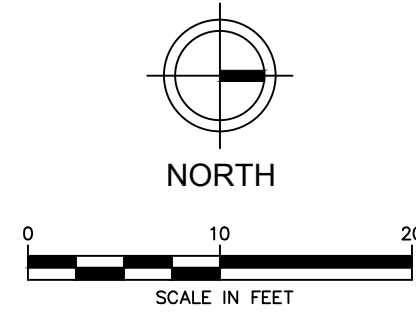


REVISION:

**CITY OF BIRMINGHAM  
 OAKLAND COUNTY, MICHIGAN  
 SOUTH ETON AVENUE AT MAPLE ROAD  
 IMPROVEMENT PLAN**

DESIGN TEAM:  
 LMS  
 CHECK BY:  
 DRAWING INFORMATION:  
 823801Civil  
 071417 stevent

**MARCH 2017**  
 F&V PROJECT NO.  
 823801



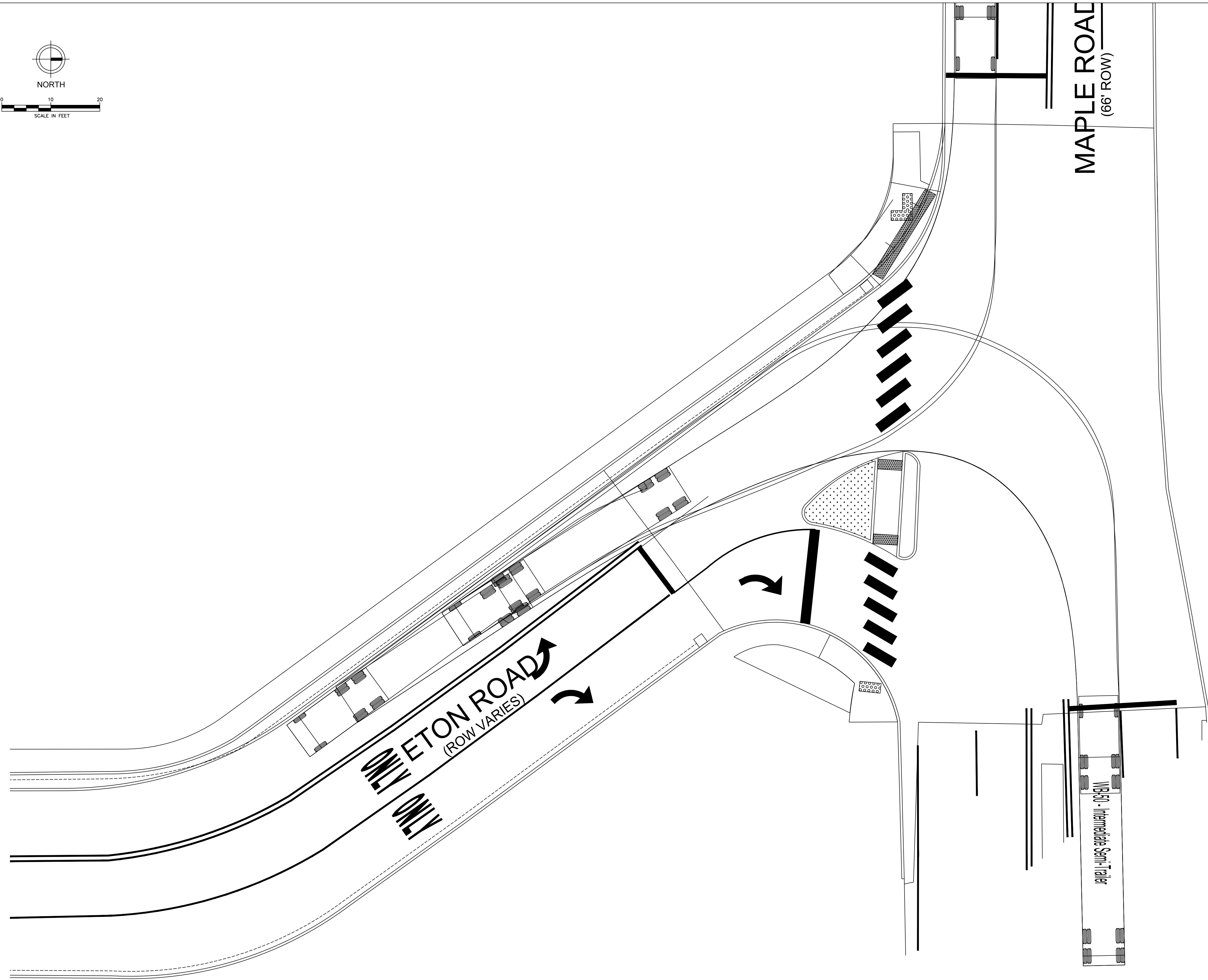
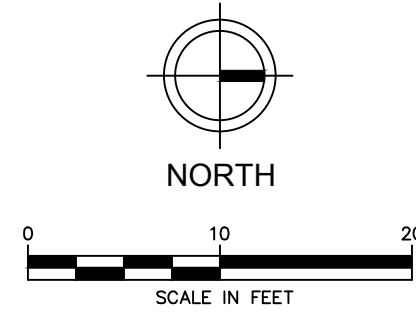
REVISION:

CITY OF BIRMINGHAM  
OAKLAND COUNTY, MICHIGAN  
SOUTH ETON AVENUE AT MAPLE ROAD  
IMPROVEMENT PLAN

DESIGN TEAM:  
LMS  
CHECK BY:

DRAWING INFORMATION:  
823801Civil  
071417 stevent

MARCH 2017  
F&V PROJECT NO.  
823801



REVISION:

**CITY OF BIRMINGHAM**  
**OAKLAND COUNTY, MICHIGAN**  
**SOUTH ETON AVENUE AT MAPLE ROAD**  
**IMPROVEMENT PLAN**

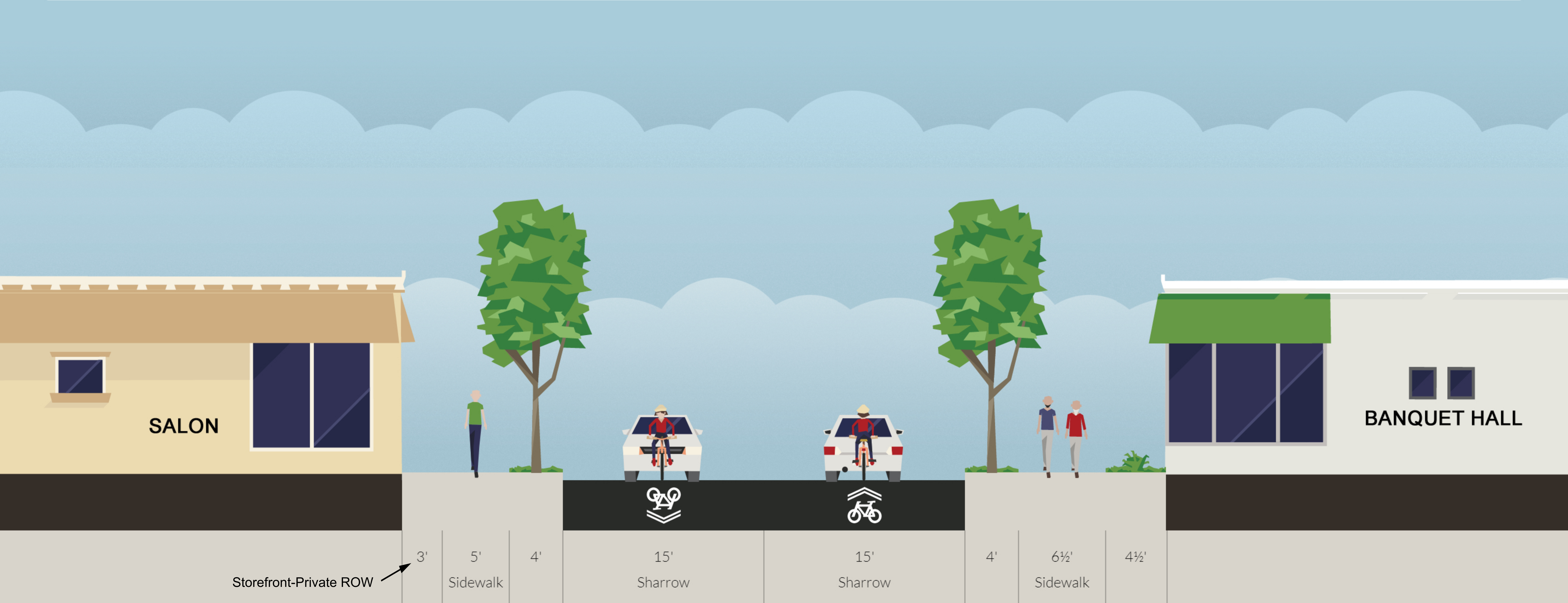
DESIGN TEAM:  
 LMS  
 CHECK BY:  
 DRAWING INFORMATION:  
 823801Civil  
 071417 stevent

**MARCH 2017**  
 F&V PROJECT NO.  
 823801



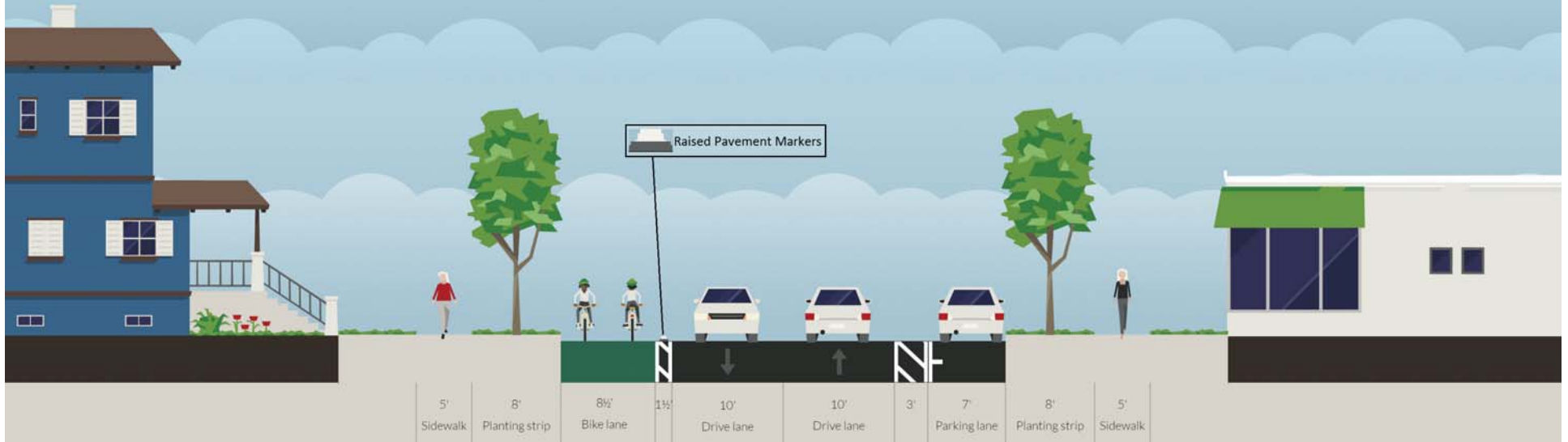


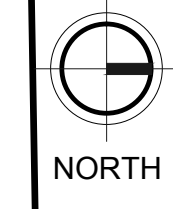
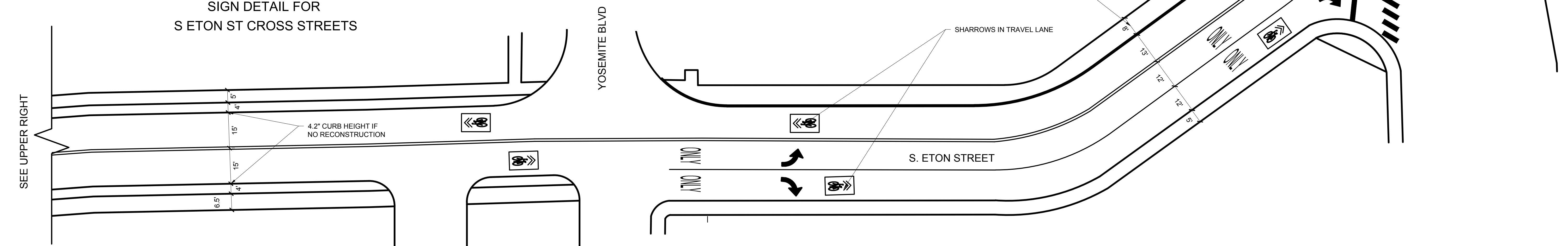
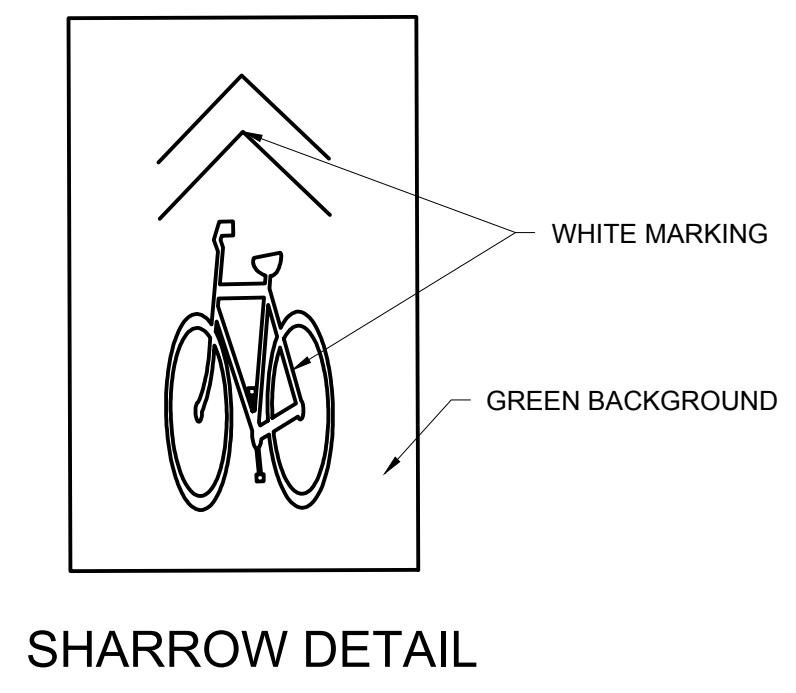
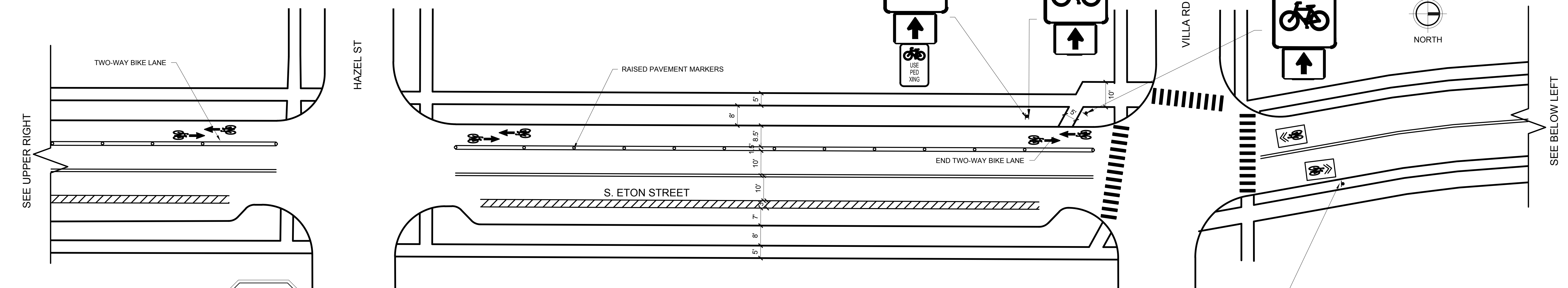
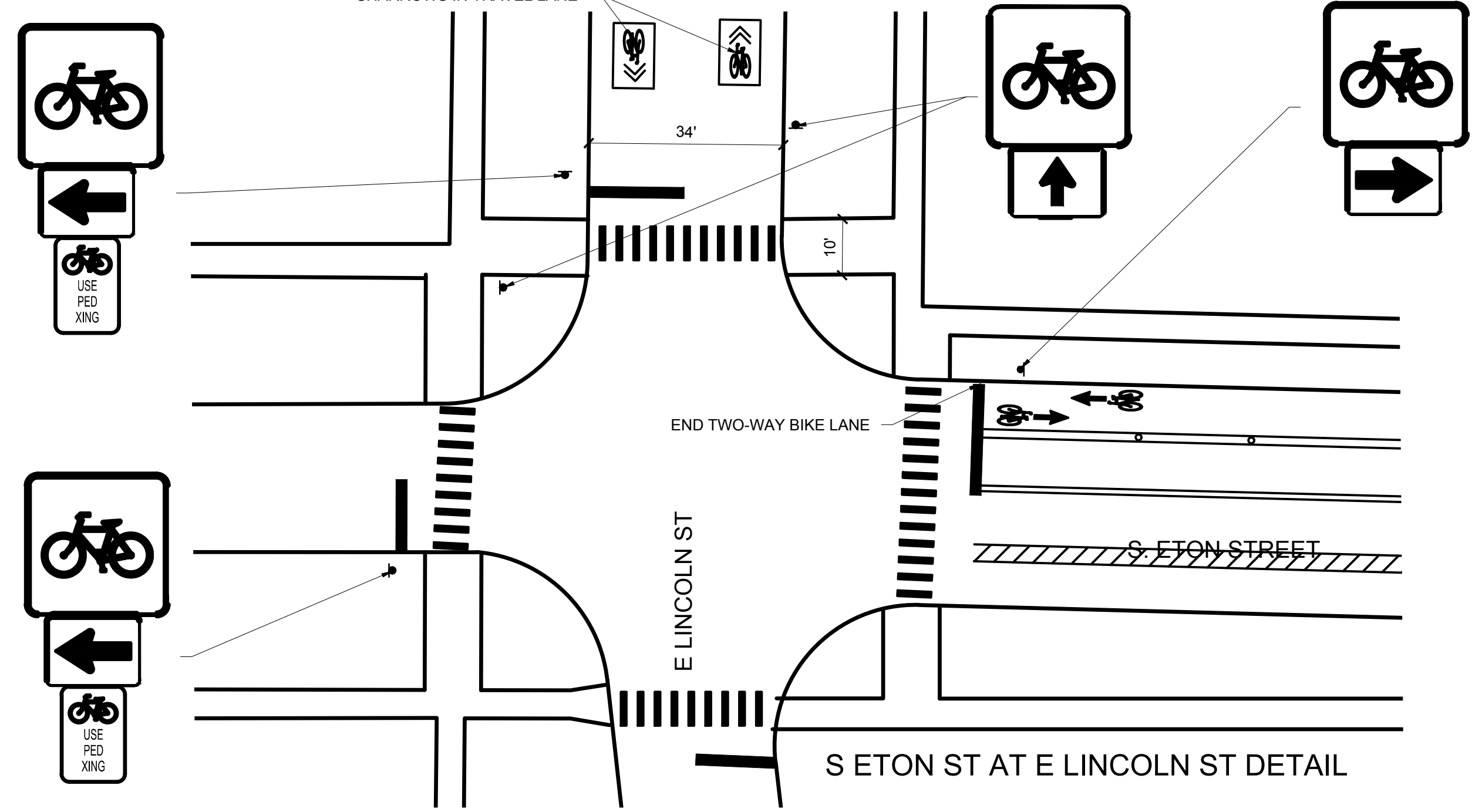
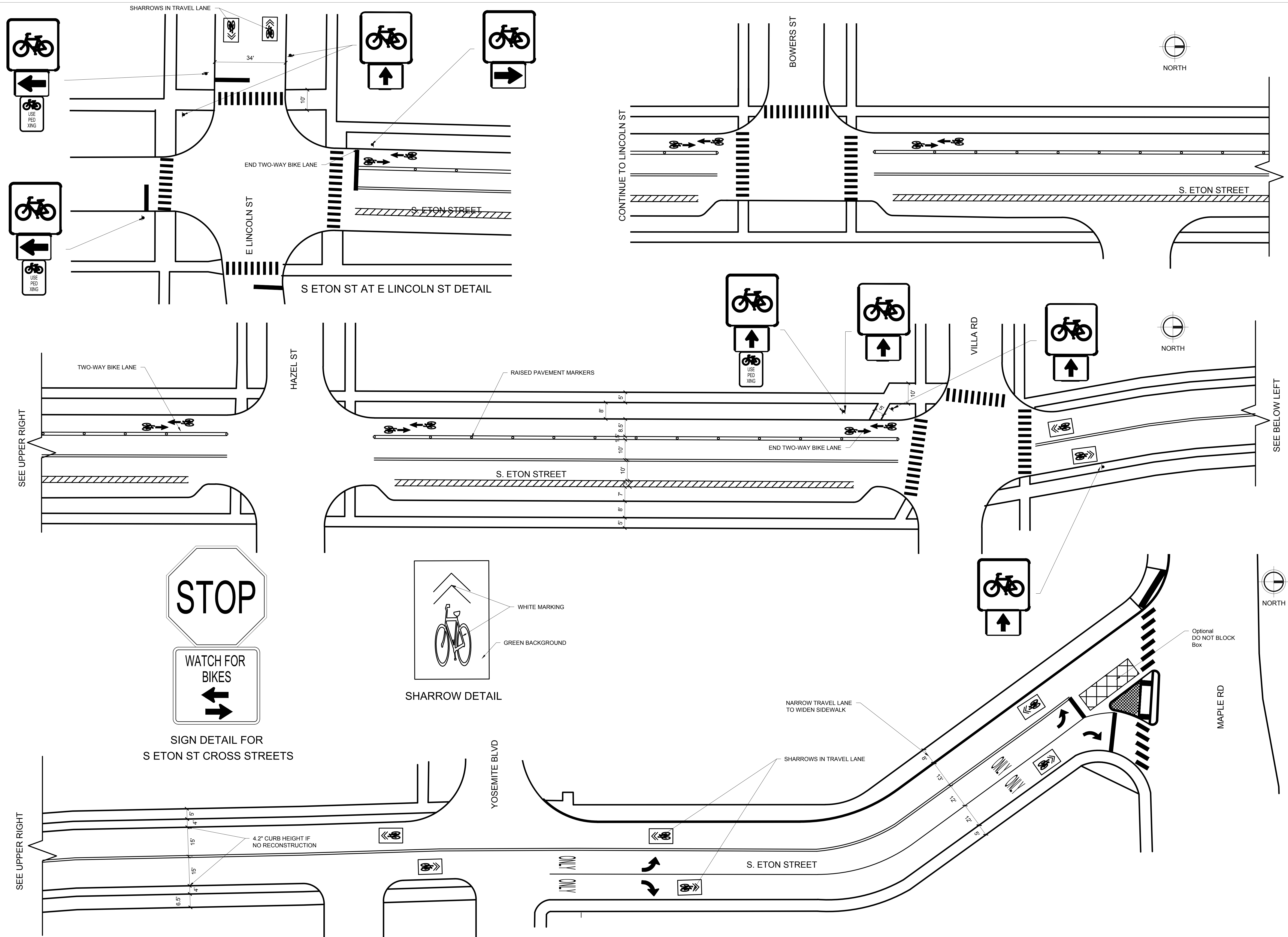
# S. Eton Street (Villa to Yosemite) - Looking North





# S. Eton Street (Lincoln to Villa)-Looking North





SEE BELOW LEFT

SEE BELOW LEFT

SEE UPPER RIGHT

SEE UPPER RIGHT



## MEMORANDUM

Engineering Dept.

**DATE:** March 8, 2016

**TO:** Joseph Valentine, City Manager

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** Multi-Modal Transportation Master Plan  
Neighborhood Connector Route

---

---

At the November 23, 2015 City Commission meeting, the Neighborhood Connector Route was presented. At that time, the following suggestions were made:

1. The Commission indicated a preference to installing signs only at each point where the route turns, using the bike symbol and an arrow. They also requested a visual of the specific bike symbol sign and arrow suggested.
2. The Commission requested that the Oak St. bike lanes be extended another block to the east to include the section between Lakepark Dr. and Lakeside Dr. (The existing pavement is wide enough to support this. A new striping plan to depict how this would be accomplished is attached to this package.)
3. The Commission requested that all property owners along the newly impacted streets be notified about the meeting being held in front of the MMTB.

In response, staff prepared the attached package of information and reviewed it with the Multi-Modal Transportation Board (MMTB) at their meeting of February 11. The package included the following information:

1. The map depicting where signs and pavement markings would be installed was revised. The plan now proposes a bike symbol sign and arrow to be installed in front of each proposed turn, as well as at significant crossings, such as Woodward Ave. The suggested bike sign combination is now attached as well for your review.
2. A plan for the block of Oak St. between Lakepark Dr. and Lakeside Dr. has been prepared, and is attached. Due to the wide existing pavement, there is plenty of space for two drive lanes, two bike lanes, and buffer zones between the two. Parking will have to be banned on this block to accommodate this change. Since there are no homes on this block, and parking demand has historically been very low, we do not see this as an issue.
3. Confirmation that all property owners along the route were notified.

The MMTB reviewed the changes, and concurred with the suggestions. The Board passed the following recommendation:

To recommend to the City Commission the implementation of a Neighborhood Connector Route in accordance with the attached map, installing bike symbol signs and arrows at each turning point, sharrow pavement markings at the beginning of each segment, and extension of the bike

lane on Oak St. between Lakepark Dr. and Lakeside Dr. Further, to include information about the Route on the City's website, and to notify all relevant websites that contain information relative to bike paths and routes.

*To recommend to the City Commission the implementation of a Neighborhood Connector Route in accordance with the attached map, installing bike symbol signs and arrows at each turning point, sharrow pavement markings at the beginning of each segment, and extension of the bike lane on Oak St. between Lakepark Dr. and Lakeside Dr. Further, to include information about the Route on the City's website, and to notify all relevant websites that contain information relative to bike paths and routes.*

A suggested resolution is provided below:

**SUGGESTED RESOLUTION:**

To concur with the recommendation of the Multi-Modal Transportation Board, and to direct staff to implement a Neighborhood Connector Route in 2016 as follows:

1. Per the revised map, the connector route will be denoted using signs and pavement markings as directed in this package, using the bike symbol sign with a white arrow on green background at all turns and key crossings, as well as sharrow pavement markings at similar locations,
2. Banning all street parking on Oak St. between Lakepark Dr. and Lakeside Dr. to allow the extension of the existing Oak St. bike lanes for one block to the east as depicted on the attached plan,
3. Installing a ten foot wide concrete off street bike path on W. Maple Rd. between Larchlea Dr. and Chesterfield Ave., to be constructed as a part of the W. Maple Rd. Resurfacing Project.

Once bids are received and the contract is ready for award, a separate motion awarding the Contract and authorizing the expenditures shall be returned to the Commission for approval.



February 4, 2016

TO: Property Owner

RE: Neighborhood Connector Route

In 2013, a Multi-Modal Transportation Master Plan was created and adopted for the City of Birmingham. The plan includes several ideas on how to modify city streets and pathways to encourage the use of alternative modes of transportation, such as walking, biking, or transit. Soon after, a Multi-Modal Transportation Board was formed to help oversee projects of this nature.

In the past few years, multi-modal ideas have helped improve sections of Oak St., Lincoln Ave., and N. Eton Rd.

The City is now considering the implementation of a Neighborhood Connector Route for bicycle travel within the City, as depicted on the attached map. The route would use existing streets where noted in blue. The route would be designated using simple signs that have a bike symbol and arrows. In addition, in areas where the route changes direction, a bike symbol with an arrow would be painted on the existing pavement. Similar symbols have already been added to parts of the streets noted above. While marked bike lanes have been built on some streets, that is not envisioned for the streets now under consideration. Traffic patterns would not be changed in any way. Rather, the signs and pavement markings would simply show bicyclists where to turn if they wish to use this route for a tour around the city.

The Multi-Modal Transportation Board will be discussing this issue at their next meeting, scheduled for **Thursday, February 11, 2016, at 6 PM**. The meeting will be held in Room 205, on the second floor of the Municipal Building (151 Martin St.). You are invited to attend if you wish to add any information to the discussion. Please use the Police Dept. entrance located on the Pierce St. side of the building.

If you have any questions, feel free to contact the Engineering Dept. at 248-530-1850.



# MEMORANDUM

Engineering Dept.

**DATE:** February 4, 2016  
**TO:** Multi-Modal Transportation Board  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** Neighborhood Connector Route

---

At the meeting of November 23, 2015, the City Commission reviewed the Multi-Modal Transportation Board (MMTB) recommendation for a Neighborhood Connector Route (details and minutes attached). At that time, the following suggestions were made:

1. The Commission indicated a preference to installing signs only at each point where the route turns, using the bike symbol and an arrow. They also requested a visual of the specific bike symbol sign and arrow suggested.
2. The Commission requested that the Oak St. bike lanes be extended another block to the east to include the section between Lakepark Dr. and Lakeside Dr. (The existing pavement is wide enough to support this. A new striping plan to depict how this would be accomplished is attached to this package.)
3. The Commission requested that all property owners along the newly impacted streets be notified about the meeting being held in front of the MMTB.

Considering the above modifications, the Commission asked for a final review and recommendation by the MMTB. A new suggested recommendation follows below:

**SUGGESTED RECOMMENDATION:**

To recommend to the City Commission the implementation of a Neighborhood Connector Route in accordance with the attached map, installing bike symbol signs and arrows at each turning point, sharrow pavement markings at the beginning of each segment, and extension of the bike lane on Oak St. between Lakepark Dr. and Lakeside Dr. Further, to include information about the Route on the City's website, and to notify all relevant websites that contain information relative to bike paths and routes.



forward, the City can certainly look at it. It has always been contemplated that any new structures going in would then be allocated in an entirely different calculation as the dynamics downtown have changed.

**MOTION:** Motion by Nickita, seconded by Sherman:

To accept the recommendation of the Advisory Parking Committee to include the property known as 369-397 N. Old Woodward Ave. into the Parking Assessment District, upon payment of a one-time inclusion fee of \$29,682.

VOTE:           Yeas, 6  
                  Nays, 1 (DeWeese)  
                  Absent, None

**11-280-15                   CREATION OF THE NEIGHBORHOOD CONNECTOR ROUTE  
                                  PHASE 1**

City Engineer O'Meara presented the recommendation to create neighborhood connector routes designed to encourage bike riding throughout the City. He explained that the Multi-Modal Transportation Board (MMTB) recommended "Share the Road" signs as opposed to the traditional arrow-type bike signs as the bicyclist are now using GPS. He noted that the bike symbol could be used at each turn.

Commissioner Bordman expressed concern with moving forward on this until the South Eton Corridor is fully discussed. She stated that she would like to see striping of bike lanes.

The Commission discussed the directional signage and sharrows. Mayor Pro Tem Nickita noted that sharrows are the fundamental baseline. He suggested exploring the idea of installing signs only at the turns. Commissioner Sherman stated that he would like to see the location of the sharrows.

Herb Knowles, 329 West Brown, suggested notifying residents that their street may be part of the bike path.

The Commission agreed to bring this item back with a diagram of the sign design and the reduced number of signs. In addition to notify residents of affected streets who are not currently on the bike path.

**12-281-15                   RESIDENTIAL PERMIT PARKING  
                                  BATES STREET BETWEEN BROWN AND FRANK**

Commander Grewe presented the request for residential permit parking on Bates Street between Brown and Frank. He noted that 84% of the residents signed the petition and the Multi-Modal Transportation Board endorsed the petition as well.


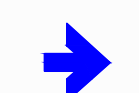




Mayor Pro Tem Nickita suggested a study be done to determine the actual parking capacity of the street to identify the reality of the situation in terms of numbers.

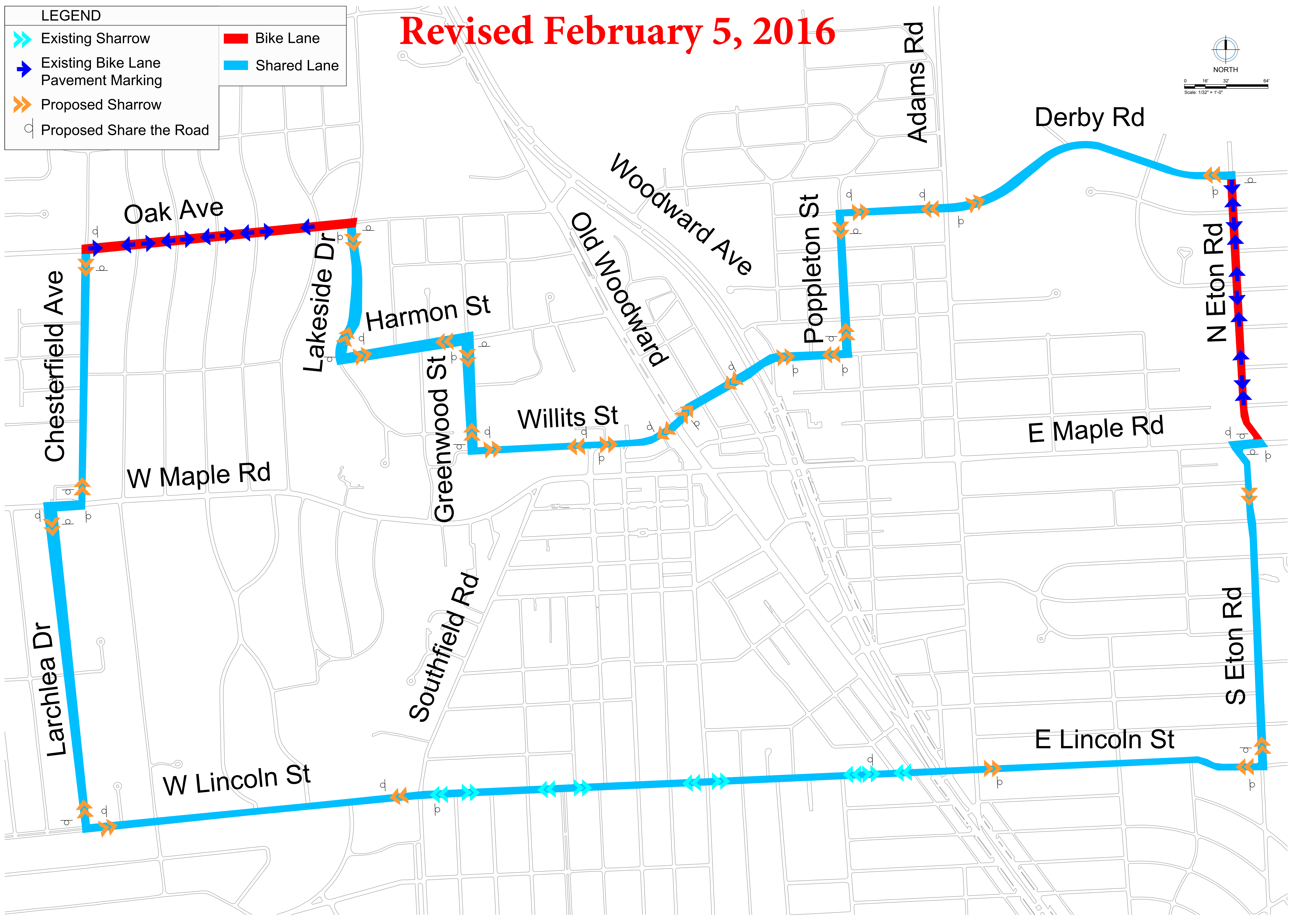
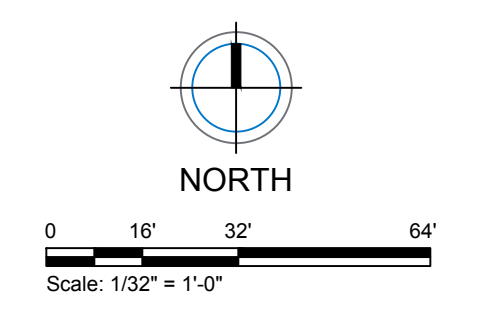
**MOTION:** Motion by Sherman, seconded by DeWeese:

To approve the installation of Residential Permit Parking for Bates Street between Brown and Frank at all times. Further, to direct the Chief of Police and the City Clerk to sign the traffic



**Revised February 5, 2016**

LEGEND	
	Existing Sharrow
	Existing Bike Lane Pavement Marking
	Proposed Sharrow
	Proposed Share the Road
	Bike Lane
	Shared Lane



**FLEIS VANDENBRINK**  
DESIGN. BUILD. OPERATE.

27725 Stansbury Blvd, Suite #150  
Farmington Hills, MI 48334  
P: 248.536.0080  
F: 248.536.0079

REVISION:

CITY OF BIRMINGHAM  
BIRMINGHAM, MI  
NEIGHBORHOOD CONNECTOR ROUTE  
BIKE ROUTE SIGNING AND PAVEMENT MARKINGS

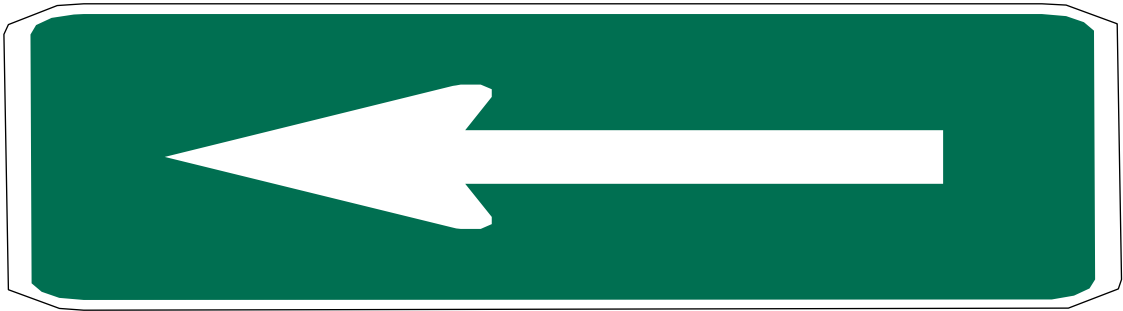
DESIGN TEAM: CSZ  
CHECKED BY:  
DRAWING INFORMATION:  
Bike Path V2  
122415 charless

**NOT FOR CONSTRUCTION**

F&V PROJECT NO.

**2**







Know what's below  
Call before you dig.

REVISIONS


DRAWN BY:  
TW

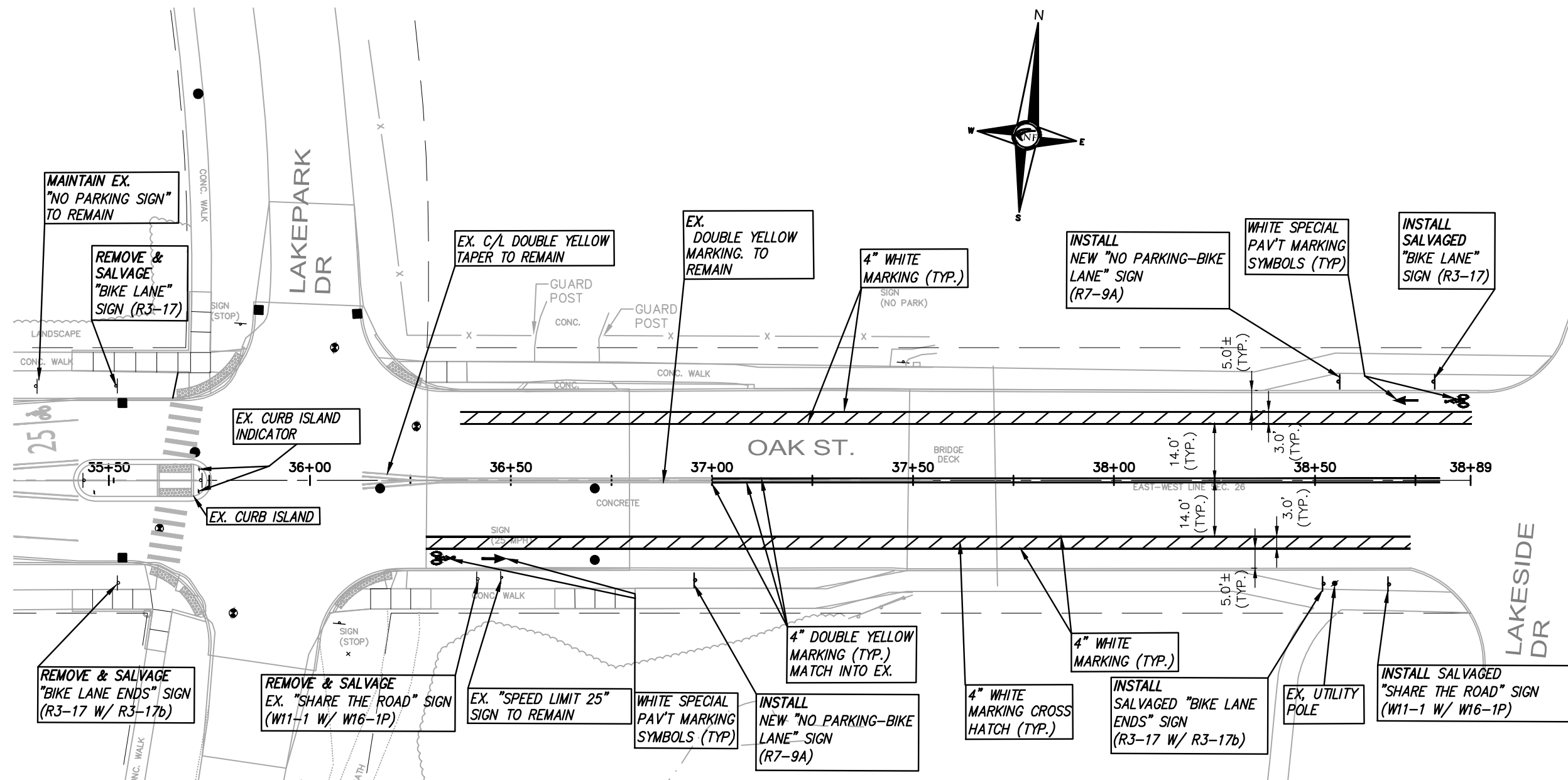
DESIGNED BY:  
BB

APPROVED BY:  
BB

DATE:  
January 6, 2016

SCALE:  
1" = 30'

NFE JOB NO. SHEET NO.  
**I164 1 of 1**



SIGN DETAIL - R7-9A  
N.T.S.



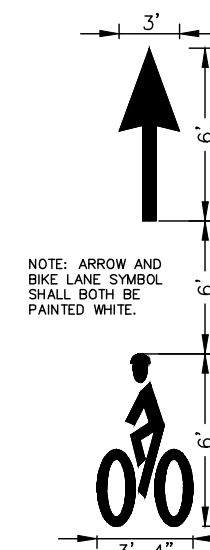
SIGN DETAIL - W11-1 & W16-1P  
N.T.S.



SIGN DETAIL - R3-17  
N.T.S.



SIGN DETAIL - R3-17 & R3-17bP  
N.T.S.



BIKE LANE SYMBOL DETAIL  
N.T.S.

## Table of Contents

Executive Summary .....	3
Ad Hoc Rail District Committee .....	4
Goals and Objectives .....	4
Study Area.....	5
Review of Existing Plans.....	6
Zoning Analysis.....	8
Preliminary Assessment.....	9
Conceptual Improvements .....	14
Existing Parking .....	17
Build-out Analysis .....	20
Recommendations .....	28

## Executive Summary

The Ad Hoc Rail District Committee was tasked with conducting research and analysis regarding parking, street design initiatives, and non-motorized safety to develop a plan with recommendations for the future of the Rail District along S. Eton. The Committee conducted a walking survey to assess the existing conditions of the Rail District. During this exercise, crosswalks issues, poor driver visibility at street corners, inconsistent sidewalks, and lack of bicycle facilities were noted. Based on the Committee's observations, several intersection and streetscape improvements were reviewed, a parking study was completed to review current parking demand, and a buildout analysis was conducted to calculate future parking needs. The Ad Hoc Rail District Committee's resulting findings include recommendations for intersection improvements to calm traffic and improve pedestrian comfort, exploring shared parking opportunities to more efficiently use off-street parking lots, and adding bicycle facilities to better accommodate bicyclists.



Newingham Dental – Completed 2014



District Lofts Phase 2 – Completed 2016



Irongate – Completed in 2016

## Formation of the Committee

On January 11, 2016, the City Commission unanimously passed a resolution to establish the Ad Hoc Rail District Committee. The Committee was tasked with developing a plan to address the current and future parking demands, along with planning goals and multi-modal opportunities for the district in accordance with the following:

- a) Review the Eton Road Corridor Plan, Multi-Modal Transportation Plan, and previous findings of the Rail District Committee in order to identify and recommend how to best incorporate these elements into an integrated approach for this district.
- b) Calculate the long-term parking demands for both the north and south ends of the Rail District, while considering on-street and off-street parking, shared parking arrangements, use requirements and other zoning regulations which impact parking.
- c) Review planning and multi-modal objectives for the Rail District with the findings from the long-term parking calculations and develop recommendations to integrate planning and multi-modal elements with parking solutions. Recommendations should consider:
  - i. Considerations for on-street and off-street parking
  - ii. Road design initiatives
  - iii. Multi-modal uses
  - iv. Neighborhood input
  - v. Existing plans and findings
- d) Compile the committee's findings and recommendations into a single report to be presented to the City Commission by the end of the committee's term (December 31, 2016).

## Goals and Objectives of Committee

The following goals and objectives were established by the Ad Hoc Rail District Committee to guide their discussions and recommendations for the future:

### Goals

- i. Create an attractive and desirable streetscape that creates a walkable environment that is compatible with the adjacent residential neighborhoods.
- ii. Design the public right-of-way for the safety, comfort, convenience, and enjoyment for all modes of transportation throughout the corridor.
- iii. Facilitate vehicular traffic and parking without sacrificing the corridor's cycling and pedestrian experience.
- iv. Minimize the impacts of traffic on the existing residential neighborhoods.
- v. Recommend updates to the Rail District zoning regulations as needed to meet goals.

### Objectives

- i. Use creative planning to promote a high quality, cohesive right-of-way that is compatible with the existing uses in the corridor.
- ii. Implement "traffic calming" techniques, where appropriate, to reduce speeds and discourage cut-through traffic on residential streets.
- iii. Enhance pedestrian connectivity through the addition of crosswalks, sidewalks, and curb extensions.
- iv. Improve accommodations for bicycle infrastructure on Eton Road.
- v. Create a balance between multimodal accessibility and parking provisions.



**Rail District Study Area**





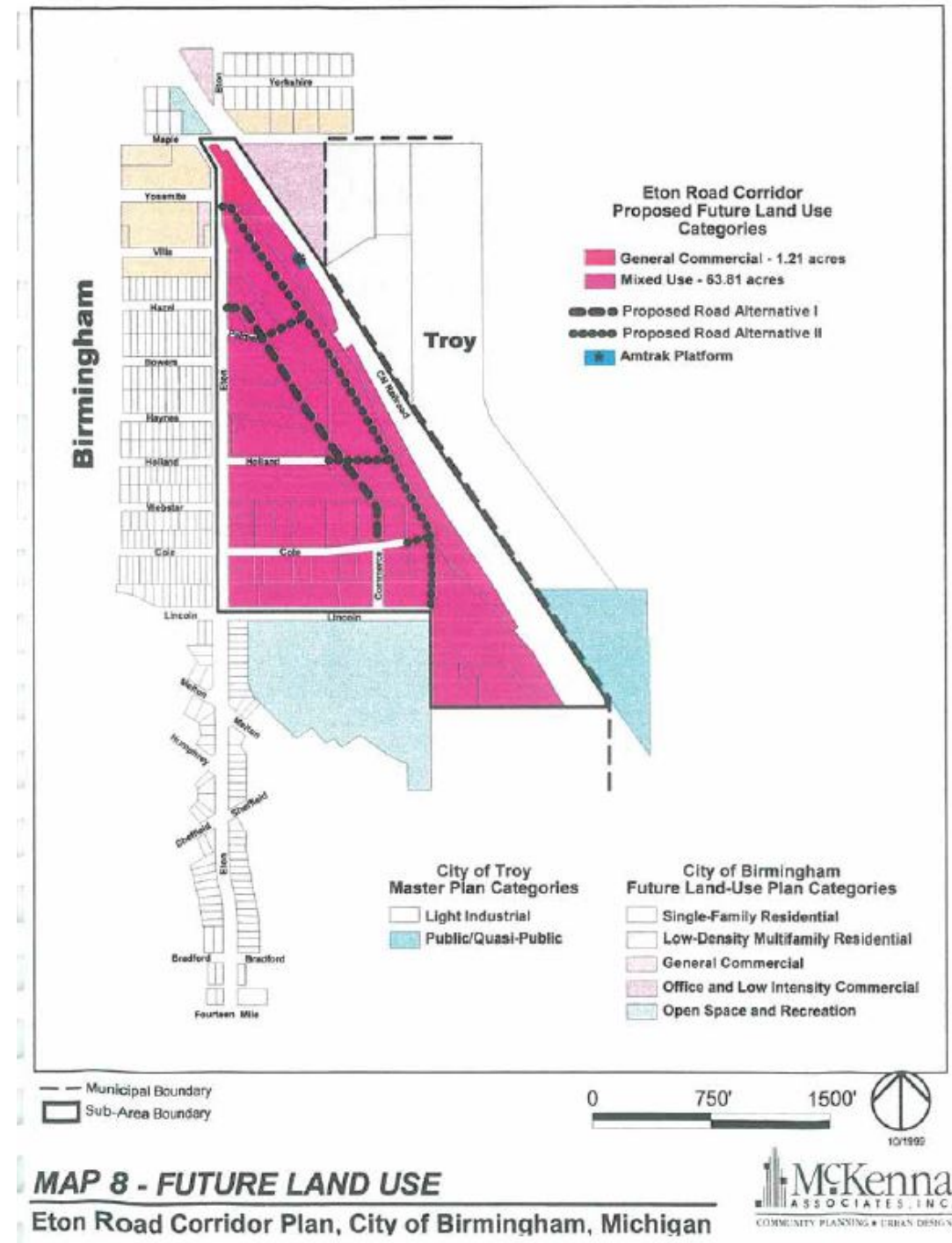
## Eton Road Corridor Plan (1999)

**Vision Statement:** “The Eton Road Corridor will be a mixed use corridor with a range of commercial, service, light industrial and residential uses that serve the needs of the residents of Birmingham. Creative site planning will be encouraged to promote high quality, cohesive development that is compatible with the existing uses in the corridor and adjacent single-family residential neighborhoods.”

Much of the success that can be observed in the District today is owed to the recommendations contained in the Eton Road Corridor Plan (ERCP). Many of the recommendations have been implemented including the eastward extension of Villa and Hazel into the northern end of the District, the creation of the MX zoning classification, associated development regulations, and the addition of streetscape requirements.

However, many recommendations contained in the ERCP have not been fully implemented that specifically impact the circulation of vehicular, pedestrian, and bicycle traffic. These recommendations are as follows:

- A series of curb extensions and “chokers” at select intersections to create better visibility for pedestrians and to encourage lower speeds for motorists;
- To accommodate at least one protected bike lane, given that S. Eton is an important link in a regional bike system; and
- To discourage front parking and to place commercial and residential buildings closer to the road.



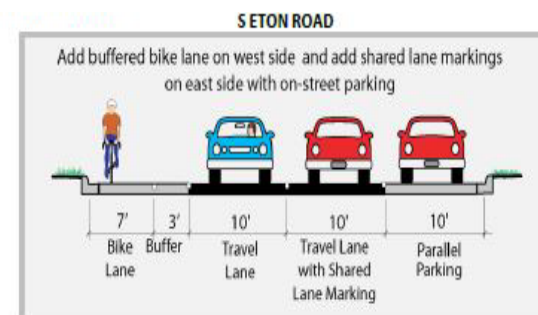
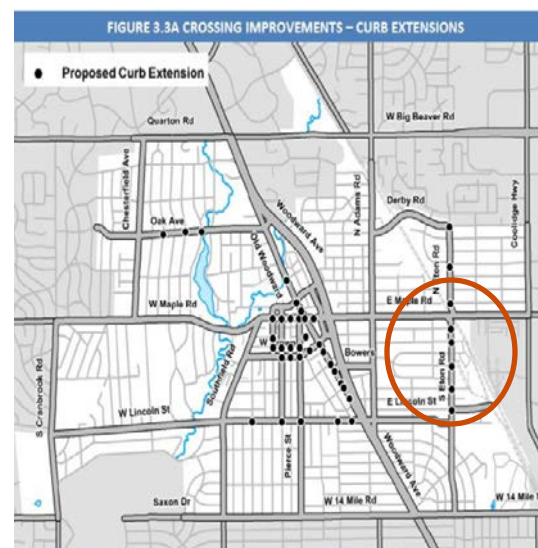
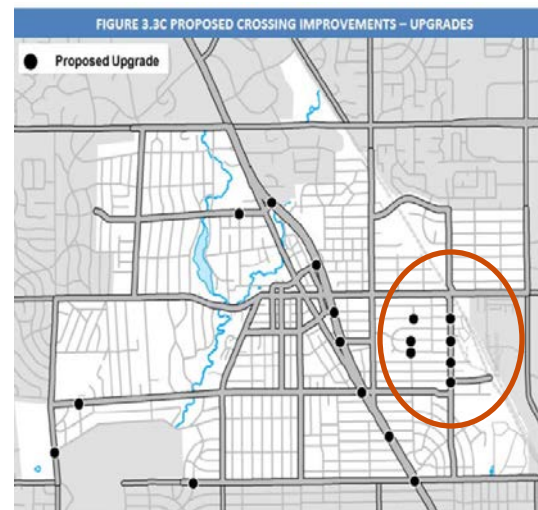
## Multimodal Transportation Plan (2013)

**Vision Statement:** “The City of Birmingham seeks to build upon its brand as a walkable community. The purpose of this plan is to provide a document that the Community may reference when contemplating future actions regarding infrastructure, policies and programs. It is envisioned that this plan will guide improvements designed to give people additional transportation choices, thereby enhancing the quality of life in the City of Birmingham.”

Less than 3 years since its adoption, implementation of the Multimodal Transportation Plan (“MMTP”) is already well underway. Many areas identified in the plan that have not yet been retrofitted are at least at the forefront of multimodal discussion in the city. The Eton Road Corridor has proven to be one of those areas.

As demonstrated in the MMTP, there is an expressed community desire for a transportation network that adequately responds to the needs of various users and trip types. In order to achieve this vision for the Rail District, the MMTP recommends the following physical improvements:

- Completing sidewalks along Cole St.;
- Installing curb extensions on S. Eton Rd. at Yosemite, Villa, Bowers, Holland, and Cole;
- Improving crossing areas at Villa, Bowers, Holland and Cole; and
- Striping bike lanes on S. Eton via parking consolidation: shared lane markings from E. Maple to Villa; buffered bike lane and shared lane markings from Villa to E. Lincoln.





## Zoning Analysis

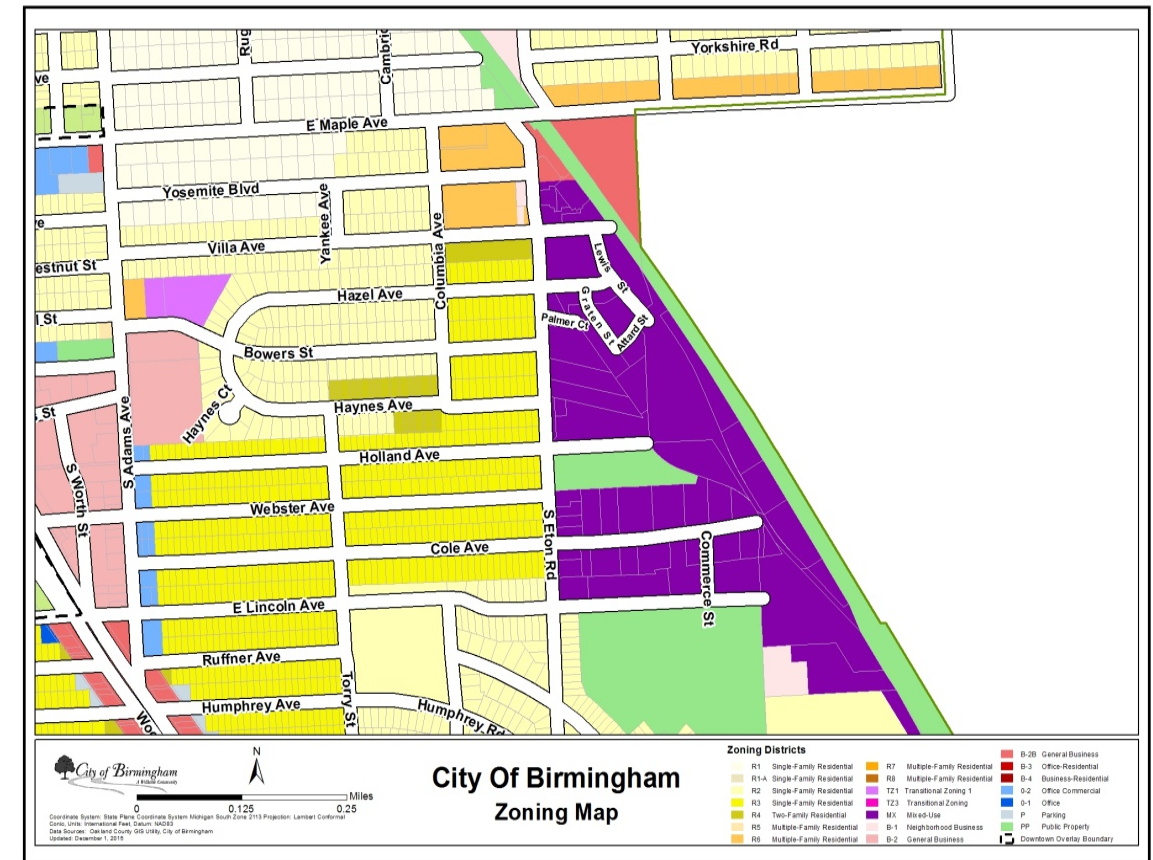
The majority of the S. Eton Corridor was zoned MX Mixed-Use, in accordance with the recommendation of the ERCP. The MX District was established with the intent to:

- a) Encourage and direct development within the boundaries of the Eton Road Mixed-Use District and implement the Eton Road Corridor Plan;
- b) Encourage residential and nonresidential uses that are compatible in scale within adjacent resident neighborhoods;
- c) Encourage the retention, improvement, and expansions of existing uses that help define the Eton Road Corridor;
- d) Allow mixed use developments including residential uses within the Eton Road Corridor; and
- e) Minimize the adverse effects of nonresidential traffic on the adjacent residential neighborhood.

With zero foot minimum front and side yard setback requirements, no required open space, and buildings permitted up to 4 stories in height, the MX District encourages a midrise, integrated urban form throughout the Corridor. However, a majority of the buildings in the district have not been developed to the new standards set forth in the current Zoning Ordinance. Many properties still contain single-use, one-story buildings that do not maximize their potential space.

The buildings that have been recently constructed are emblematic of the District's goal of creating appealing mixed-use buildings that complement the adjacent residential neighborhoods. The District Lofts, for example, demonstrate the potential of the District development standards with its well-fenestrated façades that abut the front and side lot lines, ground floor retail space and residential upper floors, and its sufficient parking facilities.

A fundamental goal of the Rail District is to “minimize the adverse effects of nonresidential traffic on the adjacent neighborhood,” but the current road design does little to provide a buffer between the MX and residential zones. Traffic, parking, and safety issues still persist to this day. Actions are recommended for Eton Rd that ease the transition from the residential neighborhood to the mixed use zone and provide safe access to the area's amenities for all modes of transportation.



## Preliminary Assessment: Public Perception and Identification of Issues

Committee members reviewed and analyzed existing conditions in the Rail District. Discussion branched off into five main topics: *Rail District Design and Development*, *Pedestrian Safety/Amenities*, *Parking*, *Traffic*, and *Bicycles*. The committee's comments have been summarized into bullet points below.

**Rail District Design & Development**

- The committee members are pleased with new developments in the district. The development standards for the new buildings have created an overall appealing look.
- Parking in front of the older buildings is not favorable in the context of creating a more pedestrianized corridor.
- The Committee raised the point about how the Rail District ends at Lincoln. Members discussed extending the project area towards 14 Mile as the stretch south of Eton serves as a vital connection.
- The width of S. Eton is viewed as problematic, as it encourages cars to exceed the speed limit. Bump-out curbs are needed on S. Eton at necessary intersections between E. Maple and Sheffield as a way to narrow down the road, slow traffic, and make it easier to cross the street. This would create safer access to the parks, pool, and other amenities.
- The Committee proposed reviewing zoning uses and standards for the rail district. The recent improvements to W. Maple are also something the Committee wants to keep in mind as a good example when making recommendations for the Rail District.

**Pedestrian Safety/Amenities**

- The Committee is displeased with the lack of pedestrian safety in the Rail District. Committee members emphasized the importance of safe and adequate pedestrian crossing throughout the District, especially along S. Eton Rd. The idea is to have a complete network of sidewalks and crossings that encourage people to walk through the District.
- The intersection at S. Eton and Maple is not amenable to pedestrians, especially when they are attempting to get from S. Eton to N. Eton.
- The intersection at S. Eton and Cole, especially on the commercial side, is not safe from a pedestrian or vehicle standpoint.

**Parking**

- Parking was raised as a priority. The committee would like to see an evaluation of parking demand with respect to supply, and how to resolve the issue via structures, surface lots, and on-street locations.
- Parking along S. Eton, especially the southbound (west) side, was identified as a key focus of the committee. It was also mentioned that on street parking is an issue between Sheffield and 14 Mile.
- On-street parking spaces on S. Eton are seen as a problem as they inhibit the visibility of drivers and pedestrians and make it difficult for residents to back out of their driveways. Visibility should be considered in future parking studies.

**Traffic**

- Excessive speed heading southbound on S. Eton – especially from Lincoln to 14 Mile – was identified as an issue to be addressed moving forward.
- The Committee is concerned with the cut-through traffic that occurs on S. Eton
- The new Whole Foods is expected to increase the amount of traffic through the corridor, so the City should consider street designs that regulate speed and traffic, while ensuring a safe pedestrian experience.

**Bicycles**

- More emphasis should be placed on non-motorized transportation in the study area. More specifically, S. Eton should be designed to be safer for bicyclists.
- The bike route transition from N. Eton to S. Eton should be improved; however, a continuous bike lane may not be a feasible means by which to do this.
- The committee would like to widen the pedestrian area at the southwest corner of E. Maple and S. Eton in order to improve bicycle and pedestrian safety and to ease traffic flowing in and out.



## Preliminary Assessment: Walking Survey

Committee members conducted a walking survey and inventory of the S. Eton Corridor. Findings are outlined below and on the pages that follow.



**First stop - under the bridge at S. Eton/Maple Rd.**

- Viaduct has a “bunker” feel
- Not a good corner to cross
- Widening the sidewalk would help calm traffic
- Bump-out/plaza at corner would be effective, but difficult
- A pedestrian island would help at this intersection



**Second stop - Yosemite/S. Eton**

- Drivers are not fully aware of pedestrians around this stretch of S. Eton
- A crosswalk is needed here
- Bump-out curbs may be necessary
- A bike lane could start around here
- The street begins to narrow down closer to beauty shop
- Bump-out and bike lane might contradict each other



**Third stop – Villa/S. Eton**

- Possible bump-out curbs here
- Visibility is very obstructed at this corner



**Fourth stop – Hazel/S. Eton**

- A crosswalk is needed at the Whistle Stop
- A crosswalk would help slow traffic
- S. Eton improvements must be consistent



**Fifth stop - Bowers/S. Eton**

- This area is a destination and should receive a large crossing with different treatment, such as a plaza in the center
- This stop does not warrant a stop sign, but controls should be built to calm traffic speed
- People who come to eat at Griffin Claw don't know where to park





## Preliminary Assessment: Walking Survey (Continued)



### Sixth stop – Haynes/S. Eton

- It was noted that parking could occur along the dividing island at Bolyard Lumber



### Seventh stop – Holland/S. Eton

- A double crosswalk exists here but it is not a natural crossing spot



### Eighth stop – Webster/S. Eton

- Curbs are terrible here
- Bump-out curbs are suggested for this location
- Yellow no parking lines may be too long next to driveways



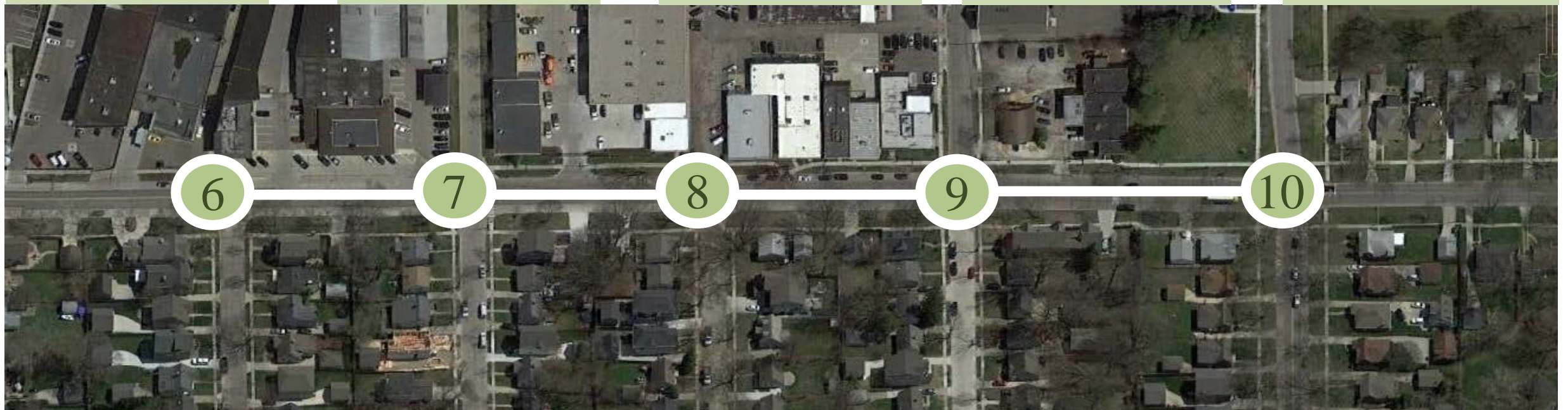
### Ninth stop – Cole/S. Eton

- Bump-outs are recommended on the four corners
- Many interesting shops to the east



### Tenth stop – Lincoln/S. Eton

- This is a prominent corner
- There should be something that demarcates commercial from residential
- Well defined crosswalks here
- Future streetscape improvements should be considered





Preliminary Assessment: Walking Survey (Continued)

**14<sup>th</sup> stop – Commerce/Cole**

- A sidewalk in front of school property was suggested
- There are large parking lots to the north and east behind the Cole Business Center

**13<sup>th</sup> stop – Commerce/Lincoln**

- An industrial area with several underutilized surface lots

**12<sup>th</sup> stop – Lincoln looking East**

- Public parking on south side of Lincoln

**11<sup>th</sup> stop – Melton/S. Eton**

- This is a wide intersection, but not a four-way stop
- Vehicles can turn easily here so they go fast
- There is parking on only the west side of Eton
- Need for traffic calming



**Preliminary Assessment:  
Walking Survey (Continued)**



**16<sup>th</sup> stop – Cole Business Center Lots**

- There is much parking to the north and east behind Cole Business Center with underutilized parking
- Two adjoining parking lots are blocked from each other by a wall (no shared access)



**15<sup>th</sup> stop – Commerce and Cole**

- Sidewalks needed in front of the school property
- Several surface parking lots in front of buildings that are not full



**18<sup>th</sup> stop – Northbound S. Eton**

- Yellow curbing was noted in front of Down River Refrigeration
- Angled parking was not supported at this location by Multi Modal Transportation Board
- Sidewalk is incomplete in front of Roy Schecter and Vocht office
- No sidewalk connection from S. Eton to Robot Garage area



**17<sup>th</sup> stop – DPS/Down River Refrigeration**

- Inefficient use of parking around Down River Refrigeration
- High traffic egress area south of DPS
- Poor area lighting



## Concepts Considered Within Study Area

Based on the issues identified in the preliminary assessment of the study area and a review of the ERCP and MMTP, the Committee considered numerous improvements for the right of way at specific locations. In addition to the concepts illustrated below in the area of S. Eton and Maple, the Committee discussed purchasing property on the southwest corner of the intersection to widen the sidewalk and create a pedestrian plaza at the corner to enhance pedestrian safety and comfort. Additionally, the Committee talked about improving the viaduct underpass on E. Maple through the use of paint and lighting.

### S. Eton and Maple Intersection

Existing



Proposed



#### Design Concept 1

At the southeast corner of S. Eton and Maple, there is a lot of activity but very little room to work with to make any drastic changes. As suggested during the walking tour, the pavement at this corner could be extended into the grass area to provide a more comfortable pedestrian space.

Existing



Proposed



#### Design Concept 2

Another option at this location could be to create a bump-out to give motorists better visibility of pedestrians attempting to cross and to shorten the length of road crossings for pedestrians.



**Design Concept 3**

The Committee discussed constructing a pork chop-shaped pedestrian island as an alternative to a bump-out. A pedestrian refuge could effectively channel drivers to slow down and gives pedestrians the ability to wait on it instead of having to rush across the street during a short traffic light interval.

The committee recommended hiring a consultant to evaluate traffic calming measures and pedestrian improvements at this complex intersection.

Existing



Proposed



**S. Eton Intersections**

Bump-out curbs were considered for the intersection of S. Eton and Yosemite (shown to the right) and could be coupled with striped crosswalks for additional safety. Having a bump-out at this intersection would help demarcate between the commercial area and residential area.

Additional bump out curbs and crosswalk improvements were also suggested along S. Eton at Villa Road, Hazel St, Webster St., Cole St, Lincoln, Melton, Sheffield and 14 Mile Road.

Existing



Proposed





## S. Eton and Bowers Intersection

Committee members recognized this area as being of significant importance as it marks the approximate center of the Rail District. Accent materials of different textures and/or colors could be added to intersection to remind people that it is a place for both pedestrians and cars. As shown in the suggested rendering, the concept is coupled with curb bump outs, benches, and on-street bike racks, as well as pedestrian crosswalk improvements to create a plaza condition. Alternatively, the east side of S. Eton at this intersection could be extended to narrow the street further and provide more space for street trees and plantings.

The committee recommended hiring a consultant to study possible improvements to this intersection.

Existing



Proposed



## S. Eton Corridor (Maple to Lincoln)

Following the recommendation of the MMTP, the Committee discussed the option of adding bicycle facilities to S. Eton by adding sharrows for northbound bicycle traffic, eliminating parking on the west side (also recommended by the MMTP), and giving southbound traffic a 10 foot protected bike lane that includes a 3 foot buffer zone.

Existing



Proposed





## Parking Inventory and Study

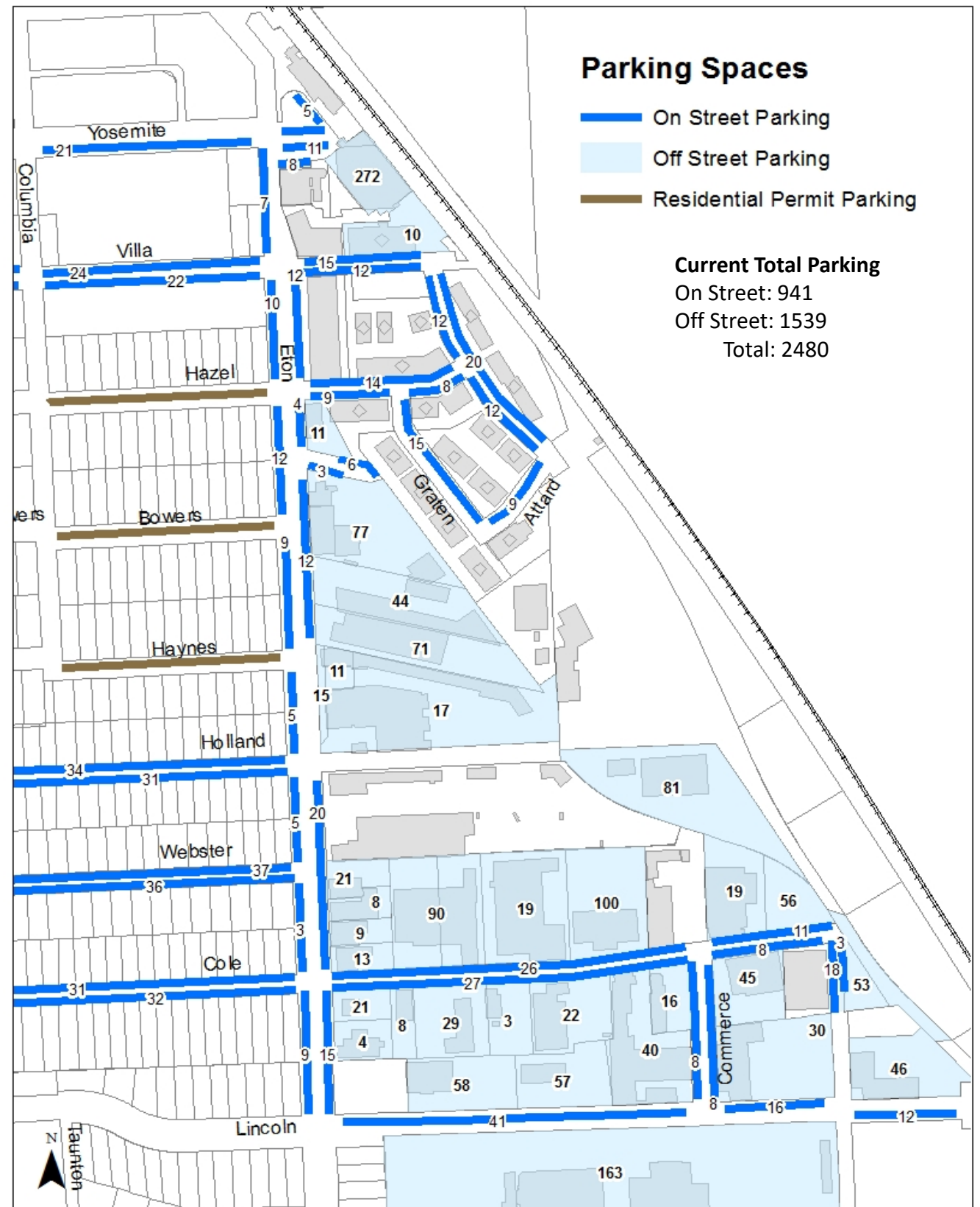
A Parking inventory was completed in the study area for a better understanding of when and where parking spaces are being utilized. A map of total spaces was created for private lots and on street parking. The results are illustrated in Figure 1, and show an existing parking count of 2,480 spaces in the study area and surrounding neighborhood.

A parking study was also completed to determine parking utilization in the study area. Parking counts were conducted by city staff at 4, 5, and 6pm on Friday September 23rd and Wednesday September 30th, and the data was then analyzed.

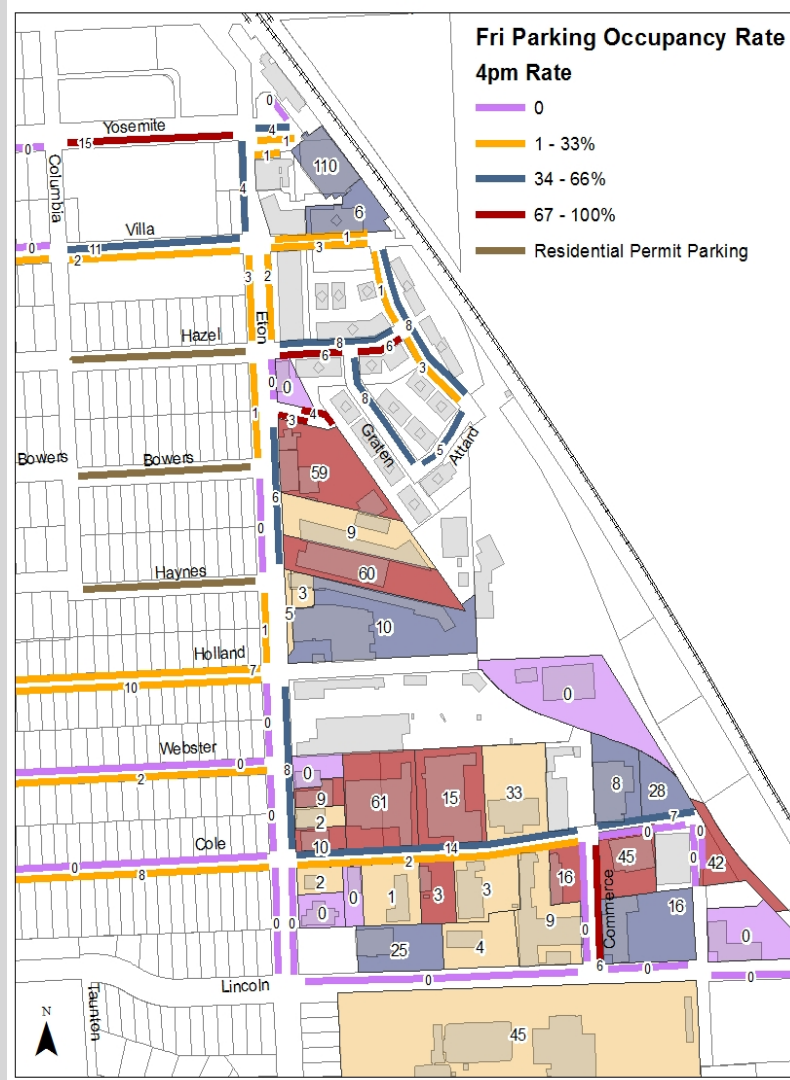
The consulting firm Fleis and Vandenbrink was contracted to create a report for the count studies and provide summary tables showing available spaces, occupied spaces, and percent occupancy rate for the north and south zones of the study area. An analysis and conclusion based upon the findings was then made for off street and on street parking situations in each of the zones.

Count data was then entered into a map for each day and time of the study. The maps on the following pages indicate the total counts for each hour of on street and off street parking spaces, and color code the percent occupancy rate in classes for 0, 1-33%, 34-66%, and 67-100%. These maps are shown side by side to visually illustrate the intensities of parking in the district, and how the parking occupancy rates change from 4-6pm in the study area.

Figure 1



## Friday Parking Count: 4:00 PM



### S. Eton Rd

- 9 out of 60 spaces on the west side are used
- 16 out of 63 spaces on the east side are used

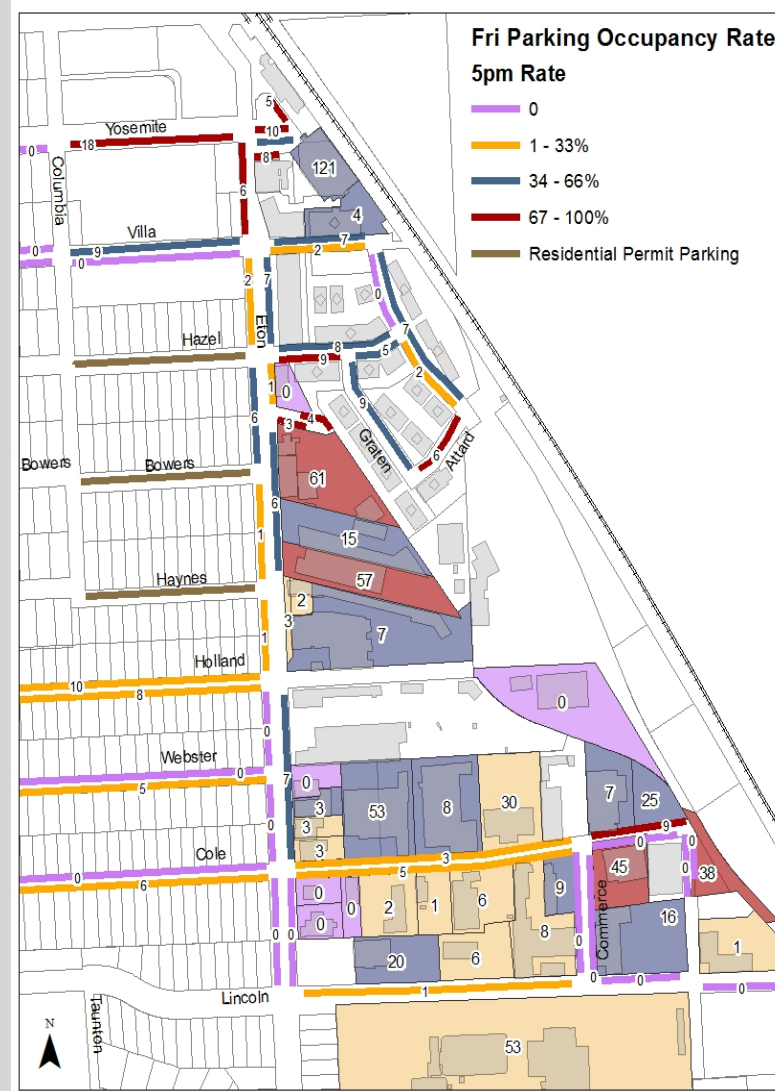
### Off Street Parking

- Parking lots off of Cole Street at or near capacity
- Griffin Claw already above 66% capacity

### Residential Parking

- Yosemite and Villa experience overflow throughout the evening.
- Villa stays between 33-66% occupancy rate throughout the Friday study.

## Friday Parking Count: 5:00 PM



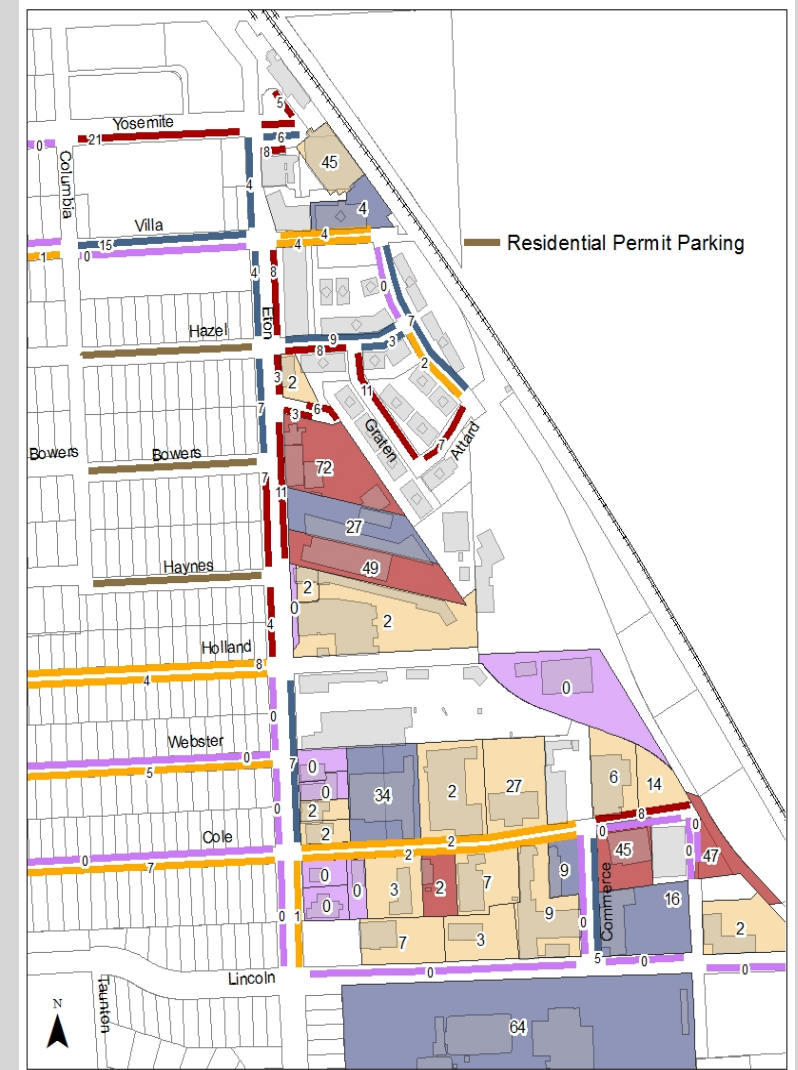
### S. Eton Rd

- 16 out of 60 spaces on the west side are used
- 21 out of 63 spaces on the east side are used

### Off Street Parking

- The lots off of Cole Street begin to clear out
- Two of the parcels above 66% are auto repair shops with outdoor vehicle storage.

## Friday Parking Count: 6:00 PM



### S. Eton Rd

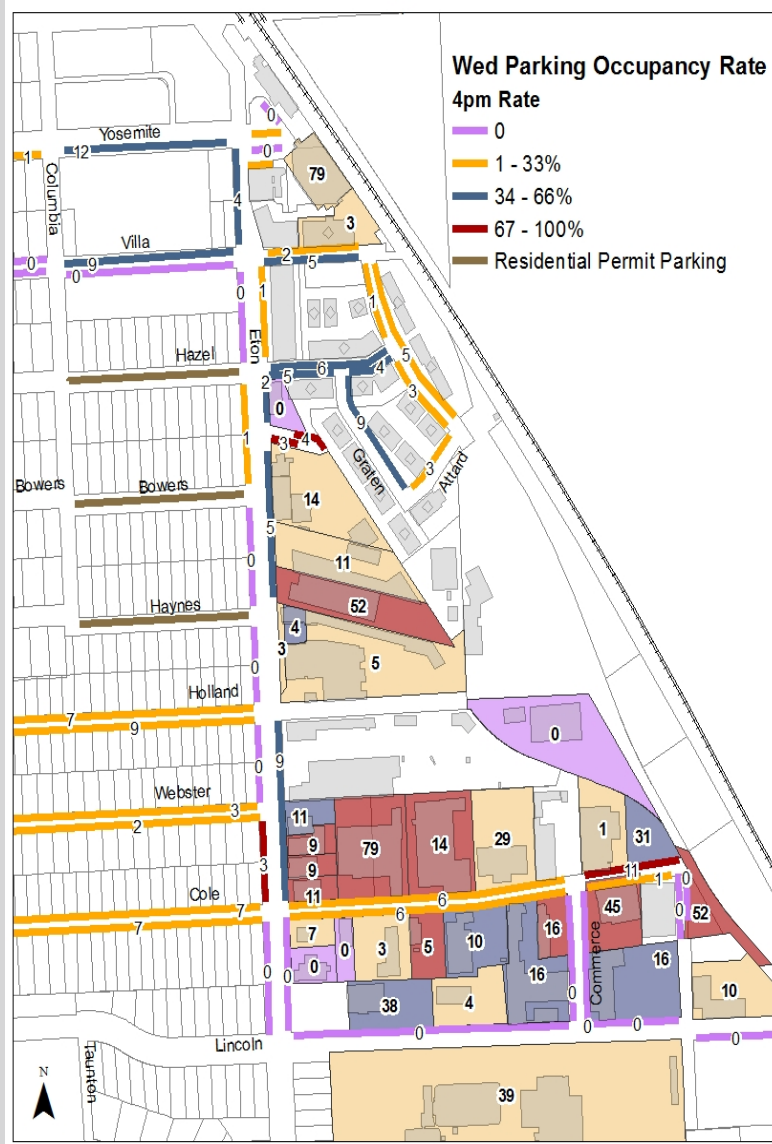
- 26 out of 60 spaces on the west side are used
- 30 out of 63 spaces on the east side are used
- \*the highest occupancy throughout the study
- 0 spaces on west side, south of Holland are used the entire evening

### Off Street Parking

- Griffin Claw parking lot reaches capacity.
- Only 2 of 11 spaces are used in Whistle Stop.
- 0 spaces are used outside of Bolyard Lumber.
- Robot Garage/Watch Hill lot never exceeds 66%.



## Wed. Parking Count: 4:00 PM

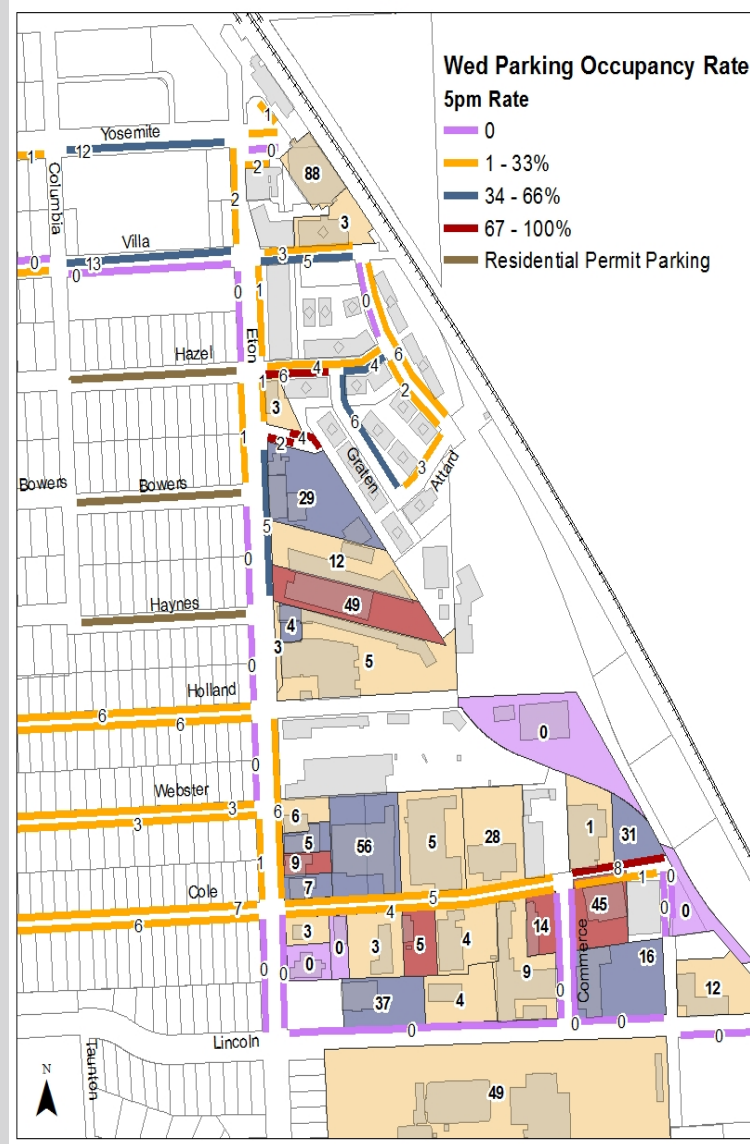


- S. Eton**
- 7 out of 60 spaces on the west side are used
  - 17 out of 63 spaces on the east side are used

**Off Street Parking**

- Cole Street's highest occupancy rate for off street lots occurs on weekday during regular business hours.

## Wed. Parking Count: 5:00 PM

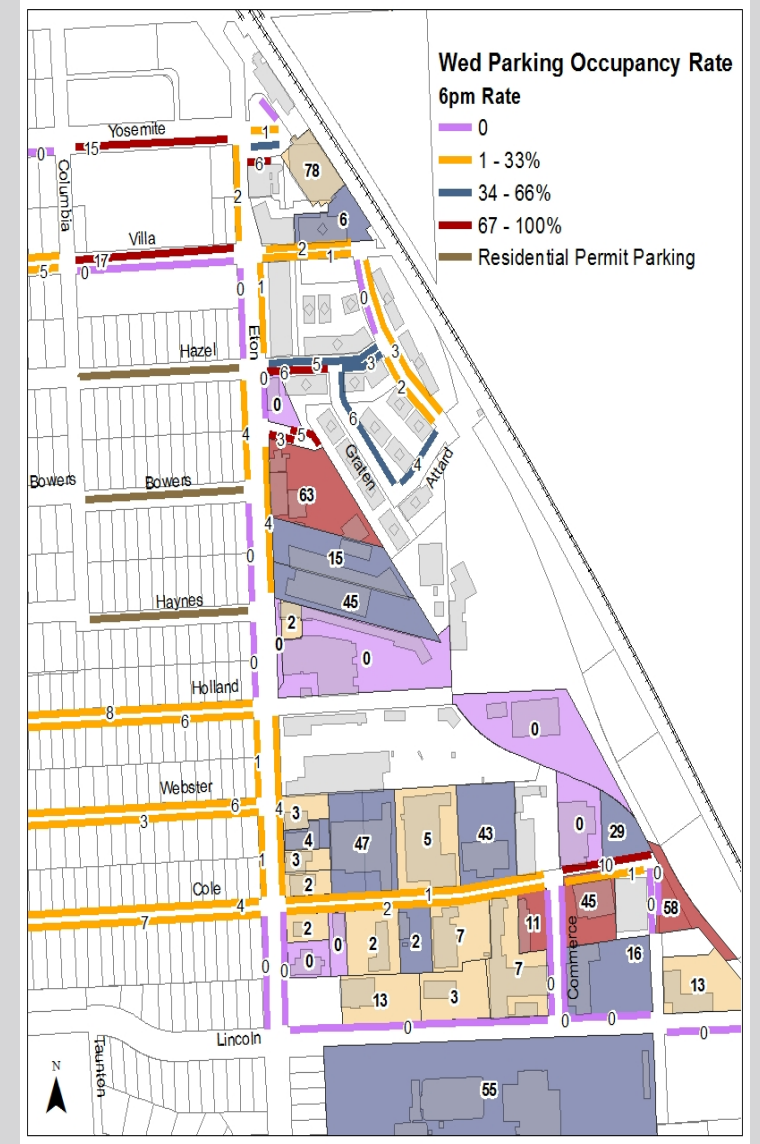


- S. Eton**
- 4 out of 60 spaces on the west side are used
  - 13 out of 63 spaces on the east side are used
  - \*lowest occupancy in the study

**Off Street Parking**

- The majority of Cole Street parking lots clear out after 5 pm.

## Wed. Parking Count: 6:00 PM



- S. Eton**
- 8 out of 60 spaces on the west side are used
  - 9 out of 63 spaces on the east side are used
  - \*lowest occupancy in the study

**Off Street Parking**

- Griffin Claw's peak parking hours increase during the evening while the rest of the parcels show a decrease in use.

- Shared Parking agreements work best when adjacent or nearby parcels have different peak parking times.

## Existing Parking Analysis

For the section north of Holland Road, the parking study by Fleis and Vandenbrink concluded:

- 1) Off street and on-street parking demand is high and the existing spill over parking is impacting Yosemite Boulevard and Villa Road.
- 2) The parking garage beside Big Rock and The Reserve is underutilized.
- 3) Griffin Claw had the most utilized parking lot in north zone.
- 4) The least occupied lots were Whistle Stop and Bolyard Lumber.
  - a) Together these two parcels contain 39 parking spaces, which could be an opportunity for shared parking agreement during nights and weekends.
- 5) During the peak hour there were no available spaces on Northbound Eton between Haynes and Palmer, or southbound Eton between Holland and Bowers.

For the section south of Holland Road, the parking study by Fleis and Vandenbrink concluded:

- 1) The highest parking demand in this area occurs during weekday daytime hours.
- 2) Many off street parking lots along Cole Street were near capacity at 4pm, then relatively vacant after 5pm.
  - a) This may be an opportunity for shared parking agreements to relieve some parking demand in the north zone.
- 3) On street parking is not significantly impacted by the commercial properties.
- 4) The residential neighborhood to the west is not significantly impacted by spillover parking from the Rail District.

The parcel in front of Bolyard Lumber between the street and the building contains 15 parking spaces and is considered public right of way. Based upon the data from the study, these spaces are underutilized. On Friday September 23<sup>rd</sup> at 6pm, 0 spaces in front of Bolyard Lumber were used, while the east and west side of S. Eton were at or near capacity north of Holland. Better signage could be used to inform drivers and direct them into these spaces to alleviate parking congestion elsewhere.

The parking lots adjacent to Griffin Claw are also considered underutilized at evening hours. During peak parking time, Whistle Stop on the north side utilized 2 of the 11 spaces at 6pm, while 27 out of 44 spaces were utilized in the Robot Garage/Watch Hill parking lot at 6pm. Both of these parking lots have signs indicating parking is for their business only. Whistle Stop, Robot Garage, and Watch Hill have different peak parking hours with Griffin Claw which could be an opportunity for a shared parking agreement.

The on street parking south of Holland is considered underutilized as well. Zero cars parked on the west side of S. Eton between Holland and Lincoln on Friday, while the Wednesday count maxed out at 3 cars. The east side of S. Eton between Holland and Lincoln also had low parking rates. This side had a number of counts with a value of 0, and its maximum occupancy rate never reached above 66%.

## Findings

The parking study shows that there is an abundance of parking throughout the study area. However, much of the parking is privately owned for a single use. Parking demand is high for restaurant uses in the evenings and weekends while the office uses have daytime peak parking periods. Shared parking arrangements throughout the study area should be encouraged to maximize the efficiency of existing parking in commercial areas and to eliminate spillover parking into residential areas.

The data from the parking study also supports the Multimodal Transportation Plan's recommendation to eliminate parking on the west side of Eton and use the space for a bike lane. The count data suggests that the study area has enough spaces to accommodate for the loss of parking on the west side of Eton. The highest count for this section was 26 on Friday, September 23<sup>rd</sup> at 6pm. If these spaces were removed, drivers could still find space in front of Bolyard Lumber and S.Eton between Holland and Lincoln. Available spaces could increase if adjacent businesses entered into shared parking agreements and removed 'business parking only' signs as well, as noted above.



## Build-out Analysis

A build-out analysis was conducted to determine the future parking needs of the Rail District. This study involved examining the current state of development in the Rail District and demonstrating which buildings were likely to be redeveloped to their maximum size per the MX (Mixed-Use) zoning district provisions. Recently developed buildings and businesses not likely to change within the next 20 years were highlighted in blue, while properties with the potential for redevelopment were highlighted in red. See Figure 2.

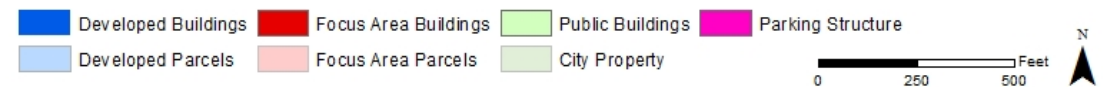
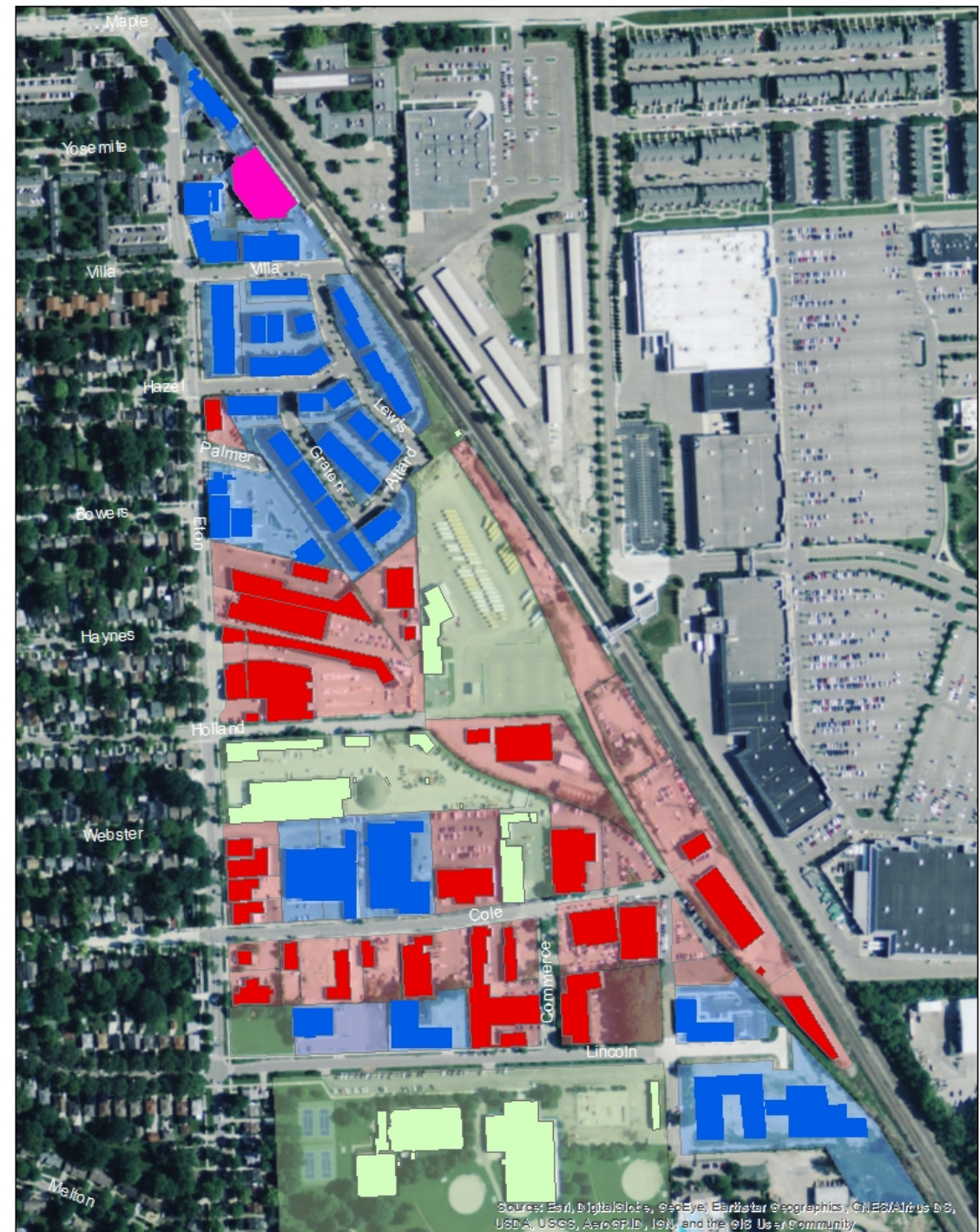
The ratio of developable parcel space vs actual building space was calculated for the properties highlighted in blue. This value is used as the Percent of Maximum Build-Out percentage. This build out rate was then used as a projection for the focus area highlighted in red. The assumption is that future buildings in the focus area will occupy a similar value of their total parcel space as those recently developed in blue.

The projected build-out square footage for the focus area was then used to calculate the additional number of parking spaces that would be required based on probable square footage and land uses.

A build-out analysis is predicated on many underlying assumptions. Presupposing the realistic and sometimes even most extreme conditions can generate a fairly accurate assessment of the issue at hand and help to envision future scenarios. The following assumptions were applied in the Rail District build-out analysis:

- All parcels in the focus area were assumed to be developed as four story, mixed use buildings, the maximum number allowed in the MX zone.
- All first floor uses were assumed to be retail/office, requiring one parking spot per 300 sq ft.
- Floors two, three, and four were assumed to be residential, requiring one parking space per 1000 sq ft of floor area.
- Percentage of Maximum Build Out =  $(\text{Building Floor Area} * \text{Number of Stories}) / (\text{Parcel Area} * 4 \text{ Stories})$

Figure 2: Identifying Parcels with Potential for Redevelopment





## Build-out Analysis

### Existing Condition:

Figure 3 is a rendering of the Rail District's current build out. It also includes buildings approved for construction in the near future. The blue represents buildings that are unlikely to change within the next 20 years. Note that the northern section has a higher density of recent developments that occupy a larger portion of their parcel space than the older buildings in red. The restaurants and mixed-use structures in blue are clustered together with a combination of parking uses including a three story parking deck highlighted in pink, underground parking, on street parking, and private garages.

The red area indicates buildings that have not recently been re-developed or undergone significant renovation and still fit the previous zoning category. They are predominantly one story industrial buildings with large surface parking lots. These sites have been identified as a focus area for potential re-development in the build out analysis.

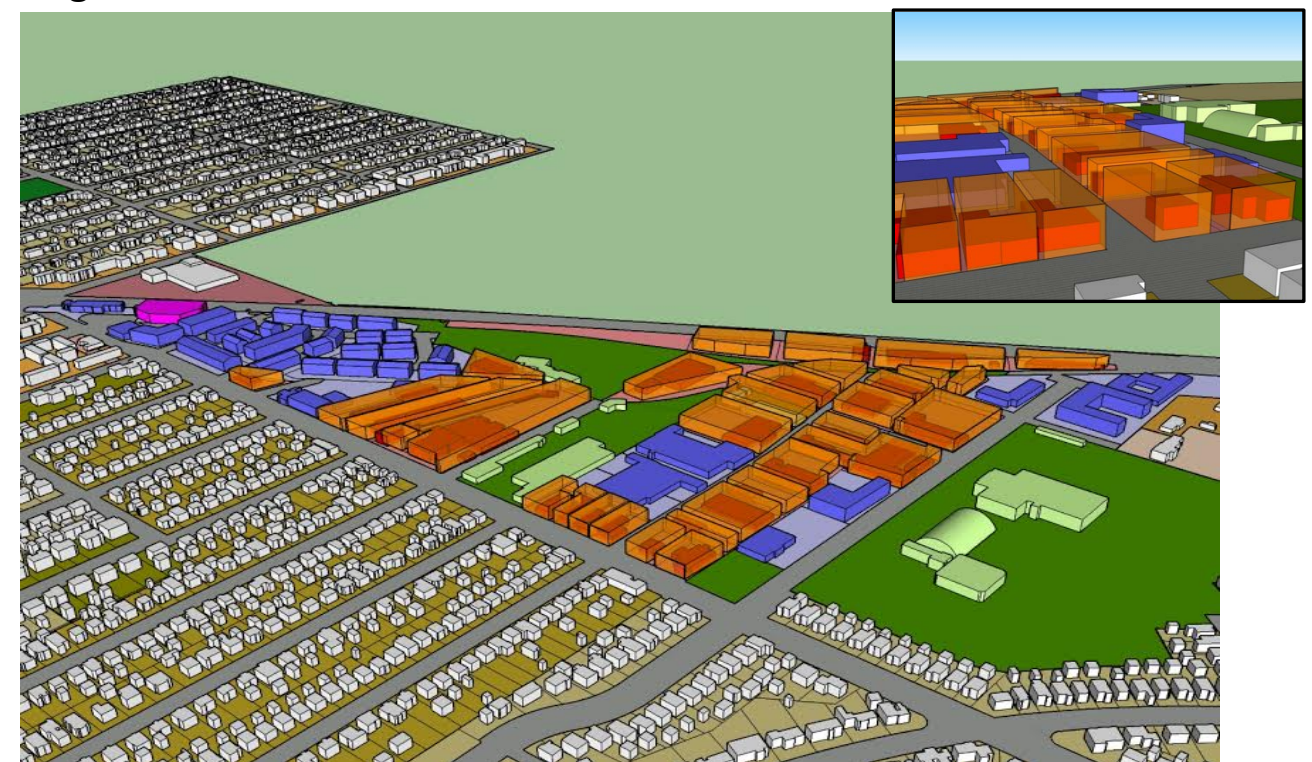
### Future Buildout:

The transparent orange space pictured in Figure 4 indicates the maximum build out space for properties likely to redevelop in the Rail District. The MX zone allows up to 4 stories, and the orange is meant to help visualize the difference between the current build out in red, and what is now possible within the MX zone. The percentage of current built out space vs maximum build out is included in Tables 1 and 2 as the Current Percent of Maximum Build Out value on the far right column.

Figure 3



Figure 4



## Existing Build-out Analysis

Based on development patterns over the past 15-20 years, it is rare for a landowner to use 100% of their developable space (highlighted in orange on Table 1). This is due to development standards such as side and rear setback requirements, access to parking and drop off space, required parking spaces, and right of way improvements. Table 1 compares the maximum build out values for different building uses, based on actual development that has occurred.

The addresses listed in Table 1 are properties not expected to significantly change within the next 20 years. They contain a mix of single story restaurants like Griffin Claw and The Reserve, single story industrial buildings converted into commercial uses such as the Cole Street multi-business spaces (as shown in white on Table 1), and multi-story, mixed used buildings including District Lofts and Crosswinds (as shown in blue on table 1). The build-out rates of properties not expected to significantly change within the next 20 years range from 6% to 62%, with an average of 26%.

Griffin Claw has a build out value of only 8% because it is a large parcel with 70% of its surface area dedicated to parking. The other 30% is occupied by a one story brewery and restaurant space. Because Griffin Claw is a restaurant, it also has a higher parking requirement than retail, office, and residential uses. Parcels with large surface lot parking areas and single story uses score lower percentage values in the maximum build out analysis.

The addresses highlighted in red on Table 2 correspond with the parcels shown in red on Figure 3, and those properties that have been identified as the focus area likely for redevelopment.

**Table 1: Recent Development**

Business	Address	Parcel Sq. Ft.	1st Floor Building Sq. Ft.	# of Stories	% Building on Parcel	Total Building Sq. Ft	Max Build Out Space	Current % of Max Build Out
Assumptions					Footprint/ Parcel	Footprint * # of Stories	Parcel Area *4 Stories	Current Build Sq. Ft./ Max Build
Big Rock	245 S ETON ST	28,237	9,151	1	32%	9,151	112,948	8%
The Reserve	325 S ETON ST	13,404	9,305	1	69%	9,305	53,616	17%
Griffin Claw	575 S ETON ST	66,333	20,248	1	31%	20,248	265,332	8%
Cole St. Multi-Business	2211 COLE ST	62,872	36,800	1	59%	36,800	251,488	15%
Cole St. Multi-Business	2121 COLE ST	66,700	33,502	1	50%	33,502	266,800	13%
(Combined w/ 2121)	2099 COLE ST	-	-	-	-	-	-	-
Armstrong White	2125 E LINCOLN ST	38,454	9,739	1	25%	9,739	153,816	6%
Dentist & Doctor Office	2425 E LINCOLN ST	42,970	12,363	1	29%	12,363	171,880	7%
Sheridan Retirement	2400 E LINCOLN ST (W SIDE)	164,428	30,664	4	19%	149,322	657,712	23%
Sheridan Retirement	2400 E LINCOLN ST (E SIDE)	(Combined)	26,666	1	-	(East +West)	-	-
CrossWinds (16 Buildings)	GRATEN, LEWIS, & HAZEL ST	253,702	97,184	4	38%	388,736	1,014,808	38%
Future Mixed Use	2000 VILLA ST	12,837	8,004	4	62%	32,016	51,348	62%
District Lofts	375 S ETON ST	20,180	10,391	4	51%	41,564	80,720	51%
District Lofts	2051 VILLA RD # 101	27,316	12,171	4	45%	48,685	109,264	45%
Irongate	401 S ETON ST	31,045	15,000	2.5	48%	37,500	124,180	30%
Future Mixed Use	2159 E LINCOLN ST	35,226	16,577	4	47%	66,310	140,904	47%
<b>Total</b>		<b>863,704</b>	<b>347,766</b>	<b>-</b>	<b>40%</b>	<b>895,241</b>	<b>3,454,816</b>	<b>26%</b>



**Build-out Analysis**

**Table 2: Focus Area with Potential for Redevelopment**

Parcel Address	Parcel Sq. Footage	1st Floor Building Sq. Footage	% Building on Parcel	Est. Total Building Sq. Footage	Est. Max Build Out	Current % of Max Build Out
Assumptions		Building Floor Area	Floor Area / Parcel	Building Floor Area * # of Stories	Parcel Area * 4 Stories	Total Build Sq. Ft. / Max Build
501 S ETON	11,331	3,959	35%	3,959	45,326	9%
653 S ETON	54,444	24,705	45%	24,705	217,776	11%
677 S ETON	55,569	22,184	40%	22,184	222,275	10%
707 S ETON	7,335	2,602	35%	5,205	29,338	18%
953 S ETON	10,080	5,003	50%	5,003	40,320	12%
995 S ETON	11,200	4,263	38%	4,263	44,800	10%
925 S ETON	14,016	3,901	28%	3,901	56,062	7%
929 S ETON	11,104	7,146	64%	7,146	44,416	16%
757 S ETON	111,124	49,332	44%	55,640	444,496	13%
1041 S ETON	11,677	1,771	15%	1,771	46,706	4%
1081 S ETON	14,992	6,036	40%	6,036	59,968	10%
2203 HOLLAND	38,614	10,945	28%	10,945	154,456	7%
2200 HOLLAND	89,215	19,404	22%	19,404	356,860	5%
2275 COLE	55,729	14,241	26%	14,241	222,917	6%
2333 COLE	36,071	20,381	57%	20,381	144,285	14%
2330 COLE	36,451	13,057	36%	13,057	145,805	9%
2499 COLE	47,389	4,052	9%	4,052	189,554	2%
2388 COLE	33,531	Parking Lot	-	-	-	-
2182 COLE	20,754	2,816	14%	2,816	83,017	3%
2254 COLE	36,634	13,011	36%	13,011	146,536	9%
2300 COLE	17,196	5,682	33%	5,682	68,784	8%
2010 COLE	34,468	7,190	21%	7,190	137,871	5%
2006 COLE	10,877	3,185	29%	3,185	43,507	7%
2388 COLE	22,202	16,429	74%	16,429	88,807	19%
2400 COLE	62,645	19,461	31%	19,461	250,580	8%
2450 COLE	23,422	9,192	39%	9,192	93,687	10%
2295 E LINCOLN	53,994	33,402	62%	33,402	215,978	15%
2125 E LINCOLN	38,470	9,739	25%	9,739	153,879	6%
2335 E LINCOLN	61,009	15,992	26%	15,992	244,035	7%
Vacant	65,025	Vacant	-	-	-	-
Vacant	43,240	Vacant	-	-	-	-
<b>Total</b>	<b>1,139,807</b>	<b>349,080</b>	<b>31%</b>	<b>357,991</b>	<b>3,992,042</b>	<b>9%</b>

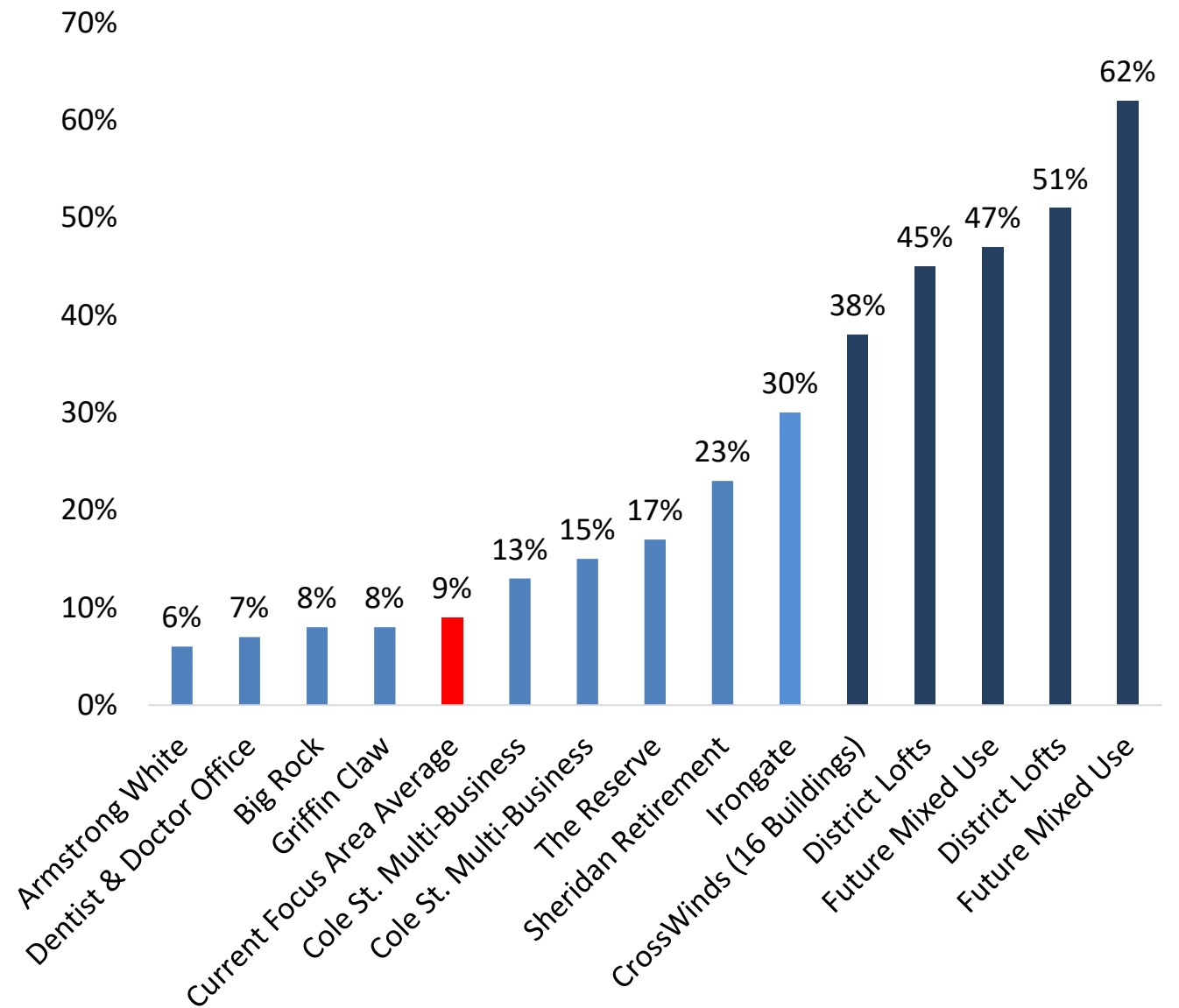
## Determining Future Build-out

Figure 5 illustrates the range of current build out within the study area. The light blue and dark blue columns represent buildings that are assumed to remain the same within the next 20 years. The light blue represents existing single use buildings. These buildings have lower values because most are one story in height, and do not maximize their square footage. The Sheridan Retirement home will be four stories, but has a large surface parking area throughout its parcel. Irongate ranges from two to three stories in height, and uses garage parking to maximize its space.

The dark blue columns in Figure 5 represent mixed-use buildings that are approved to be four stories in height, and they average a 49% build out rate. These buildings score higher values because they maximize their height and square footage, and contain enclosed parking with building area above.

The focus area's current build out rate ranges from 3% to 19% with an average of 9%, which is highlighted in the red column in Figure 5. All of the buildings in the focus area are one story with large surface parking lots. For future projections, it is important to determine how the Rail District would change if the buildings in the focus area were transformed from a 9% average build out to anywhere between 30-50%, similar to recent development projects in the study area.

Figure 5: Percent of Maximum Build Out



### Future Build-out Analysis

Table 3 illustrates the parking necessary for projected build-outs in the focus area. The three scenarios increase the focus area from its current 9% build-out to 30%, 40%, and 50% build out rates. These three values were selected by the committee based on recent development trends in the area with regards to size and mix of office/retail, restaurant, and residential uses.

Required parking spaces were then calculated from the floor area values at 30%, 40%, and 50% of maximum build out values. The first floor of the hypothetical build outs were assumed to be retail/office, requiring 1 space per 300 sq. ft, and floors 2-4 were assumed to be residential, requiring 1 parking space per 1000 sq ft. The total values are shown at the bottom of Table 3. The difference between these values and the existing number of parking spaces was then calculated to illustrate how many additional parking spaces would be required if the focus area developed at a 30%, 40%, and 50% build out rate (see Table 4).

**Table 3: Parking Projection**

Parcel Address	Current Parcel Sq. Footage	Est. Max Build Out	Parking Requirement	Parking Requirement	Max Build Out Parking Requirement	Required Parking	Required Parking	Required Parking
Assumptions		Parcel Area *4 Stories	Retail: 1st Floor 1 per 300 sq. ft.	Residential: Floors 2-4 1 per 1000 sq. ft.	100% Build Out	50% Build Out	40% Build Out	30% Build Out
501 S ETON	11,331	45,326	38	34	72	36	29	22
653 S ETON	54,444	217,776	181	163	345	172	138	103
677 S ETON	55,569	222,275	185	167	352	176	141	106
707 S ETON	7,335	29,338	24	22	46	23	19	14
(Off Site)	65,025	-	-	-	-	-	-	-
757 S ETON	111,124	444,496	370	333	704	352	282	211
2203 HOLLAND	38,614	154,456	129	116	245	122	98	73
2200 HOLLAND	89,215	356,860	297	268	565	283	226	170
953 S ETON	10,080	40,320	34	30	64	32	26	19
995 S ETON	11,200	44,800	37	34	71	35	28	21
2275 COLE	55,729	222,917	186	167	353	176	141	106
2333 COLE	36,071	144,285	120	108	228	114	91	69
2330 COLE	36,451	145,805	122	109	231	115	92	69
925 S ETON	14,016	56,062	47	42	89	44	36	27
929 S ETON	11,104	44,416	37	33	70	35	28	21
2499 COLE	47,389	189,554	158	142	300	150	120	90
(Off Site)	43,240	-	-	-	-	-	-	-
2388 COLE	33,531	-	-	-	-	-	-	-
2182 COLE	20,754	83,017	69	62	131	66	53	39
2254 COLE	36,634	146,536	122	110	232	116	93	70
2300 COLE	17,196	68,784	57	52	109	54	44	33
2010 COLE	34,468	137,871	115	103	218	109	87	65
1041 S ETON	11,677	46,706	39	35	74	37	30	22
1081 S ETON	14,992	59,968	50	45	95	47	38	28
2006 COLE	10,877	43,507	36	33	69	34	28	21
2295 E LINCOLN	53,994	215,978	180	162	342	171	137	103
2125 E LINCOLN	38,470	153,879	128	115	244	122	97	73
2335 E LINCOLN	61,009	244,035	203	183	386	193	155	116
2388 COLE	22,202	88,807	74	67	141	70	56	42
2400 COLE	62,645	250,580	209	188	397	198	159	119
2450 COLE	23,422	93,687	78	70	148	74	59	45
<b>Total</b>	<b>1,139,807</b>	<b>3,992,042</b>	<b>3,327</b>	<b>2,994</b>	<b>6,321</b>	<b>3,160</b>	<b>2,528</b>	<b>1,896</b>

\*Not Probable

\*Not Probable

## Parking Requirement for Future Build-out

Projecting future development is a complicated task. In this analysis, trends from recent developments in the Rail District are extrapolated into the focus area, and then basic assumptions are used to calculate how many extra parking spaces would be required. Although it is an inexact science, having a general idea of future parking needs is an important task. Doing so helps predict how many additional cars could be traveling through the district and how much parking is needed in the future. This can have an impact on traffic signals, road speeds, safety precautions, parking counts, and road design.

Detailed analysis of recent development trends show an average build-out of 26% within the study area. Based on these findings, the potential build out rates of 30%, 40%, and 50% were used, assuming that future developments will try to maximize available space and build four stories. The Ad Hoc Rail District Committee recommended reliance on the 30% build out rate for the buildout analysis to allow for a combination of mixed use, four story buildings which average around 50%, and single story office and restaurant uses which average around 10%, consistent with recent development trends.

There are currently 826 parking spaces in the parking lots within the focus area. Table 4 illustrates additional parking needed based on the build out projections, which range from an additional 1,070 parking spaces if the focus area is built out to 30%, 1702 spaces at 40%, and 2,334 spaces if the focus area is built out to 50% buildout.

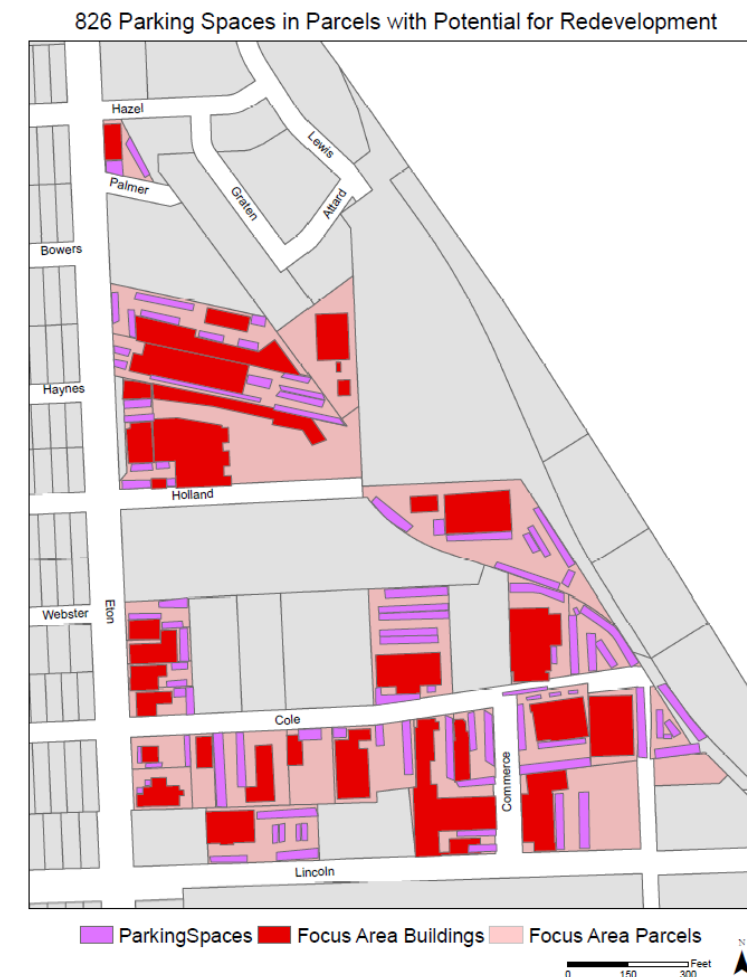
If future development trends towards buildings with less of an upfront cost than 4 stories and underground parking, the additional parking spaces required would drop substantially. Also, the 1,070 additional parking spaces at 30% build out projection is based on an assumption that every parcel identified in red in Figure 3 and Table 2 is redeveloped. We have seen a large amount of repurposing in the Rail District, especially on Cole Street, and if future land owners choose repurposing of current buildings over redevelopment, the projected parking spaces would see a substantial drop as well.

Many of the parcels in the focus area do not have enough space to provide required parking for 4 stories of retail and residential uses unless they build an underground parking facility. Based on recent development trends in the area, this is unlikely to occur and thus, buildout rates will likely remain in the 20-30% range of maximum build-out, requiring less than 1,070 additional parking spaces in the study area. It is important to note that based on the current standards, all of these additional parking spaces must be provided by individual property owners and/or developers. Thus, the City need only focus on encouraging an efficient use of private parking facilities, and ensuring good right-of-way design to accommodate additional vehicle traffic and balance the needs of non-motorized users. The provision of additional public parking is not warranted now, nor in the near future.

**Table 4: Future Parking Needs**

Focus Area Build Out Rate	Projected Parking Spaces	Projected Additional Spaces
Current	826	-
100%	6,321	5,495
50%	3,160	2,334
40%	2,528	1,702
30%	1,896	1,070

**Figure 6**





## Recommendations

The following recommendations are offered by the Ad Hoc Rail District Committee.

### Recommendation 1: Improve Pedestrian Crossings

**Issues:** Some crosswalks and intersections along S. Eton Road are dangerous due to the lack of visibility they create for pedestrians attempting to cross the street. Traffic is heavy and often exceeds the posted speed limit.

**Recommendation:** Construct bump-out curbs throughout the study area.

A bump-out curb is a traffic calming method in which a sidewalk is extended to reduce the crossing distance at intersection. In doing so, sight distance and sight lines for pedestrians are improved, vehicles are encouraged to slow down, and parked cars are prevented from obstructing crosswalk areas.

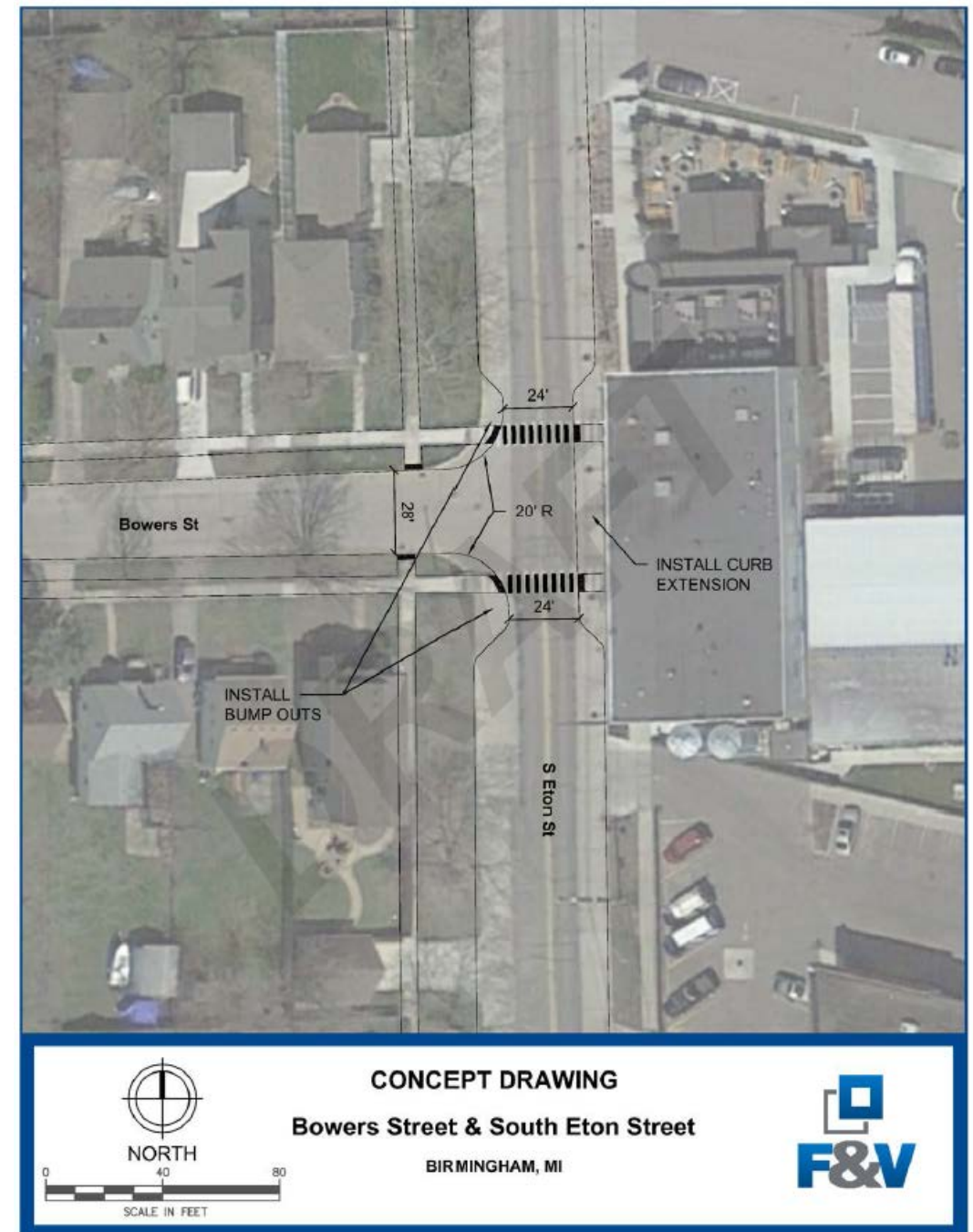
Building on the recommendations of the MMTP, the Committee identified additional intersections that appeared to be strong candidates for bump-out curbs. The map to the right illustrates the possible locations for bump-outs along S. Eton that were identified as priorities for further study. Intersections along S. Eton are as follows: Maple, Yosemite, Villa, Hazel, Bowers, Holland, Webster, Cole, Lincoln, Melton, Sheffield and 14 Mile Road.

Please also note the sample engineering drawing of proposed improved pedestrian crossings at Bowers and S. Eton. As demonstrated, the installation of two bump-out curbs and a curb extension at this intersection could provide a safer, more visible pedestrian crossing point without obstructing right and left turn accessibility for vehicles. The Committee further recommends the use of accent materials to create a plaza feel at this intersection. Benches, planters, and bicycle parking are also recommended.

Possible Bump-out Locations



Sample Engineering Drawing of Bump-out Curbs



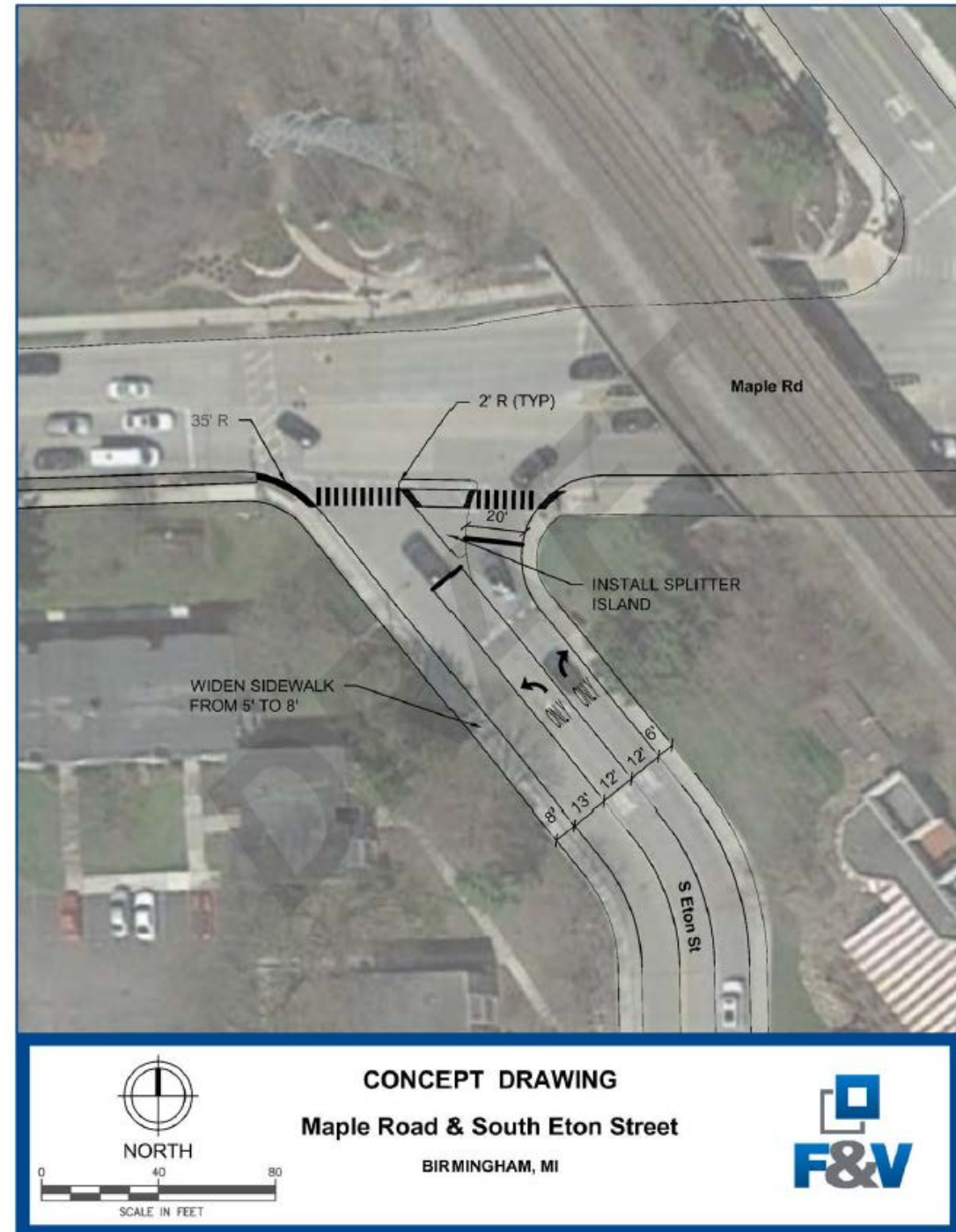
**Recommendation 2:  
Intersection Improvements at Maple & S. Eton**

**Issues:** The intersection of E. Maple and S. Eton does not provide a safe pedestrian experience. With a crossing distance of 88 feet, pedestrians are expected to traverse a very wide street in a short amount of time. This intersection, especially at the southwest corner, exhibits visual barriers that make it difficult for vehicles turning right to detect a crossing pedestrian.

**Recommendations:** Install a splitter island at the crosswalk at S. Eton and Maple, widen the sidewalk on the west side of S. Eton, restripe S. Eton to realign lanes, and add enhanced crosswalk markings.

Elevated splitter islands are installed on roads with low visibility and high vehicle speeds as a way to call attention to an approaching intersection and to urge drivers to slow down. The splitter island also provides pedestrians with refuge for crossing traffic and provides greater detectability of the pedestrians by motorists.

**Sample Engineering Drawing of Proposed Improvements**





## Recommendation 3: Accommodate Bicycling on S. Eton

**Issues:** There are a significant number of bicyclists who traverse along S. Eton Road. The current road conditions in the Rail District are not favorable to those travelling by bicycle because no demarcation exists between the parking lanes and the driving lanes. Additionally, the inconsistent pavement treatment (asphalt and concrete) along S. Eton creates a seam between the driving and parking lanes, presenting an obstacle for bicyclists. Suggestions have been made to organize the street in order to make conditions safer for cyclists.



As shown in the picture above, a bicyclist rides through a narrow stretch of S. Eton where cars are parked on both sides. Bicyclists in the Corridor currently share lanes with vehicle traffic.

**Recommendations:** Add sharrows and buffers to S. Eton from Yosemite to 14 Mile. Maintain sharrows and accommodate parking south of Lincoln where possible. See illustration to the right for the preferred street design option.

While it is common to channel on-street bicyclists using a single line to divide the street lane, there are other alternatives such as a shared lane or “sharrow,” which can comfortably accommodate bikes on the street without a designated lane.

The Committee reviewed several options for bike lanes along S. Eton, but recommended providing sharrow markings with 3’ buffers. Unlike the other options that explored designated bike lanes, this design allows for comfortable bicyclist passage without the elimination of on-street parking, it works well given the current inconsistent pavement treatment along S. Eton, and allows for the addition of curb bump outs all along S. Eton.

### Preferred Option: Use of Sharrows and Buffers



- Mark 7’ Parking Space – 3’ Buffer – 2x10’ Driving Lane – 3’ Buffer – 7’ Parking Space

### Recommendation 4: Encourage Shared Parking

**Issue:** Many properties are dominated by excessively large parking lots that are not being efficiently used. Vast parking lots in the district are vacated after peak business hours and remain empty throughout the evening because of restricted access, while other lots overflow around restaurants in the evenings.



Empty parking lots can be found throughout the study area.

Shared parking is a land use strategy that efficiently uses parking capacity by allowing adjacent and/or compatible land uses to share spaces, instead of providing separate spaces for separate uses. Often, a shared parking agreement is put in place between two or more property owners and the jurisdiction to ensure parking spaces on a site are made available for other uses at different times throughout the day.

**Recommendation:** Encourage shared parking in the district by providing the zoning incentives for properties and/or businesses that record a shared parking agreement. Incentives could include parking reductions, setback reductions, height bonuses, landscape credits, or similar offers.

Amend the shared parking provisions to simplify the calculations to determine required parking based on industry standards and eliminate the need to hire a consultant to prepare shared parking studies. See table to the right for an example of a shared parking calculation from Victoria Transport Policy Institute.

### Sample Shared Parking Occupancy Rates Table

*This table defines the percent of the basic minimum needed during each time period for shared parking. (M-F = Monday to Friday)*

Uses	M-F	M-F	M-F	Sat. & Sun.	Sat. & Sun.	Sat. & Sun.
	8am-5pm	6pm-12am	12am-6am	8am-5pm	6pm-12am	12am-6am
Residential	60%	100%	100%	80%	100%	100%
Office/ Warehouse /Industrial	100%	20%	5%	5%	5%	5%
Commercial	90%	80%	5%	100%	70%	5%
Hotel	70%	100%	100%	70%	100%	100%
Restaurant	70%	100%	10%	70%	100%	20%
Movie Theater	40%	80%	10%	80%	100%	10%
Entertainment	40%	100%	10%	80%	100%	50%
Conference/Convention	100%	100%	5%	100%	100%	5%
Institutional (non-church)	100%	20%	5%	10%	10%	5%
Institutional (church)	10%	5%	5%	100%	50%	5%

Courtesy of Victoria Transport Policy Institute



## Recommendation 5: Add Wayfinding Signage

**Issue:** Currently, the Eton Rail District lacks any uniform signage to help navigate drivers, pedestrians, and bicyclists to their desired destination. Long dead-end streets such as Cole St. and Holland St. where many businesses are located do not have any signage along S. Eton, the main thoroughfare of the Rail District.

**Recommendation:** Install gateway signage at the north and south ends of the study area and install wayfinding signage throughout the Rail District to direct people to destinations and parking.

Wayfinding and signage are tools that provide information relating to direction, distance, and location. Signs have an important role in the public right of way and can enhance an area's sense of place.

### Design Concept for Wayfinding Signage at S. Eton and Lincoln Entrance



Mr. Manda agreed that it is design criteria and priorities and the process involves putting those in order and evaluating. If having a medium to large size trucks in the downtown is not a desirable criteria, that will have an impact on the intersections, curves and details.

Mayor Nickita commented that we are very close. There are some subtleties to the midblock crossings. He confirmed with Mr. Manda that the width of the crossing on Maple is 10 feet. It may be too close to Old Woodward. He said that is another priority criteria issue. Surely, parking is a priority, but also designing a pedestrian crossing in the most appropriate way is a very important priority. He thinks we have to minimize the parking loss by doing it at the via and not at the Social crossing. We can explore options on how to address a couple of medians in the way we discussed achieving the goals.

Mayor Pro Tem Harris recognized we are on a tight timeline, and wondered if an additional iteration will affect the timeline.

City Manager Valentine said we are very tight on the timeline, and as we move forward, that will push things back. It would be an additional two weeks before the next meeting. Mr. Manda said that is enough time to revise and bring back. Mayor Nickita said it is very important to do this as well as we can.

Mayor Nickita clarified the items discussed which include diminishing the width of midblock crosswalks to maximize parking wherever that is possible, and some of the options for the medians in two locations. The only other median we did not discuss is the alley located by Pierce. He suggested designing something there that would be similar to the other median designs, perhaps smaller and with a rolling curb. Mr. Manda said that is a very narrow alley. Mayor Nickita suggested that we might consider recommending a traffic pattern question on whether that is done one way or the other. He suggested looking at the use at that alley to determine if there is another option.

**01-03-17                      FINAL REPORT OF THE AD HOC RAIL DISTRICT REVIEW COMMITTEE**

City Planner Ecker provided background and history of the Ad Hoc Rail District Review Committee established by the City Commission on January 11, 2016, to study existing and future conditions and to develop a recommended plan to address parking, planning and multi-modal issues in the Rail District and along S. Eton Road (“the Rail Plan”).

Over the past eight months, the Ad Hoc Rail District Review Committee has worked to identify issues in the Rail District and along S. Eton, and to develop a plan with recommendations to address parking, planning and multi-modal issues in the Rail District, as directed by the City Commission. The Ad Hoc Rail District Review Committee requested funds to hire a consultant to review some of the intersection design concepts discussed by the Committee, and to conduct an analysis of parking in the study area. Based on the Committee’s direction, the findings outlined in the consultant’s report, and the input of the public, a draft of the Ad Hoc Rail District Report requested by the City Commission has been prepared. On December 5, 2016, the Ad Hoc Rail District Review Committee held their final meeting to review and approve their final report. After much discussion, the Ad Hoc Rail District Review Committee voted to recommend approval of the final report to the City Commission, with minor changes. All of the requested changes have been made.



Ms. Ecker introduced Sean Campbell, Assistant Planner and Brooks Cowen, Planning Intern who provided assistance with the GIS analysis of parking and intersection design.

Ms. Ecker explained the goals and objectives of the committee which included:

Goals:

To create an attractive and desirable streetscape that creates a walkable environment that is compatible with the adjacent residential neighborhoods.

To design the public right-of-way for the safety, comfort, convenience, and enjoyment for all modes of transportation throughout the corridor.

To facilitate vehicular traffic and parking without sacrificing the corridor's cycling and pedestrian experience.

To minimize the impacts of traffic on the existing residential neighborhoods.

To recommend updates to the Rail District zoning regulations as needed to meet goals.

Objectives:

To use creative planning to promote a high quality, cohesive right-of-way that is compatible with the existing uses in the corridor.

To implement "traffic calming" techniques, where appropriate, to reduce speeds and discourage cut-through traffic on residential streets.

To enhance pedestrian connectivity through the addition of crosswalks, sidewalks, and curb extensions.

To improve accommodations for bicycle infrastructure on Eton Road.

To create a balance between multimodal accessibility and parking provisions.

Ms. Ecker said the concerns were apparent during the tour. Key areas identified were S. Eton and Maple. Discussion included widening the sidewalk on the west side of the street for a bigger safety zone for pedestrians. Widening the sidewalk on the east side of S. Eton was also suggested to create a bigger plaza area there as well. They also discussed adding a splitter island to give a pedestrian island in the middle for people walking across. Several intersections up and down S. Eton were also looked at and the need for additional bump outs, and better striping. The intersection at S. Eton and Bowers was felt to be an important area with a great deal of activity. Bump outs and using different accent material in that area to create a plaza feel which would remind vehicles to slow down in the area.

Ms. Ecker noted a parking inventory and study were conducted. The study revealed there are 2,480 parking spaces in the district as a whole. There are 941 on-street parking spaces, 1539 parking spaces on individual private properties. The north end of the district has more a need for parking at different times. The south end is busier during the working day, but it clears out at 5:00 PM.

It was noted that the entire west side of S. Eton was never at full capacity. The highest use was around Griffin Claw with 28 out 60 spaces that were full on a Friday night.

Ms. Ecker discussed future build-outs and how they reached some of the conclusions. She explained that the issue became clear because they have to self-park, maximum build-out will not be done, and the biggest issue is that there is no shared parking in the area. That keeps the development down to roughly 26-30% of what could be done under the ordinance. Many of the parcels in the focus area do not have enough space to provide required parking for

four stories of retail and residential uses unless they build an underground parking facility. Based on recent development trends in the area, this is unlikely to occur and thus, buildout rates will likely remain in the 20-30% range of maximum build-out, requiring less than 1,070 additional parking spaces in the study area. It is important to note that based on the current standards, all of these additional parking spaces must be provided by individual property owners and/or developers. Thus, the City need only focus on encouraging an efficient use of private parking facilities, and ensuring good right-of-way design to accommodate additional vehicle traffic and balance the needs of non-motorized users. The provision of additional public parking is not warranted now, nor in the near future.

The recommendations of the committee include:

Construct bump-out curbs throughout the study area;

Install a splitter island at the crosswalk at S. Eton and Maple, widen the sidewalk on the west side of S. Eton, restripe S. Eton to realign lanes, and add enhanced crosswalk markings;

Add sharrows and buffers to S. Eton from Yosemite to 14 Mile. Maintain sharrows and accommodate parking south of Lincoln where possible.

Encourage shared parking in the district by providing the zoning incentives for properties and/or businesses that record a shared parking agreement. Incentives could include parking reductions, setback reductions, height bonuses, landscape credits, or similar offers;

Install gateway signage at the north and south ends of the study area and install wayfinding signage throughout the Rail District to direct people to destinations and parking.

Mayor Nickita commended the committee on the depth and problem solving that was undertaken.

Commissioner Bordman said the study was so thorough. She was very impressed that the committee was able to figure out the real parking needs.

Mayor Pro Tem Harris questioned what incentives there might be for shared parking. Ms. Ecker said perhaps landscaping requirements could be relaxed, but we would ask the Planning Board to study that in more detail.

Commissioner DeWeese noted there might be an economic incentive.

Commissioner Hoff asked about the southeast corner of S. Eton and Maple intersection and if the property is city property. She also asked if the Whole Foods operation was studied by the committee. Commissioner Hoff expressed concern that traffic on S. Eton will be increased. The committee's concern was with the speed of the traffic.

Mayor Pro Tem Harris asked why the committee did not recommend a dedicated bike lane. Ms. Ecker said there were a couple of issues including the bump out incompatibility as well as the pavement material issue.

Commissioner DeWeese noted that we can accept the report and use it for a general guideline. City Manager Valentine confirmed that any recommendation will be brought back to the Commission for consideration.

Mayor Nickita asked if this addressed the edge condition that has been an issue and do we need to include something in the Zoning Ordinance. Ms. Ecker said it was not discussed in

detail. She said currently there is a regulation in the ordinance that does not allow parking in the first twenty feet of depth.

Mayor Nickita said this helps bring attention to a very under-utilized area of the city, and land owners do not realize that they are sitting on potential redevelopment value if they work together at shared parking for example.

**MOTION:** Motion by Sherman, seconded by Bordman:

To accept the final report of the Ad Hoc Rail District Review Committee, and forward same to the Multi-Modal Transportation Board for their consideration in finalizing the design of the S. Eton corridor, and to the Planning Board, and direct the Planning Board to add Recommendations 4 (Encourage Shared Parking) and 5 (Add Wayfinding Signage) from the final report to their Action List for further study, and to develop a way to implement the shared parking, and to correct the crosswalk marking within the final report as discussed.

Larry Bertollini expressed concern about the recommended options, and focusing on both sides of Maple and S. Eton, and visibility concerns.

Mayor Nickita suggested going forward to study with and without parking on both sides, and how it may affect speed. We know people tend to speed up when parking is removed on one side.

VOTE:           Yeas,    7  
                  Nays,   None  
                  Absent, None

**01-04-17                   MONTHLY PARKING PERMIT RATE INCREASES**

City Engineer O'Meara explained that monthly permit rates at the structures have been adjusted on several occasions over the years, usually to reflect the difference in demand at the various parking structures. Recently, increases at all five structures were implemented in the summer of 2014, and again in 2015. As demand for parking spaces grew, increases were considered justified not only because of high demand, but also to help build a savings account in the parking system fund for potential upcoming construction.

In April of this year, staff reviewed the rates with the Advisory Parking Committee (APC), and recommended a package of increases that would primarily impact both the monthly and daily rates in the parking structures. Raising the lower priced meters so that all meters were \$1 per hour was also suggested. Other changes were included as well, designed to reduce demand in the parking structures, and to encourage employees to consider the City's off-site parking options. The APC was not inclined to recommend any changes at that meeting.

Staff refined the package based on APC input, and also provided options on how to charge the daily rate. At the May meeting, the APC approved a recommendation that included several items, with the two significant changes impacting the monthly and daily rates in the structures.

The suggested increase for most of the lower cost parking meters was not agreed to. At the June 6, 2016 Commission meeting, the recommendations of the APC were discussed. Most of the package was approved that evening including the daily rate at the structures. The monthly rate structure was not changed at that time, and the City Commission asked at the time to consider being more aggressive.



# MEMORANDUM

Planning & Engineering Department

**DATE:** January 27, 2017

**TO:** Multi-Modal Transportation Board

**FROM:** Paul T. O'Meara, City Engineer  
Brooks Cowan, Planning Intern

**SUBJECT:** Intersection Improvements at Maple Rd. & S. Eton Rd.

---

On January 9, 2017, the City Commission reviewed and endorsed the final recommendations of the Ad Hoc Rail District Committee. The final report, as presented to the Commission, is attached, as well as the minutes from that meeting. Today's report focuses on the recommendation to install pedestrian improvements for the intersection of Maple Rd. and S. Eton Rd.

In the spring of 2016, the committee conducted a walking audit of the area and deemed this intersection unsafe for people who wish to cross the street. The committee found it difficult to traverse the 88 foot wide intersection within the allotted crossing time. It was determined that actions should be taken to shorten the walkable distance between the east and west part of the intersection, possibly installing a refuge island in the middle, and improving the pavement markings to increase driver awareness of pedestrian crossing areas.

A concept drawing has been provided by Fleis and Vandenbrink that encourages pedestrian friendly changes for the intersection. A splitter island is proposed between the right turn and left turn lanes on northbound Eton. This is meant to provide refuge for pedestrians who cannot cross the 88 ft wide intersection within the allotted signal time. Stop bars for the left and right turn lanes on northbound Eton would be relocated closer to Maple, adjacent to the splitter island. Widening the sidewalks on both sides from 5' to 8' is also proposed at this intersection. Doing so effectively reduces the crosswalk distance at Eton, provides more space and safety for sidewalk users, and narrows the adjacent driving lanes which may reduce travel speeds. Additional continental striping to increase driver awareness of the pedestrian crossing is proposed as well. Please see attached image below for designs. An engineering analysis of each follows.



**CONCEPT DRAWING**  
**Maple Road & South Eton Street**  
**BIRMINGHAM, MI**



The south leg of this intersection (S. Eton Rd.) was reconstructed in 2009. A part of the engineering plan sheet for this project is attached to this report, for reference.

#### PEDESTRIAN SPLITTER ISLAND

Construction of the splitter island is feasible at this time, provided funds are budgeted. The existing concrete could be sawcut and removed, and new concrete curbs and sidewalk could be installed. The excess space south of the island could be landscaped with perennial plantings to be maintained by the Dept. of Public Services. Only plantings that can handle the difficult conditions would be recommended (salt in winter, lack of water in summer). Other traffic islands are now being maintained by City staff in a similar manner.

The cost of this improvement is estimated at \$10,000.

#### WIDENED SIDEWALK, WEST SIDE

As shown on the attached 2009 construction plan, there is no additional right-of-way on the southwest corner of this intersection. The Multi-Modal Master Plan suggests a widened 8 ft. wide sidewalk (up from the present 5 ft.). There is no room to do this in the direction away from the road without first purchasing right-of-way, and constructing a retaining wall to hold back the existing hill. This may prove to be a difficult venture. A second alternative, as suggested by the report, is to narrow the southbound lane of S. Eton Rd. by three feet, reconstructing the curb. This would provide new space for a widened sidewalk for this area. To maintain positive drainage, the majority of the existing sidewalk would have to be removed as well. It is important to consider that this is the only designated truck route into the Rail District commercial area. Since the splitter island would already be narrowing the intersection, and making left turns from Maple Rd. to S. Eton Rd. will be more difficult, it is recommended that the island be installed first. Actual conditions can then be monitored to see if the road narrowing on the west side is an appropriate future measure.

#### WIDENED SIDEWALK, EAST SIDE

The Ad Hoc Rail District plan suggested widening the existing sidewalk on Maple Rd. from the Eton Rd. ramp to the railroad bridge. However, right-of-way is again a problem. A widened sidewalk could be installed in the arc area of the walk directly south of the SE corner handicap ramp. Adding sidewalk here would not require removal of any existing concrete, and would be a simple improvement valued at about \$1,000.

As a first step toward improving pedestrian conditions at this intersection, it is recommended that \$11,000 be added to the 2017-18 fiscal year budget, within the Sidewalk Fund, to pay for the installation of a landscaped splitter island and widened sidewalk at the southeast corner of the intersection of Maple Rd. and S. Eton Rd.



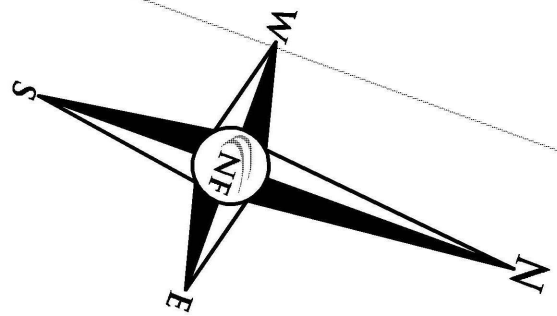
### SUGGESTED RECOMMENDATION

To recommend to the City Commission that \$11,000 be budgeted within the Sidewalk Fund for pedestrian crossing improvements at the intersection of Maple Rd. and S. Eton Rd. Funding would allow the installation of a landscaped splitter island and widened sidewalk at the southeast corner of the intersection.

# ESTIMATED PAVEMENT MARKING QUANTITIES

## ETON STREET

ITEM	QUANTITY	UNITS
WATERBOURNE PAVEMENT MARKING, 4 INCH, YELLOW	646	L.F.
WATERBOURNE PAVEMENT MARKING, 24 INCH STOP BAR, WHITE	23	L.F.
WATERBOURNE PAVEMENT MARKING, 6 INCH CROSSWALK, WHITE	168	L.F.
WATERBOURNE PAVEMENT MARKING, 12 INCH CROSSHATCHING, WHITE	152	L.F.
WATERBOURNE PAVEMENT SYMBOL MARKING, LEFT TURN ARROW, WHITE	2	EA.
WATERBOURNE PAVEMENT SYMBOL MARKING, RIGHT TURN ARROW, WHITE	2	EA.
WATERBOURNE PAVEMENT SYMBOL MARKING, "ONLY", WHITE	4	EA.



PROVIDE FULL DEPTH LONGITUDIAL SAWCUT @ FACE OF INTEGRAL CONCRETE CURB (TYP.)

NOTE PR. CROWN OF NEW PAVEMENT IS APPROX. 17' FROM WEST CURB FACE ALONG DOUBLE YELLOW PAVEMENT MARKING (TYP.)

REMOVE EX. CONCRETE PAVEMENT EXCAVATE, AND INSTALL PR. CONCRETE PAVEMENT SECTION (TYP.) 1,565 SY

ABANDON 316 LF EX. 12" WATER MAIN

INSTALL 304 LF 6" PERFORATED PIPE UNDERDRAIN

EX. SIDEWALK TO REMAIN, PROTECT FROM DAMAGE (TYP.)

REMOVE & REPLACE CONCRETE CURB & GUTTER  
BENCHMARK  
NE BOLT COVER ON STRAIN POLE BASE  
ELEVATION 742.78  
BIRMINGHAM DATUM

TAP EX. CATCH BASIN W/6" UNDERDRAIN

INSTALL WHITE CROSSWALK AND CROSSHATCHING

ABANDON EX. 12" GATE VALVE & WELL

ABANDON 11 LF EX. 12" WATER MAIN

CUT & CAP EX. 12" WATER MAIN (INC.-TYP.)

INSTALL NEW #59 STA. 55+33.13, 30.31' R 12" TAPPING SLEEVE, VALVE & BOX PR. RIM 739.50

INSTALL WHITE STOP BAR (TYP.)

REMOVE EX. CONCRETE PAVEMENT TO NEAREST JOINT (TYP.)

INSTALL 127 LF 12" CL. 54 D.I.P. WATER MAIN (BEND TO BEND)

REMOVE & REPLACE CONCRETE CURB & GUTTER

INSTALL 258 LF 6" PERFORATED PIPE UNDERDRAIN

INSTALL 49 LF 12" CL. 54 D.I.P. WATER MAIN (BEND TO BEND)

EX. SIDEWALK TO REMAIN, PROTECT FROM DAMAGE (TYP.)

INSTALL 13 LF 12" CL. 54 D.I.P. WATER MAIN (GVB TO BEND)

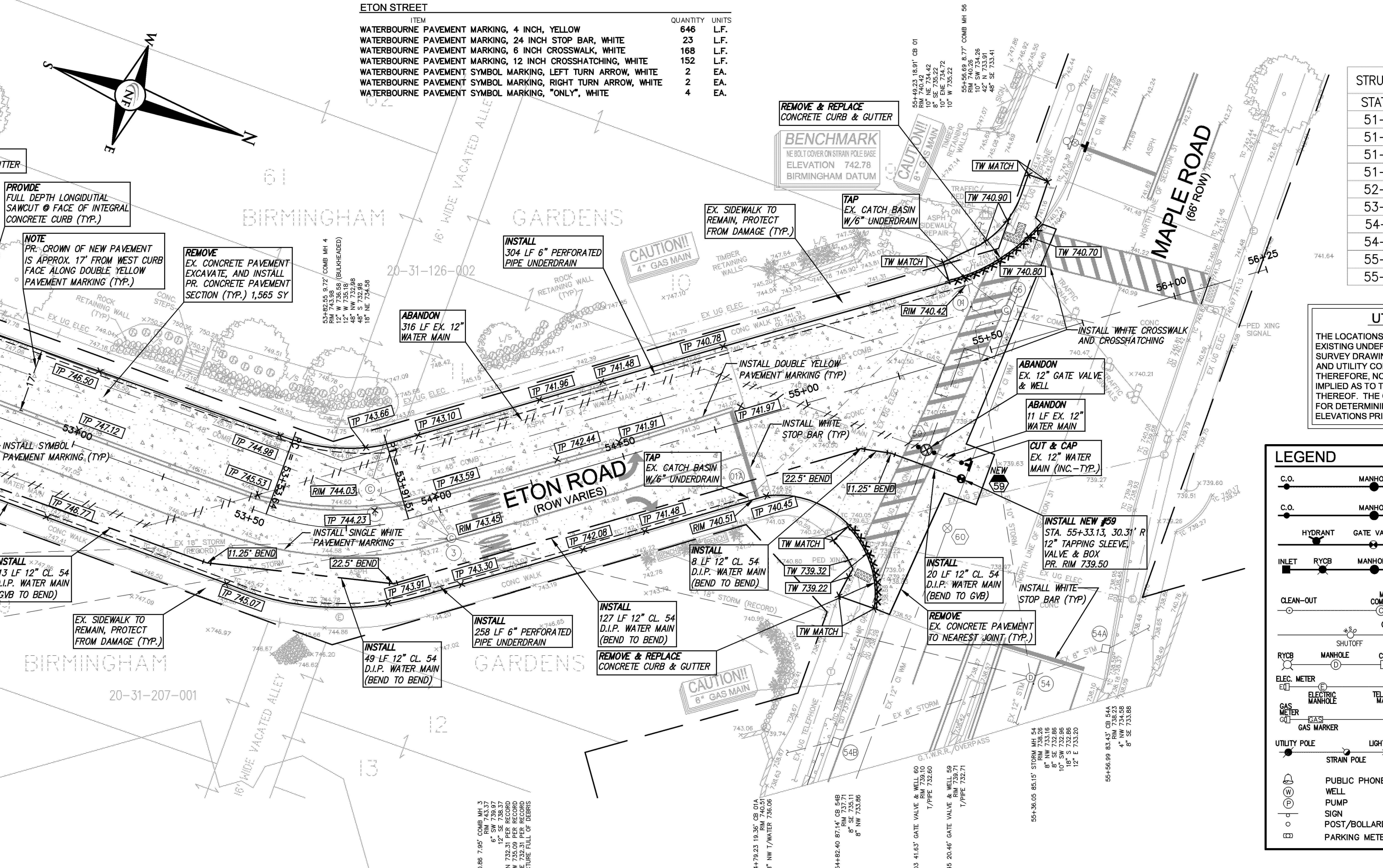
INSTALL SYMBOL PAVEMENT MARKING (TYP.)

STRA	STA
51-	
51-	
51-	
51-	
52-	
53-	
54-	
54-	
55-	
55-	

THE LOCATIONS OF EXISTING UNDERGROUND SURVEY DRAWINGS AND UTILITY COORDINATES ARE THEREFORE, NOT IMPLIED AS TO THEIR ACCURACY. THE USER IS RESPONSIBLE FOR DETERMINING THE CORRECT ELEVATIONS PRIOR TO CONSTRUCTION.

### LEGEND

- C.O. MANHOLE
- C.O. MANHOLE
- HYDRANT GATE VALVE
- INLET RYCB MANHOLE
- CLEAN-OUT
- SHUTOFF
- RYCB MANHOLE
- ELEC. METER
- ELECTRIC MANHOLE
- GAS METER
- GAS MARKER
- UTILITY POLE
- STRAIN POLE
- PUBLIC PHONE
- WELL
- PUMP
- SIGN
- POST/BOLLARD
- PARKING METER



54+00.86 7.95' COMB. MH 3  
RIM 743.57  
8" SW 739.97  
10" SW 739.57  
18" N 732.31 PER RECORD  
18" SW 735.09 PER RECORD  
18" SE 732.31 PER RECORD  
STRUCTURE FULL OF DEBRIS

54+79.23 19.36' CB 01A  
RIM 740.51  
8" NW T/WATER 736.06

54+82.40 87.14' CB 54B  
RIM 737.71  
8" SE 735.11  
8" NW 733.86

54+26.03 41.63' GATE VALVE & WELL 60  
RIM 739.10  
T/PIPE 732.60

54+26.45 20.46' GATE VALVE & WELL 59  
RIM 739.71  
T/PIPE 732.71

55+36.05 85.15' STORM MH 54  
RIM 736.26  
8" NW 733.16  
8" SE 732.86  
10" SW 732.96  
16" S 732.86  
12" E 733.20

55+56.99 83.43' CB 54A  
RIM 736.23  
4" NW 734.58  
8" SE 733.88



# 2000 E Maple Rd

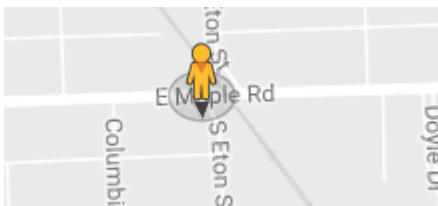
Maple Rd. & S. Eton Rd. Looking South



Image capture: Oct 2016 © 2017 Google

Birmingham, Michigan

Street View - Oct 2016







139 S Eton St

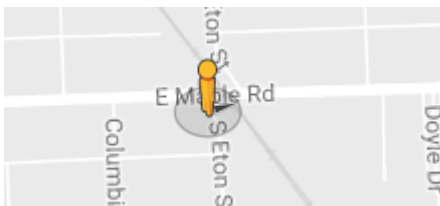
Maple Rd. and S. Eton Rd., Looking NE



Image capture: Aug 2015 © 2017 Google

Birmingham, Michigan

Street View - Aug 2015



**CITY OF BIRMINGHAM  
MULTI-MODAL TRANSPORTATION BOARD  
THURSDAY, FEBRUARY 2, 2016  
City Commission Room  
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, February 2, 2016.

In the absence of both the Chairperson and Vice-Chairperson, it was agreed that Ms. Slanga would take over the chair.

Chairperson Johanna Slanga convened the meeting at 6:34 p.m.

**1. ROLL CALL**

**Present:** Board Members Lara Edwards, Amy Folberg, Daniel Rontal, Johanna Slanga, Michael Surnow

**Absent:** Chairperson Vionna Adams; Vice-Chairperson Andy Lawson

**Administration:** Lauren Chapman, Asst. City Planner  
Jana Ecker, Planning Director  
Scott Grewe, Operations Commander  
Paul O'Meara, City Engineer  
Carole Salutes, Recording Secretary

**Also Present:** Mike Labadie from Fleis & Vandenbrink  
("F&V"), Transportation Engineering Consultants.

**2. INTRODUCTIONS**

Lauren Chapman, Asst. Planner for the City, was introduced.

**3. REVIEW AGENDA (no change)**

**4. APPROVAL OF MINUTES, MEETING OF DECEMBER 1, 2016**

**Motion by Mr. Surnow**

**Seconded by Mr. Rontal to approve the Minutes of December 1, 2016 as presented.**

**Motion carried, 5-0.**

VOICE VOTE

Yeas: Surnow, Rontal, Edwards, Folberg, Slanga

Nays: None

Absent: Adams, Lawson

**5. SAXON DR. AND LATHAM RD.  
Crosswalk Installation**

Mr. O'Meara recalled that in 2015, the Police Dept. was approached with complaints about traffic volumes and speeds on Saxon Rd., located in the southwest corner of Birmingham. Residents expressed concerns with the amount of traffic as well as the speeds that occur in that area. It is a wide right-of-way, and the street acts as an extension of Fourteen Mile Rd. so it tends to lend itself to speeds faster than the 25 mph speed limit.

Saxon Dr. is a border street, with Beverly Hills sharing jurisdiction of this road. Working with representatives from both sides of the street, the City of Birmingham took the lead in discussing the various options with the interested residents. By the middle of 2015, various issues and ideas were explored, and it was decided that the residents would petition the City for a complete road reconstruction. Over 50% of the owners on both sides endorsed the idea, and after receiving an information booklet a neighborhood meeting was held in the summer of 2016. After the meeting, enough residents changed their minds, and decided to no longer support the project. Cost was a major factor.

Currently, there is no sidewalk connection for pedestrians to cross Saxon Dr., other than at Southfield Rd. The intersection is noted in the Master Plan as a location within Phase 3. It is provided as a suggested improvement, as Latham Rd. is listed as part of a Phase 3 neighborhood connector route. Not only would the improvement help improve the crossing for pedestrians, the pavement markings should help encourage more responsible speeds on Saxon Dr. from motorists passing through the area.

The Beverly Hills Village Board has already signed an agreement approving this project, and their commitment to 50% of the cost, based on the cost estimate of about \$21,000.. Staff recommends making some storm sewer changes where needed and adding painted crosswalks that would encourage drivers to watch for pedestrians and potentially slow down.

If the Multi-Modal Board endorses this project, it will be forwarded to the City Commission for final approval of the funds. The Engineering Dept. will then add it



to the 2017 Concrete Sidewalk program contract documents, and oversee the construction of this improvement during the 2017 construction season.

Dr. Rontal did not necessarily think the crosswalk lines would slow cars down. Mr. O'Meara said the residents originally asked for a stop sign but it wasn't warranted by traffic volume. If residents aren't able to help pay for more substantial improvements, this is what can be recommended. A crosswalk is an attempt to show that cars should slow down for pedestrians at this intersection. Ms. Edwards suggested adding two white lines and a middle yellow dotted line in order to get cars into a more narrow space on Saxon. However, it was noted that at 22 ft. the road is already narrow, and additionally residents have often said a line down the middle would make the road feel like a major street.

Mr. O'Meara indicated that the residents felt a crosswalk would help to calm traffic. He noted the Master Plan calls for a crossing improvement at that intersection.

Board members were in agreement that installing crosswalks would not slow the traffic and alleviate the residents' concerns. Mr. Labadie did not think painting the road would help too much. As an inexpensive solution he suggested adding a couple of flashing speed limit signs. Commander Grewe said one sign could be budgeted for this stretch of road, but only for westbound traffic.

Consensus was to go back to Beverly Hills and the residents and offer at least a speed sign for the westbound traffic and see if that helps. Perhaps Beverly Hills would be willing to split the cost of a speed sign for eastbound traffic. Staff was encouraged to discuss the speed sign, paint markings, etc., with both Beverly Hills and the residents.

## **6. MAPLE RD. AND S. ETON RD. Crosswalk Improvements**

Ms. Ecker offered background. The Ad Hoc Rail District Committee was set up by the City Commission to look at a number of issues in the Rail District. They spent a year studying what is going on in that area. Tonight the board will specifically focus on the intersection of Maple Rd. and Eton Rd. The recommendations provide a way to shorten the entire width to cross Eton Rd.. A splitter island in the middle between the right and left turn lanes is suggested along with enhanced crosswalk markings, expanding the sidewalk, and changing the lane configuration. Board members agreed they don't want to encourage people to stand on the splitter island in the middle of Eton Rd.. Ms. Ecker thought that the island calms traffic, and she doesn't imagine too many pedestrians will stand on it because they can get across because of all of the

green time on Maple Rd. She likes the idea of dotted lines to direct cars coming off of westbound Maple Rd. and going south on Eton Rd.

Commander Grewe said for westbound traffic stopped on the east side of the intersection he would suggest moving the stop line further west so when a vehicle makes a left turn to go south on Eton Rd. the radius isn't so sharp. Mr. Labadie noted the stop bar needs to be located so that drivers can see the signal. Chairperson Slanga cautioned that signage should be placed far enough back so people will know which lane to be in to make their turn.

Board members recommended that Mr. Labadie should study this further to ensure large trucks can make a nice clean turn; look at adding dotted lines to show the left track turning radius coming from westbound Maple Rd. south on Eton Rd.; also study moving the westbound Maple Rd. stop bar location and possibly extending the median at that same location. Additionally, study how to accommodate bikes through that intersection. The recommendation from the Ad Hoc Rail District Study Committee was to widen the sidewalks from 5 ft. to 8 ft. on the whole block of Eton Rd. going south. The board was in agreement.

## **7. MAPLE RD. AND SOUTHFIELD RD. Crosswalk Improvements**

Mr. O'Meara recounted some safety issues that have occurred over the years at this intersection. In 2015 safety issues at the Maple Rd. & Southfield Rd. intersection were studied by the City's traffic consulting firm, Fleis & Vandenbrink ("F&V"). Lane configuration changes to Maple Rd. were approved, and subsequently put into place in October as a trial, and later approved for permanent status in June, 2016. During the studies, it became clear that the crash patterns at this intersection are such that safety could be improved if the intersection was relocated further west, allowing for the creation of a 90° intersection.

In 2016, it was determined that the relocation of this intersection may qualify for federal funding. Further, it was decided that since Maple Rd. is planned for reconstruction further east (in downtown), if safety funding was awarded, it would be an appropriate time to address both areas within the same construction project. The City directed F&V to apply for federal funding for this potential safety improvement. The application is currently pending, and should be announced in May of 2017.

In December, Commissioner DeWeese expressed concerns about the crosswalk that appear similar to those that have been raised in the past. The speed of northbound right turning vehicles continues to be an issue. The matter was referred to F&V in preparation for a review by the MMTB. Since a major change will require significant spending, and since a federal funding application is currently pending, F&V suggested a change in



# MEMORANDUM

Engineering Dept.

**DATE:** February 24, 2017

**TO:** Multi-Modal Transportation Board

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** Maple Rd. & S. Eton Rd. Improvements

As you know, the Ad Hoc Rail District Committee finished its work, and submitted a report of recommendations to the City Commission in December, 2016. The attached report dated January 27, 2017, summarizing suggested improvements at the Maple Rd. was reviewed by the Multi-Modal Transportation Board at its meeting of February 2, 2017. At that time, the following comments were raised:

1. There was concern that the island may not permit left turns from Maple Rd. on to southbound S. Eton Rd. Various ways to correct that were discussed, such as moving the westbound Maple Rd. stop bar west, or extending the island at the center pillar of the railroad bridge.
2. Provide a cost estimate for narrowing the street to allow for a wider sidewalk on the west side of the block.
3. Consider again how bikes may be accommodated in this area.

Staff worked with F&V to consider these items, and offers the following responses:

1. F&V considered truck turns in this area when it designed the island several months ago. The attached drawing depicts the turning radius for a 50 ft. semi-truck trailer to make the left turn from Maple Rd. on to southbound S. Eton Rd. The island allows for the turning movement. Also shown on this drawing is how right turns are also accommodated for these large trucks from S. Eton Rd. on to eastbound Maple Rd. No adjustments are needed to the island design. The other ideas that were expressed, such as moving the westbound stop bar, or extending the island at the center pillar, are not recommended.
2. In order to widen west side sidewalk from Maple Rd. to Yosemite Blvd., three feet of S. Eton Rd. must be removed, a new curb section must be installed, and then a new eight foot wide sidewalk can be installed in place of the existing five foot wide sidewalk. The total cost for this portion of the work is estimated at \$53,000. The total cost of the three improvement areas now being considered are:

Splitter island	\$20,000
Landscaping at island	\$ 1,000
Widened handicap ramp area at SE corner	\$ 1,000
Widened sidewalk and ramps on W side	<u>\$53,000</u>
TOTAL	\$75,000

3. Both N. Eton Rd. & S. Eton Rd. have been part of a marked bike route for decades. It is also part of the new Neighborhood Connector route that has been approved by the City Commission, and is planned to be installed this spring. The Maple Rd. intersection, and the two blocks of Eton Rd. north and south of the intersection have always been a poor segment in the route for bicyclists. The railroad bridge conflict at this intersection is significant, and remains a multi-million dollar problem that will not be easy to fix. Further, when Eton Rd. was impacted by the railroad in 1930, a small 50 ft. right-of-way was left for these short diagonal sections, to make room for the railroad.

In order to process the large traffic demand on S. Eton Rd. at the Maple Rd. intersection, a minimum of three lanes must be provided, with two northbound storage lanes to queue while waiting to enter Maple Rd. in both directions. Once three lanes are provided, as well as sidewalks on both sides, there is no extra right-of-way left. (That is why the sidewalks are constructed immediately behind the curb on both sides of the street.)

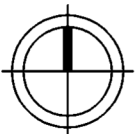
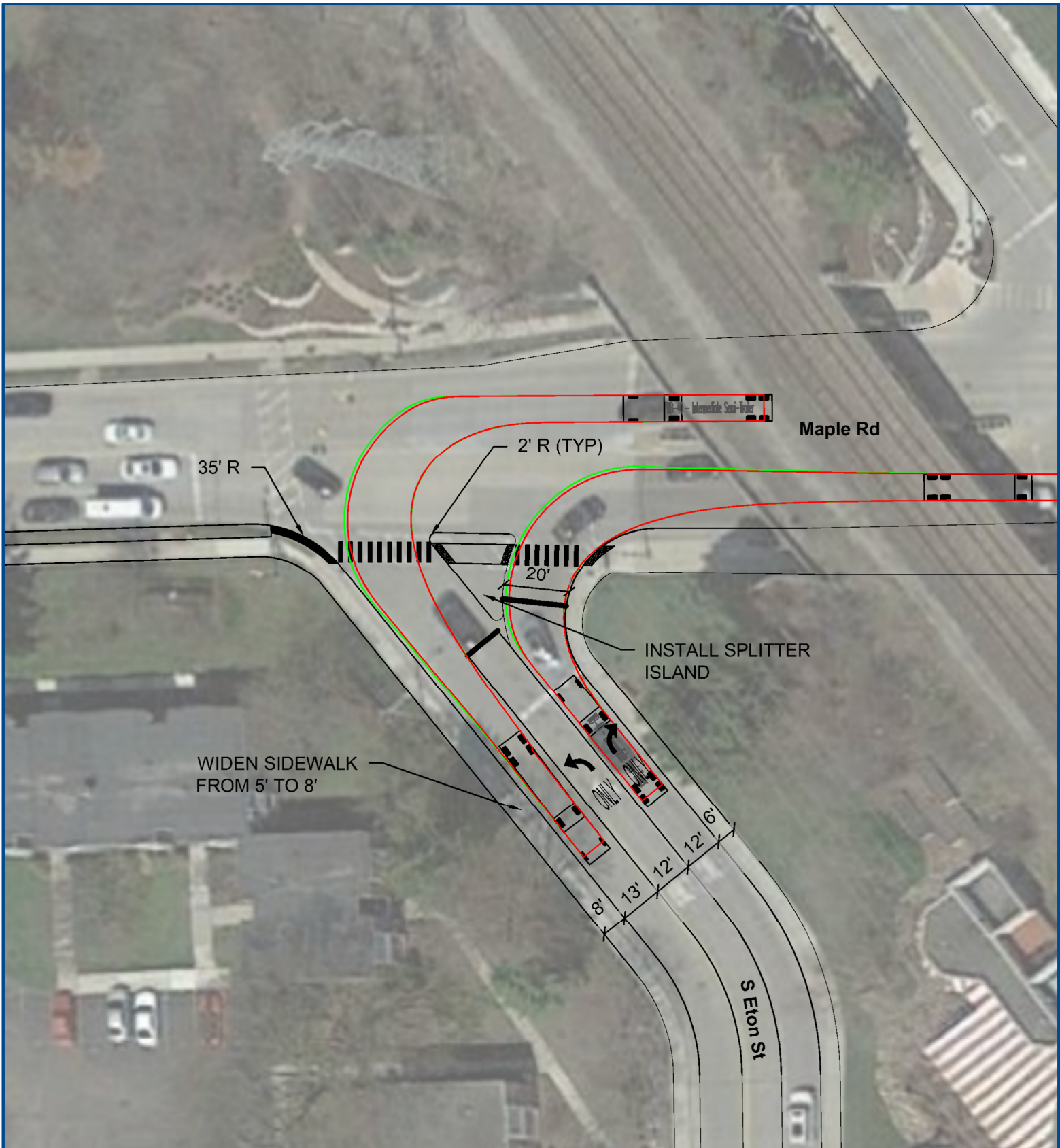
The only extra space available on the street is currently in the southbound lane, which is now being suggested for removal, to widen the west side sidewalk. While this proposal improves the pedestrian environment, it will compromise the bicyclist experience. The MMTB may wish to consider if the \$53,000 suggested improvement on the west side of S. Eton Rd. is wise when it is in fact leaving no extra space for southbound bicyclists on this Neighborhood Connector Route.

No funding is currently being provided in the current or upcoming budget for these improvements. A suggested recommendation at this time can then be moved forward to the City Commission in time for them to consider an adjustment to the recommended fiscal year 2017-18 budget:

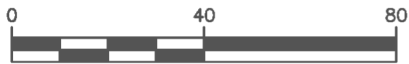
**SUGGESTED RECOMMENDATION:**

To recommend to the City Commission that the City prioritize the Ad Hoc Rail District Committee's recommendations for changes to S. Eton Rd. from Maple Rd. to Yosemite Blvd. including:

1. Landscaped splitter island to improve the S. Eton Rd. south side crosswalk at Maple Rd.
2. Enlarged handicap ramp area at the southeast corner of the intersection.
3. Relocation of the west side curb and gutter section to allow for a widened eight foot sidewalk on the entire length from Maple Rd. to Yosemite Blvd.



NORTH



SCALE IN FEET

**CONCEPT DRAWING**  
**Maple Road & South Eton Street**  
 BIRMINGHAM, MI



DRAFT

**CITY OF BIRMINGHAM  
MULTI-MODAL TRANSPORTATION BOARD  
THURSDAY, MARCH 2, 2017  
City Commission Room  
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, March 2, 2017.

Chairperson Vionna Adams convened the meeting at 6:04 p.m.

**1. ROLL CALL**

**Present:** Chairperson Vionna Adams; Board Members Lara Edwards, Amy Folberg, Johanna Slanga

**Absent:** Board Members Vice-Chairperson Andy Lawson, Daniel Rontal, Michael Surnow

**Administration:** Lauren Chapman, Asst. City Planner  
Jana Ecker, Planning Director  
Scott Grewe, Operations Commander  
Paul O'Meara, City Engineer  
Carole Salutes, Recording Secretary

**Also Present:** Mike Labadie from Fleis & Vandenbrink  
("F&V"), Transportation Engineering Consultants.

**2. INTRODUCTIONS (none)**

**3. REVIEW AGENDA (no change)**

**4. APPROVAL OF MINUTES, MEETING OF FEBRUARY 2, 2017**

**Motion by Ms. Slanga**

**Seconded by Ms. Folberg to approve the Minutes of February 2, 2017 as presented.**

**Motion carried, 4-0.**

VOICE VOTE

Yeas: Slanga, Folberg, Adams, Edwards

Nays: None

Absent: Lawson, Rontal, Surnow



**5. SAXON RD. IMPROVEMENTS**  
**Norfolk Dr. to Southfield Rd.**

Mr. O'Meara recalled that at the February Multi-Modal Transportation Board ("MMTB") meeting, the City presented a proposal to install a marked, improved crosswalk at the intersection of Saxon Dr. and Latham Dr./Norchester Rd. This is in the Multi-Modal Master Plan as a suggested improvement for the area. Also, the residents on Saxon are unhappy because there are too many cars and too much speeding.

Last month, staff presented a \$21,000 improvement that both Birmingham and Beverly Hills could pay for out of their general funds. Beverly Hills has already gone on record to say that they will contribute. The ditches would be filled in, storm sewer issues would be re-worked, and concrete sidewalks could be extended across the four corners of the intersection. Pavement markings would be installed on both sides to identify the crossing.

Last month, when the idea was reviewed by the MMTB, the following questions and concerns were raised:

1. Board members were not convinced that the crosswalk improvement would make much difference in addressing the issue of traffic speeds and volumes.
2. Board members felt that other ideas had more merit:
  - Flashing speed indicator signs for both directions if suitable locations can be found.
  - Pavement markings, consisting of a skip or double yellow down the middle, and white edge lines throughout the corridor. However, Mr. Labadie, the Police, and some of the residents do not endorse that suggestion.
  - Installation of a "25" pavement marking legend for westbound traffic, west of Southfield Rd., as weather permits. Mr. O'Meara indicated that idea can be pursued.

Staff initiated conversations with the two neighborhood representatives for Saxon Rd. relative to these ideas. Ms. Susan Randall on the Birmingham side and Mr. Pete Webster on the Beverly Hills side were present to provide their input.

Mr. Pete Webster, 32906 Balmoral, said he is in close communication with the vast majority of the residents from Southfield to the Birmingham Country Club and beyond. They are well aware of the problem and aware of the need to address a number of different issues. Anything that can be done would be helpful, whether it is the flashing speed indicator; a crosswalk to help pedestrians integrate into the pedestrian network; or a raised sidewalk on the east side of the crossing.

## Multi-Modal Transportation Board Proceedings

March 2, 2017

Page 3

Ms. Slanga observed that putting stripes on the road at the crosswalk doesn't solve the speeding problems or shorten the crossing. Mr. Webster said independent of that, the markings are extremely valuable because they demarcate where people should cross plus they remind drivers where people do cross. He suggested installing a traffic island in the roadway just west of Southfield to calm traffic entering the residential area. It may be beneficial to put in speed humps.

Ms. Susan Randall, 1220 Saxon, said an average of 5,500 cars a day go down their street at speeds up to 60 or 70 mph. She was in favor of the recommendations for a painted crosswalk and to make it slightly raised so that it is a hump, not a bump. She does not like the idea of a flashing light but is in favor of the "25" to be painted east of Southfield. With respect to installing an island, the residents do not want to do a U-turn out of their driveway by turning west to go east. She doesn't know if they will agree to that.

Mr. Tom Randall, 1220 Saxon, was not impressed with the flashing lights. They only work when police are present.

Mr. O'Meara said a little island isn't a bad idea from a cost standpoint, but there is a driveway issue. The idea of a raised crosswalk has not been studied. Mr. Labadie advised that with an island there would not be enough room on either side to make a U-turn.

Ms. Chris Arbor, 18837 Saxon, suggested trying removable speed bumps for a while to see if they work. Mr. O'Meara voiced the concern that this is an unimproved road with gravel shoulders and people that are irritated by the bump would just drive around it. Residents would not want that problem in front of their house.

Mr. Labadie said the speed humps are an effective way to control speed. However, right after going over the hump, people will increase their speed, similar to unwarranted STOP signs. He would like to see current speed and volume data before a decision is made on some of these ideas. He thought the sidewalk and the crosswalk are great ideas and they should be moved forward.

### **Motion by Ms. Edwards**

**Seconded by Ms. Folberg to recommend to the City Commission the approval of the following improvements for Saxon Dr. The installation of crosswalks on the east and west sides of the Latham Dr./Norchester Rd. intersection, in accordance with the Multi-Modal Master Plan.** including pavement markings, to be funded 50% by the City of Birmingham, and 50% by the Village of Beverly Hills.

**Motion carried, 4-0.**

VOICE VOTE

Yeas: Edwards, Folberg, Adams, Slanga

Nays: None

Absent: Lawson, Rontal, Surnow

Commander Grewe said the Police Dept. has a black box that is a speed monitor/counter and goes on a tree so no one knows what it is and they don't react differently when they see it on the road. It will capture both sides of the road. It can be installed as soon as possible.

Mr. Steve Still, 1190 Saxon, hoped there would be a "Stop for Pedestrians" sign in the crosswalk.

**6. MAPLE RD. AND S. ETON RD.  
Crosswalk Improvements**

Mr. O'Meara noted that the Ad Hoc Rail District Committee finished its work, and submitted a report of recommendations to the City Commission in December 2016. The report dated January 27, 2017, summarizing suggested improvements at Maple Rd. and S. Eton Rd. was reviewed by the MMTB at its meeting of February 2, 2017. At that time, the primary concern was whether the proposed new island was sized appropriately to allow large trucks to make a left turn from Maple Rd. onto southbound Eton Rd. It has been demonstrated that the island leaves sufficient room for a large truck to make the turn.

Ms. Ecker said at the last meeting the board had several concerns that staff has now investigated:

- It works to increase the sidewalk width from 5 ft. to 8 ft. Landscaping can be added to the splitter island at the south end.
- It is not recommended to move the westbound Maple Rd. stop bar west.
- Turn lane hash marks are not needed and they would soon be worn off.
- . Paint the curbs around the new island with something reflective that makes them stand out.

**Motion by Ms. Folberg**

**Seconded by Ms. Edwards to recommend to the City Commission that the City prioritize the Ad Hoc Rail District Committee's recommendations for changes to S. Eton Rd. from Maple Rd. to Yosemite Blvd. including:**

- 1. Landscaped splitter island to improve the S. Eton Rd. south side crosswalk at Maple Rd.**
- 2. Enlarged handicap ramp area at the southeast corner of the intersection.**

**3. Relocation of the west side curb and gutter section to allow for a widened 8 ft. sidewalk on the entire length from Maple Rd. to Yosemite Blvd.**

**Motion carried, 4-0.**

VOICE VOTE

Yeas: Folberg, Edwards, Adams, Slanga

Nays: None

Absent: Lawson, Rontal, Surnow

**7. POPPLETON AVE. PAVING  
Knox Ave. to Maple Rd.**

Mr. O'Meara recalled the MMTB discussed the above planned City project at its meeting of December 1, 2016. A recommendation to approve the three-lane cross-section presented at that time was passed. It was noted that this segment is identified as part of a future Neighborhood Connector Route, but that due to the lack of right-of-way, the City will be unable to make improvements to the road that would allow for an improved environment for bicyclists. The MMTB recommended that further study be given to this issue before this Connector Route is finalized in the future.

During further study of this block, it was noted that this is the only available route for trucks to enter and exit the loading dock for the adjacent Kroger store. Due to the narrow right-of-way, the existing pavement at the Maple Rd. and Poppleton Ave. intersection was not constructed to accommodate these large trucks. Due to heavy traffic volumes and the narrow street, trucks have to routinely drive over the curb to exit Poppleton Ave.

Staff's suggested street design shows the new road to be about 18 in. wider, and a standard 25 ft. radius at both corners is recommended (the current radii, particularly on the NW corner, are smaller, and are not recommended on a truck route). To summarize, a minor expansion of the road, particularly to the west, will better accommodate the multiple trucks that need to use this intersection daily, while extending the length of the crosswalk for those crossing Maple Rd. on the west side of the intersection by about 5 ft. Doing so will remove the current ongoing maintenance issue that is present at the northwest corner of this intersection.

To ensure that this is appropriate, F&V will study the traffic signal timing to make sure that there is sufficient green time to allow pedestrians to safely cross Maple Rd. with this new condition.



# MEMORANDUM

Engineering Dept.

**DATE:** April 5, 2017  
**TO:** Multi-Modal Transportation Board  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** S. Eton Rd. – Villa Ave. to Lincoln Ave.  
Proposed Cross-Section

---

---

As you know, the City Commission appointed several residents to a temporary study group known as the Ad Hoc Rail District Committee early in 2016. The group was charged with studying parking and zoning issues within the Rail District. Lara Edwards acted as the Multi-Modal Transportation Board (MMTB) representative. Overseen by the Planning Dept., their final report was prepared late last year, and reviewed by the City Commission at their meeting of January 9, 2017.

The MMTB first focused on the suggested crosswalk island construction at the S. Eton Rd. and Maple Rd. intersection. A recommendation has been prepared, and will be considered for final approval by the City Commission at their meeting of April 13, 2017. If approved, the Engineering Dept. is set to complete this work during the summer of 2017, in time for the opening of the nearby Whole Foods grocery store located just east of this location.

The next significant recommendation from the Ad Hoc Committee for the MMTB to consider is the cross-section on the bulk of the road, from Villa Ave. to Lincoln Ave. As shown on Page 30 of the final committee report, three different cross-sections for this section of S. Eton Rd. were considered:

- Design Option 1: Removing on-street parking on the west (residential) side of the street in favor of a 7 ft. wide bike lane and 3 ft. wide buffer area.
- Design Option 2: Removing on-street parking on the west (residential) side of the street, narrowing the remaining drive lanes and parking lane to allow room for southbound and northbound bike lanes.
- Design Option 3: Narrow the existing parking lanes on both sides to provide a buffer between parked cars and the travel lanes, and add sharrows to the travel lanes.

Although the vote was not unanimous, the Ad Hoc Rail District Committee voted in favor of Option 3. Details relative to the decision-making process will be available at the meeting. The cross-section, if changed, will have a significant impact on the S. Eton Rd. corridor. There are strong feelings from stakeholders in the area that would be interested in having input on the final decision. It is suggested that the MMTB discuss the issue to better understand the issues at stake, as well as how the Ad Hoc Committee came to their conclusion. It is then suggested that a public hearing be scheduled for the next regular MMTB meeting, inviting interested parties along the corridor to submit their input or attend the next meeting, so that a final MMTB

recommendation can be prepared for the City Commission. A suggested recommendation is provided below:

**SUGGESTED RECOMMENDATION:**

To accept the Ad Hoc Rail District Committee's recommendation to add buffer lanes and sharrows on S. Eton Rd. from Villa Ave. to Lincoln Ave.



**CITY OF BIRMINGHAM  
MULTI-MODAL TRANSPORTATION BOARD  
THURSDAY, APRIL 13, 2017  
City Commission Room  
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, April 13, 2017.

Vice Chairman Andy Lawson convened the meeting at 5:35 p.m.

**1. ROLL CALL**

**Present:** Vice-Chairman Andy Lawson; Board Members Lara Edwards, Daniel Rontal, Johanna Slanga, Michael Surnow; Alternate Member Katie Schaefer

**Absent:** Chairperson Vionna Adams; Board Member Amy Folberg

**Administration:** Lauren Chapman, Asst. City Planner  
Jana Ecker, Planning Director  
Austin Fletcher, Asst. City Engineer  
Scott Grewe, Operations Commander  
Paul O'Meara, City Engineer  
Carole Salutes, Recording Secretary

**Also Present:** Mike Labadie from Fleis & Vandenbrink ("F&V"), Transportation Engineering Consultants.

**2. INTRODUCTIONS**

The new alternate, Katie Schaefer, introduced herself and board members welcomed her and introduced themselves.

**3. REVIEW AGENDA (no change)**

**4. APPROVAL OF MINUTES, MEETING OF MARCH 2, 2017**

**Motion by Ms. Slanga**

**Seconded by Ms. Edwards to approve the Minutes of March 2, 2017 as presented.**

**Motion carried, 6-0.**

VOICE VOTE

Yeas: Slanga, Edwards, Lawson, Rontal, Schaefer, Surnow

Nays: None

Absent: Adams, Folberg

**5. S. ETON RD. CROSS-SECTION**

Ms. Ecker recalled the Ad Hoc Rail District Committee met during 2016. The group was charged with studying parking and zoning issues within the Rail District. Their final report was reviewed by the City Commission at their meeting of January 9, 2017. One recommendation from their report was to accommodate bicycling on S. Eton Rd. in some way. The committee voted to use sharrows and buffers and did not wish to remove parking on either side of the street. However, a parking study has revealed there is clearly no shortage of parking in the area. The Ad Hoc Committee's preferred option was to reconfigure S. Eton Rd. on each side so there is a 7 ft. parking lane, a 3 ft. buffer zone, and a 10 ft. driving lane with a sparrow. It was then noted that 46 spaces would be lost if parking was removed on the west side.

Ms. Edwards, who was a member of the Ad Hoc Committee, said their thought was if there is parking on both sides there can be bumpouts at the intersections. That would slow traffic and make crossing much safer for pedestrians and vehicles. Mr. Surnow observed that every time you mix bikes and cars on a high traffic street you are really asking for danger. He saw no reason not to eliminate parking on the west side of the street and create a protected bike lane.

Mr. O'Meara reminded the board that this one-half mile was approved by the City Commission as part of the Neighborhood Connector Route around the entire city.

After further discussion, board members concluded that S. Eton Rd. needs a protected bike lane that allows bi-directional traffic; and therefore they were not in agreement with the Ad Hoc Committee's preferred option that would put bikers in the road alongside cars.

The group wanted to know for next time the width that is needed for a bi-directional bike lane; how it is linked to other bike routes, north and south and within the community; and how bumpouts and a bike lane can be accommodated.

This topic was opened to the public at 6:25 p.m.

Mr. Dan Isaacson said he lives north of Maple Rd. and east of Adams. He suspected if there was a high quality, safe bike lane on S. Eton Rd. his family

would use it. He received confirmation that traffic islands are not workable along there because of the road width.

Mr. Labadie did not think demand would ever be so great that a bi-directional bike lane would be a bad idea. Ms. Slanga added it would provide some sort of structure to the west (residential) side of S. Eton Rd. Mr. Labadie said the bike lane would be safe, but vehicle speeds may not reduce as they would if there was parking on both sides. He liked Design Option 1 which is removing on-street parking on the west side of the street in favor of a 7 ft. wide bike lane and a 3 ft. wide buffer area.

Mr. Jerry Yaladoo, 1997 Haynes, spoke in favor of the dedicated bike lane and removing the parking. He does not feel comfortable backing out of his driveway with a parked car there.

## **6. W. MAPLE RD. CROSSING AT ROUGE RIVER**

Ms. Chapman recalled the Planning Dept. was asked to look into options to connect the Quarton Lake Trail (north of Maple Rd.) and the Linden Park Trail (south of Maple Rd.) across W. Maple Rd. Such a connection would increase access and safety for trail users. The Multi-Modal Transportation Plan ("MMTP") was adopted by the City in 2013. It is a response to the growing demand for alternative forms of travel and the need to improve the safety of those who choose to walk, bicycle, or take transit. The Plan recommends enhanced pedestrian crossings on W. Maple Rd.

Installing a pedestrian bridge, boardwalk, or tunnel would eliminate pedestrian and vehicular conflict by allowing pedestrians to cross independent of the traffic on the street. A mid-block crossing island has also been proposed.

Once across W. Maple Rd., there is no connection from the public sidewalk to the trail south of W. Maple Rd. near the river. At their March 7th meeting, the Parks and Recreation Board voted to pursue a trail connection south of Maple Rd. from the sidewalk to the proposed location of trail connection bridge at lower Baldwin; opting for the western connection. The board also voted to support an at-grade pedestrian crossing on W. Maple Rd. just west of Baldwin Rd.

An at-grade crossing island on W. Maple Rd. at Baldwin Rd. with rectangular rapid flash beacons was recommended in the Multi Modal Transportation Master Plan ("MMTP") and could be constructed to allow safe pedestrian crossings for trail users between the Quarton and Linden trails. This is the only spot that a pedestrian crossing really works. The only issue with the island is there would need to be talks with the resident at the corner of Hawthorne and Maple Rd. to relocate his driveway so that it would not be obstructed by the island.



# MEMORANDUM

Engineering Dept.

**DATE:** April 4, 2017  
**TO:** Joseph Valentine, City Manager  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** S. Eton Rd. at Maple Rd.  
Proposed Crosswalk Improvements

---

---

At the meeting of December 12, 2016, the City Commission reviewed the findings of the Ad Hoc Rail District Committee. The report was endorsed, and several boards were asked to research various recommendations further for action.

For the Multi-Modal Transportation Board (MMTB), it was determined that the proposed crosswalk improvements at the S. Eton Rd. and Maple Rd. intersection should be the first priority, given the planned opening of a new Whole Foods grocery store to the east of this intersection, and the potential increase in pedestrian traffic that this new commercial activity will bring.

F&V, the City's traffic consultant, had prepared a conceptual drawing (to scale) of the various parts of the proposed improvement. Using that drawing as a basis for discussion, the MMTB reviewed the proposal at their meetings of February 2 and March 2, 2017. At the March 2, 2017 meeting, the following recommendation was passed:

*To recommend to the City Commission that the City prioritize the Ad Hoc Rail District Committee's recommendations for changes to S. Eton Rd. from Maple Rd. to Yosemite Blvd. including:*

- 1. Landscaped splitter island to improve the S. Eton Rd. south side crosswalk at Maple Rd.*
- 2. Enlarged handicap ramp area at the southeast corner of the intersection.*
- 3. Relocation of the west side curb and gutter section to allow for a widened eight foot sidewalk on the entire length from Maple Rd. to Yosemite Blvd.*

If the Commission agrees to this construction, staff would like to complete the work in the most efficient means possible. F&V has prepared a more detailed plan of the improvements (attached), to allow this work to be included in the larger 2017 Concrete Sidewalk Program bidding documents. As referenced in the MMTB recommendation, the work is composed primarily of three parts:

- 1. Splitter island** – Given the current size of the intersection, a splitter island as shown can successfully be installed splitting the left and right turn lanes, while not changing the traffic patterns of the intersection. Existing concrete can be removed, replaced with new curb and gutter, and approximately 18 feet of new sidewalk that will act as a refuge area for pedestrians crossing Eton Rd. The triangular area south of the sidewalk

could be landscaped with perennials, under the direction of the City's landscape maintenance staff. The total construction cost of this work is estimated at \$21,000.

2. **Enlarged handicap ramp area at the SE corner** – The dashed line on the plan represents the existing property lines. At the southeast corner, additional public land is available to allow for a wider, more ample waiting area at the handicap ramp. An oval shaped piece of concrete is proposed here to enhance the existing sidewalk on this corner, at a cost of \$1,000.
3. **West side curb relocation** – As a part of the discussion with the Ad Hoc Rail District Committee, there was discussion about the existing sidewalks being installed immediately behind the curb, in close proximity to traffic. This was done due to the limited right-of-way available on this block. Since most of the neighborhood would use the west side sidewalk, and since the existing southbound lane is wider than normal, it was recommended that the west side curb and gutter section could be removed and replaced with a new curb three feet further east, for the entire block, as shown. Moving the curb would allow the existing five foot wide sidewalk to then be replaced with an eight foot wide sidewalk, providing extra space for pedestrians in this area. This work is estimated at \$53,000.

The MMTB endorsed all three parts of the proposal. There was detailed discussion about two elements of the design:

1. Given that the road would be narrowed, there was uncertainty about how trucks turning from westbound Maple Rd. on to S. Eton Rd. would be able to maneuver in this area. After further review and discussion, F&V was able to clarify that the design provides the proper amount of space to make this turn, and once accustomed to the change, traffic should be able to manage fine.
2. There was concern that some pedestrians may feel uncomfortable if they are “trapped” on the splitter island due to the traffic signals changing. F&V noted that the green time provided for Maple Rd. is substantial, and that pedestrians will have ample time to make this crossing fully from one side of the street to the other.

No funding was authorized for this work. If the Commission authorizes the concept, funding for the current fiscal year budget will have to be authorized as a part of the contract award for the 2017 Concrete Sidewalk Replacement Program. A suggested resolution is provided below:

**SUGGESTED RESOLUTION:**

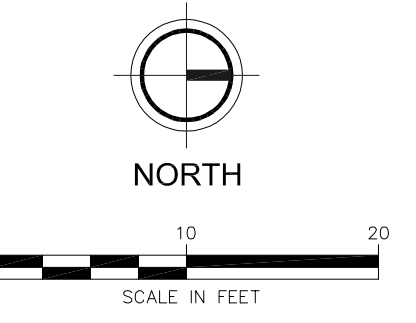
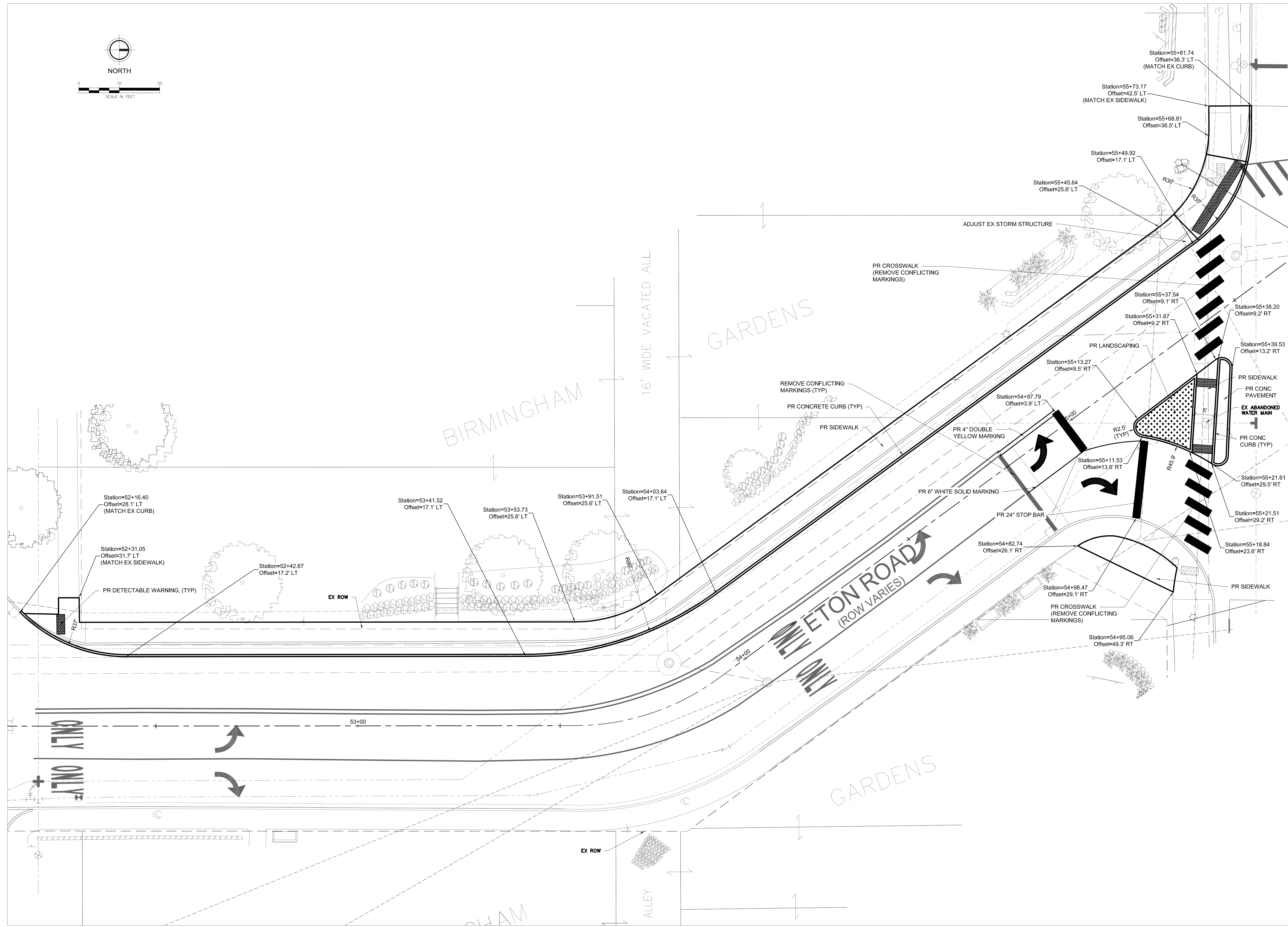
To authorize the sidewalk and crosswalk improvements at the Maple Rd. & S. Eton Rd. intersection, as recommended by the Multi-Modal Transportation Board, and to direct staff to include this work as a part of the 2017 Concrete Sidewalk Replacement Program, Contract #2-17(SW).

REVISION:

**CITY OF BIRMINGHAM**  
 OAKLAND COUNTY, MICHIGAN  
**SOUTH ETON AVENUE AT MAPLE ROAD**  
**IMPROVEMENT PLAN**

DESIGN TEAM:  
 LMS  
 CHECK BY:  
 DRAWING INFORMATION:  
 823801 CIVIL  
 032417 lindsays

MARCH 2017  
 FAV PROJECT NO.  
 823801





**BIRMINGHAM CITY COMMISSION MINUTES**  
**APRIL 13, 2017**  
**MUNICIPAL BUILDING, 151 MARTIN**  
**7:30 P.M.**

**I. CALL TO ORDER AND PLEDGE OF ALLEGIANCE**

Mayor Mark Nickita called the meeting to order at 7:30 PM.

**II. ROLL CALL**

ROLL CALL: Present,	Mayor Nickita
	Mayor Pro Tem Harris
	Commissioner Bordman
	Commissioner Boutros
	Commissioner Hoff
	Commissioner Sherman
Absent,	Commissioner DeWeese

Administration: City Manager Valentine, City Attorney Currier, City Clerk Brown, Police Chief Clemence, Fire Chief Connaughton, City Planner Ecker, Police Commander Grewe, Building Official Johnson, City Engineer O'Meara, DPS Director Wood

**III. PROCLAMATIONS, CONGRATULATORY RESOLUTIONS, AWARDS, APPOINTMENTS, RESIGNATIONS AND CONFIRMATIONS, ADMINISTRATION OF OATHS, INTRODUCTION OF GUESTS AND ANNOUNCEMENTS.**

Mayor Nickita announced Commissioner Hoff was honored by Michigan State University's College of Communication Arts and Sciences with an Outstanding Alumni Award.

**04-86-17 APPOINTMENTS TO BROWNFIELD REDEVELOPMENT AUTHORITY**

Robert Runco was present and was interviewed by the Commission. Beth Gotthelf was not able to attend.

Commissioner Hoff noted both Mr. Runco and Ms. Gotthelf are seeking reappointment and were inaugural members of the Board.

**MOTION:** Motion by Commissioner Boutros:

To appoint Robert Runco to the Brownfield Redevelopment Authority to serve a three-year term to expire May 23, 2020.

**MOTION:** Motion by Commissioner Hoff:

To appoint Beth Gotthelf to the Brownfield Redevelopment Authority to serve a three-year term to expire May 23, 2020.

Vote on Robert Runco

VOTE:       Yeas,   6  
              Nays,   None  
              Absent, 1 (DeWeese)

Vote on Beth Gotthelf

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-87-17: APPOINTMENTS TO BOARD OF BUILDING TRADES APPEALS**

Benjamin Stahelin and Dennis Mando were present and were interviewed by the Commission.

Mr. Stahelin confirmed for Commissioner Bordman that his wife serves on the Board of Review.

City Manager Valentine noted the Board has not met in approximately ten years.

Mr. Mando commented he has served on the Board for more than nine years. He stated he has been a mechanical contractor for 35 years and has performed work in Birmingham and surrounding communities. He verified for Commissioner Bordman that he has not worked for the City of Birmingham.

**MOTION:** Motion by Mayor Pro Tem Harris:

To appoint Benjamin Stahelin to the Board of Building Trades Appeals to serve a three-year term to expire May 23, 2020.

**MOTION:** Motion by Commissioner Bordman:

To appoint Dennis Mando to the Board of Building Trades Appeals to serve a three-year term to expire May 23, 2020.

Vote on Benjamin Stahelin

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

Vote on Dennis Mando

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-88-17: APPOINTMENTS TO HOUSING BOARD OF APPEALS**

Neither Chris McLogan nor David Frink was able to attend. Brian Blaesing provided notice that he does not wish to be reappointed.

Commissioner Sherman pointed out both applicants are seeking reappointment. He noted one has served on the Board for 16 years and the other was interviewed by the Commission recently.

**MOTION:** Motion by Commissioner Sherman:

To appoint Chris McLogan to the Housing Board of Appeals to serve a three-year term to expire May 4, 2020.

**MOTION:** Motion by Commissioner Boutros:

To appoint David Frink to the Housing Board of Appeals to serve a three-year term to expire May 4, 2020.

Vote on Chris McLogan

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

Vote on David Frink

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

Commissioner Boutros announced an opening on the Housing Board of Appeals.

Commissioner Hoff read the qualifications for the Board, "Applicants shall be qualified by education or experience in building construction administration, social services, real estate, or other responsible positions".

Mayor Nickita reminded residents that the City announces openings on boards on the City's web site and at City Commission meetings.

The City Clerk administered the oath to the appointed Board members.

**IV. CONSENT AGENDA**

All items listed on the consent agenda are considered to be routine and will be enacted by one motion and approved by a roll call vote. There will be no separate discussion of the items unless a commissioner or citizen so requests, in which event the item will be removed from the general order of business and considered under the last item of new business.

**04-89-17 APPROVAL OF CONSENT AGENDA**

The following items were removed from the Consent Agenda:

- Commissioner Bordman – Item G (Purchase of Larvicide Material)
- Commissioner Hoff – Item A (City Commission Minutes of March 27, 2017)
  - Item E (Medical Marijuana Operation/Oversight Grant)
  - Item F (High Intensity Drug Trafficking Area Agreement)
  - Item H (Lawn and Landscape Services Contract)

**MOTION:** Motion by Mayor Pro Tem Harris, seconded by Commissioner Boutros: To approve the Consent Agenda, with items A, E, F, G, and H removed.

ROLL CALL VOTE:	Yeas,	Commissioner Harris Commissioner Boutros Commissioner Hoff Commissioner Sherman Commissioner Bordman Mayor Nikita
	Nays,	None
	Absent,	1 (DeWeese)

- B. Approval of warrant list, including Automated Clearing House payments, dated March 29, 2017 in the amount of \$393,256.29.
- C. Approval of warrant list, including Automated Clearing House payments, dated April 5, 2017 in the amount of \$342,587.68.
- D. Resolution authorizing the 2017 Sidewalk Repair Program, and directing the Engineering Department to notify the owners of subject property of the City's intention to replace sidewalks adjacent to their properties
- I. Resolution approving the purchase and planting of 106 trees from KLM Landscape for the 2017 spring tree purchase and planting project for a total project cost not to exceed \$32,550.00, charged to account numbers 203-449.005-819.0000, 202-449.005-819.0000, 203-449.005-729.0000 and 202-449.005-729.0000, and authorizing the Mayor and City Clerk to sign the agreement on behalf of the City upon receipt of required insurances.
- J. Resolution awarding the Springdale Pavilion New Concrete Floor Contract to Luigi Ferdinandi & Son Cement Co. in an amount not to exceed \$57,900.00, charged to account number 401-751.001-981.0100 and authorizing the Mayor and City Clerk to sign the agreement on behalf of the City upon receipt of required insurances.

The Commission agreed to discuss the removed items at this time.

**04-90-17 PURCHASE OF LARVICIDE MATERIAL**

Commissioner Bordman reminded the public of the importance of patrolling one's property and removing standing water to eliminate the ability of mosquitos to lay eggs or for the eggs to hatch.\*

**MOTION:** Motion by Commissioner Bordman, second by Commissioner Sherman:  
 To approve the purchase of the larvicide material from Clarke Mosquito Control in the amount not to exceed \$8,109.40, waiving the normal bidding requirements based on the government regulated pricing for this type of material, charged to account number 590-536.002-729.0000.

VOTE: Yeas, 6  
 Nays, None  
 Absent, 1 (DeWeese)

**04-91-17 PARKS AND CITY PROPERTY LAWN AND LANDSCAPE SERVICES CONTRACT**

Commissioner Hoff asked why the City's current vendor, Birmingham Lawn Maintenance & Snow Removal, Inc., increased their price by a significant amount. DPS Director Wood said Birmingham Lawn did not offer an explanation for the price increase, but she noted the new contract contains an increased scope of work over the current contract.

Director Wood confirmed for Commissioner Hoff:

- The City has been satisfied with Birmingham Lawn's work.
- Progressive Irrigation, Inc. is familiar to the City and had favorable reference checks.
- The subject quote does not include irrigation service.
- Progressive Irrigation is the current contractor for irrigation services with the City.
- The subject contract includes mowing of grass and noxious weeds for lots in violation of City ordinance, the costs of which are recouped by charging the violators.

**MOTION:** Motion by Commissioner Hoff, second by Commissioner Bordman:  
To award the Parks and City Property Lawn and Landscape Services Contract to Progressive Irrigation, Inc. DBA Pro Turf Management Lawn for a four (4) year Agreement in the amount of \$541,320.00 plus amounts for ordinance enforcement and fertilization/weed control services, charged to account numbers 203-449.003-937.0400, 202-449.003-937.0400, 101-751.000-811.0000, 101-441.003-811.0000, and 591-537.002-811.0000, and authorizing the Mayor and City Clerk to sign the agreement on behalf of the City upon receipt of required insurances.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-92-17 APPROVAL OF CITY COMMISSION MINUTES OF MARCH 27, 2017**

Commissioner Hoff explained that the indented paragraph on Page 4 should be omitted.

**MOTION:** Motion by Commissioner Hoff, second by Commissioner Bordman:  
To approve the City Commission minutes of March 27, 2017 as corrected.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-93-17 2017 MICHIGAN MEDICAL MARIJUANA OPERATION AND  
OVERSIGHT GRANT SUB RECIPIENT AGREEMENT; and  
04-94-17 2017 HIGH INTENSITY DRUG TRAFFICKING AREA (HIDTA) SUB  
RECIPIENT AGREEMENT**

In response to Commissioner Hoff's request for more information Police Chief Clemence explained the agreements secure the City's portion of Federal grant funding in the case of the HIDTA Grant and of state grant funding in the case of the MMOO Grant. He further noted both grants are specifically allocated to cover overtime for narcotics enforcement activities. He indicated \$4,100 is expected from HIDTA, and a little over \$7,000 from MMOO.

**MOTION:** Motion by Commissioner Hoff, second by Commissioner Sherman:  
To approve the 2017 Michigan Medical Marijuana Operation and Oversight Grant Sub recipient Agreement between the City of Birmingham and Oakland County and authorizing the Mayor and City Manager to sign the agreement on behalf of the City.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**MOTION:** Motion by Commissioner Hoff, second by Commissioner Boutros:  
To approve the Program Year 2017 High Intensity Drug Trafficking Area (HIDTA) Sub recipient Agreement between the County of Oakland and the City of Birmingham and authorizing the Mayor and City Manager to sign the agreement on behalf of the City

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**V. UNFINISHED BUSINESS**

**VI. NEW BUSINESS**

**04-95-17 PUBLIC HEARING – SLUP AMENDMENT AT 250 N. OLD  
WOODWARD – EMAGINE PALLADIUM/FOUR STORY BURGER**

Mayor Nickita opened the public hearing at 7:59 PM.

City Planner Ecker provided background information:

- In December of 2016 the petitioner changed the business name and concept to Four Story Burger. The City's Zoning Ordinance requires approval from the City Commission for a name change.
- During the liquor license renewal hearings the City Commission set a public hearing for April 13, 2017 to consider terminating the Special Land Use Permit (SLUP).
- The petitioner submitted a complete application to the Planning Department seeking a SLUP amendment for the name change. There is no change in ownership.
- The Planning Board, on March 22, 2017, recommended approval of the SLUP amendment.
- No exterior signage is proposed at this time. The building owner would pursue any exterior changes separately.

Commissioner Sherman confirmed the City received a letter from Mr. Jon Goldstein, CH Birmingham, LLC, DBA Emagine Palladium, indicating that neither he nor Mr. Paul Glanz would be available to attend the public hearing. Commissioner Sherman stated the Commission had made it clear their attendance was necessary as the owners. He desired to postpone the public hearing because of Mr. Goldstein's and Mr. Glantz's absence.

Commissioner Bordman supported postponing the public hearing and stated her disappointment that the owners have been unable meet with the Commission on an item of such importance to them and to the City.

Mayor Pro Tem Harris questioned the business' ability to sell liquor and operate should the Commission postpone consideration of a SLUP Amendment. City Manager Valentine confirmed the business would continue to operate at status quo.

Mayor Nickita pointed out the owners have had three opportunities for a dialogue with the Commission on the issue of the SLUP violation and have consistently failed to appear.

Commissioner Hoff supported postponing the public hearing because it is an important issue, and she has questions for the owners. She felt the situation is more than a name change.

**MOTION:** Motion by Commissioner Sherman, seconded by Commissioner Bordman: To postpone until May 8, 2017 the public hearing to consider an amendment to the Special Land Use Permit and Final Site Plan Review for 250 N. Old Woodward, Emagine Palladium Theatre and Ironwood Grill restaurant to allow the establishment to change their name to Emagine Palladium Theatre and Four Story Burger.

Patrick Howe, attorney representing CH Birmingham, LLC, was present and introduced the third owner of Emagine Palladium, Lauren Goldstein. Mr. Howe confirmed he and Ms. Goldstein are



authorized to act on behalf of Mr. Goldstein and Mr. Glantz. He was unable to confirm whether they would be available on May 8, 2017.

Mrs. Goldstein confirmed she is one of three owners of the business. She admitted the name change in violation of the SLUP was done in the wrong way and in the wrong order and, with apology, stated her commitment to rectifying the situation.

Commissioner Hoff indicated she believes violation is very serious and wants to talk to the two main partners.

Commissioner Boutros said he would respect Ms. Goldstein's position as an owner, believes Mr. Goldstein's letter to the Commission expresses a sincere wish to correct the SLUP, and stated he does not support postponing the public hearing.

Mayor Pro Tem Harris remarked on the seriousness of the SLUP process and commented he believes the owners are sincere in their wish to address the situation. He stated he has no objection to holding the public hearing as scheduled and noted the Planning Board has recommended unanimously that the SLUP amendment be approved.

Commissioner Sherman was firm in his belief that Mr. Goldstein and Mr. Glantz are making the business decisions and that Ms. Goldstein is not involved in the day-to-day operation. He was in favor of postponing the public hearing so that Mr. Goldstein and Mr. Glantz could attend.

Commissioner Bordman expressed her belief that Mr. Howe, having represented the owners in the original request for the SLUP, should have known Commission approval was required for a name change.

Mr. Howe indicated he was not asked to assist with the name change. Ms. Goldstein confirmed Mr. Howe was not consulted until the City notified the owners they were in violation of the SLUP.

Mayor Nickita stated he does not recall another entity causing such complexity and having such inconsistent representation from the ownership team. He said he wants to know who is in charge and what is actually going on. Mr. Howe clarified that he was brought in two weeks ago to take over and finish the project. He reiterated he was not involved in the name change or in past discussion regarding the SLUP amendment.

Commissioner Bordman called the question.

VOTE:           Yeas,    4  
                  Nays,    2 (Harris, Boutros)  
                  Absent, 1 (DeWeese)

The public hearing was postponed until May 8, 2017.

**04-96-17                   PUBLIC HEARING – SLUP TERMINATION AT 250 N. WOODWARD  
                                  – EMAGINE PALLADIUM/IRONWOOD GRILL**

Mayor Nickita opened the public hearing at 8:18 PM.

City Planner Ecker confirmed the Commission set the public hearing based on concerns over the SLUP violation and that the two public hearings are tied together

**MOTION:** Motion by Harris, seconded by Sherman:  
To postpone until May 8, 2017, the public hearing to consider termination of the Special Land Use Permit at 250 N. Woodward – Emagine Palladium/Ironwood Grill.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-97-17 SPECIAL EVENT – HAVDALAH IN THE PARK.**

Deborah Morosohk, Director of Education at Temple Beth Al El\*, explained Havdalah is an approximately 10-minute short Jewish blessing ceremony at end of Sabbath consisting of singing with guitar accompaniment. The event is proposed for two Saturdays, 6:30 – 7:30 and is intended to be a fun family event for people from the synagogue. She confirmed for Commissioner Hoff that the service will take place in Shain Park, that the event is open to the public, and that attendance is anticipated to be around 30 people.

Commissioner Hoff expressed concern about the July 22 date because the Day on the Town event is the same day.

City Manager Valentine confirmed that Day on the Town will end just before Havdalah in the Park begins.

Clerk Brown confirmed for Commissioner Hoff that Temple Beth Al sent out the required notice letter.

**MOTION:** Motion by Commissioner Bordman, seconded by Commissioner Sherman:  
To approve a request from Temple Beth El to hold Havdalah in the Park in Shain Park, on June 17, 2017 and on July 22, 2017 contingent upon compliance with all permit and insurance requirements and payment of all fees and, further pursuant to any minor modifications that may be deemed necessary by administrative staff at the time of the event.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-98-17 SPECIAL EVENT – HIGH OCTANE EVENT ON WILLITS STREET.**

Mr. Darakjian explained he is requesting the closure of Willits Street for the safety of attendees and so the cars can be parked at an angle to allow for more cars to be displayed. He noted the event typically fills the parking spaces on both sides of the street with approximately 30 cars, and additional cars are parked in the Bates Street lot.

Fire Chief Connaughton explained closing the road poses problems should the Fire Department have to respond to a fire. The response would be within three minutes with two engines, an aerial truck, a rescue truck, and there would not be time for the cars to be moved if they were in the way. Normally all operations would happen on Willits Street because a minimum of 18' feet is need for set up, and there is not enough room in Willits Alley.

Mayor Nickita and all five of the Commissioners who were present liked the idea of the event but did not support closing Willits Street due to the concerns expressed by Chief Connaughton. Commissioners also cited concerns with traffic flow due to the Old Woodward closures.

**MOTION:** Motion by Commissioner Sherman, seconded by Commissioner Hoff:  
To deny a request from Darakjian Jewelers to hold High Octane on Willits Street between N. Bates St. and N. Old Woodward Ave. on June 25, July 16, August 20, September 17, and October 8, 2017 based on objections to the closing of Willits Street from the Fire Department, Police Department, and Engineering.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-99-17                      **SIDEWALK AND CROSSWALK IMPROVEMENTS AT MAPLE AND S. ETON INTERSECTION.****

City Engineer O'Meara explained both the Ad Hoc Rail District Review Committee and the Multi-Modal Transportation Board have reviewed the proposal and, in conjunction with Fleis & Vandenbrink (F&V), the City's traffic consultant, recommend improvements consisting of three primary parts:

1. Splitter island. Given the current size of the intersection, a splitter island as shown can successfully be installed splitting the left and right turn lanes, while not changing the traffic patterns of the intersection. Existing concrete can be removed, replaced with new curb and gutter, and approximately 18 feet of new sidewalk that will act as a refuge area for pedestrians crossing Eton Rd. The triangular area south of the sidewalk could be landscaped with perennials, under the direction of the City's landscape maintenance staff. The total construction cost of this work is estimated at \$21,000.
2. Enlarged handicap ramp area at the southeast corner. At the southeast corner, additional public land is available to allow for a wider, more ample waiting area at the handicap ramp. An oval shaped piece of concrete is proposed here to enhance the existing sidewalk on this corner, at a cost of \$1,000.
3. West side curb relocation. As a part of the discussion with the Ad Hoc Rail District Committee, there was discussion about the existing sidewalks being installed immediately behind the curb, in close proximity to traffic. This was done due to the limited right-of-way available on this block. Since most of the neighborhood would use the west side sidewalk, and since the existing southbound lane is wider than normal, it was recommended that the west side curb and gutter section could be removed and replaced with a new curb three feet further east, for the entire block, as shown. Moving the curb would allow the existing five foot wide sidewalk to then be replaced with an eight foot wide sidewalk, providing extra space for pedestrians in this area. This work is estimated at \$53,000.

The entire package is estimated to be about \$75,000.00.

City Engineer O'Meara stated staff would like to include the sidewalk and crosswalk improvements in the 2017 Concrete Sidewalk Program, if the Commission approves the proposal.

In response to questions from Commissioner Hoff, City Engineer O'Meara and City Planner Ecker confirmed:

- The sidewalk on Eton would be 8' wide.
- The sidewalk on Maple would be 5' wide with a grass buffer between the sidewalk and the road.
- There would be no grass bumper on the Eton side, just as it exists currently, because the right-of-way is too narrow.
- The design contains no bump outs. The island will be curbed, and the whole west side of the block will be removed and replaced closer into the road so the southbound driving lane would be narrower.
- The City's traffic engineering consultant, F&V, provided the design plans which do show the following turns could be made: turning onto Maple, turning from Maple onto Eton, turning westbound from Maple, and making a left onto Eaton.

Mayor Nickita asked for details about the process that took the plan from a conceptual idea to the design specifications as presented.

City Engineer O'Meara confirmed he was not involved in development of the design drawing and that the Multi-Modal Transportation Board considered the same drawing that is before the Commission.

City Planner Ecker noted:

- The Ad Hoc Rail District Committee was tasked to look at several issues on the South Eton corridor, which they did in 2016.
- The biggest complaints about the corridor were that it is not pedestrian friendly, the road is too wide, cars are going every which way, pedestrians not protected, and vehicular speed is too fast.
- The Committee discussed three alternatives and chose the proposal being considered by the Commission as the best alternative.
- The Committee received approval from the Commission to hire F&V to review the plan to determine its practicality.
- The Committee came up with conceptual idea, and F&V detailed the specifics.

Mayor Nickita commented he agrees with some aspects of the conceptual idea such as diminishing the amount of exposed crosswalk and providing a mid-crossing island for pedestrians. He was very concerned, however, with other aspects. He explained:

- The intersection is currently challenging and unsafe for pedestrians,
- When Whole Foods opens pedestrian and non-motorized traffic is going to increase.
- The acute angle for southbound turns from westbound Maple is fundamentally problematic.
- The white stop bar is almost always ignored by motorists, and at this intersection it is located 30' from the crosswalk. Cars are going to ignore the stop bar and encroach into the crosswalk, resulting in cars turning left from Maple either clipping the car in the crosswalk or having to slow down to maneuver around the car. Trucks trying to make the turn may require the car in the crosswalk to back up.

Mayor Nickita concluded the design does not take into account the way people will actually use the intersection, which creates a difficult situation with the threat of crashes and congestion. He commented he does not feel the logistics have been explored thoroughly enough to resolve the

issues in a manner that would be best for the intersection, best for the users, and that will actually be used in the way it is designed to be used.

Commissioner Bordman noted she had similar concerns with vehicular encroachment into the crosswalks. She also questioned the plan's lack of consideration for bicyclists.

City Planner Ecker responded that the Multi-Modal Transportation Board met at 5:30 today and discussed, among other items, the cross section for South Eton. The Ad Hoc Rail District Review Committee Report did not recommend a specific bike lane. The Committee recommended parking, three foot buffer zones for the opening of car doors, and two 10' lanes for sharrows. The Multi-Modal Board is now leaning toward a multi-directional bike lane. City Planner Ecker relayed the thought that perhaps the Maple and S. Eton intersection improvements should be postponed to consider the impacts of including a bi-directional bike lane in the plan.

Commissioner Sherman suggested sending this back with the comments that have been made for further review.

**MOTION:** Motion by Commissioner Sherman, seconded by Commissioner Boutros:  
To refer the proposal for sidewalk and crosswalk improvements at the Maple Road and S. Eton Road intersection back to Multi-Modal Transportation Board for further study based on the City Commission's comments and to consider the idea of including a multi-directional bike lane.

City Manager Valentine commented changes may impact the timing of construction. He explained the intersection improvements, being mostly concrete work, would be included in the sidewalk project which is being completed this year. Changes may delay the project.

Mayor Nickita wanted to know if there is a way to get the project done this year.

City Engineer O'Meara confirmed that the sidewalk program has already been put out to bid and consideration of awarding the bid is planned to be on the Commission's April 24, 2017 agenda. He suggested the costs of the proposed intersection improvements remain in the contract with the understanding that the concept may change. Any changes to the intersection improvement plan could be made in time for construction to still happen between now and August.

City Manager Valentine noted changing the scope of the intersection project may change the cost, but pointed out price can't be known at this point. He felt the City could proceed as suggested by City Engineer O'Meara with the idea that the intersection the project may need to be eliminated from the contract at some point. He clarified any decisions as to the addition of bike lanes or modifications to the sidewalks are yet to be determined.

Commissioner Hoff wondered if there were incremental improvements that could be made while waiting for revised plans and commencement of construction. City Engineer O'Meara commented that any incremental steps would be temporary and therefore not cost effective. He felt there is time for the Multi-Modal Board to reconsider the project in light of the Commission's comments and still keep in sync with the time frame of the Whole Foods opening.

In response to a question from Mayor Pro Tem Harris, City Engineer O'Meara confirmed the bidders for the 2017 sidewalk program are aware of the intersection project because it is included in the bid document.

Commissioner Boutros emphasized the importance of completing the intersection improvements this year. City Engineer O'Meara confirmed changes in the intersection project could be addressed as change orders to the contract.

Resident Benjamin Stahelin agreed with the need to widen the sidewalk, believed the white stop bar will be ignored, felt spending \$75,000 on the project as presented would be a waste of money, and felt the safest and most cost effective solution would be to install stop signs at each intersection

VOTE:           Yeas,   6  
                  Nays,   None  
                  Absent, 1 (DeWeese)

**04-100-17                   ORDINANCE AMENDING PART II OF CHAPTER 74, OFFENSES AGAINST PROPERTY.**

Police Commander Grewe confirmed the reason to amend the ordinance is to address identity theft and fraud. He noted the amendments mirror state law.

Commissioner Bordman explained that due to recent personal experience with her credit card being used fraudulently, this issue is close to her heart. She asked why "debit card" is not specifically listed as one of the instruments. She noted the omission of "debit card" is inconsistent with other language. Attorney Currier responded the way the state law reads "any instrument" would include debit card. Commissioner Bordman felt "debit card" ought to be mentioned since "credit card" is specifically mentioned.

Commissioner Hoff asked why the fine is limited to "not more than \$500". Attorney Currier explained the City is limited by the City Charter as to the amount of fines for misdemeanors. Commissioner Hoff was concerned that the fine was too limited for larger thefts. Attorney Currier explained that restitution is not precluded.

In response to a question from Mayor Pro Tem Harris, Attorney Currier explained the City is authorized to charge civil infractions and misdemeanors through local ordinance.

**MOTION:**     Motion by Sherman, seconded by Boutros:

To amend Part II of the City Code, Chapter 74, Offenses, Article IV, Offenses against Property to include the following eight new ordinances and authorizing the Mayor and the City Clerk to sign the ordinance amendments on behalf of the City:

1. Section 74-101: Illegal Use of State Personal Identification Card and Section 74-101(A) – Penalty for Violation of Section 74-101; and
2. Section 74-102: Definitions; and
3. Section 74-103: Stealing, Taking Title, or Removing Financial Transaction Device; Possession of Fraudulent or Altered Financial Transaction Device and Section 74-103(A) – Penalty for Violation of Section 74-103; and
4. Section 74-104: Use of Revoked or Cancelled Financial Transaction Device with Intent to Defraud and Section 74-104(A) – Penalty for Violation of Section 74-104; and
5. Section 74-105: Sales to or Services Performed for Violator and Section 74-105(A) – Penalty for Violation of Section 74-105; and





## MEMORANDUM

Engineering Dept.  
Planning Dept.  
Police Dept.

**DATE:** April 28, 2017

**TO:** Multi-Modal Transportation Board

**FROM:** Paul T. O'Meara, City Engineer  
Jana Ecker, Planning Director  
Scott Grewe, Operations Commander

**SUBJECT:** S. Eton Rd. – Maple Rd. to Lincoln Ave.  
Multi-Modal Improvements

---

At the March and April meetings, the Multi-Modal Transportation Board (MMTB) discussed the recommendations of the Ad Hoc Rail District Committee. A recommendation was also passed on to the City Commission focused on changes at Maple Rd.

### Maple Rd. to Yosemite Blvd.

The MMTB sent a recommended plan of improvements to the far north block of S. Eton Rd. to the City Commission, which was reviewed at their meeting of April 13, 2017. Minutes of that meeting are attached. The Commission expressed concern relative to certain design elements, and encouraged the Board to consider a larger bumpout at the southwest corner of the Maple Rd. intersection.

Other concerns expressed by the Commission included:

- The acute turn for vehicles from eastbound Maple Rd. to S. Eton Rd. is problematic.
- The white stop bars may be ignored, causing problems for both motorists and pedestrians.
- The Board should consider the inclusion of a multi-directional bike lane.

F&V prepared the attached memo and conceptual plan that considers this option. Highlights of the memo include:

1. The City can reduce the length of the S. Eton Rd. pedestrian crossing using either plan included in the memo. The most significant benefit of the original recommendation with the refuge island includes a shorter crosswalk length with an intermediate break. While there was concern expressed about the proposed locations of the stop bars, the design actually allows the stop bars to be closer to the intersection than they are currently.
2. The design without the refuge island keeps the intersection more open. The design reduces the angle for turning traffic from westbound Maple Rd. on to S. Eton Rd. However, it makes the angle for eastbound traffic on to S. Eton more extreme. As a result, the stop bar must be left in its current position, further back from the

intersection. The resulting crosswalk length is approximately five feet longer than that with the island design, and there is no refuge.

As has been discussed previously by the Board, all agree that the design does not provide any enhancement for bike traffic. However, the narrow right-of-way in this area, plus the clear need for three lanes of traffic at this intersection, requires that bikes be encouraged through the intersection with the use of sharrows. The only way to provide space for a separate bike lane facility would be to purchase right-of-way, construct a retaining wall on the west side and make significant changes to the existing road. It is presumed that the City is not in a position to make such an investment at this time.

The Board is asked to consider the benefits and drawbacks of both designs, and provide a new recommendation to the Commission.

**SUGGESTED RECOMMENDATION:**

After further review, the Multi-Modal Transportation Board recommends that the City Commission authorize improvements to S. Eton Rd. from Maple Rd. to Yosemite Blvd. that include:

1. \_\_\_\_\_ to improve the south leg crosswalk at the Maple Rd. intersection.
2. An enlarged sidewalk ramp area at the southeast corner.
3. Relocation of the west side curb from Maple Rd. to Yosemite Blvd., and the construction of an eight foot wide sidewalk on the west side of the block.

Further, while the Board acknowledges that improved bike features would be beneficial, existing right-of-way and traffic demands do not allow improvements other than sharrows and bike route signs (as a part of the previously approved Neighborhood Connector Route) at this time.

Yosemite Blvd to Lincoln Ave. Bike Lane Proposal

The MMTB first discussed the Ad Hoc Rail District's recommendation for the typical cross-section at its regular April meeting. The majority of the Board chose not to affirm the Ad Hoc committee recommendation of installing pedestrian bumpouts at several intersections, keeping parking legal on both sides of the street, and adding sharrows for bike traffic in both directions. Due to the continued desire to reduce sight distance issues on the west side of the street, the Board asked staff to explore the feasibility of a two-directional bike lane on the west edge of the road, using the existing southbound parking lane area. F&V has prepared the attached plan accordingly. The following features are noted:

1. The block between Yosemite Blvd. and Villa Rd. is different from the others in that there are commercial uses on both sides of the street. Parking is legal on the southbound side, and is an important feature for the adjacent businesses. Parking is not legal on the northbound side, but the northbound lane is wider as a result. It is recommended that southbound bikes continue sharing the road with traffic, similar to the block to the north. For northbound bikes, a buffered bike lane can be provided as a good transition

from the section to the south (discussed below) to the shared traffic mode required to the north.

2. The remaining section from Villa Rd. to Lincoln Ave. would all be treated similarly. Parking would be removed for southbound traffic, providing a 10 ft. wide area for a marked, two-directional bike facility. While unique in this area, such facilities have been implemented elsewhere with success. The following features are noted:

- Signs and sidewalk/crosswalk changes would be required at Villa Rd. to allow northbound bikes to transition from the west side of the road back to the east side of the road. A diagonal section of concrete would be constructed southwest of the intersection to encourage bikes to use the west and north leg marked crosswalks to cross both streets. When using these facilities, bike riders are required to dismount and walk their bikes. There are not any officially endorsed signs in Michigan for this purpose. Examples of suggested signs for this purpose appear in the pictures below. They would be added at the beginning of the diagonal concrete section as bicyclists leave the road. Input from the Board as to which sign is preferable is requested. Wide 10 ft. ramps and marked crosswalks are proposed on the west and north legs of the intersection to encourage joint use between bikes and pedestrians. Northbound bikes would then begin using the buffered single direction bike lane as they proceed north of the intersection.



- The unique bike lane feature may come as a surprise to unsuspecting motorists wishing to enter S. Eton Rd. from the various intersecting streets. As noted on the plan, a new unique sign is recommended, added to each stop sign currently posted along the district, warning motorists to look both ways for bikes before proceeding.
- At Lincoln Ave., sign and sidewalk/crosswalk changes are required, similar to Villa Rd. The north, west, and south legs of the intersection would be widened to 10 ft. each, and signs would encourage northbound Eton Rd. bikes, as well as eastbound Lincoln Ave. bikes using the Connector Route to dismount and use the crosswalks to get in the correct location for use of the bi-directional bike lane.
- As was noted previously, the Ad Hoc Committee recommended bumpouts at several intersections. If the bi-directional bike lane is provided, bumpouts would only be built on the east sides of the selected intersections, in order to safely accommodate bike traffic.

### Implementation

The timing of the above features are on different tracks. The changes in the area of Maple Rd. have not been budgeted, but are considered a priority in order to provide improvements to this area in conjunction with the planned opening of the adjacent Whole Foods grocery store. In

order to fast-track this work, funding was included in the recently awarded 2017 Concrete Sidewalk Program. It is hoped that a final design can be endorsed by the Commission in time to allow construction in either July or August of this year.

The proposed bike lane facility represents a significant change to the corridor that will impact both the commercial and residential property owners in the area. It is suggested that a public hearing wherein all owners within 300 ft. of the corridor be invited to the next MMTB meeting to provide input before a final recommendation is prepared. You may recall in the summer of 2016, the Board recommended Phase I of a Neighborhood Connector Route that provided a bike loop around Birmingham. We attempted to implement this work late last year, but failed to get any bidders to this small contract. It has been rebid as part of a larger construction contract, and should now be implemented this summer. The design approved last summer included simple sharrows for this leg of S. Eton Rd. We plan to delay the connector route work in this area until a final design is approved by the Commission, with the hope that the pavement markings and sidewalk changes can still be implemented during the 2017 construction season. The more extensive bumpout work at several intersections involves more work that will have to be budgeted in a future budget cycle.

Given the above time parameters, it is hoped that the Board can arrive at a final recommendation in June, and then prepare a final complete recommendation involving both elements for the Commission to consider thereafter. A resolution setting a public hearing is provided below.

**SUGGESTED RESOLUTION:**

To set a public hearing regarding the S. Eton Rd. corridor bi-directional bike lane proposal for the regular Multi-Modal Transportation Board meeting of June 1, 2017, at 6 PM.

April 13, 2017

VIA EMAIL

Mr. Paul O'Meara  
City Engineer  
City of Birmingham  
151 Martin Street  
Birmingham, MI 48012

**RE: Maple Road & S. Eton Crosswalk**

Dear Mr. O'Meara,

The purpose of this letter is to provide an overview of the proposed S.Eton Road approach at Maple Road and compare to an alternate intersection design. This evaluation provides a summary of the differences from the proposed design and the alternate design. The figures associate with the proposed design and the alternate are attached.

**Proposed Intersection Design (Splitter Island)**

As part of the study F&V performed for the Ad Hoc Rail District Commission the addition of pedestrian islands on South Eton was evaluated. The existing pedestrian crossing on the south leg of the intersection is approximately 88 feet due to the skew of the intersection. According to the *AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities* a pedestrian refuge should be considered when crossing distance exceeds 60 feet. The proposed raised splitter island, as shown in the attached figure would give the pedestrian a refuge for crossing traffic and provide greater detectability of the pedestrians by motorists. In addition, the splitter island has been designed to accommodate the right-turn movement of trucks and the stop-lines have been located accordingly as shown on the figure. The key findings with this design are summarized below:

- Stop-lines are moved closer to the intersection, providing an additional queuing at the intersection for two vehicles (one in each lane).
- The total crosswalk distance is 59-feet, with a 23-foot pedestrian refuge.

**Alternate Intersection Design (Bump-out)**

The alternate intersection design considered realigning the approach, with reduced radius on the west approach, from the existing 34-feet to 25-feet; thus, reducing the crossing distance without the construction of a splitter island. This alternative design was evaluated to determine the impact on the stop-line location and pedestrian crossing distance. The key findings with this design are summarized below:

- Stop-lines remain unchanged from the existing condition.
- The total crosswalk distance is 65-feet.
- Significant drainage modification would be required to accommodate the bump-out on the approach.

## Stop Line Location

The following guidance regarding stop lines is provided in the MMUTCD Section 3B.16:

- Stop lines shall consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made.
- Stop lines should be 12 to 24 inches wide and should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections.
- Stop lines should be located no less than 40 feet and no more than 180 feet from the signal heads. Where the nearest signal head is located between 150 feet and 180 feet beyond the stop line, engineering judgment of the conditions shall be used to determine if the provision for a supplemental near-side signal face would be beneficial.

The existing stop-line location provides a distance of 110 feet from the stop-line to the signal head and the proposed design is 85 feet from the stop-line to the signal head.

## Conclusions

- The results of the analysis show the proposed design with pedestrian splitter island provides less conflicting crossing distance overall, by providing a pedestrian refuge.
- The proposed design will move the stop-lines *closer* to the intersection than the existing condition, providing additional queueing at this intersection for two vehicles.
- Both the existing and proposed stop-lines provide acceptable placement.

If you have any questions, please feel free to contact us.

Sincerely,

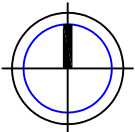
FLEIS & VANDENBRINK



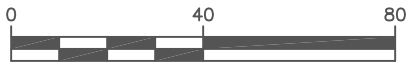
Michael J. Labadie, PE  
Group Manager

**Attached:** Figures 1-3





NORTH



SCALE IN FEET

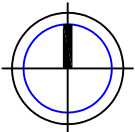
## SPLITTER ISLAND CONCEPT DRAWING

Maple Road & South Eton Street

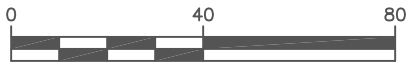
BIRMINGHAM, MI







NORTH



SCALE IN FEET

## NO SPLITTER ISLAND CONCEPT DRAWING

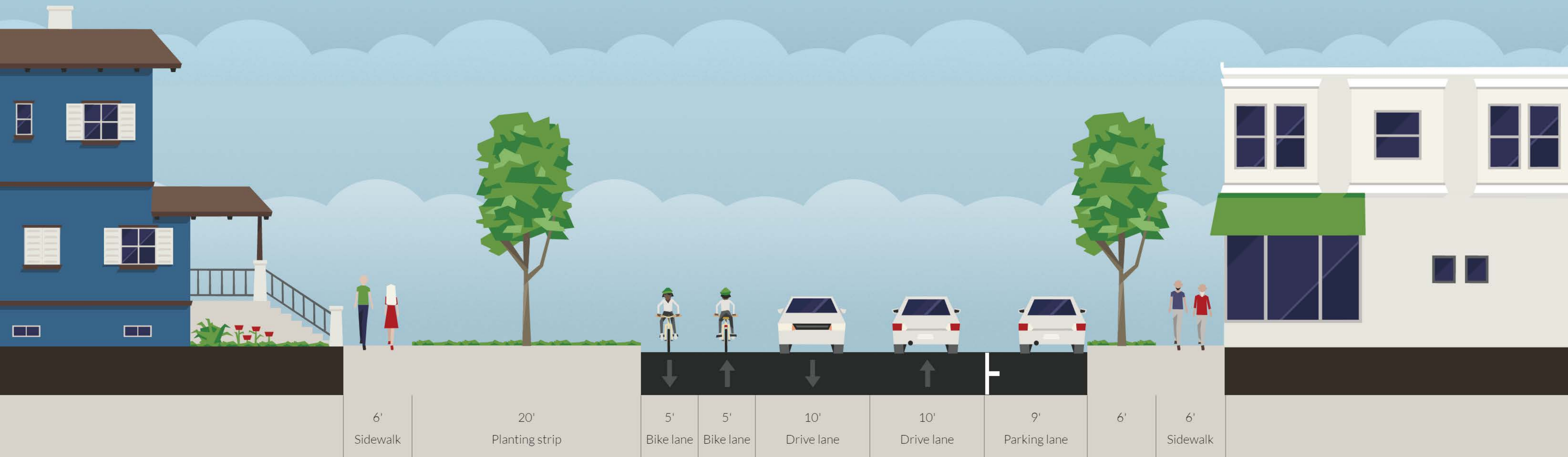
### Maple Road & South Eton Street

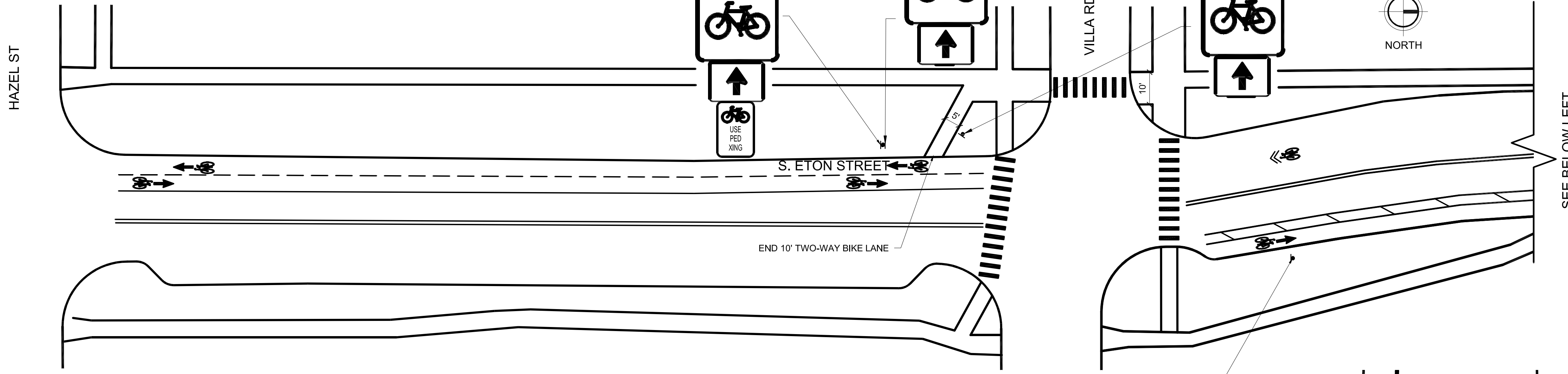
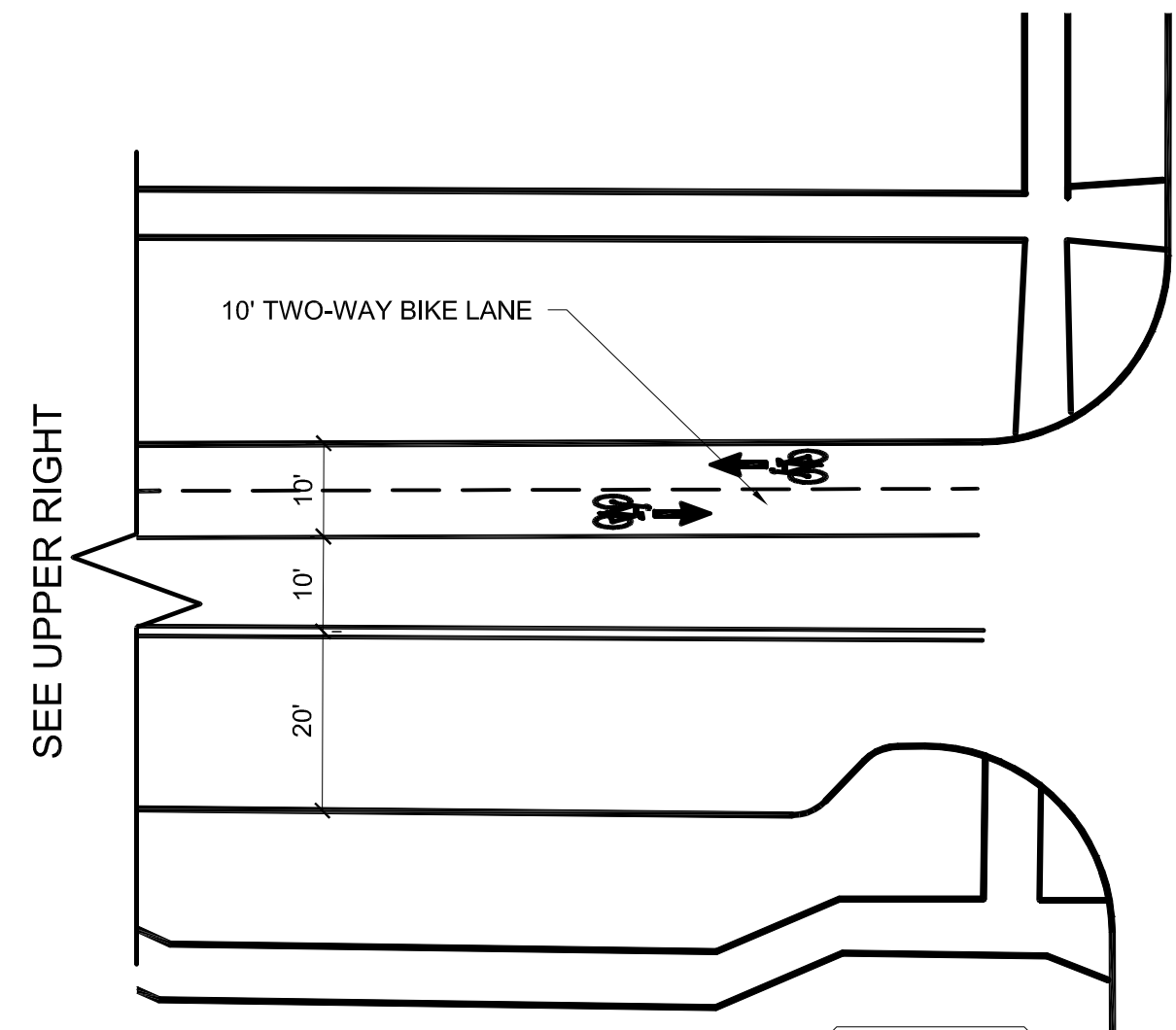
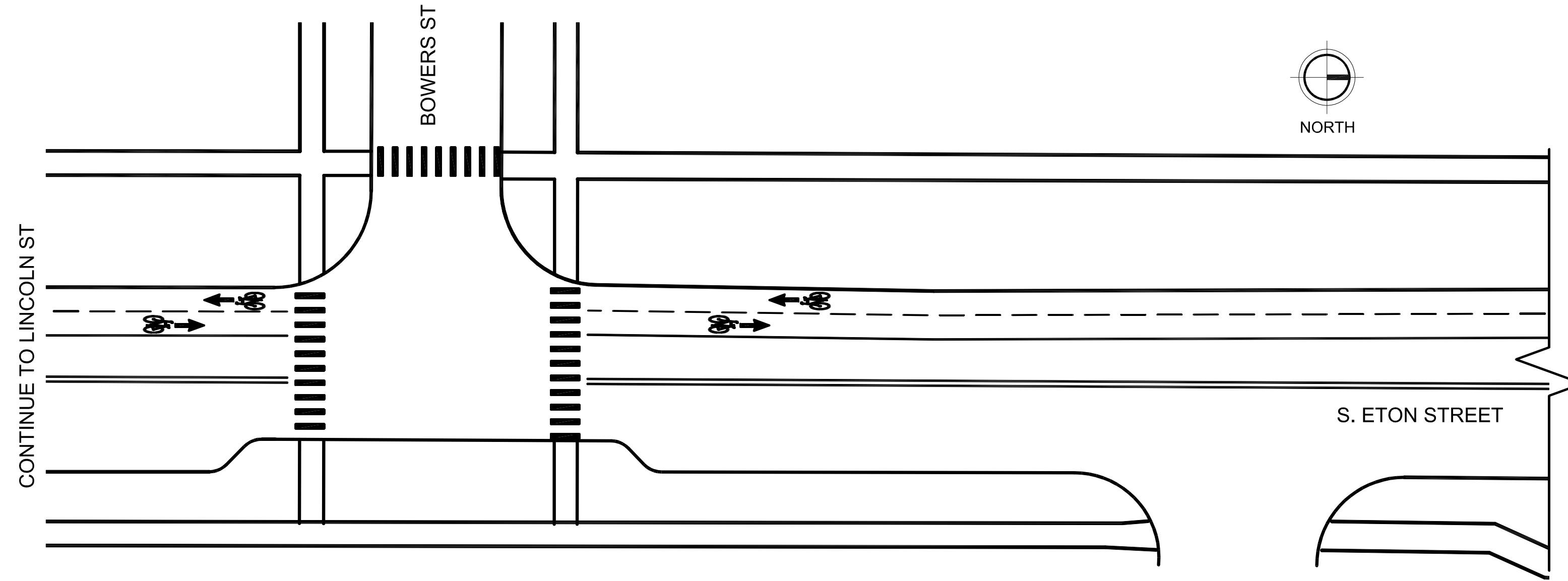
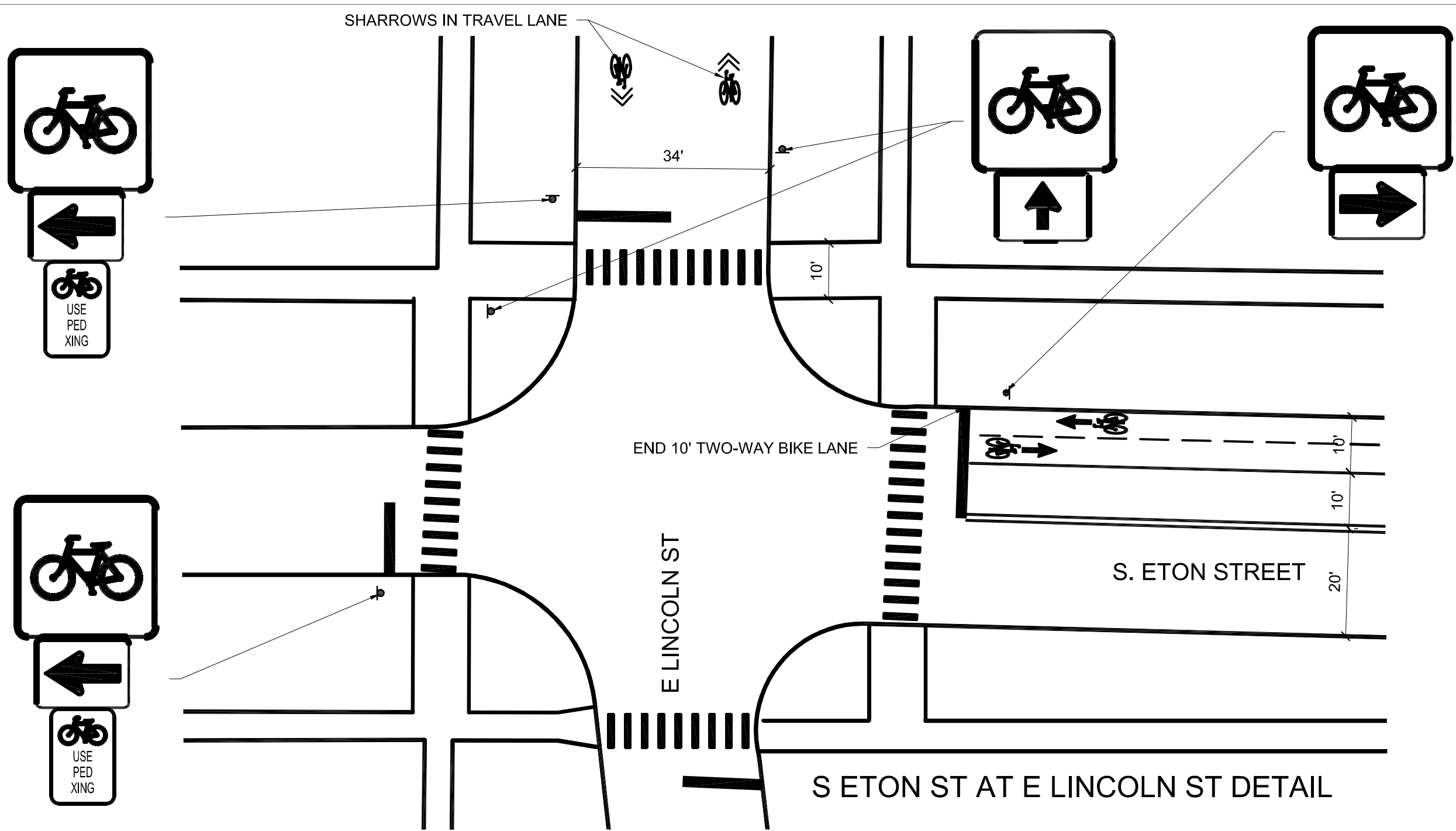
BIRMINGHAM, MI



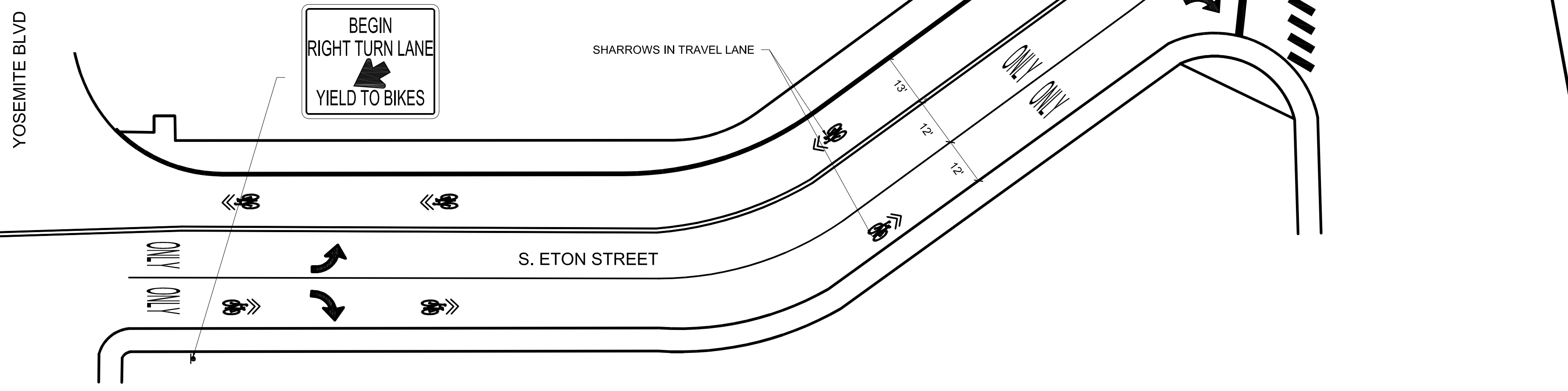
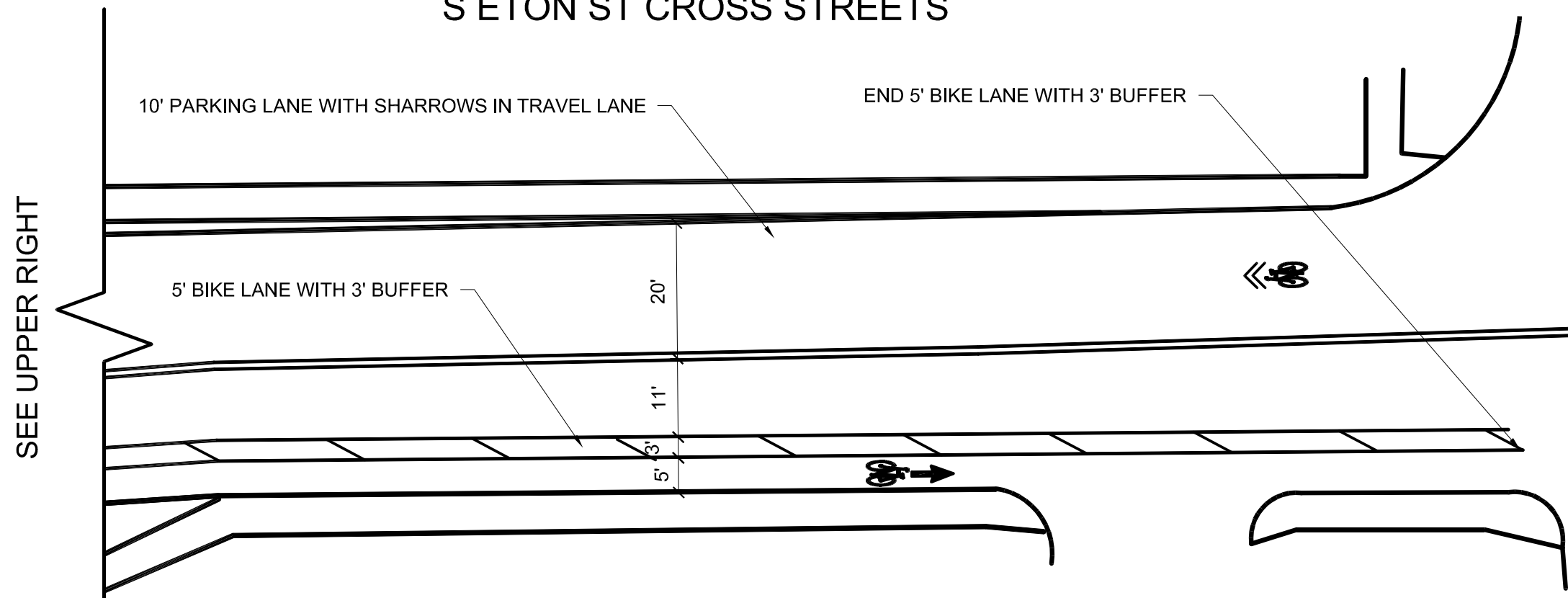


# S. Eton Street (northbound)





SIGN DETAIL FOR S ETON ST CROSS STREETS





Jana Ecker &lt;jecker@bhamgov.org&gt;

---

**RE: Eton Road Traffic**

1 message

---

**Applebaum, Joel D.** <JApplebaum@clarkhill.com>

Thu, Apr 13, 2017 at 11:09 AM

To: Jami Statham &lt;jami.statham@gmail.com&gt;, "jecker@bhamgov.org" &lt;jecker@bhamgov.org&gt;

I would like to join in Jami's email below and the concern about traffic. It is apparent that motorists are either unaware of or willing to cavalierly disregard the law about yielding to pedestrians in crosswalks; a problem made more urgent given that motorists generally exceed the 25 mile an hour speed limit on Eton and, of course, on Adams. Jami's concerns apply equally, if not more so, to the situation on Adams, which is now being used as a Woodward service drive.

Joel D. Applebaum  
CLARK HILL PLC  
[248.988.5883](tel:248.988.5883) (direct) | [248.988.2503](tel:248.988.2503) (fax) | [248.417.3958](tel:248.417.3958) (cell)

-----Original Message-----

From: Jami Statham [mailto:[jami.statham@gmail.com](mailto:jami.statham@gmail.com)]

Sent: Thursday, April 13, 2017 10:35 AM

To: [jecker@bhamgov.org](mailto:jecker@bhamgov.org)

Cc: Applebaum, Joel D.

Subject: Eton Road Traffic

Hi Jana,

I would like to share my concern regarding traffic on Eton. I live on Holland near Eton. While we really enjoy having so many places we can get to from our home on foot, such as Griffin Claw, the Robot Garage, and the park, crossing Eton has become treacherous. I discussed this issue with neighbors and our city manager a few months ago and our city manager stated that improvements are being explored. In the mean time, it was agreed that the crosswalk reminder signs placed in the center of the road in downtown Birmingham would also be placed on Eton. We are still waiting on those signs. Without them, crossing Eton often involves a difficult game of chicken with on coming traffic or requires a walk blocks out of the way to Lincoln (itself a busy intersection).

I have a three year old and I'm becoming increasingly concerned over the safety of crossing in our neighborhood. Your attention to this issue is much appreciated. Further, if could let us know when we can expect to see the crosswalk reminders on Eton, I would appreciate it.

Best regards,

Jami

Jami A. Statham

[\(313\) 613-2822](tel:313.613.2822)

LEGAL NOTICE: This e-mail, along with any attachment(s), is considered confidential and may be legally privileged. If you have received it in error, please notify us immediately by reply e-mail and then delete this message from your system. Please do not copy it or use it for any purposes, or disclose its contents to any other person. Thank you for your cooperation.





Jana Ecker &lt;jecker@bhamgov.org&gt;

---

## South Eton Corridor, meeting tonight

1 message

---

**Andrew Haig** <amhaig@yahoo.com>

Thu, Apr 13, 2017 at 1:07 PM

Reply-To: Andrew Haig &lt;amhaig@yahoo.com&gt;

To: "jecker@bhamgov.org" &lt;jecker@bhamgov.org&gt;

Cc: "jvalentine@bhamgov.org" &lt;jvalentine@bhamgov.org&gt;

Dear Ms Ecker, my name is Andrew Haig & I live in the Torry sub.

I understand that there is a meeting tonight about the South Eton Corridor & it's expansion, plans, update etc. Unfortunately I am not able to attend it at the posted time for several personal reasons, however I would like to let you know of several of my thoughts on this general issue that appears to be growing in it's contentious nature in our part of the city.

Traffic volume on S. Eton:

Very high, too high for the type of street.

I have met with Mr Valentine & seen some proposals for traffic calming, however I do feel, and I expressed this to him at the time, that they are insufficient in scope & ability to calm traffic volume

Traffic speeds on S. Eton

Also too high, I am not sure that the calming measures proposed will slow anyone down sufficiently. I actively avoid walking with my young family along Eton due to volume & speeds as I do not feel that it is safe enough for me to have toddlers walking with me or my wife.

S. Eton road vehicle rating (not sure if this is expressed correctly)

Due to the existing & the new businesses in the Rail district, we are seeing more & more large Semi trucks on the road. As I understand it, the road between Lincoln & 14 mile is not rated for large semi trucks. Realistically, the entire street is not rated for them & their impact. The road will need to be fully de rated once the traffic calming is in place as there will be insufficient space for them. I know that several residents are frequently inconvenienced by tractor trailer units parking in front of their driveways already, and this is with the wider road up by the Irongate, Griffin Claw, Auto Europe part of the street. Once the road is narrower, then these trucks will literally stop in the middle of the road & create a significant hazard & traffic congestion issue - which will push vehicles to now use the side streets as 'rat runs' to get around them.

Side streets leading to & from S. Eton, parallel to Lincoln

Mr Valentine & the Birmingham Police department kindly shared data showing traffic volume & speed data measurements from all of these roads. There are certain streets such as Cole that show shockingly high volumes today, due to the build up of businesses on the east side of S. Eton, with many residents expressing alarm at the speed & volume of traffic passing through these previously quiet neighborhoods. TO my point above about potential street obstruction by large trucks, this will only get worse and cause significant additional levels of resentment & public dissatisfaction. Any study of the S. Eton corridor should expand to include the entire Torry sub & surrounding area to evaluate the impact this will have, or it will simply be an 'ignoring of the problem' that will potentially need something very unfortunate to happen one day before it gets attention. Let's try to avoid this unfortunate possibility before it happens as it is a lot easier to plan ahead rather than to correct issues.

Lincoln Yard Bistro:

Multiple issues that have never been addressed in any forum I am aware of, or with the residents surrounding the location.

I understand, appreciate & welcome the development of the city, let's be very clear on that, however:

Traffic: There are 3 routes to get to Lincoln Yard: North from 14 mile, South from Maple, East on Lincoln.

None of which are suitable for higher volumes of late night or evening "happy hour" traffic volumes & also the potential for impaired or distracted drivers in the middle of residential neighborhoods.

Having been nearly hit by an SUV while crossing the crosswalk in front of Our Shepherd in well lit conditions, I feel that it is not responsible of the city to have granted this location.

Street lighting & marking is insufficient for this type of traffic

Noise. As I have understood it, the bistro will have rooftop seating. A question - has a noise study been conducted in the subdivision to understand the noise transfer levels that will radiate from a rooftop level? I highly doubt this.



If we take the average decibel level of a rooftop restaurant, at the correct height above the ground & radiate it at the time of day at which the restaurant will be in operation, I would like to see dB readings taken in a radial pattern at different distances from this location to understand just how much greater than the current ambient noise levels we will have to suffer, especially on the nice summer evenings & nights when most residents are going to bed with their windows open. This is brought up here as I feel it is part & parcel of the overall development of the area, which is directly linked to the development of the corridor and it is a factor that has been ignored completely. There are insufficient large, mature evergreen type trees in place that would help disperse the noise level all year round. To add them would change the development plan and the nature of the landscape - not taken into account for the environmental aspect.

I realise that this is a lot to digest, however these are some of the primary thoughts I have in mind when I think about the Eton corridor & it's development, as I feel that there has been far too little total community impact & consultation taken into account & we are being conscripted into things we do not all fully know about, understand or agree with.

What does it take for this to be fully re-investigated and a resident approved poll taken of all residents within a reasonable radius of the development corridor?

Please let's do it right before it is too late & the City receives no end of issues from highly irate residents, who I suspect, collectively, have far more time, resources & expertise available to them through their own personal networks that I suspect anyone realises. How about we all work together to USE these resources before they get turned into a counterproductive force?

I look forward to having more involvement if possible and also to additional discussions with the City and residents on this matter as I feel it is important to all of us who have invested so much of our lives & personal finances into this highly desirable city, to further improve our little corner of the world.

Yours,

Andrew Haig.

# **DRAFT**

**CITY OF BIRMINGHAM  
MULTI-MODAL TRANSPORTATION BOARD  
THURSDAY, MAY 4, 2017  
City Commission Room  
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, May 4, 2017.

Vice Chairman Andy Lawson convened the meeting at 6 p.m.

## **1. ROLL CALL**

**Present:** Vice Chairman Andy Lawson; Board Members Lara Edwards, Amy Folberg, Daniel Rontal, Michael Surnow; Alternate Member Katie Schaefer

**Absent:** Chairperson Vionna Adams; Board Member Johanna Slanga

**Administration:** Jana Ecker, Planning Director  
Scott Grewe, Operations Commander  
Paul O'Meara, City Engineer  
Carole Salutes, Recording Secretary

**Also Present:** Julie Kroll and Mike Labadie from Fleis & Vandenbrink ("F&V"), Transportation Engineering Consultants

## **2. INTRODUCTIONS**

## **3. REVIEW AGENDA (no change)**

## **4. APPROVAL OF MINUTES, MEETING OF APRIL 13, 2017**

**Motion by Mr. Rontal**

**Seconded by Mr Surnow to approve the Minutes of April 13, 2017 as presented.**

**Motion carried, 6-0.**

**VOICE VOTE**

Yeas: Rontal, Surnow, Edwards, Folberg, Lawson, Schaefer

Nays: None

Absent: Adams, Slanga

## 5. LAWDALE AVE. RECONSTRUCTION

Mr. O'Meara recalled that last month the board discussed a parking restriction on the block of Lawndale Ave. north of Oakland Blvd. This discussion pertains to the block south of Oakland Blvd., which operates as a one-way street (northbound only), and is currently signed for No Parking. Funds were budgeted for spot concrete patching. Upon close review this past month, it appeared that most of the street should be replaced and staff concluded that a change in width may be appropriate.

In the 1970's, the crossover at Oakland Blvd. was closed, making it more difficult to use Oakland Blvd. from downtown and traffic demand on Lawndale Ave. likely was cut by over 50%. Currently it is only a benefit to residential traffic headed to the immediate neighborhood. With the reduced traffic demand, the one-way traffic configuration, and no parking, the 24 ft. width seemsexcessive.

Presently, large trucks sit on Lawndale Ave. adjacent to the Holiday Inn Express to unload packages. When this occurs, there needs to be enough width to drive past the truck to enter the neighborhood. With that in mind, a 20 ft. width pavement would be sufficient.

A review of the Multi-Modal Master Plan confirmed that there is a proposal to add a sidewalk along the south side of Oakland Blvd. between Lawndale and Woodward Ave. and relocate the crosswalk. The existing handicap ramps at the corner of Oakland Blvd. will be updated to meet current standards as a part of this project. In terms of adding landscaping in the median, it was discussed that street trees could be added along Lawndale that would be tall enough to see underneath. A permit from MDOT will be needed to complete a portion of the landscaping.

Given that the purpose for this street has changed over the years, and since other modes of traffic such as bikes would have a difficult time accessing this street from Woodward Ave., staff sees this as a good opportunity to reduce the amount of pavement and to save some money.

### **Motion by Mr Rontal**

**Seconded by Ms. Folberg to recommend to the City Commission the approval of the plan for a 20 ft. wide road on Lawndale Ave. between Oakland Ave. and Woodward Ave., and to encourage staff to work with MDOT to improve the Woodward Ave. crosswalk in conjunction with their project, and also explore the possibility of landscaping with trees on the eastern side of the triangular island.**

Ms. Folberg thought that Parks and Recreation should be informed of this change.

At 6:15 there were no comments from the public.

**Motion carried, 6-0.**

VOICE VOTE

Yeas: Rontal, Folberg, Edwards, Lawson, Schaefer, Surnow

Nays: None

Absent: Adams, Slanga

## **6. S. ETON RD. - MAPLE RD. TO LINCOLN AVE.**

Ms. Ecker recalled that at the March and April meetings, the MMTB discussed the recommendations of the Ad Hoc Rail District Committee. A recommendation was also passed on to the City Commission focused on changes to the intersection of S. Eton and Maple Rd.

*Maple Rd. to Yosemite Blvd.*

The Commission expressed concern relative to certain design elements, and encouraged the board to consider a larger bumpout at the southwest corner of the Maple Rd. intersection.

Other concerns expressed by the Commission included:

- The acute turn for vehicles from eastbound Maple Rd. to S. Eton Rd. is problematic.
- The white stop bars may be ignored, causing problems for both motorists and pedestrians.
- The Board should consider the inclusion of a multi-directional bike lane.

Ms. Julie Kroll indicated as far as the stop bar location F&V looked at a couple of options. The first option was the addition of a splitter island. By proposing the splitter island they were able to move the stop bars closer to the intersection than they currently are. That adds two more spaces for vehicle queuing and also improves sight distance for the intersection.

The other option they looked at was a bumpout. That increased the crosswalk distance and reduced queuing space for vehicles, compared to the splitter island proposal. It was noted that it is not possible to do both the splitter island and the bumpout.

## Multi-Modal Transportation Board Proceedings

May 4, 2017

Page 4

Ms. Ecker thought the splitter island is the best way to go. More people will be legally stopping where they are supposed to. The intersection is not perfect because it is at an odd angle.

Mr. O'Meara recalled that board members agreed previously that the design does not provide any enhancement for bike traffic because of the narrow right-of-way in this area, plus the clear need for three lanes of traffic at this intersection.

Moving south of Villa Ave., Ms. Kroll demonstrated how a bi-directional bike lane on the west side of S. Eton Rd. would work along with some additional signage. Board members expressed some concerns about the ingress/egress of a biker and discussed a protected bike lane along with the possibility of walking bikes across S. Eton Rd. at the Yosemite or Villa intersection in order to continue north in the bike lane.

Everyone liked the bi-directional bike lane except it would have to cut off at the most needed point where the road narrows.. The bike lane should go all the way north to Maple Rd. on the west side where people can walk across Maple Rd. in the crosswalk and then continue on N. Eton Rd. where there are bike lanes on each side.

The board wanted staff to go back and look at the option, regardless of how much it costs, of keeping the bi-directional bike lane all the way up to Maple Rd. The Board would like to see what is involved in acquiring land, installing a retaining wall, how much it would cost, and then coming back. This would be Plan A to take to the public and then send to the Commission.

Discussion continued regarding Plan B if land acquisition is not possible. Plan B is as shown from Lincoln to Villa, with a bi-directional bike lane on the west side of the street, currently as shown 5 ft. in each direction. Bumpouts on the east side of the street could be installed at several of the intersections with enhanced crossings. From Villa to Yosemite, add enhanced sharrows with a green background, eliminate the on-street parking for the businesses on the west side, and all the way down to Lincoln.

After much discussion, the Board favored the elimination of the northbound bike lane, adding 3 ft. to the sidewalks on either side (8 ft. sidewalks), and a 4 ft. landscaped grass area with street trees on the east and west sides from Villa to Yosemite. From Yosemite to Maple Rd. the proposal would stay as before with an 8' wide expanded sidewalk on the west side of S. Eton.

Commander Grewe suggested that maybe the alternative in that area is to encourage bikers to get on the sidewalk and walk their bikes.

Multi-Modal Transportation Board Proceedings

May 4, 2017

Page 5

Board members went on to explore various buffers that would protect the bike lanes. It was concluded that the center line in the bi-directional bike lanes could be eliminated. If that doesn't work, a centerline can always be added later. Low profile barriers were preferred within 1.5 ft., such as turtle bumps, oblong low bumps, and linear barriers.

It was suggested that a public hearing wherein all owners within 300 ft. of the corridor be invited to the next MMTB meeting to provide input before a final recommendation is made. It is planned to delay the connector route work in this area until a final design is approved by the Commission, with the hope that the pavement markings and sidewalk changes can still be implemented during the 2017 construction. The more extensive bumpout work at several intersections involves more work that will have to be budgeted in a future budget cycle.

**Motion by Dr. Rontal**

**Seconded by Ms. Folberg to set a public hearing regarding the S. Eton Rd. corridor bi-directional bike lane proposal as amended this evening for the regular Multi-Modal Transportation Board meeting of June 1, 2017 at 6 p.m.**

**Modifications made tonight are from Villa to Yosemite to add enhanced sharrows, eliminate parking on the west side, and eliminate the northbound bike lane on the east side as shown on the plans and make both sidewalks on the east and west side an additional 3 ft. wide (8 ft.) plus a 4 ft. green boulevard with street trees up to Yosemite. Then from Yosemite to Maple Rd., continue with the plans as shown which are enhanced sharrows and a widened sidewalk to 8 ft. on the west side of the street. The bi-directional bike lane will be 8.5 ft. plus 1.5 ft. for a buffer of some sort, whether it be turtle bumps, oblong low, or linear barriers.**

No one from the public wished to discuss the motion at 8:10 p.m.

**Motion carried, 6-0.**

VOICE VOTE

Yeas: Rontal, Folberg, Edwards, Lawson, Schaefer, Surnow

Nays: None

Absent: Adams, Slanga

The Vice-Chairman asked board members to travel this route on their bikes before the public meeting next month.

**7. MEETING OPEN TO THE PUBLIC FOR ITEMS NOT ON THE AGENDA**





# MEMORANDUM

Engineering Dept.

**DATE:** May 25, 2017  
**TO:** Multi-Modal Transportation Board  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** S. Eton Rd. – Maple Rd. to Lincoln Ave.  
Multi-Modal Improvements

---

---

As you know, the Multi-Modal Master Plan, finalized in 2014, proposed changes to the above half-mile collector street that also serves as the westerly boundary of the Rail District. In March, 2016, the City Commission approved the installation of a Neighborhood Connector Route that would provide a marked, signed route for bicyclists circling around the City. The signing and pavement markings are now incorporated in a larger project that has been awarded, and implementation is set for this summer. For this segment, this initial plan called for leaving the road operating as it is, but adding sharrows through this half mile corridor.

Soon after, amid continued requests for changes from the community, the City Commission appointed the Ad Hoc Rail District Committee to study parking demand and multi-modal issues in this area. Their final report was submitted to the City Commission in December, 2016.

Early this year, the Multi-Modal Transportation Board (MMTB) focused on potential improvements to the Maple Rd. & S. Eton Rd. intersection. In April, the City Commission reviewed a recommended design that featured the installation of a "splitter island" between the two northbound Eton Rd. lanes, providing a refuge for pedestrians crossing Eton Rd. at Maple Rd. The proposal also recommended the relocation of the west side curb for the block between Maple Rd. and Yosemite Blvd., which allows the widening of the west side sidewalk for the entire block. The Commission had reservations about the intersection design, and directed the matter back to the MMTB for further discussion.

At the May, 2017 meeting, staff presented a new concept for S. Eton Rd. from Yosemite Blvd. to Lincoln Ave., generally proposing a two-lane bike lane along the west side of the road, resulting in the removal of parking on this section. The Board generally endorsed the plan, but made several suggestions for the block north of Villa Ave. Those changes were incorporated in a revised plan, which is attached. A public hearing to present these ideas to the community was scheduled for the June 1, 2017 meeting. Hundreds of postcards were sent to all owners and tenants within 300 ft. of the S. Eton Rd. corridor, inviting them to submit comments or attend the hearing. The following summarizes the current plan:

## MAPLE RD. TO YOSEMITE BLVD.

As requested, the MMTB again studied the design for Multi-Modal improvements on this block. The alternate design for installing a bumpout on the southwest corner was considered. However, since it resulted in a longer crossing for pedestrians, it was rejected in favor of the

splitter island design. Discussion was also held about the lack of a bike lane opportunity in this area. The Board determined that due to the lack of right-of-way, and the need for three vehicular lanes, the installation of sharrows is all that can realistically be envisioned at this time.

The Board also discussed the issue of the location of the stop bars relative to the proposed island. It was noted that the new stop bar locations are actually closer to the intersection than the current ones. The consultant is recommending large hatched pavement markings in front of the left lane stop bar, to help discouraging drivers from occupying this area. Since it is not clear to what extent this problem will exist, it is recommended that these markings be placed after construction, if needed.

The Board continues to support the relocation of the west side curb in order to widen the west side sidewalk for the entire block.

#### YOSEMITE BLVD. TO VILLA AVE.

The plan presented by staff at the last meeting had proposed maintaining parking on the west side, and installing a buffered bike lane for northbound traffic. The board made several suggestions, which have been incorporated on the new attached plan and cross-section. Features of the new plan include:

- Removal and replacement of the sidewalks so that they would be a consistent 8 ft. wide.
- Relocation of the curb and gutter section on both sides of the street to accommodate both the wider sidewalks, as well as a 4 ft. wide green space with City trees.
- Removal of the public parking on the west side of the street (consistent with the proposal further south).
- Installation of enhanced sharrows for both directions.

Now that this block has been laid out using actual measurements, it is noted that the southbound lane will remain wider than the southbound lane, as it is currently. We do not recommend using this extra space for some form of marked bike lane, as it is important that northbound bikes cross Eton at Villa Ave., where sight distance is better. If a marked bike lane was provided for just southbound bikes on this block, it may encourage northbound bikes to use this area as well, which is not recommended.

#### VILLA AVE. TO LINCOLN AVE.

The plan has been refined in this area with the following features:

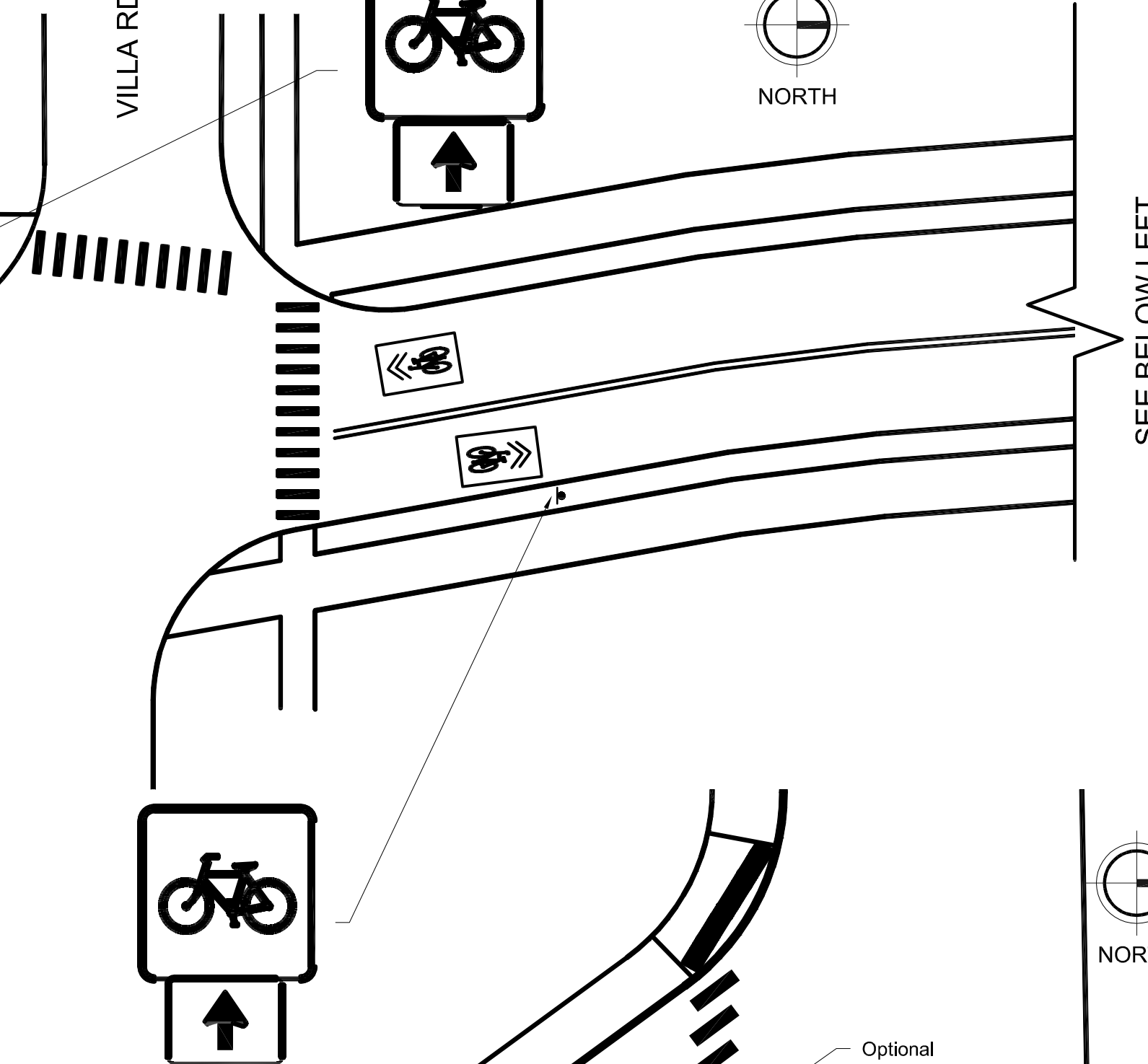
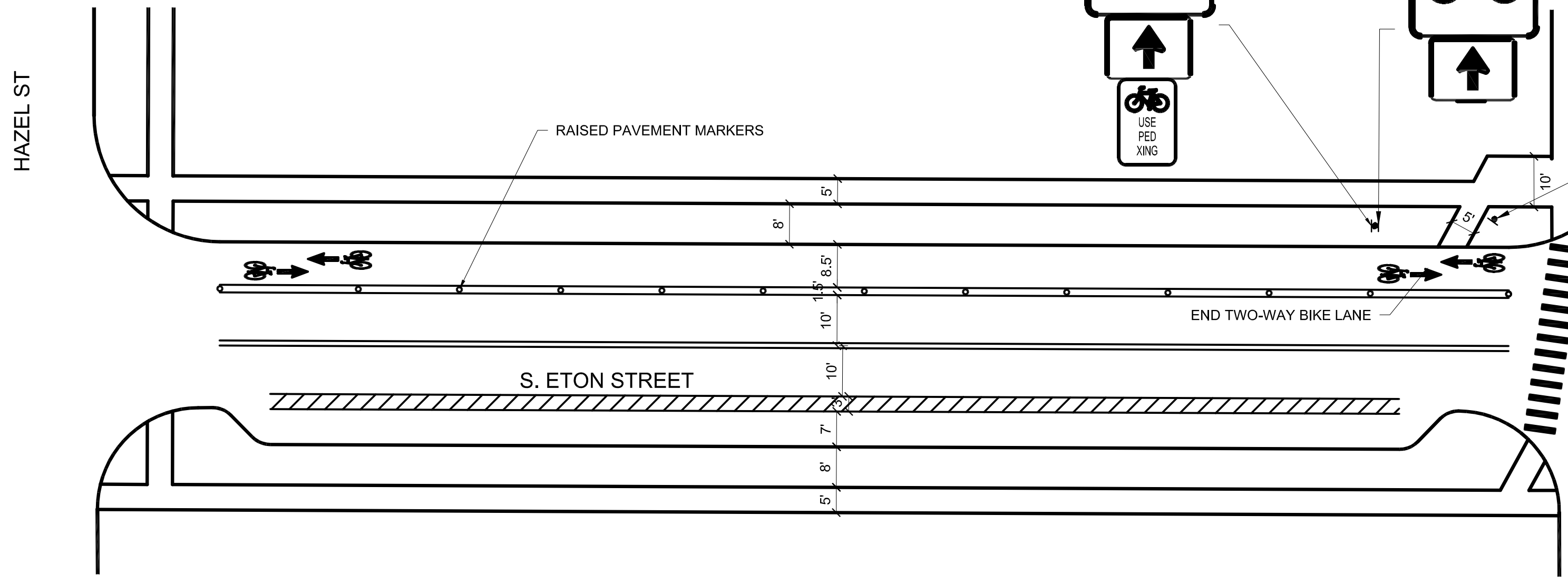
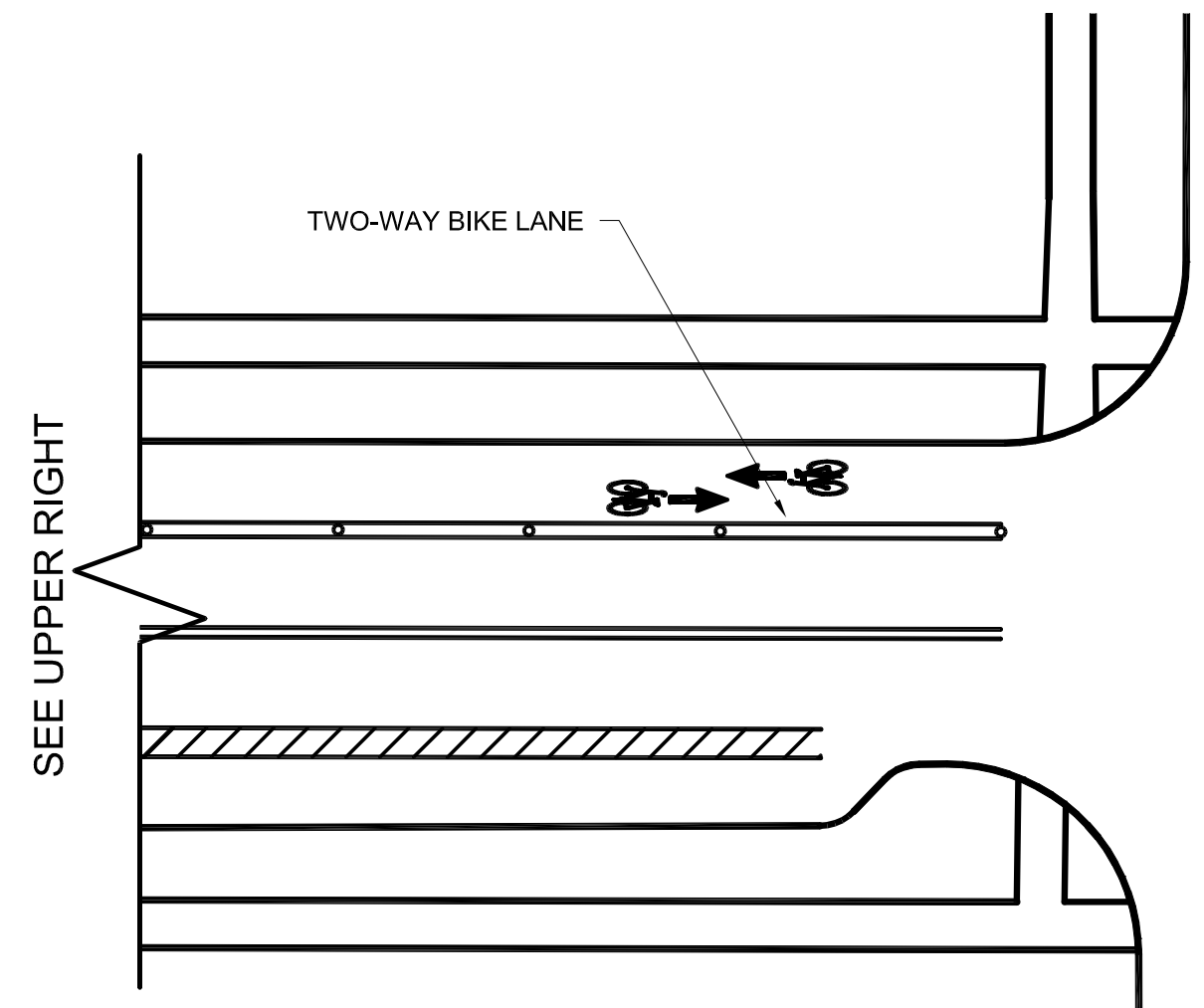
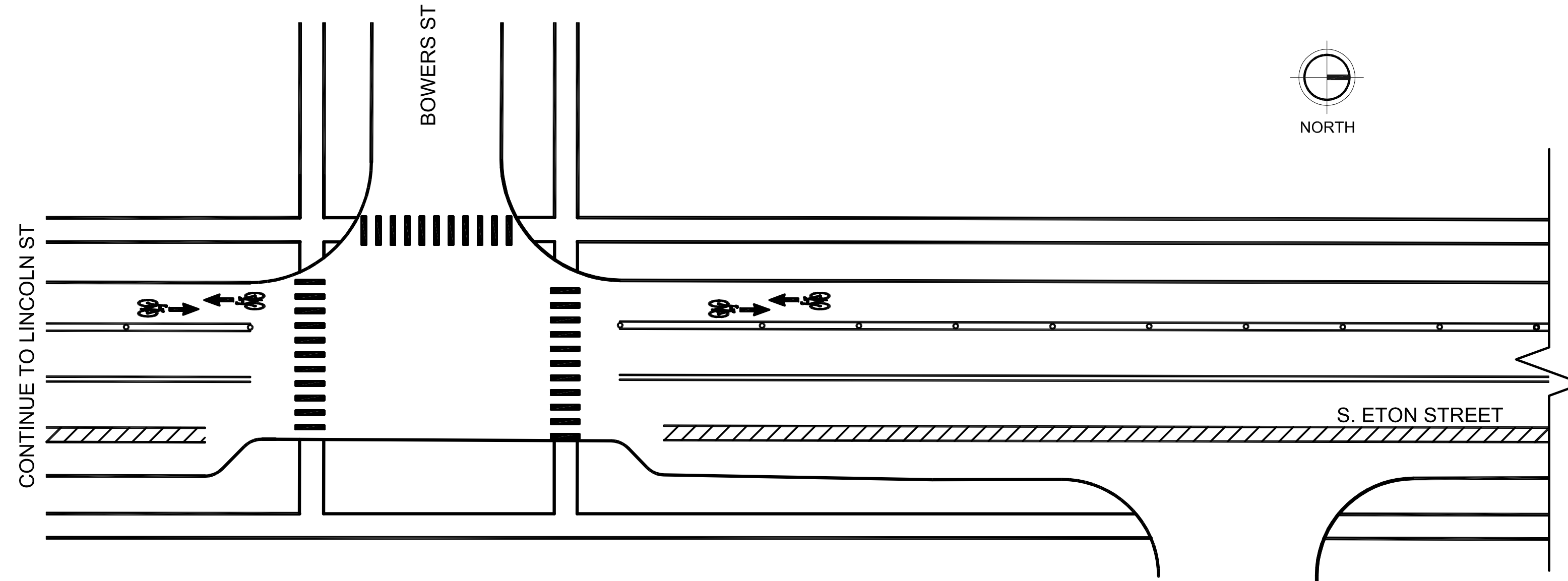
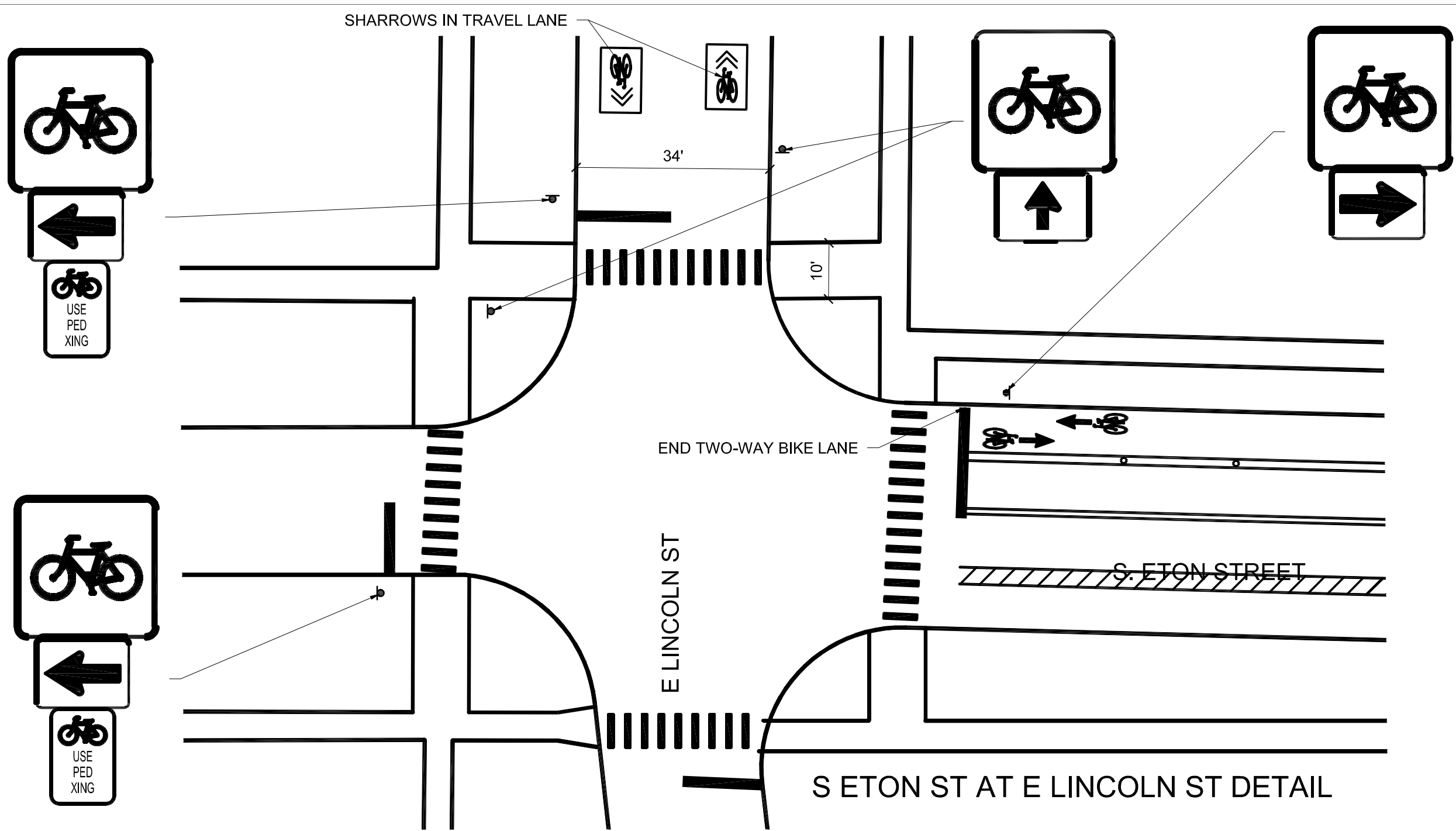
- The centerline pavement marking has been removed from the two-way bike lane.
- The bike lane has been narrowed to 8.5 ft., to allow for a 1.5 ft. wide buffer area that will be supplemented with some form of raised markers. If this proposal moves forward to construction, staff will investigate various options to determine which one will work best.
- Though not called out on the plan, the public hearing notice identified the following locations for suggested bumpouts on the west side of the street, in accordance with the Ad Hoc Rail District Committee recommendation:  
Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave.

The design otherwise remains the same. Should the Board wish to proceed with this design, a suggested recommendation follows.

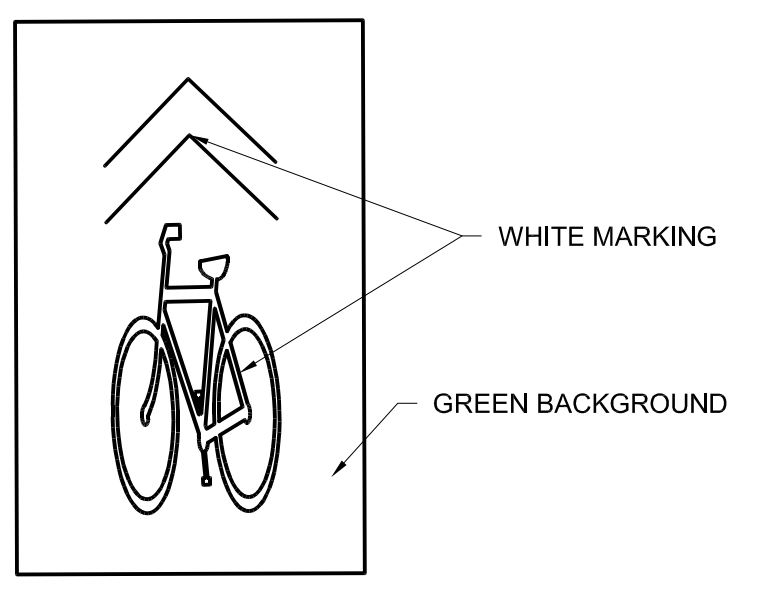
SUGGESTED RECOMMENDATION:

To recommend that the City Commission approve and budget for the following Multi-Modal improvements to S. Eton Rd. from Maple Rd. to Lincoln Ave.:

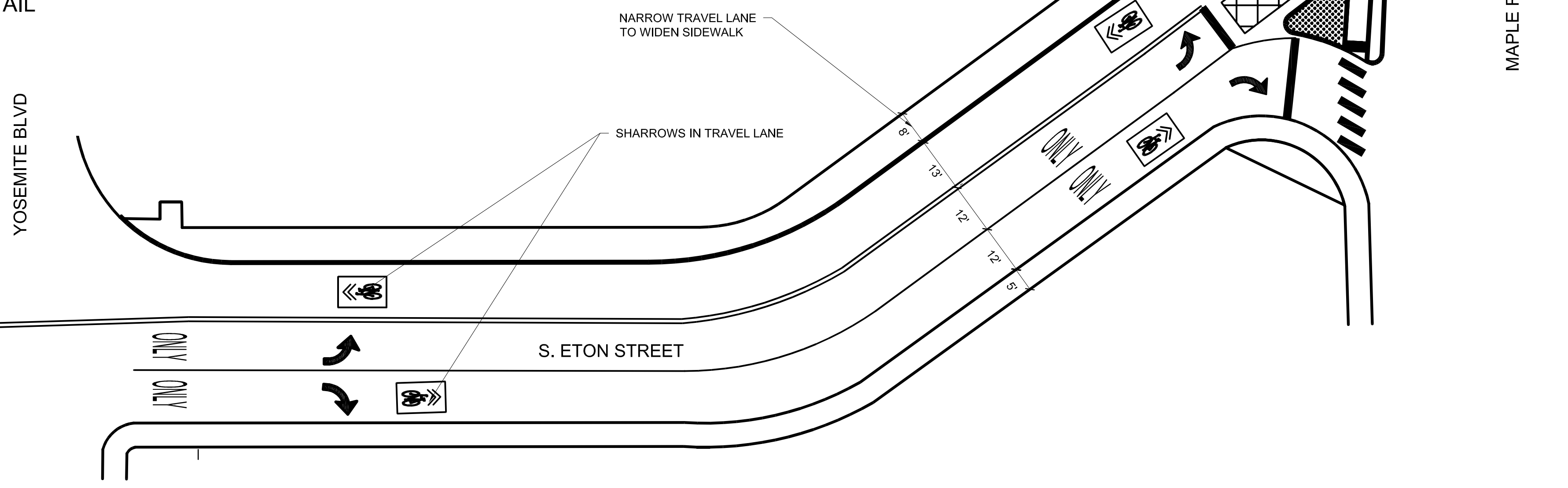
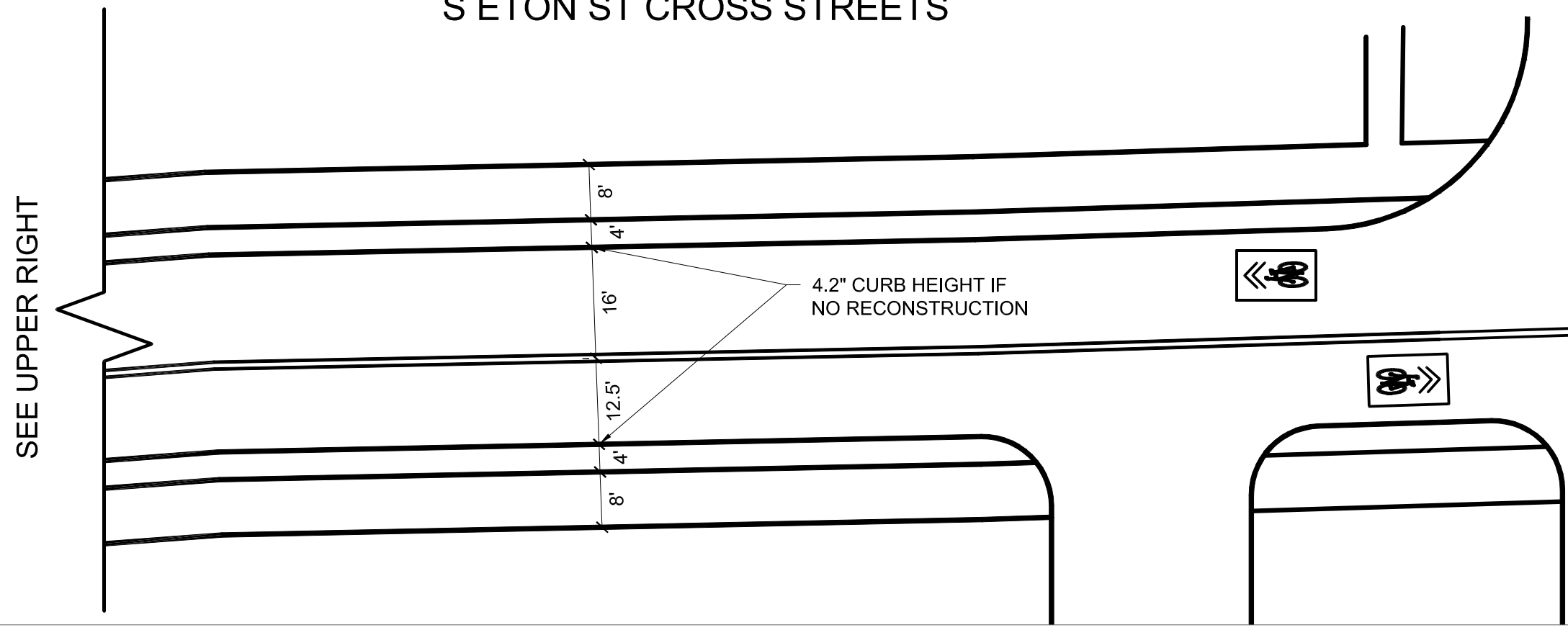
1. Maple Rd. to Yosemite Blvd.
  - a. Installation of a splitter island at the Maple Rd. pedestrian crosswalk, located between the two northbound lanes of S. Eton Rd.
  - b. Relocation of the west side curb and gutter to accommodate an 8 ft. wide sidewalk along the entire block.
  - c. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd.
  - d. Installation of sharrows on green painted squares for both directions.
  
2. Yosemite Blvd. to Villa Ave.
  - a. Removal of the existing parking on the west side of the street.
  - b. Relocation of the curb and gutter on both sides of the street to accommodate 8 ft. wide sidewalks and 4 ft. wide green spaces with new City trees.
  - c. Installation of sharrows on green painted squares for both directions.
  
3. Villa Ave. to Lincoln Ave.
  - a. Removal of the existing parking on the west side of the street, replaced with an 8.5 ft. wide bi-directional bike lane and a 1.5 ft. buffer with raised markers.
  - b. Sidewalk improvements as needed at Villa Ave. and Lincoln Ave. to facilitate the bi-directional bike lane.
  - c. Installation of a 3 ft. wide buffer between the northbound travel lane and 7 ft. parking lane.
  - d. Curbed bumpouts at marked pedestrian crosswalks on the west side of the street, at the intersections of Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave.



SIGN DETAIL FOR S ETON ST CROSS STREETS



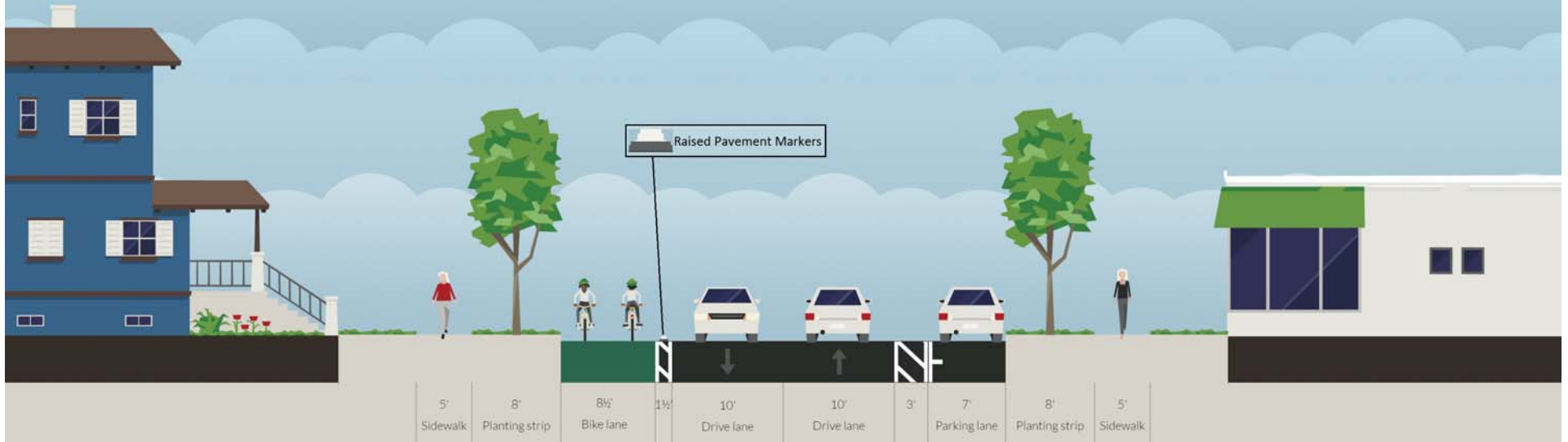
SHARROW DETAIL



# S. Eton Street (Villa to Yosemite)-Looking North



# S. Eton Street (Lincoln to Villa)-Looking North





**CITY OF BIRMINGHAM**  
**S. ETON RD. – MAPLE RD. TO LINCOLN AVE.**

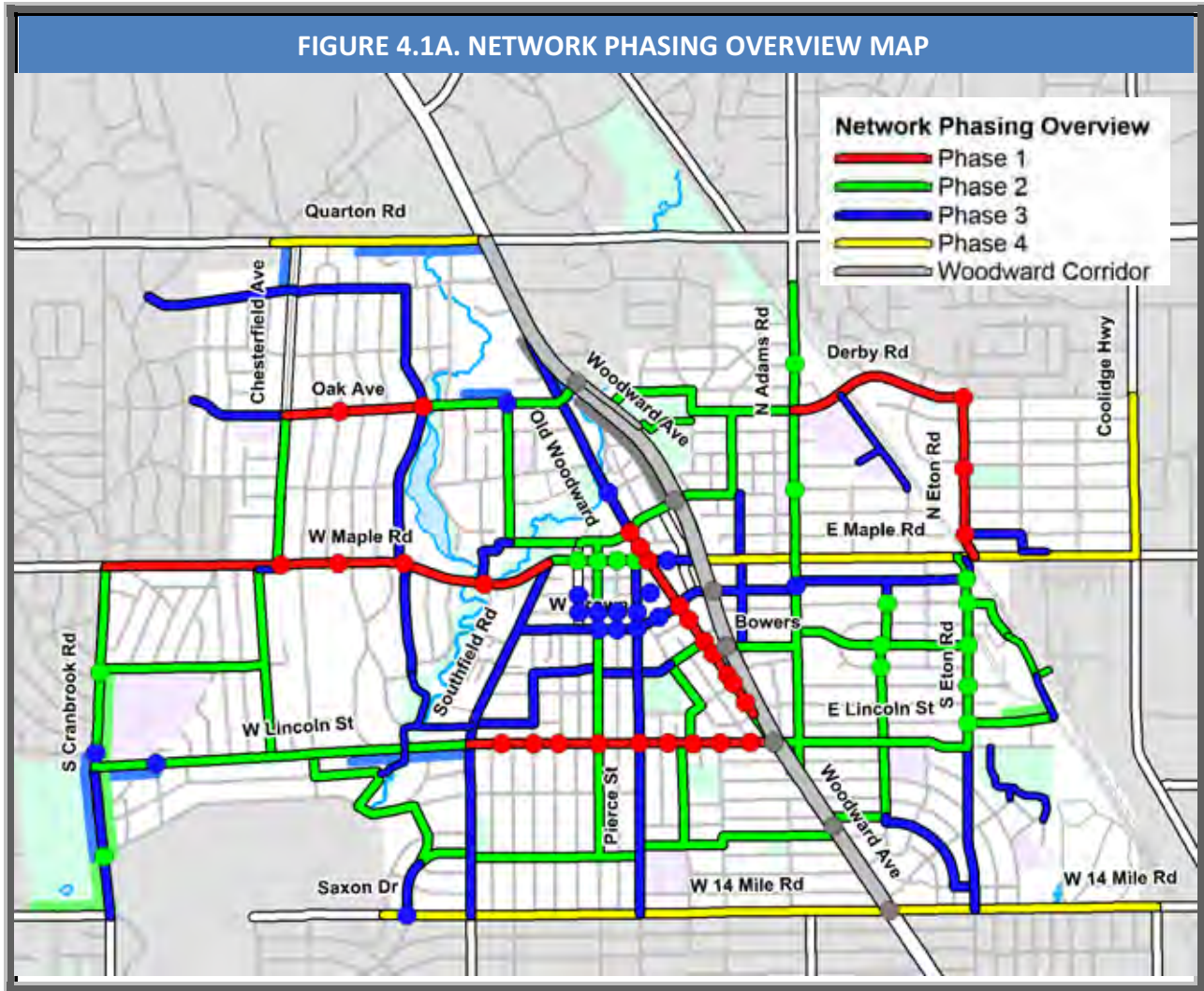
The Multi-Modal Transportation Board is a volunteer group appointed by the City Commission to make recommendations for public street improvements in accordance with the Multi-Modal Master Plan. A public hearing is scheduled on **Thursday, June 1, 2017, at 6:00 P.M.** at the Birmingham Municipal Bldg. (151 Martin St.) to discuss the above corridor. Please enter through the Police Dept. on the Pierce St. side of the building. Proposals include the installation of a pedestrian island improvement at Maple Rd., the removal of on-street parking on the west side, installation of a bike lane on the existing pavement, and pedestrian bumpouts at the intersections of Villa, Hazel, Bowers, Cole, and Lincoln. Please go to [www.bhamgov.org/government/boards/MMTB\\_board.php](http://www.bhamgov.org/government/boards/MMTB_board.php) for details. You may also call the Engineering or Planning Depts. at 248-530-1850 if you have questions.

If you wish to submit written comment for the Board to consider, please send to [pomeara@bhamgov.org](mailto:pomeara@bhamgov.org) no later than May 25, 2017.

**CITY OF BIRMINGHAM**  
**S. ETON RD. – MAPLE RD. TO LINCOLN AVE.**

The Multi-Modal Transportation Board is a volunteer group appointed by the City Commission to make recommendations for public street improvements in accordance with the Multi-Modal Master Plan. A public hearing is scheduled on **Thursday, June 1, 2017, at 6:00 P.M.** at the Birmingham Municipal Bldg. (151 Martin St.) to discuss the above corridor. Please enter through the Police Dept. on the Pierce St. side of the building. Proposals include the installation of a pedestrian island improvement at Maple Rd., the removal of on-street parking on the west side, installation of a bike lane on the existing pavement, and pedestrian bumpouts at the intersections of Villa, Hazel, Bowers, Cole, and Lincoln. Please go to [www.bhamgov.org/government/boards/MMTB\\_board.php](http://www.bhamgov.org/government/boards/MMTB_board.php) for details. You may also call the Engineering or Planning Depts. at 248-530-1850 if you have questions.

If you wish to submit written comment for the Board to consider, please send to [pomeara@bhamgov.org](mailto:pomeara@bhamgov.org) no later than May 25, 2017.



#### CONCURRENT STUDIES

Numerous concurrent studies were underway on the Woodward Avenue Corridor during the creation of this plan. Due to this occurrence, implementation recommendations for this corridor were not provided. Details on the Woodward Avenue Corridor can be found under the Specific Area Concept Plans.

# CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLAN

## NETWORK IMPLEMENTATION PLAN



### 4.2 PHASE 1

#### PHASE 1: OVERVIEW

Many of the routes in Phase 1 may be implemented as part of the City's Capital Improvement Plan (CIP). A Capital Improvement Plan is a short-range plan, usually five to ten years which identifies capital projects and provides planning schedules and options for financing the plan. CIP roadway projects generally fall into two categories, resurfacing and reconstruction. Resurfacing projects typically only affect the surface of the roadway, whereas in a reconstruction project the existing roadway, curb and sidewalk may be completely removed and reconstructed. Incorporating the proposed improvements with the CIP is a cost effective way to implement the facilities as it will reduce mobilization costs and help to consolidate roadway closures.

The following pages provide a more detailed breakdown of Phase 1.

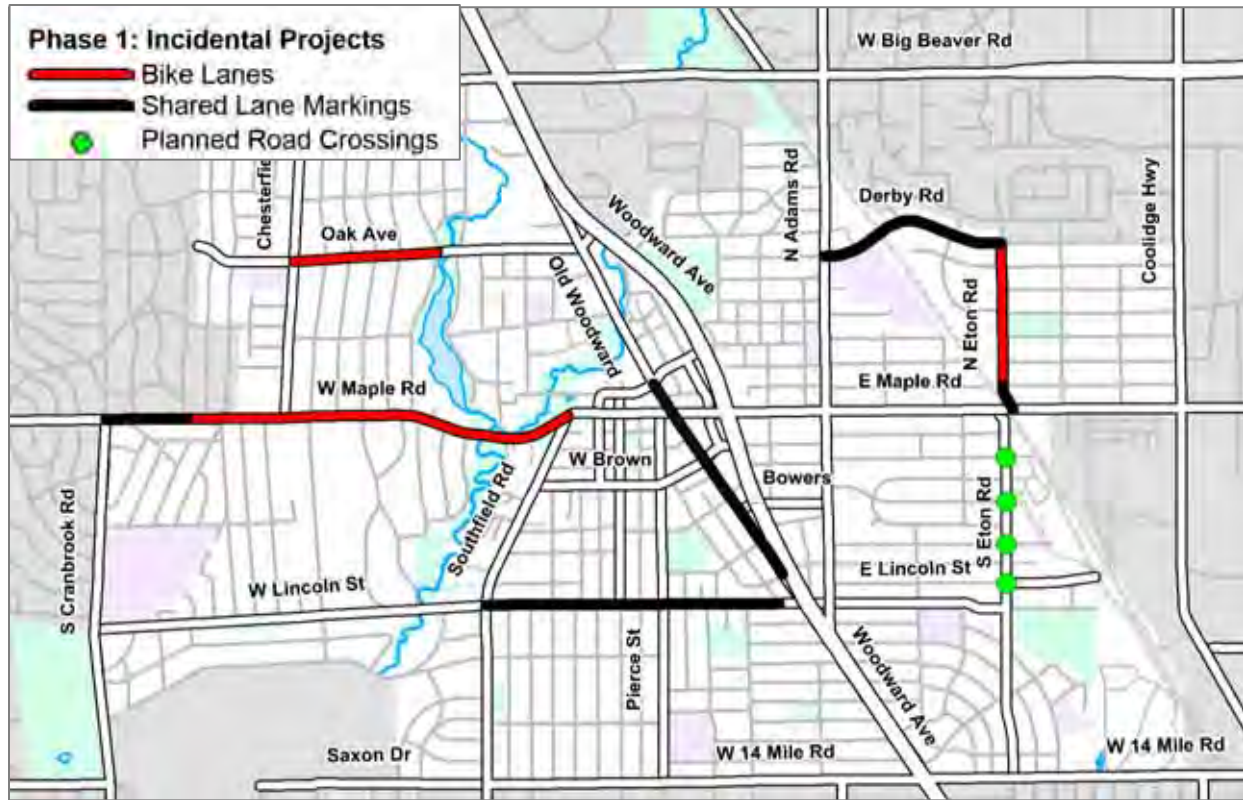
FIGURE 4.2A. PHASE 1





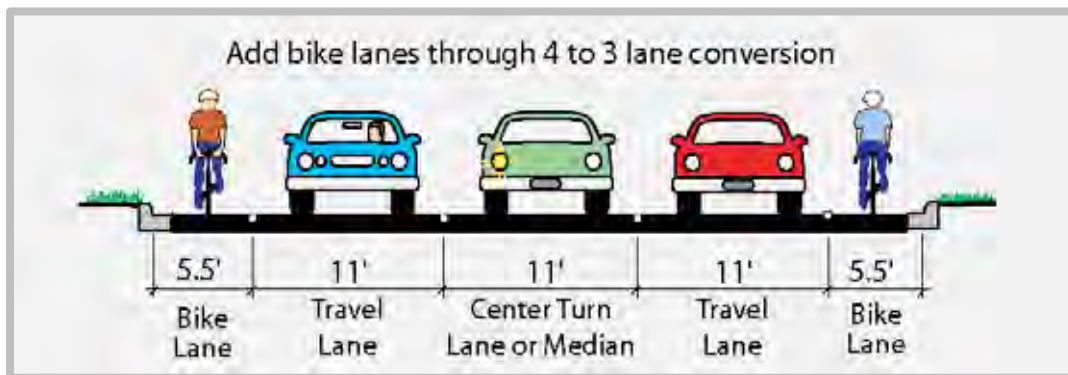
**PHASE 1: INCIDENTAL PROJECTS**

The following is a list of projects that could be implemented as part of the City’s Capital Improvement Plan (CIP) with incidental costs.



Add bike lanes to W Maple Road between Waddington Street and Southfield Road through a four-lane to three-lane conversion as part of the 2015 road resurfacing project.

**W MAPLE ROAD**

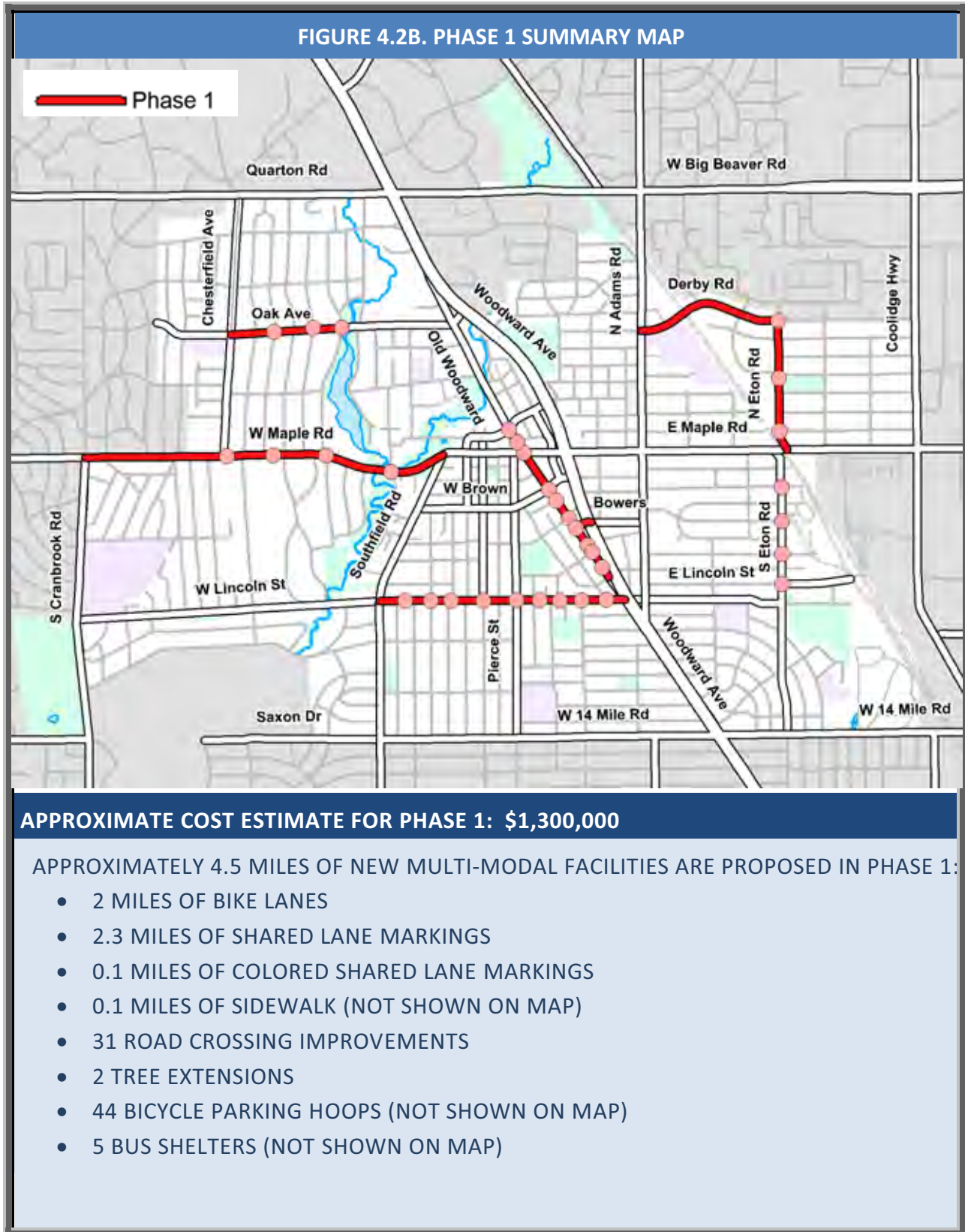


Add shared lane markings to the following corridors:

- Derby Road between N Adams Road and the Railroad Overpass (2013 reconstruction project)
- Derby Road between the Railroad Overpass and N Eton Road (2014 resurfacing project)
- Lincoln Street between Southfield Road and Ann Street (2014 resurfacing project)
- N Eton Road between Yorkshire Road and E Maple Road (2014 reconstruction project)
- W Maple Road between Cranbrook Road and Waddington Street (2015 resurfacing project)
- N Old Woodward Avenue between Willits Street and W Maple Road (2016 reconstruction project)
- S Old Woodward Avenue between W Maple Road and E Brown Street (2016 reconstruction project)
- S Old Woodward Avenue between E Brown Street and Landon Road (2017 reconstruction project)

Four new road crossings are planned on S Eton Road between E Maple Road and E Lincoln Street in 2013. The plans for these crossing include basic improvements such as pavement markings. As part of Phase 2 it is recommended that curb extensions be implemented at these crossing locations as well.

<b>PHASE 1 INCIDENTAL PROJECTS:</b>				
<b>Road</b>	<b>From</b>	<b>To</b>	<b>Quantity</b>	<b>Unit</b>
<b>Bike Lanes:</b>				
N Eton Rd	Yorkshire Rd	Derby Rd	0.40	MI
W Maple Rd	Waddington St	Southfield Rd	1.12	MI
Oak Ave	Chesterfield Ave	Lake Park Dr	0.40	MI
<b>Shared Lane Markings (placed every 200' - 250'):</b>				
Derby Rd	N Adams Rd	Railroad Overpass	0.17	MI
Derby Rd	Railroad Overpass	N Eton Rd	0.36	MI
Lincoln St	Southfield Rd	Ann St	0.80	MI
W Maple Rd	Cranbrook Rd	Waddington St	0.20	MI
N Old Woodward Ave	Willits St	W Maple Rd	0.10	MI
S Old Woodward Ave	W Maple Rd	E Brown St	0.17	MI
S Old Woodward Ave	E Brown St	Landon Rd	0.43	MI
<b>Road Crossings</b>				
S Eton Rd	at Villa Rd		1	EACH
S Eton Rd	at Bowers St		1	EACH
S Eton Rd	at Holland St		1	EACH
S Eton Rd	at Cole St		1	EACH





# CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLAN

## NETWORK IMPLEMENTATION PLAN

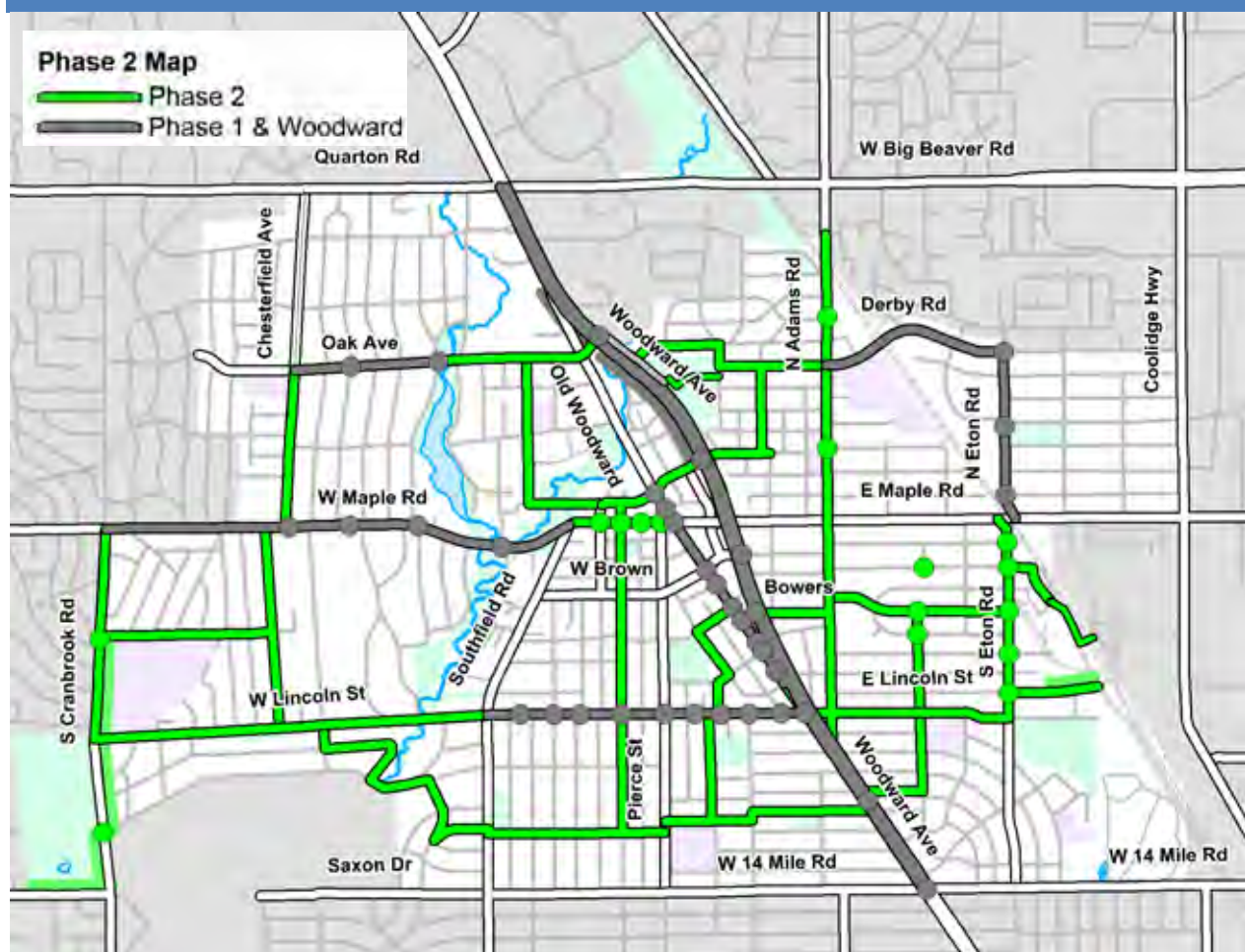
### 4.3 PHASE 2

#### PHASE 2: OVERVIEW

Phase 2 objective is to provide connections across the community and create a backbone for the City's long-range multi-modal system. This phase achieves this by building on the existing multi-modal system.

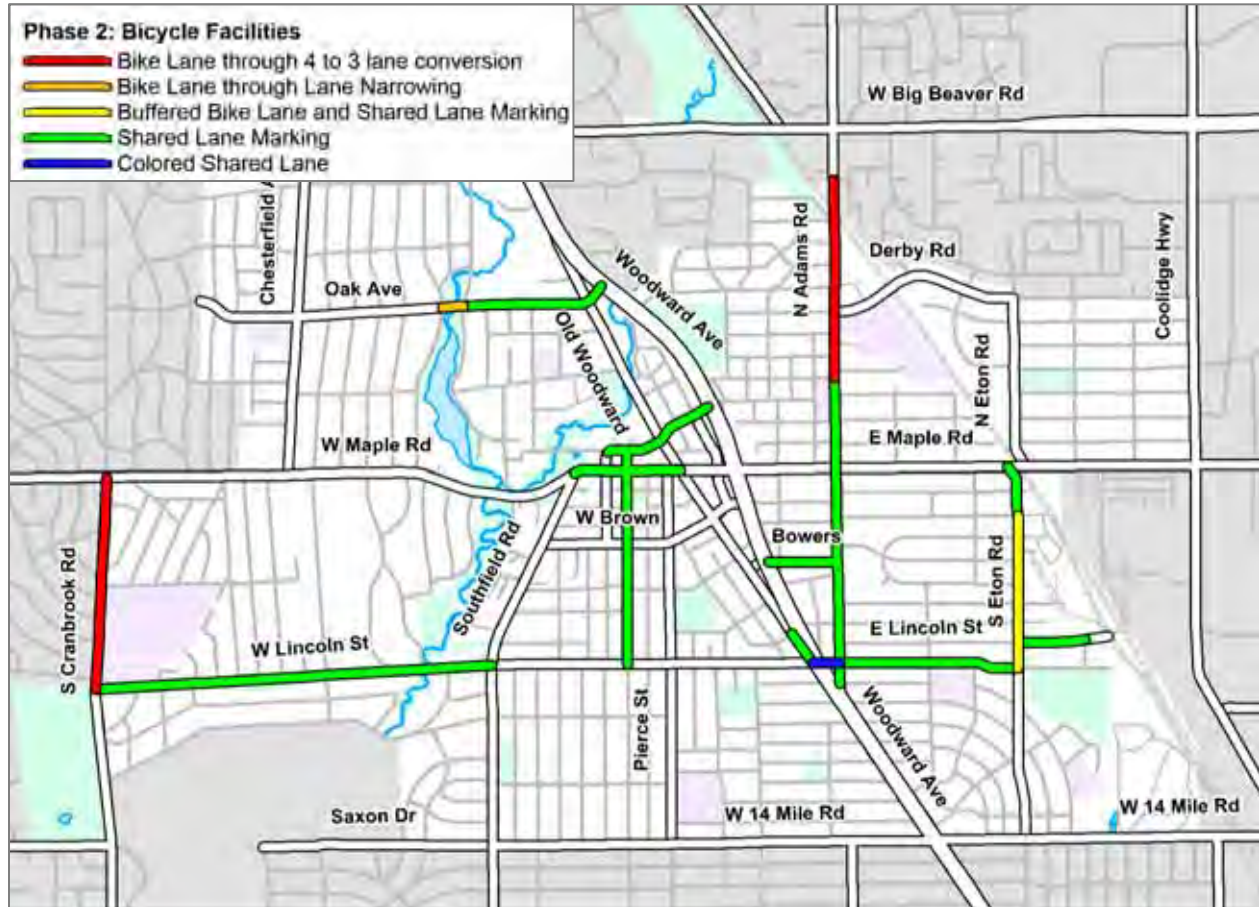
The following pages provide a more detailed breakdown of Phase 2.

FIGURE 4.3A. PHASE 2



**PHASE 2: PROPOSED BIKE FACILITIES**

The following provides a list of on-road bike facilities that can be implemented in the near-term with minimal changes to the roadway. Please note that at time of implementation all bike facilities should be accompanied by appropriate signage.



On S Eton Road between Yosemite Boulevard and E Lincoln Street, remove parking on the west side of the street and add a buffered bike lane. On the east side of the street keep on-street parking and add a shared-lane marking. The buffer between the bike lane and travel lane should be cross hatched.

**S ETON ROAD**





Paul O'Meara &lt;pomeara@bhamgov.org&gt;

---

**MMTB PUBLIC HEARING 6/1/17**

2 messages

---

**Alice Thimm** <adthimm@att.net>  
To: "Paul T. O'Meara" <pomeara@bhamgov.org>

Sat, May 20, 2017 at 6:03 PM

Paul, here's my letter for the public hearing, reformatted, please let me know if you have any questions or concerns. Thank you!

I and many others have a concern with S. Eton from Maple to Lincoln. There was a study to rebuild the road and a very good plan was provided to the City by Norman Cox of Greenway Collaborative. Adoption of the plan presented at that time addresses and would resolve a serious safety issue that has existed for too long. For any vehicle or pedestrian wanting to enter or cross S. Eton from any of the side streets along the west side of S. Eton Road, it poses a very dangerous situation. When cars are parked along the west side of S. Eton, anyone wanting to cross or enter the road needs to actually enter the lane of southbound traffic in order to see around the cars parked either to the right or left of the side street.

Any residents living on the side streets that corner on S. Eton have the use of their driveways, garages, and, parking for them is also available in the street in front of their home. Except as a choice or for convenience, there is no need for those residents to park on S. Eton which is also the case for beauty shop customers who are provided an on-site parking lot which I've never seen full. Parking is however needed on the east side of the road for the businesses but no parking should be permitted on the west side as it is definitely a safety issue for so many.

It would also be good to see a safe connection of the bike lane on N. Eton to a designated bike lane along the west side of S. Eton going down to Lincoln. There are many bikers in the Pembroke Manor neighborhood who now either walk or ride their bikes to the new brewery, the businesses in the Rail District, and all the facilities at Kenning Park. Connected bike lanes would insure safer travel. Also, if a bike lane would be planned for Lincoln across to Woodward, it would further provide an east-west connection to destinations.

I encourage the adoption and implementation of the Greenway Collaborative S. Eton Road plan or a comparable MMTB plan which would specify a designated safe bicycle lane, bump-outs, and especially and most importantly, no parking on the west side of S. Eton from Maple to Lincoln.

Sincerely,

Alice Thimm

Sent from my iPad

---

**Paul O'Meara** <pomeara@bhamgov.org>  
Draft To: Alice Thimm <adthimm@att.net>

Mon, May 22, 2017 at 8:40 AM

You did get it fixed - thanks. I will include this one

[Quoted text hidden]

--



Paul O'Meara &lt;pomeara@bhamgov.org&gt;

---

**Fwd: 2013 LETTER FROM COX**

1 message

---

**Paul O'Meara** <pomeara@bhamgov.org>  
To: Paul O'Meara <Pomeara@bhamgov.org>

Mon, May 22, 2017 at 8:43 AM

----- Forwarded message -----

From: **Alice Thimm** <adthimm@att.net>  
Date: Thu, May 18, 2017 at 10:08 PM  
Subject: Fwd: 2013 LETTER FROM COX  
To: "Paul T. O'Meara" <pomeara@bhamgov.org>

(This email was sent to resident Alice Thimm from Norman Cox, writer of the Multi-Modal Master Plan, in 2013.) - Ed.

Hi Alice,

Thanks for the e-mail and sorry for the delay in my responding, but I think you will like the answers. Regarding your concern regarding pedestrians crossing South Eaton from the side streets I share your concern. That is why we have proposed curb extensions at those locations (see pages 51 and 98).

Also, there will not be any parking on the west side of South Eaton (see page 93) as there will be a buffered bike lane where parking is currently permitted. Parking will only be permitted on the east side for businesses as you suggest.

Which of course means there there is indeed the bike lane connection that you suggest (see page 93). For north bound bikes there will be a shared lane marking adjacent to the on-street parking on the east side of the road.

The pages I reference are from the October 14 draft. The page numbers have shifted around some in the past few revisions. You can download that version here. <http://greenwaycollab.com/Projects/Birmingham/BMMTP.html>.

FYI, there is a public hearing on the plan at the City Commission meeting on November 25th at 7:30.

Thanks for your involvement in the project. Your email made my day, I don't think in 20 years of practice I have ever been 3 for 3 in being able to say we have already addressed someone's suggestions.

Thanks,

- Norm

Norman Cox, PLA, ASLA  
The **Greenway** Collaborative, Inc.  
205 Nickels Arcade, Ann Arbor, MI 48104-2409  
T: [734-668-8848](tel:734-668-8848) C: [734-239-5967](tel:734-239-5967)

Sent from my iPad





Jana Ecker &lt;jecker@bhamgov.org&gt;

---

**BIKE LANES**

1 message

**Alice Thimm** <adthimm@att.net>

Thu, May 18, 2017 at 11:56 AM

To: "Jana L. Ecker" &lt;jecker@bhamgov.org&gt;

Jana, this is a picture that Mark Nikita took. Everything about this appears to be perfect and perhaps the MMTB could view it and get some ideas for bike lanes on South Eton. Please show the Board if the issue will still be discussed now or in the future. I know the public hearing has been set for June 1st.

You're aware of my opinion that this is purely a "safety" issue for anyone crossing or entering Eton that needs to be addressed by prohibiting vehicle parking on the West side of the road.

Thank you,

Alice Thimm

Sent from my iPad



**063E483F-7618-4E04-9645-2E5C07C9E0B0.JPG**  
1400K



Jana Ecker &lt;jecker@bhamgov.org&gt;

---

## Birmingham Multi Modal meeting June 1st - input in case I am unable to attend

1 message

---

**Andrew Haig** <amhaig@yahoo.com>

Wed, May 24, 2017 at 1:41 PM

Reply-To: Andrew Haig &lt;amhaig@yahoo.com&gt;

To: "jvalentine@bhamgov.org" &lt;jvalentine@bhamgov.org&gt;, "jecker@bhamgov.org" &lt;jecker@bhamgov.org&gt;, "sgrewe@bhamgov.org" &lt;sgrewe@bhamgov.org&gt;, "pomeara@bhamgov.org" &lt;pomeara@bhamgov.org&gt;

Dear Mr O'Meara,

I am hoping to be able to attend the Multi Modal meeting on June 1st in person, but should personal issues prevent that happening I would like to have my thoughts & suggestions laid out on the table as ones for discussion & consideration for the changes to the South Eton corridor.

We have had many local discussions within the community along Eton (North & South) about the traffic, congestion, speeds, distracted drivers and growth of commerce in the immediate surrounding area. Some of it has been incredibly positive & helpful some of it has been quite depressing & upsetting - the full spectrum of emotions. I know that Mr Valentine is aware of many of the discussions held online via the website / app called NextDoor which has been a great forum for us all to interact with one another and he may be able to help with any specific details.

Specifically S. Eton:

Issues today:

- High traffic volumes that are forecast to increase significantly with the opening of Whole Foods.
- Parking issues with the growth of S. Eton commerce
- High traffic speeds on S. Eton & the perpendicular filter streets, (Cole Street being one that is recorded with much higher volumes than others)
- Driver behaviours in this general neighbourhood: Ignoring pedestrians on crossings, pulling out of stop signs without looking, high speed, 'buzzing' bicycles, intentional destruction of the pedestrian crossing signs etc. - all documented
- Resident concerns about traffic volumes, drivers & noise with the potential of Lincoln Yard being no longer a Bistro option but a full blown Class C restaurant & open air venue

Scope (As I understand it):

- To optimise the traffic flow, parking and overall usability and livability of the S. Eton corridor while not detrimentally affecting resident quality of life or Commerce

Proposals on the table:

- Detailed on your website already - I won't waste anyone's time. (I am very pleased to see the optional 'do not block' box on the Maple intersection, Not sure if that was partly down to my discussion with Mr Valentine or not but this is really needed!)

Personal suggestions for further enhancements to the plan:

- I gave Mr Valentine some photos & video's of well established traffic control & Management methods that have been used in the village where I grew up for the last 20 years, Summary of which is: Street narrowing in key areas such as pedestrian crossings, Traffic flow priority via use of chicanes & traffic priority - traffic coming OUT of the control section has priority in a 1 lane chicane, traffic coming IN must wait for outgoing traffic to clear before they can move around the chicane to enter the control zone. This has proven VERY effective at managing flow and does tend to dissuade what we call 'rat runners' from using it as a short cut in peak traffic times as they are guaranteed to be stuck in traffic by taking this route. It does not impede emergency vehicles whatsoever as they roadway is designed with sufficient width etc. for their free passage (and all other normal emergency vehicle



traffic laws in force too) Also the use of creative lane paint to give the impression of narrowing lanes is very helpful too - used all over Europe to great effect.

- De-rating the road. I understand that the road south of Lincoln is rated only for specific sizes of vehicle, why not have this be universal along both North & South Eton as these are now predominantly residential access areas. Exceptions may be made during business hours for deliveries to & from specific businesses such as Auto Europe or Griffin Claw, but there must be very tight rules on where these heavy large vehicles may park. Currently they routinely block roads & driveways causing distress to residents. More can be discussed offline
- Limiting traffic to residents only and or making N & S Eton, no entry roads during rush hours. This is already in place on Cooper avenue south of 14 mile opposite S. Eton & it 'mostly' adhered to by the majority of drivers. Driver education is required but it is not without direct local precedent in it's deployment & effectiveness.
- Speed bumps have been discussed but I feel that they would not be appropriate for Eton, due to emergency vehicle access etc., however in the perpendicular feeder streets that only rarely get such vehicle traffic they may have some deterrent value. Or the other option we use back where I come from is an axle twister - alternating dip & bump to force a vehicle to twist over them, very uncomfortable & only needs to be about 2" to have an effect that is memorable (expensive) if driven over at speed.... Cole Street as one example is used by a significant number of people in a hurry to get to the businesses on Cole, east of Eton & it is a significant source of distress to the residents in that street. - you may have noticed the rate of turnover of houses sold on that street compared to other parallel streets, it is not pretty.
- Pedestrian crossing traffic lights - only activated by push button. These would permit a lot of the children and disabled residents to easily & safely cross Eton and would only stop traffic flow upon demand. If we wanted to, they could also be radar activated that when a speed threshold is exceeded they would automatically turn red to stop the traffic & maintain a lower net speed along the street. This is very, very easy to do with current technology. Having these & any other lights be freestanding pole mounted & not suspended would be very fitting with the environment and also be very visible to pedestrians & bikes as well.

#### Future proofing

The proposal for a bistro that was withdrawn & pending an upgrade to a full Class C restaurant for Lincoln Yard has a lot of the same residents being negatively affected. Traffic flow & parking is also one part of this and as such, Lincoln needs to be included in any plan as this will be a direct conduit for patrons of this & of the other Rail District businesses.

Any measures taken along Eton need to be aligned & copied along Lincoln too so that this does not become another out of control situation, you know as well as I do it is cheaper to do it all when everyone is planning & building adjacent, than to stop & restart later.

My wife & I have nearly been flattened by an SUV while crossing the crosswalk in the middle of Our Shepherd, by a driver who ignored us in the road & looked disgusted that we were in his way as he passed us doing over 40mph. Similar traffic measures will be needed along Lincoln to avoid similar issues.

The curve on Lincoln between Eton & Our Shepherd is of particular concern to me, especially for any alcohol serving establishment or for anyone coming out of a business late at night. This will be a very misleading curve for many people coming out late at night & I foresee many vehicles ending up in offset frontal collisions, landing in front yards of the 8 or so houses along that curve, or much worse, hitting pedestrians on the crossing in that curve. Realistically, if it is a nice enough evening for people to want to go out to a restaurant, it is nice enough for residents to want to go for a walk, walk the dog etc. and to be crossing or on the sidewalks at night. No one wants to be roadkill for just enjoying their neighbourhood.

Noise from the open patio is of great concern to me, as the buildings in the area & trees are not sufficiently high enough to block the horizontal noise transfer from the proposed rooftop. Anything that could be put in place to block or mitigate that sound would not be very compatible with the residential neighbourhood, or any traffic control measures, as large trees take too long to grow & large structures are not compatible with the roadway, traffic plans, parking or neighbourhood character. This is a somewhat related topic in that a large restaurant would bring large traffic volumes, parking issues etc. all of which need to be managed in the plan. Right now, anything bigger than a bistro sized

establishment is not compatible with the area whatsoever for any of these reasons & will cause many more issues for the residents of this area who already feel very marginalised because we don't live in the expensive part of Birmingham - see comments made on Nextdoor if you don't believe me.

Conclusion:

- There are more options possible that are not yet on the table.
- Resident anger is driving a need for a clear plan with dates, but it must be one which the affected community is able to live with, or there will be some horrendous backlash that will destroy property value & the community at large
- Clearer communication to the residents is needed. I only found out about the meeting via a posting on Nextdoor as I did not get the postcard with the information. I am very, very disappointed by this.
- A total approach is needed. Not parcelling it into sections & hoping that the rest of the influenced area will not be of concern, limiting the Eton study to not reach 14 mile was probably too scope constrained.
- I am willing to add as much time & effort as I can offer with full time job & family constraints, to help move us all forward together and to help keep community involvement, please let me know what I can do to more actively support the overall initiative, as it is one of great merit that I personally feel only needs a little more adjustment / fine tuning to get to a mutually agreeable solution for all parties.

Thank you for taking the time this!

Yours sincerely,

Andrew Haig  
[248-5069979](tel:248-5069979)

Cc. Mr Valentine, Ms Ecker, Mr Grewe

Also published as an open letter to Nextdoor.com. URL: [https://torrycommunityassoc.nextdoor.com/news\\_feed/?post=51710694](https://torrycommunityassoc.nextdoor.com/news_feed/?post=51710694)



**MMTB Public Hearing**

1 message

Jay Yaldeo <yaldoo@comcast.net>  
To: Paul O'Meara <pomeara@bhamgov.org>  
Cc: Jana Ecker <jecker@bhamgov.org>, Lara Edwards <Imedwards08@gmail.com>

Good Morning,  
I am unable to attend the public hearing June 1st regarding the recommendations for S Eton Road, however I would like my comments considered.

I reviewed the recommendations made by the MMTB and I agree with all of them.

I think a dedicated bike lane will make S Eton safer for bicyclists traveling and will connect the other bike lanes throughout the city. I strongly agree that the bike lane needs to a protected street and only stands to get busier with Whole Foods opening this year. I feel the bike lane needs to be protected with barriers not turtle bumps. If it is not obvious to drivers that they can't use that lane to pass vehicles that are stopped waiting to turn left. Not all drivers know that you can not drive over a solid white line and may not even notice the turtle bumps. I have seen bike lanes in other cities so you can see what those protected bike lanes look like.

Thank you,  
Jerry Yaldeo  
1997 Haynes Street







# MEMORANDUM

Engineering Dept.  
Planning Dept.  
Police Dept.

**DATE:** April 28, 2017

**TO:** Multi-Modal Transportation Board

**FROM:** Paul T. O'Meara, City Engineer  
Jana Ecker, Planning Director  
Scott Grewe, Operations Commander

**SUBJECT:** S. Eton Rd. – Maple Rd. to Lincoln Ave.  
Multi-Modal Improvements

---

At the March and April meetings, the Multi-Modal Transportation Board (MMTB) discussed the recommendations of the Ad Hoc Rail District Committee. A recommendation was also passed on to the City Commission focused on changes at Maple Rd.

### Maple Rd. to Yosemite Blvd.

The MMTB sent a recommended plan of improvements to the far north block of S. Eton Rd. to the City Commission, which was reviewed at their meeting of April 13, 2017. Minutes of that meeting are attached. The Commission expressed concern relative to certain design elements, and encouraged the Board to consider a larger bumpout at the southwest corner of the Maple Rd. intersection.

Other concerns expressed by the Commission included:

- The acute turn for vehicles from eastbound Maple Rd. to S. Eton Rd. is problematic.
- The white stop bars may be ignored, causing problems for both motorists and pedestrians.
- The Board should consider the inclusion of a multi-directional bike lane.

F&V prepared the attached memo and conceptual plan that considers this option. Highlights of the memo include:

1. The City can reduce the length of the S. Eton Rd. pedestrian crossing using either plan included in the memo. The most significant benefit of the original recommendation with the refuge island includes a shorter crosswalk length with an intermediate break. While there was concern expressed about the proposed locations of the stop bars, the design actually allows the stop bars to be closer to the intersection than they are currently.
2. The design without the refuge island keeps the intersection more open. The design reduces the angle for turning traffic from westbound Maple Rd. on to S. Eton Rd. However, it makes the angle for eastbound traffic on to S. Eton more extreme. As a result, the stop bar must be left in its current position, further back from the



intersection. The resulting crosswalk length is approximately five feet longer than that with the island design, and there is no refuge.

As has been discussed previously by the Board, all agree that the design does not provide any enhancement for bike traffic. However, the narrow right-of-way in this area, plus the clear need for three lanes of traffic at this intersection, requires that bikes be encouraged through the intersection with the use of sharrows. The only way to provide space for a separate bike lane facility would be to purchase right-of-way, construct a retaining wall on the west side and make significant changes to the existing road. It is presumed that the City is not in a position to make such an investment at this time.

The Board is asked to consider the benefits and drawbacks of both designs, and provide a new recommendation to the Commission.

**SUGGESTED RECOMMENDATION:**

After further review, the Multi-Modal Transportation Board recommends that the City Commission authorize improvements to S. Eton Rd. from Maple Rd. to Yosemite Blvd. that include:

1. \_\_\_\_\_ to improve the south leg crosswalk at the Maple Rd. intersection.
2. An enlarged sidewalk ramp area at the southeast corner.
3. Relocation of the west side curb from Maple Rd. to Yosemite Blvd., and the construction of an eight foot wide sidewalk on the west side of the block.

Further, while the Board acknowledges that improved bike features would be beneficial, existing right-of-way and traffic demands do not allow improvements other than sharrows and bike route signs (as a part of the previously approved Neighborhood Connector Route) at this time.

Yosemite Blvd to Lincoln Ave. Bike Lane Proposal

The MMTB first discussed the Ad Hoc Rail District's recommendation for the typical cross-section at its regular April meeting. The majority of the Board chose not to affirm the Ad Hoc committee recommendation of installing pedestrian bumpouts at several intersections, keeping parking legal on both sides of the street, and adding sharrows for bike traffic in both directions. Due to the continued desire to reduce sight distance issues on the west side of the street, the Board asked staff to explore the feasibility of a two-directional bike lane on the west edge of the road, using the existing southbound parking lane area. F&V has prepared the attached plan accordingly. The following features are noted:

1. The block between Yosemite Blvd. and Villa Rd. is different from the others in that there are commercial uses on both sides of the street. Parking is legal on the southbound side, and is an important feature for the adjacent businesses. Parking is not legal on the northbound side, but the northbound lane is wider as a result. It is recommended that southbound bikes continue sharing the road with traffic, similar to the block to the north. For northbound bikes, a buffered bike lane can be provided as a good transition



from the section to the south (discussed below) to the shared traffic mode required to the north.

2. The remaining section from Villa Rd. to Lincoln Ave. would all be treated similarly. Parking would be removed for southbound traffic, providing a 10 ft. wide area for a marked, two-directional bike facility. While unique in this area, such facilities have been implemented elsewhere with success. The following features are noted:

- Signs and sidewalk/crosswalk changes would be required at Villa Rd. to allow northbound bikes to transition from the west side of the road back to the east side of the road. A diagonal section of concrete would be constructed southwest of the intersection to encourage bikes to use the west and north leg marked crosswalks to cross both streets. When using these facilities, bike riders are required to dismount and walk their bikes. There are not any officially endorsed signs in Michigan for this purpose. Examples of suggested signs for this purpose appear in the pictures below. They would be added at the beginning of the diagonal concrete section as bicyclists leave the road. Input from the Board as to which sign is preferable is requested. Wide 10 ft. ramps and marked crosswalks are proposed on the west and north legs of the intersection to encourage joint use between bikes and pedestrians. Northbound bikes would then begin using the buffered single direction bike lane as they proceed north of the intersection.



- The unique bike lane feature may come as a surprise to unsuspecting motorists wishing to enter S. Eton Rd. from the various intersecting streets. As noted on the plan, a new unique sign is recommended, added to each stop sign currently posted along the district, warning motorists to look both ways for bikes before proceeding.
- At Lincoln Ave., sign and sidewalk/crosswalk changes are required, similar to Villa Rd. The north, west, and south legs of the intersection would be widened to 10 ft. each, and signs would encourage northbound Eton Rd. bikes, as well as eastbound Lincoln Ave. bikes using the Connector Route to dismount and use the crosswalks to get in the correct location for use of the bi-directional bike lane.
- As was noted previously, the Ad Hoc Committee recommended bumpouts at several intersections. If the bi-directional bike lane is provided, bumpouts would only be built on the east sides of the selected intersections, in order to safely accommodate bike traffic.

### Implementation

The timing of the above features are on different tracks. The changes in the area of Maple Rd. have not been budgeted, but are considered a priority in order to provide improvements to this area in conjunction with the planned opening of the adjacent Whole Foods grocery store. In

order to fast-track this work, funding was included in the recently awarded 2017 Concrete Sidewalk Program. It is hoped that a final design can be endorsed by the Commission in time to allow construction in either July or August of this year.

The proposed bike lane facility represents a significant change to the corridor that will impact both the commercial and residential property owners in the area. It is suggested that a public hearing wherein all owners within 300 ft. of the corridor be invited to the next MMTB meeting to provide input before a final recommendation is prepared. You may recall in the summer of 2016, the Board recommended Phase I of a Neighborhood Connector Route that provided a bike loop around Birmingham. We attempted to implement this work late last year, but failed to get any bidders to this small contract. It has been rebid as part of a larger construction contract, and should now be implemented this summer. The design approved last summer included simple sharrows for this leg of S. Eton Rd. We plan to delay the connector route work in this area until a final design is approved by the Commission, with the hope that the pavement markings and sidewalk changes can still be implemented during the 2017 construction season. The more extensive bumpout work at several intersections involves more work that will have to be budgeted in a future budget cycle.

Given the above time parameters, it is hoped that the Board can arrive at a final recommendation in June, and then prepare a final complete recommendation involving both elements for the Commission to consider thereafter. A resolution setting a public hearing is provided below.

**SUGGESTED RESOLUTION:**

To set a public hearing regarding the S. Eton Rd. corridor bi-directional bike lane proposal for the regular Multi-Modal Transportation Board meeting of June 1, 2017, at 6 PM.

Mayor Nickita and all five of the Commissioners who were present liked the idea of the event but did not support closing Willits Street due to the concerns expressed by Chief Connaughton. Commissioners also cited concerns with traffic flow due to the Old Woodward closures.

**MOTION:** Motion by Commissioner Sherman, seconded by Commissioner Hoff:  
To deny a request from Darakjian Jewelers to hold High Octane on Willits Street between N. Bates St. and N. Old Woodward Ave. on June 25, July 16, August 20, September 17, and October 8, 2017 based on objections to the closing of Willits Street from the Fire Department, Police Department, and Engineering.

VOTE: Yeas, 6  
Nays, None  
Absent, 1 (DeWeese)

**04-99-17                      SIDEWALK AND CROSSWALK IMPROVEMENTS AT MAPLE AND S. ETON INTERSECTION.**

City Engineer O'Meara explained both the Ad Hoc Rail District Review Committee and the Multi-Modal Transportation Board have reviewed the proposal and, in conjunction with Fleis & Vandenbrink (F&V), the City's traffic consultant, recommend improvements consisting of three primary parts:

1. Splitter island. Given the current size of the intersection, a splitter island as shown can successfully be installed splitting the left and right turn lanes, while not changing the traffic patterns of the intersection. Existing concrete can be removed, replaced with new curb and gutter, and approximately 18 feet of new sidewalk that will act as a refuge area for pedestrians crossing Eton Rd. The triangular area south of the sidewalk could be landscaped with perennials, under the direction of the City's landscape maintenance staff. The total construction cost of this work is estimated at \$21,000.
2. Enlarged handicap ramp area at the southeast corner. At the southeast corner, additional public land is available to allow for a wider, more ample waiting area at the handicap ramp. An oval shaped piece of concrete is proposed here to enhance the existing sidewalk on this corner, at a cost of \$1,000.
3. West side curb relocation. As a part of the discussion with the Ad Hoc Rail District Committee, there was discussion about the existing sidewalks being installed immediately behind the curb, in close proximity to traffic. This was done due to the limited right-of-way available on this block. Since most of the neighborhood would use the west side sidewalk, and since the existing southbound lane is wider than normal, it was recommended that the west side curb and gutter section could be removed and replaced with a new curb three feet further east, for the entire block, as shown. Moving the curb would allow the existing five foot wide sidewalk to then be replaced with an eight foot wide sidewalk, providing extra space for pedestrians in this area. This work is estimated at \$53,000.

The entire package is estimated to be about \$75,000.00.

City Engineer O'Meara stated staff would like to include the sidewalk and crosswalk improvements in the 2017 Concrete Sidewalk Program, if the Commission approves the proposal.

In response to questions from Commissioner Hoff, City Engineer O'Meara and City Planner Ecker confirmed:

- The sidewalk on Eton would be 8' wide.
- The sidewalk on Maple would be 5' wide with a grass buffer between the sidewalk and the road.
- There would be no grass bumper on the Eton side, just as it exists currently, because the right-of-way is too narrow.
- The design contains no bump outs. The island will be curbed, and the whole west side of the block will be removed and replaced closer into the road so the southbound driving lane would be narrower.
- The City's traffic engineering consultant, F&V, provided the design plans which do show the following turns could be made: turning onto Maple, turning from Maple onto Eton, turning westbound from Maple, and making a left onto Eaton.

Mayor Nickita asked for details about the process that took the plan from a conceptual idea to the design specifications as presented.

City Engineer O'Meara confirmed he was not involved in development of the design drawing and that the Multi-Modal Transportation Board considered the same drawing that is before the Commission.

City Planner Ecker noted:

- The Ad Hoc Rail District Committee was tasked to look at several issues on the South Eton corridor, which they did in 2016.
- The biggest complaints about the corridor were that it is not pedestrian friendly, the road is too wide, cars are going every which way, pedestrians not protected, and vehicular speed is too fast.
- The Committee discussed three alternatives and chose the proposal being considered by the Commission as the best alternative.
- The Committee received approval from the Commission to hire F&V to review the plan to determine its practicality.
- The Committee came up with conceptual idea, and F&V detailed the specifics.

Mayor Nickita commented he agrees with some aspects of the conceptual idea such as diminishing the amount of exposed crosswalk and providing a mid-crossing island for pedestrians. He was very concerned, however, with other aspects. He explained:

- The intersection is currently challenging and unsafe for pedestrians,
- When Whole Foods opens pedestrian and non-motorized traffic is going to increase.
- The acute angle for southbound turns from westbound Maple is fundamentally problematic.
- The white stop bar is almost always ignored by motorists, and at this intersection it is located 30' from the crosswalk. Cars are going to ignore the stop bar and encroach into the crosswalk, resulting in cars turning left from Maple either clipping the car in the crosswalk or having to slow down to maneuver around the car. Trucks trying to make the turn may require the car in the crosswalk to back up.

Mayor Nickita concluded the design does not take into account the way people will actually use the intersection, which creates a difficult situation with the threat of crashes and congestion. He commented he does not feel the logistics have been explored thoroughly enough to resolve the

issues in a manner that would be best for the intersection, best for the users, and that will actually be used in the way it is designed to be used.

Commissioner Bordman noted she had similar concerns with vehicular encroachment into the crosswalks. She also questioned the plan's lack of consideration for bicyclists.

City Planner Ecker responded that the Multi-Modal Transportation Board met at 5:30 today and discussed, among other items, the cross section for South Eton. The Ad Hoc Rail District Review Committee Report did not recommend a specific bike lane. The Committee recommended parking, three foot buffer zones for the opening of car doors, and two 10' lanes for sharrows. The Multi-Modal Board is now leaning toward a multi-directional bike lane. City Planner Ecker relayed the thought that perhaps the Maple and S. Eton intersection improvements should be postponed to consider the impacts of including a bi-directional bike lane in the plan.

Commissioner Sherman suggested sending this back with the comments that have been made for further review.

**MOTION:** Motion by Commissioner Sherman, seconded by Commissioner Boutros:  
To refer the proposal for sidewalk and crosswalk improvements at the Maple Road and S. Eton Road intersection back to Multi-Modal Transportation Board for further study based on the City Commission's comments and to consider the idea of including a multi-directional bike lane.

City Manager Valentine commented changes may impact the timing of construction. He explained the intersection improvements, being mostly concrete work, would be included in the sidewalk project which is being completed this year. Changes may delay the project.

Mayor Nickita wanted to know if there is a way to get the project done this year.

City Engineer O'Meara confirmed that the sidewalk program has already been put out to bid and consideration of awarding the bid is planned to be on the Commission's April 24, 2017 agenda. He suggested the costs of the proposed intersection improvements remain in the contract with the understanding that the concept may change. Any changes to the intersection improvement plan could be made in time for construction to still happen between now and August.

City Manager Valentine noted changing the scope of the intersection project may change the cost, but pointed out price can't be known at this point. He felt the City could proceed as suggested by City Engineer O'Meara with the idea that the intersection the project may need to be eliminated from the contract at some point. He clarified any decisions as to the addition of bike lanes or modifications to the sidewalks are yet to be determined.

Commissioner Hoff wondered if there were incremental improvements that could be made while waiting for revised plans and commencement of construction. City Engineer O'Meara commented that any incremental steps would be temporary and therefore not cost effective. He felt there is time for the Multi-Modal Board to reconsider the project in light of the Commission's comments and still keep in sync with the time frame of the Whole Foods opening.

In response to a question from Mayor Pro Tem Harris, City Engineer O'Meara confirmed the bidders for the 2017 sidewalk program are aware of the intersection project because it is included in the bid document.

Commissioner Boutros emphasized the importance of completing the intersection improvements this year. City Engineer O'Meara confirmed changes in the intersection project could be addressed as change orders to the contract.

Resident Benjamin Stahelin agreed with the need to widen the sidewalk, believed the white stop bar will be ignored, felt spending \$75,000 on the project as presented would be a waste of money, and felt the safest and most cost effective solution would be to install stop signs at each intersection

VOTE:           Yeas,   6  
                  Nays,   None  
                  Absent, 1 (DeWeese)

**04-100-17                   ORDINANCE AMENDING PART II OF CHAPTER 74, OFFENSES AGAINST PROPERTY.**

Police Commander Grewe confirmed the reason to amend the ordinance is to address identity theft and fraud. He noted the amendments mirror state law.

Commissioner Bordman explained that due to recent personal experience with her credit card being used fraudulently, this issue is close to her heart. She asked why "debit card" is not specifically listed as one of the instruments. She noted the omission of "debit card" is inconsistent with other language. Attorney Currier responded the way the state law reads "any instrument" would include debit card. Commissioner Bordman felt "debit card" ought to be mentioned since "credit card" is specifically mentioned.

Commissioner Hoff asked why the fine is limited to "not more than \$500". Attorney Currier explained the City is limited by the City Charter as to the amount of fines for misdemeanors. Commissioner Hoff was concerned that the fine was too limited for larger thefts. Attorney Currier explained that restitution is not precluded.

In response to a question from Mayor Pro Tem Harris, Attorney Currier explained the City is authorized to charge civil infractions and misdemeanors through local ordinance.

**MOTION:**     Motion by Sherman, seconded by Boutros:

To amend Part II of the City Code, Chapter 74, Offenses, Article IV, Offenses against Property to include the following eight new ordinances and authorizing the Mayor and the City Clerk to sign the ordinance amendments on behalf of the City:

1. Section 74-101: Illegal Use of State Personal Identification Card and Section 74-101(A) – Penalty for Violation of Section 74-101; and
2. Section 74-102: Definitions; and
3. Section 74-103: Stealing, Taking Title, or Removing Financial Transaction Device; Possession of Fraudulent or Altered Financial Transaction Device and Section 74-103(A) – Penalty for Violation of Section 74-103; and
4. Section 74-104: Use of Revoked or Cancelled Financial Transaction Device with Intent to Defraud and Section 74-104(A) – Penalty for Violation of Section 74-104; and
5. Section 74-105: Sales to or Services Performed for Violator and Section 74-105(A) – Penalty for Violation of Section 74-105; and



April 13, 2017

VIA EMAIL

Mr. Paul O'Meara  
City Engineer  
City of Birmingham  
151 Martin Street  
Birmingham, MI 48012

**RE: Maple Road & S. Eton Crosswalk**

Dear Mr. O'Meara,

The purpose of this letter is to provide an overview of the proposed S.Eton Road approach at Maple Road and compare to an alternate intersection design. This evaluation provides a summary of the differences from the proposed design and the alternate design. The figures associate with the proposed design and the alternate are attached.

**Proposed Intersection Design (Splitter Island)**

As part of the study F&V performed for the Ad Hoc Rail District Commission the addition of pedestrian islands on South Eton was evaluated. The existing pedestrian crossing on the south leg of the intersection is approximately 88 feet due to the skew of the intersection. According to the *AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities* a pedestrian refuge should be considered when crossing distance exceeds 60 feet. The proposed raised splitter island, as shown in the attached figure would give the pedestrian a refuge for crossing traffic and provide greater detectability of the pedestrians by motorists. In addition, the splitter island has been designed to accommodate the right-turn movement of trucks and the stop-lines have been located accordingly as shown on the figure. The key findings with this design are summarized below:

- Stop-lines are moved closer to the intersection, providing an additional queuing at the intersection for two vehicles (one in each lane).
- The total crosswalk distance is 59-feet, with a 23-foot pedestrian refuge.

**Alternate Intersection Design (Bump-out)**

The alternate intersection design considered realigning the approach, with reduced radius on the west approach, from the existing 34-feet to 25-feet; thus, reducing the crossing distance without the construction of a splitter island. This alternative design was evaluated to determine the impact on the stop-line location and pedestrian crossing distance. The key findings with this design are summarized below:

- Stop-lines remain unchanged from the existing condition.
- The total crosswalk distance is 65-feet.
- Significant drainage modification would be required to accommodate the bump-out on the approach.

## Stop Line Location

The following guidance regarding stop lines is provided in the MMUTCD Section 3B.16:

- Stop lines shall consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made.
- Stop lines should be 12 to 24 inches wide and should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections.
- Stop lines should be located no less than 40 feet and no more than 180 feet from the signal heads. Where the nearest signal head is located between 150 feet and 180 feet beyond the stop line, engineering judgment of the conditions shall be used to determine if the provision for a supplemental near-side signal face would be beneficial.

The existing stop-line location provides a distance of 110 feet from the stop-line to the signal head and the proposed design is 85 feet from the stop-line to the signal head.

## Conclusions

- The results of the analysis show the proposed design with pedestrian splitter island provides less conflicting crossing distance overall, by providing a pedestrian refuge.
- The proposed design will move the stop-lines *closer* to the intersection than the existing condition, providing additional queueing at this intersection for two vehicles.
- Both the existing and proposed stop-lines provide acceptable placement.

If you have any questions, please feel free to contact us.

Sincerely,

FLEIS & VANDENBRINK



Michael J. Labadie, PE  
Group Manager

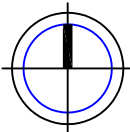
**Attached:** Figures 1-3



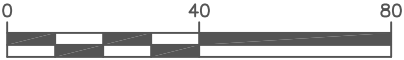
# SPLITTER ISLAND CONCEPT DRAWING

## Maple Road & South Eton Street

BIRMINGHAM, MI



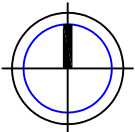
NORTH



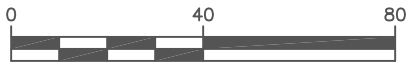
SCALE IN FEET







NORTH



SCALE IN FEET

## NO SPLITTER ISLAND CONCEPT DRAWING

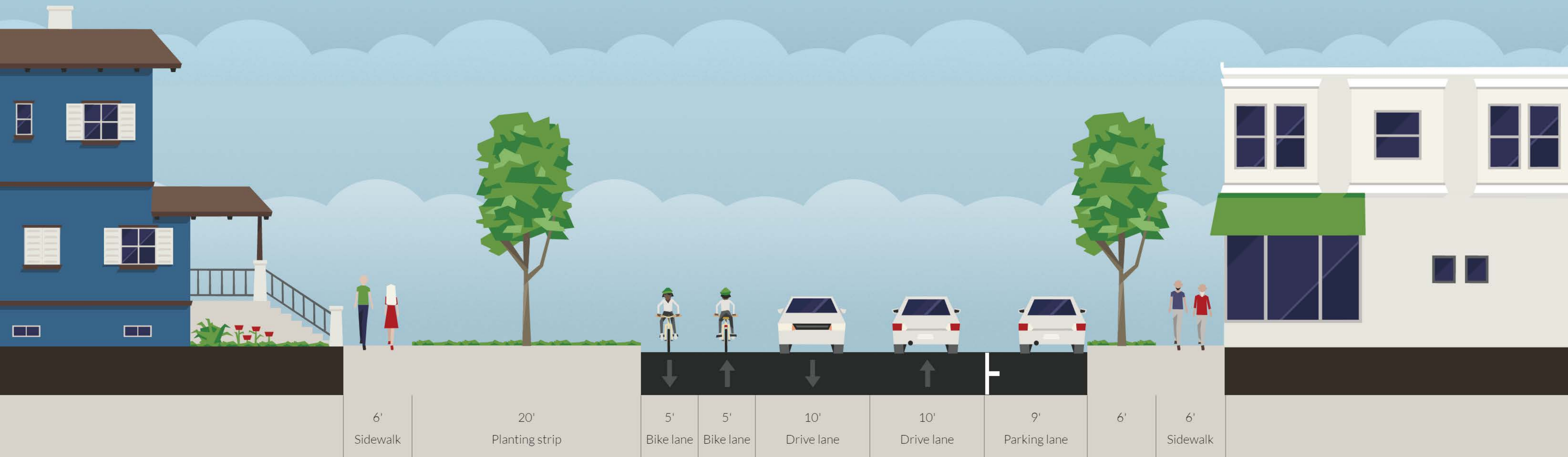
### Maple Road & South Eton Street

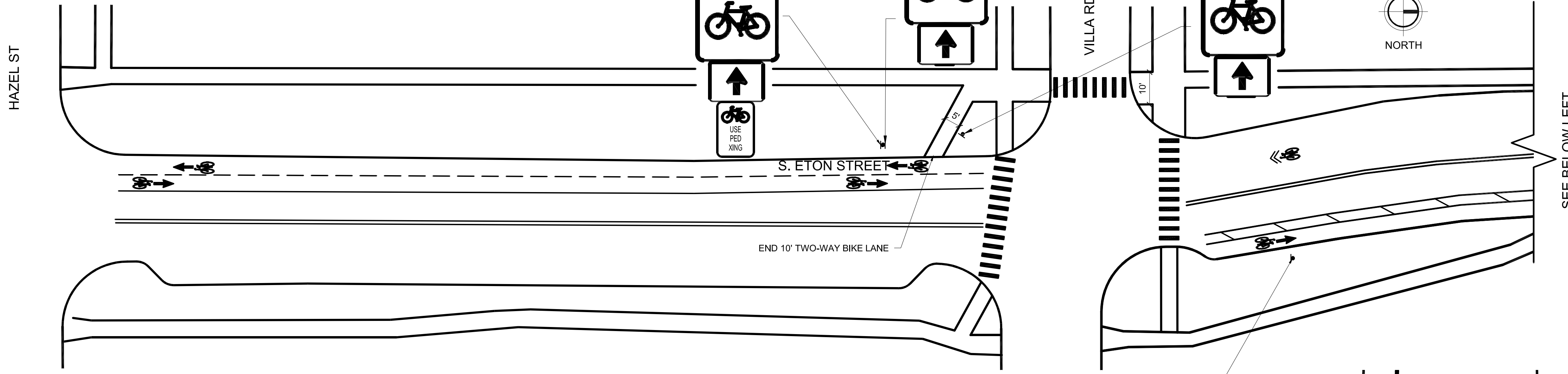
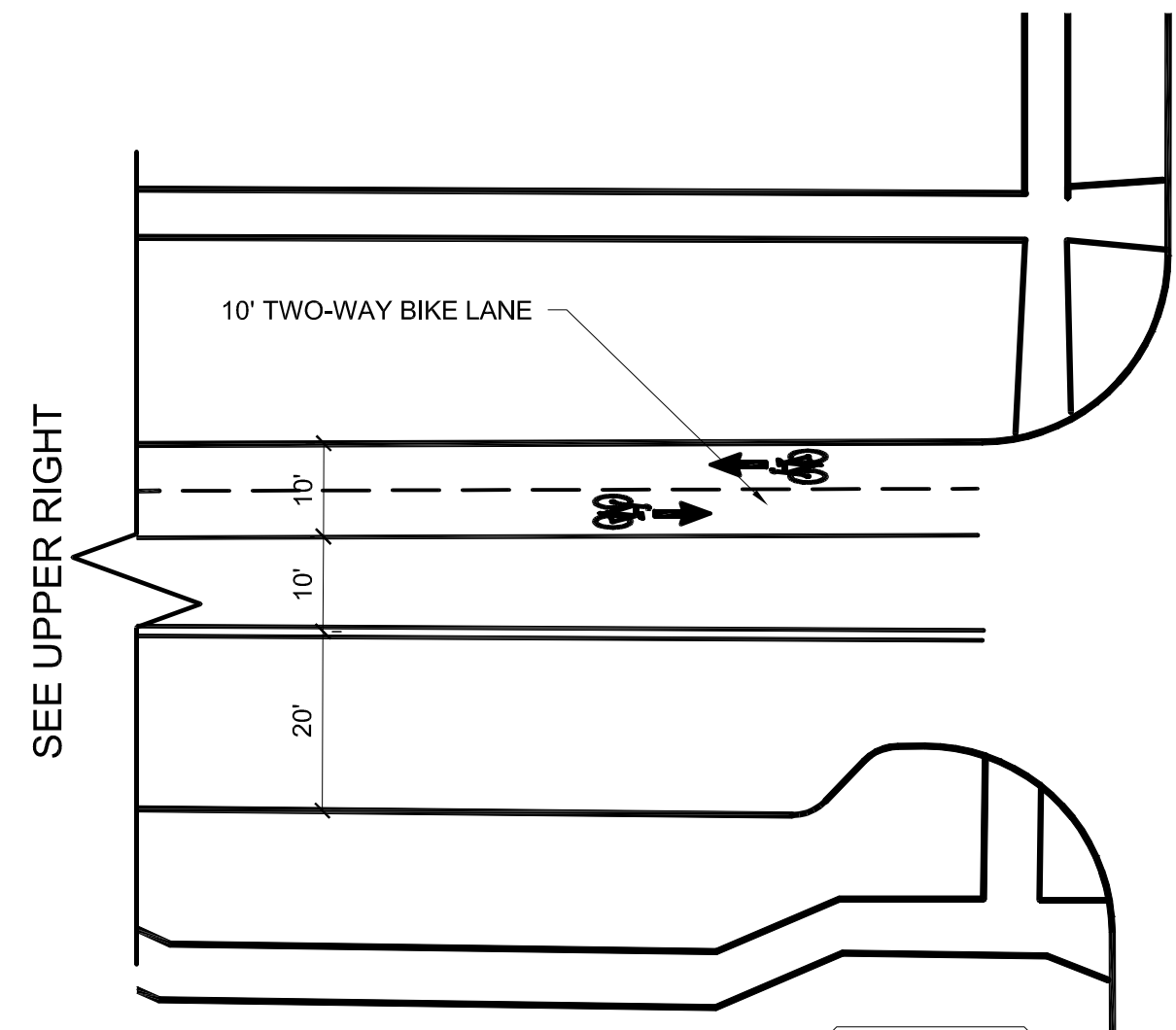
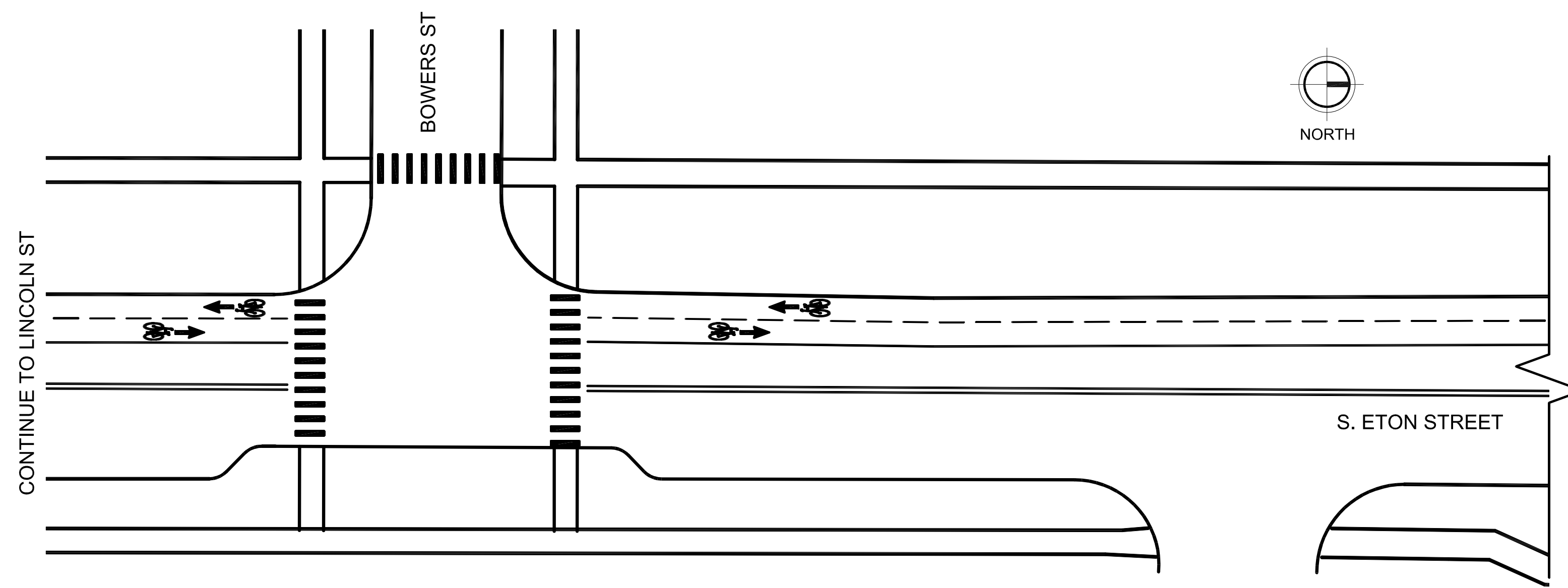
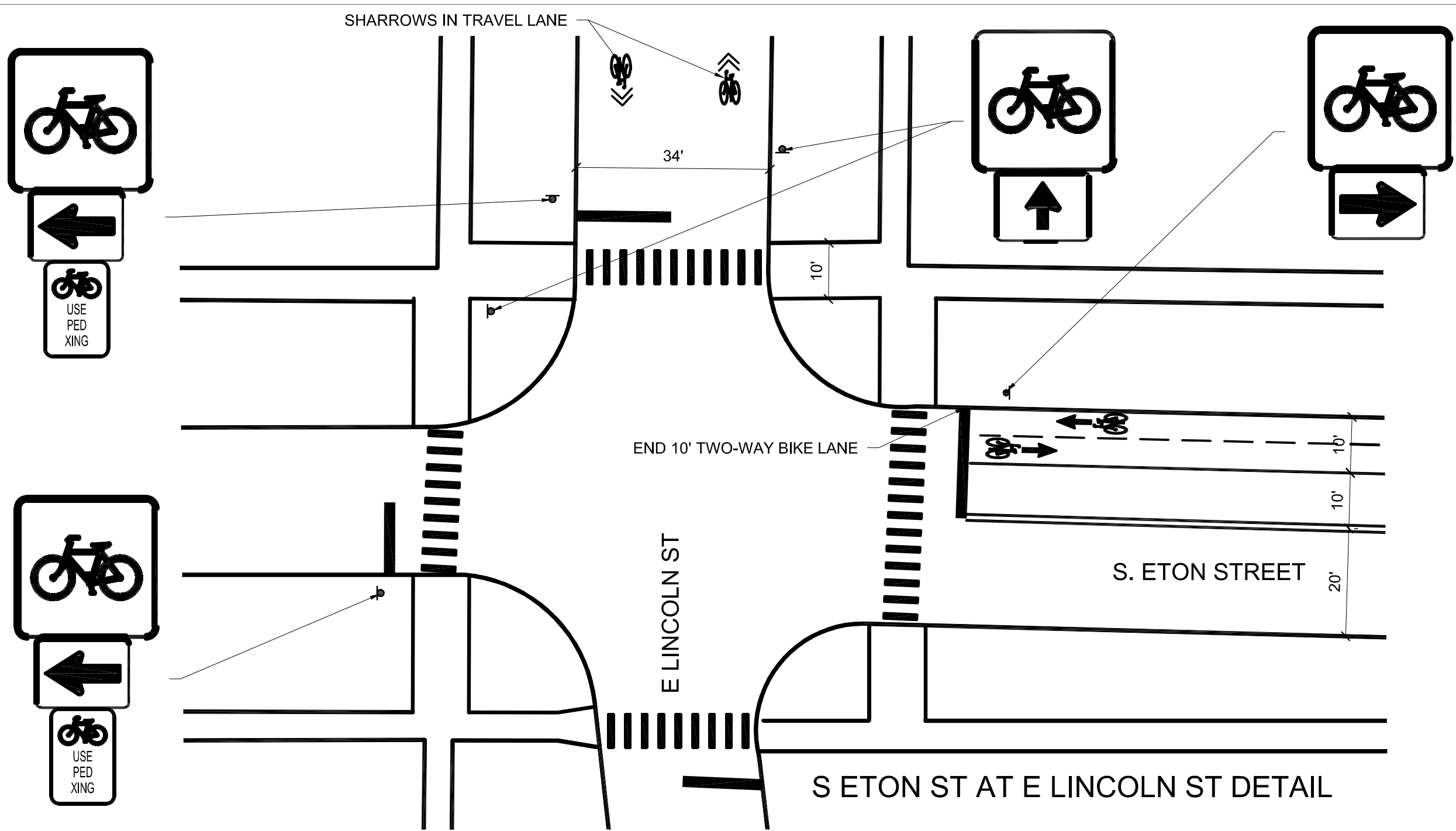
BIRMINGHAM, MI



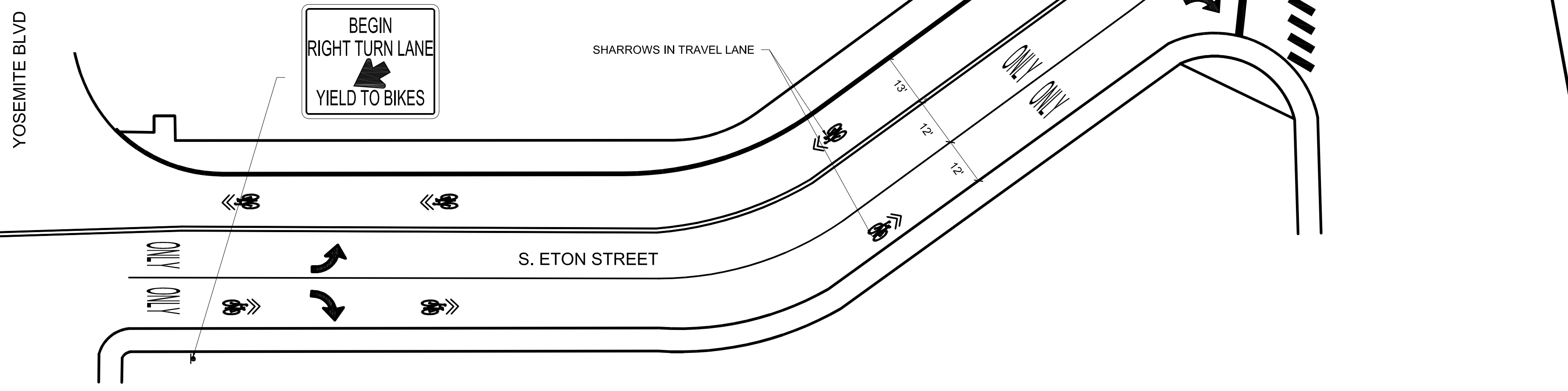
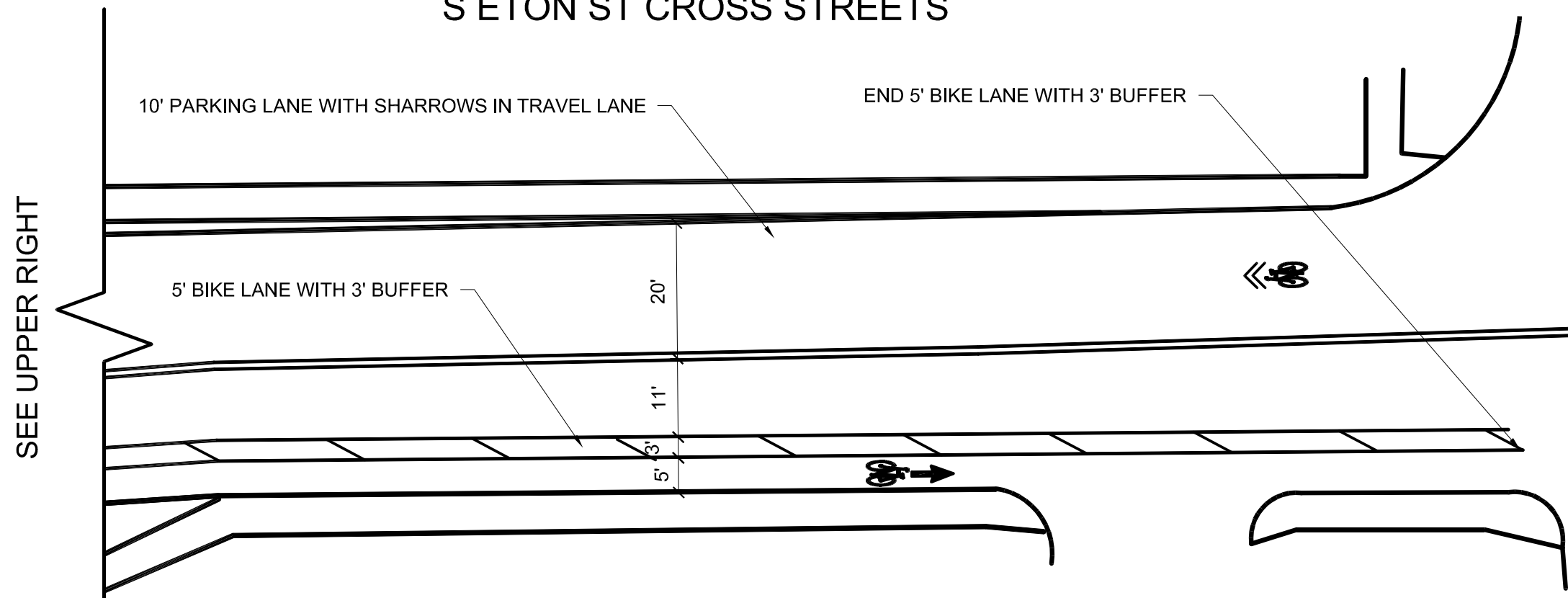


# S. Eton Street (northbound)





SIGN DETAIL FOR S ETON ST CROSS STREETS





**DRAFT**

**CITY OF BIRMINGHAM  
MULTI-MODAL TRANSPORTATION BOARD  
THURSDAY, JUNE 1, 2017  
City Commission Room  
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, June 1, 2017.

Chairperson Vionna Adams convened the meeting at 6:01 p.m.

**1. ROLL CALL**

**Present:** Chairperson Vionna Adams; Board Members Lara Edwards, Amy Folberg, Vice-Chairman Andy Lawson, Daniel Rontal, Johanna Slanga, Michael Surnow

**Absent:** Alternate Members Daniel Isaksen, Katie Schaefer

**Administration:** Mark Clemence, Police Chief  
Jana Ecker, Planning Director  
Austin Fletcher, Asst. City Engineer  
Scott Grewe, Operations Commander  
Paul O'Meara, City Engineer  
Lauren Chapman, Asst. City Planner

**Also Present:** Julie Kroll and Mike Labadie from Fleis & Vandenbrink ("F&V"), Transportation Engineering Consultants

**2. INTRODUCTIONS**

Daniel Isaksen, new alternate board member.

**3. REVIEW AGENDA (no change)**

**4. APPROVAL OF MINUTES, MEETING OF MAY 4, 2017**

**Motion by Mr. Rontal**

**Seconded by Mr. Surnow to approve the Minutes of May 4, 2017 as presented.**

**Motion carried, 7-0.**

VOICE VOTE

Yeas: Rontal, Surnow, Adams, Edwards, Folberg, Lawson, Slanga

Nays: None

Absent: None

**5. S. ETON RD. - MAPLE RD. TO LINCOLN AVE.**

The public hearing opened at 6:06 p.m.

Mr. O'Meara recalled that at the May, 2017 meeting, staff presented a new concept for S. Eton Rd. from Yosemite Blvd. to Lincoln Ave., generally proposing a two-way bike lane along the west side of the road, resulting in the removal of parking on this section. The board generally endorsed the plan, but made several suggestions for the block north of Villa Ave. Those changes were incorporated in a revised plan. A public hearing to present these ideas to the community was scheduled for the June 1, 2017 meeting and notices were sent to all owners and tenants within 300 ft. of the S. Eton Rd. corridor.

Mr. O'Meara's presentation covered three sections along S. Eton Rd.:

*Maple Rd./S. Eton Rd. Intersection*

The proposal was to add a raised island that would allow pedestrians to cross S. Eton Rd. at Maple Rd. with a break in the middle, along with other design features. The main adjustment, based on new information from users, was to change the northwest corner of the island and to move the left turn lane stop bar back where it is today. This allows large vehicles to make the turn from Maple Rd. onto S. Eton Rd.

Mr. Labadie said this scheme makes the intersection more controlled. He thought people would pay more attention and it would be safer for pedestrians.

*Yosemite Blvd. to Villa Ave.*

In this block there are businesses on both sides of the street. Last month the board came up with several suggestions, including eliminating parking on the southbound side; and narrowing the street so that the sidewalk would be 8 ft. wide on both sides and there would be room for a 4 ft. grass strip with trees on both sides. There would not be space for a bike lane but there would be sharrows. It is important that northbound bikes cross Eton Ave. at Villa Ave., where the sight distance is better.

*Villa Ave. to Lincoln Ave.*

It is proposed to remove parking on the southbound side and open up the space for a two-way bike corridor with a 1.5 ft. wide buffer area that would be supplemented with some form of raised markers. Bumpouts are suggested at Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave. It is cautioned

## Multi-Modal Transportation Board Proceedings

June 1, 2017

Page 3

that every time someone stops to make a left turn everyone else is stopping as well, Discussion considered that two bollards may be needed on the north end of the bike lane to force bikers to stop and get off. The south side is a little less busy.

At this time the chairperson opened up discussion from the public.

Mr. Michael Kopmeyer, 1351 Bennaville, thought the bike lane proposal trivializes bicycle travel. Bikes have a right to be on the road and they should be respected by automobile drivers and not be trivialized.

Mr. Terry Adams, Bob Adams Towing, 2499 Cole; and Mr. Brian Bolyard, Bolyard Lumber, 777 S. Eton, recited some issues that could occur with the proposed design on the corner. If the stop line on northbound Eton Rd. can be kept where it is, it would be a great plus for the corner. A stop bar closer to Maple Rd. would cause more of an issue with tractor-trailers. Mr. Adams indicated the majority of truck traffic will head west off of S. Eton Rd. because of the 13 ft. 2 in. bridge to the east. Mr. Bolyard noted 42 to 48 ft. combined length trailers need to turn off of S. Eton Rd. every day. Mr. Adams commented the overall length that he could tow is 78 ft. Mr. Labadie advised that you don't design for the one extreme situation. This plan will accommodate a WB 40, which means a 45 ft. long trailer tractor, and that encompasses most everything that goes through there today.

Ms. Ecker noted this board's job is to balance not just the automobile traffic, but all of the users. The point of looking at this intersection is to make it more friendly for all modes of travel. She hasn't seen any plans come across for the Rail District that would require large vehicles, other than during construction.

Mr. Andrew Haig, 1814 Banbury, thanked the board for proposing an island that would make it easier for pedestrians. However, he suggested removing the island, pulling the stop line back, and moving the crossing and lights further south, away from the intersection. For the bike lanes, raise the height of the road two or three inches overall, and perhaps add bollards.

Ms. Melanie Mansenior with Downriver Refrigeration, 925 S. Eton Rd. was worried about the amount of trucks going in and out of the S. Eton Rd./Maple Rd. intersection because that is the only ingress and egress for truck traffic through the Rail District. She received clarification that 30 to 40% of currently accessible parking on S. Eton Rd. will be eliminated. Ms. Ecker added a detailed parking study was done last year that indicated there is not a parking problem overall in that area. Ms. Mansenior replied that it will impact her particular location if the parking spots across the street are eliminated. Currently there not enough spots and people park in their lot. More people will do so if the spaces across the street are removed.

## Multi-Modal Transportation Board Proceedings

June 1, 2017

Page 4

Ms. Ecker noted the board has to balance everyone's interests. They have heard repeatedly in the past from residents that that they want those spaces to go away because of concerns with site distance pulling in and out of their driveways along with being blocked in.

Ms. Cindy Cherum, 1622 S. Eton Rd., a member of the Ad Hoc Rail District Review Committee, wanted this group to remember that in this plan there is an entire side of S. Eton Rd. that has not been looked at. Mr. O'Meara responded that the board decided to focus on the section north of Lincoln Ave. first, and then study the area to the south.

Ms. Sherry Markus, 1382 Ruffner, expressed her confusion about why they would slow down the traffic so much and spend so much money for that pedestrian area. Presently traffic is backed up all the way to Coolidge in the evening. This plan will slow things down even more. Mr. Labadie advised the whole intersection and its access points will change. A recent study has concluded that delays on Maple Rd., even with the additional traffic from Whole Foods, should improve. There will be push buttons for pedestrians that will allow Maple Rd. to get more time.

In response to Ms. Markus, Ms. Ecker explained that over the last several years there have been many complaints about issues in this area. Crossings are not safe, traffic goes too fast, no one stops for pedestrians. Further, people have complained about sight distance, pulling in and out, about where trucks are parking, and where employees are parking. Therefore, the City Commission created the Ad Hoc Study Committee. The splitter island affords a safe haven for pedestrians when they are crossing the street.

Ms. Markus thought the bike lane is silly and goes nowhere. She observed that with parking on Cole St. cars cannot get through. It was discussed that everything in the plan has been designed specifically to slow traffic along S. Eton Rd. Dr. Rontal noted the concept of the bike lane to nowhere is a little disingenuous because Birmingham has had a 20-year plan that creates a bike route for people to commute through the City. The plan is being completed in a phased fashion.

Mr. Larry Bertollini, 1301 Webster, asked if a mockup could be created that includes the splitter island. He hoped that trucks pulling out of side streets would have enough slop so there would not be head-on collisions. He would like to see some diagrams showing other areas where there is a bump-out that would prove turning trucks have space to get in and out of where they are going. Mr. O'Meara responded they won't neglect that. Mr. Bertollini added his main concern is for bikes wanting to cross where the transition is made. That is scary, and therefore he is not really sold on the concept. He would not object to eliminating the two-way and going back to a lane on the other side.

## Multi-Modal Transportation Board Proceedings

June 1, 2017

Page 5

Mr. Michael Kopmeyer spoke again to say he fully endorses the idea of moving the crosswalk back a bit. He suggested stop signs at Haynes and Villa to give a pause for pedestrians to establish themselves in the intersection.

Mr. Andrew Haig came forward once more to inform the group that Auto Europe vehicles don't have much ground clearance and can't clear a curb at all.

The chairperson wrapped up the public comments part of the evening at this time.

Mr. O'Meara asked Mr. Labadie to comment on the idea of moving the Maple Rd. crosswalk further south. Mr. Labadie said moving the crosswalk has other ramifications about being able to see the pedestrians and a few other things that are not accepted practice.. Visibility of the signals would be substandard as well. The suggested option addresses everything they are trying to accomplish and still stays within accepted practice.

Ms. Slanga was not convinced that in the future people would not optimize their supply chains and go with fewer deliveries and larger trucks. Therefore she advocated cutting back the island a little more to make it a bit easier for the large trucks to get through. The 50 ft. truck is accommodated by the plan right now but it doesn't accommodate the 62 ft. truck. Mr. Labadie indicated they can work on that when it goes into design. Mr. Bolyard noted they are all for the design, but it has to get better. Driver capabilities must be factored in. Mr. Surnow's thought was to make the island whatever the bare minimum is to accommodate the trucks, but yet provide a margin of safety to the pedestrians.

Discussion considered why this is the only place trucks can come and go from the Rail District. Mr. O'Meara indicated that Lincoln and S. Eton further south are considered residential streets..

The Chairperson took public comments.

Mr. Adams said this design concerns any delivery truck that is bringing commodities to the businesses in the Rail District and is exiting to go east on Maple Rd. They will make the turn, but either the light pole or the walk or don't walk post is going down. The driver cannot protrude out enough to turn and make the trailer axels stay outboard of the curb.

Mr. Lawson announced there is opposition to the proposed design that would cut commerce off to the Rail District. He didn't see how the board could vote for the splitter island. Dr. Rontal added the board now has dramatically different information. They thought a 50 ft. trailer would be long enough to accommodate, but they are hearing from the businesses in the District that 50 ft. is probably not

long enough. More information about the number of trucks coming and going into the district is needed. He thinks the board needs some time to review the new data.

**Motion by Mr. Lawson**

**Seconded by Dr. Rontal to recommend that the City Commission approve and budget for the following Multi-Modal improvements to S. Eton Rd. from Maple Rd. to Yosemite Blvd.:**

- a. Further study of installation of a splitter island at Maple Rd.**
- b. Relocation of the west side curb and gutter to accommodate an 8 ft. wide sidewalk along the entire block.**
- c. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd.**
- d. Installation of sharrows on green painted squares for both directions.**

**Mr. Lawson amended his motion but the amendment failed and therefore the board voted on his original motion.**

**Motion carried, 5-2.**

**ROLLCALL VOTE**

Yeas: Rontal, Adams, Edwards, Folberg, Surnow

Nays: Lawson, Slanga

Absent: None

Mr. O'Meara clarified that everything from Maple Rd. to Lincoln Ave. must be agreed upon as a package before this is returned to the Commission.

The public hearing closed.

**6. OAKLAND AVE - WOODWARD AVE. TO LAWNSDALE AVE.**

Mr. O'Meara advised that last month, MMTB reviewed and approved plans to reconstruct Lawndale Ave. south of Oakland Ave. The plan was forwarded to the City Commission for their meeting of May 22, 2017, and was subsequently approved.

While reviewing the plan, further questions were raised about the pedestrian environment on this section of Oakland Ave. The existing handicap ramp at the southeast corner of the Oakland Ave. & Lawndale Ave. intersection encourages pedestrians to cross in the middle of the Lawndale Ave. intersection, which is not





# MEMORANDUM

Engineering Dept.

**DATE:** July 14, 2017  
**TO:** Multi-Modal Transportation Board  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** S. Eton Rd. – Maple Rd. to Lincoln Ave.

---

At the Multi-Modal Transportation Board (MMTB) meeting of June 1, a public hearing was held to review and discuss the various components of multi-modal improvements now being considered for S. Eton Rd. between Maple Rd. and Eton Rd. The Board was ready to approve the majority of the proposal, outside of the pedestrian island at Maple Rd. New information found that week determined that the proposal to build an island that could accommodate 40 ft. truck turning radii may be too small caused the Board to hesitate on this feature. The Board asked staff to survey all businesses in the Rail District, and return the issue at the following meeting.

A survey was distributed to all businesses in the Rail District, allowing for quick response through the internet. A total of 99 businesses were sent the message requesting input, and 17 responses back were received; details are attached. Only one business responded indicating that they have trucks longer than 60 ft., while that one and another indicated that they receive deliveries from trucks longer than 60 ft. A larger number received deliveries from trucks in the 40 to 60 ft. range (7), while only one again actually owned such large vehicles. The sample size was disappointingly small.

The three Rail District businesses that appeared at the public hearing last time have been invited to come back for this meeting as well.

To assist with this discussion, additional truck turning radius drawings generated by a computer program have been attached for your reference. The drawings now include:

1. A picture of all three turning movements when driving a truck with a 50 ft. turning radius.
2. A picture of all three turning movements when driving a truck with a 62 ft. turning radius.
3. A picture of the proposed island now modified to allow for a 50 ft. truck turning radius.

At this time, the Board must make the decision about what type of pedestrian improvement is appropriate for this location. Here are some things to consider:

1. It appears that trucks greater than 40 ft. may be more common than was thought, but from the data given, it is unclear if the majority of those would fall between 40 and 50 ft., or not. Hopefully additional information can be gathered at the meeting.

2. The Board may wish to not consider the right turn movement out of S. Eton Rd. As shown on the drawings, even the 40 ft. turning radius cannot make this turn if the island is provided. At the last meeting, it appeared that such turns are not common now, given the tight turn already required to keep clear of the railroad bridge center column. Drivers of trucks needing to leave the district can make a left turn on to Maple Rd. with any of the designs.
3. If the Board determines that the intersection needs to be designed to accommodate the largest standard truck (62 ft.), then no island feature can be installed. The currently proposed road narrowing on the west side of the block could proceed.
4. Even if no island is installed a more enhanced bumpout on the southwest corner cannot be installed if the intersection is going to accommodate either a 50 or 62 ft. truck turning radius.
5. Generally, beneficial street designs should not be removed to accommodate a vehicle that does not generally get driven through the area. Extremely large vehicles, such as the example of Adams Towing pulling a bus, is a rare circumstance. They have indicated that such tows are already difficult through this intersection, and that other routes are often selected to make this trip.

It is recommended that the results of the truck survey be reviewed, input from the public be received, and then a decision made on what sized trucks the Board feels that this intersection should be designed to. The entire S. Eton corridor package then needs to be formalized in a recommendation to the Commission. Two suggested recommendations are listed below that provide alternatives for the above question on which size trucks should be accommodated. Recommendation B eliminates the island at Maple Rd. from the recommendation. Only the block directly south of Maple Rd. has been changed from the recommendation prepared for the last meeting:

**SUGGESTED RECOMMENDATION A (DESIGNED FOR 50 FT. TRUCK TURNING AT MAPLE RD.):**

To recommend to the City Commission the following package of multi-modal transportation improvements for S. Eton Rd. from Maple Rd. to Lincoln Ave.:

1. Maple Rd. to Yosemite Blvd.
  - a. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
  - b. Installation of a pedestrian island at the Maple Rd. & S. Eton Rd. intersection to improve safety for pedestrians crossing on the south side of Maple Rd.
  - c. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
  - d. Installation of sharrows on green painted squares for both directions.
2. Yosemite Blvd. to Villa Ave.
  - a. Removal of the existing parking on the west side of the street.
  - b. Relocation of the curb and gutter on both sides of the street to accommodate 8 ft. wide sidewalks and 4 ft. wide green spaces with new City trees.
  - c. Installation of sharrows on green painted squares for both directions.

3. Villa Ave. to Lincoln Ave.
  - a. Removal of the existing parking on the west side of the street, replaced with an 8.5 ft. wide bi-directional bike lane and a 1.5 ft. buffer with raised markers.
  - b. Sidewalk improvements as needed at Villa Ave. and Lincoln Ave. to facilitate the bi-directional bike lane.
  - c. Installation of a 3 ft. wide buffer between the northbound travel lane and 7 ft. parking lane.
  - d. Curbed bumpouts at marked pedestrian crosswalks on the west side of the street, at the intersections of Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave.

SUGGESTED RECOMMENDATION B (DESIGNED FOR 62 FT. TRUCK TURNING AT MAPLE RD.):

To recommend to the City Commission the following package of multi-modal transportation improvements for S. Eton Rd. from Maple Rd. to Lincoln Ave.:

1. Maple Rd. to Yosemite Blvd.
  - a. Relocation of the west side curb of S. Eton Rd. from Maple Rd. to Yosemite Blvd. three feet closer to the center, allowing the installation of an 8 ft. wide sidewalk behind the relocated curb.
  - b. Installation of a wider sidewalk adjacent to the handicap ramp at the southeast corner of Maple Rd. & S. Eton Rd.
  - c. Installation of sharrows on green painted squares for both directions.
2. Yosemite Blvd. to Villa Ave.
  - a. Removal of the existing parking on the west side of the street.
  - b. Relocation of the curb and gutter on both sides of the street to accommodate 8 ft. wide sidewalks and 4 ft. wide green spaces with new City trees.
  - c. Installation of sharrows on green painted squares for both directions.
3. Villa Ave. to Lincoln Ave.
  - a. Removal of the existing parking on the west side of the street, replaced with an 8.5 ft. wide bi-directional bike lane and a 1.5 ft. buffer with raised markers.
  - b. Sidewalk improvements as needed at Villa Ave. and Lincoln Ave. to facilitate the bi-directional bike lane.
  - c. Installation of a 3 ft. wide buffer between the northbound travel lane and 7 ft. parking lane.
  - d. Curbed bumpouts at marked pedestrian crosswalks on the west side of the street, at the intersections of Villa Ave., Hazel Ave., Bowers Ave., Cole Ave., and Lincoln Ave.



# MEMORANDUM

Police Department

**DATE:** July 13, 2017

**TO:** Multi-Model Transportation Board

**FROM:** Scott Grewe / Operations Commander

**SUBJECT:** Commercial Traffic on S. Eton

---

In an attempt to obtain more information regarding the amount and size of commercial vehicles used on S. Eton a survey was sent to addresses in the Rail District. On June 21<sup>st</sup> post cards were sent out requesting their participation in the survey. On July 13<sup>th</sup> the surveys were reviewed and below are the results.

1. 58% of respondents stated their business requires the use of a commercial vehicle.
  - a. Respondents who stated the use commercial vehicles estimated how many times per day their vehicles used S. Eton.
    - i. 17.65% 1 to 3 times.
    - ii. 17.65% 4 to 7 times.
    - iii. 11.76% 7 to 10 times.
    - iv. 11.76% 15 or more times.
  - b. They also provided the estimated truck lengths used by their business.
    - i. 5.88% 10' to 20' vehicle.
    - ii. 29.41% 20' to 40' vehicle.
    - iii. 5.88% 40' to 60' vehicle.
    - iv. 5.88% 60' to 80' vehicle.
2. 87.5% stated they receive deliveries from companies using commercial vehicles.
  - a. Respondents estimated how many deliveries they received per week.
    - i. 41% 1 to 3 deliveries.
    - ii. 35.29% 4 to 7 deliveries.
    - iii. 11.76% 7 to 10 deliveries
    - iv. 11.76% more than 10 deliveries.
  - b. Estimated length of delivery vehicles.
    - i. 31.25% 0 to 20' vehicle.
    - ii. 12.5% 20' to 40' vehicle.
    - iii. 43.75% 40' to 60' vehicle.
    - iv. 12.50% 60' to 80' vehicle.

All responses have been attached for review.



+ Create Survey

Create better surveys faster. Upgrade to add users and get team collaboration tools. [View pricing](#) →

# City of Birmingham S. Eton Commercial Traffic Review

Summary → Design Survey → Collect Responses → Analyze Results



### CURRENT VIEW

+ FILTER + COMPARE + SHOW

### No rules applied

Rules allow you to FILTER, COMPARE and SHOW results to see trends and patterns. [Learn more](#) >

### SAVED VIEWS (1)

Original View (No rules applied)

+ Save as...

### EXPORTS

### SHARED DATA

### No shared data

Sharing allows you to share your survey results with others. You can share all data, a saved view, or a single question summary. [Learn more](#) >

Share All

RESPONDENTS: 17 of 17

Export All Share All

Question Summaries Data Trends Individual Responses

PAGE 1

Q1

Export

## What is the name and address of your business?

Answered: 17 Skipped: 0

Responses (17) Text Analysis My Categories

#### PAID FEATURE

Use text analysis to search and categorize responses; see frequently-used words and phrases. To use Text Analysis, upgrade to a paid plan.

Upgrade [Learn more](#) >

Categorize as... Filter by Category

Search responses

Showing 17 responses

Bob Adams Towing Inc 2499 Cole St Birmingham, MI 48009  
7/11/2017 1:56 PM [View respondent's answers](#)

Downriver Refrigeration Supply 925 S. Eton  
7/3/2017 8:47 AM [View respondent's answers](#)

2015 Hazel st., Ste. C, Birmingham, MI 48009  
6/30/2017 2:29 PM [View respondent's answers](#)

2051 Villa Rd. #202  
6/28/2017 11:59 PM [View respondent's answers](#)

Big Rock Chophouse The Reserve  
6/27/2017 3:54 PM [View respondent's answers](#)

LaurenAssociates, 2254 Cole Many other tenants in building that use commercial vehicles  
6/27/2017 3:37 PM [View respondent's answers](#)

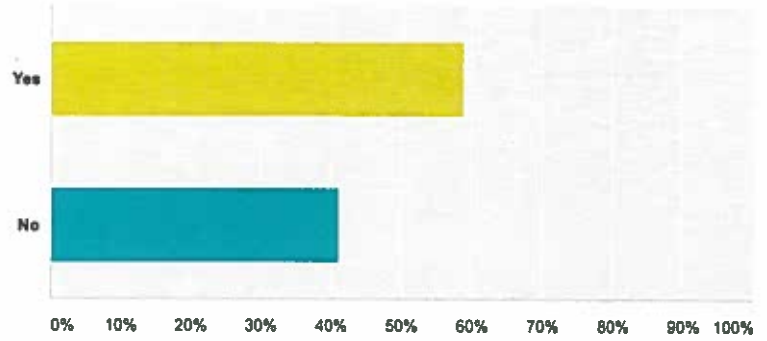
Canine Academy  
6/28/2017 3:48 PM [View respondent's answers](#)

Q2

Customize Export

## Does the operation of your business require the use of commercial vehicles?

Answered: 17 Skipped: 0



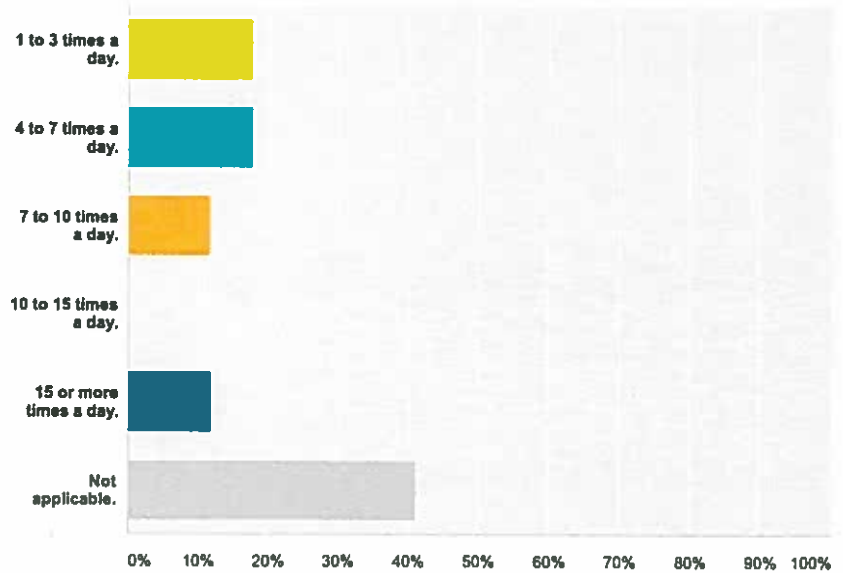
Answer Choices	Responses
Yes	58.82% 10
No	41.18% 7
Total	17

Q3

Customize Export

### Approximately how many times per day do your commercial vehicles use S. Eton in a day?

Answered: 17 Skipped: 0



Answer Choices	Responses
1 to 3 times a day.	17.65% 3
4 to 7 times a day.	17.65% 3
7 to 10 times a day.	11.76% 2
10 to 15 times a day.	0.00% 0
15 or more times a day.	11.76% 2
Not applicable.	41.18% 7
Total	17

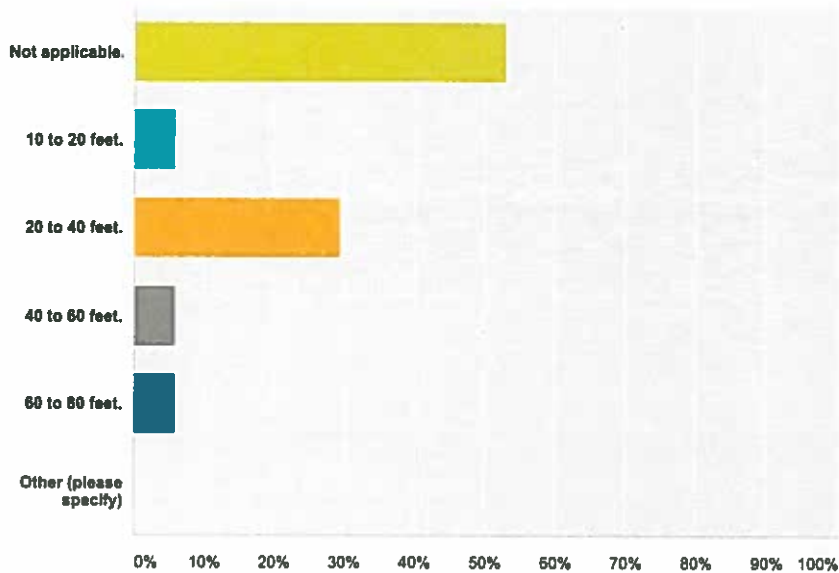
Q4

Customize Export



### What is the overall length of your largest commercial vehicle including the trailer?

Answered: 17 Skipped: 0



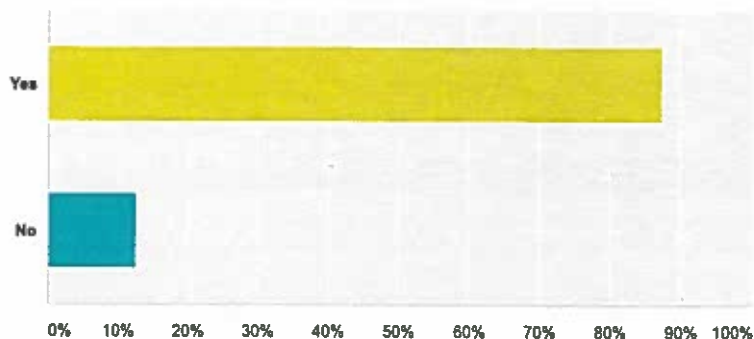
Answer Choices	Responses	Count
Not applicable.	52.94%	9
10 to 20 feet.	5.88%	1
20 to 40 feet.	29.41%	5
40 to 60 feet.	5.88%	1
60 to 80 feet.	5.88%	1
Other (please specify)	0.00%	0
<b>Total</b>		<b>17</b>

Q5

Customize Export

### Do you receive deliveries from companies using commercial vehicles?

Answered: 16 Skipped: 1



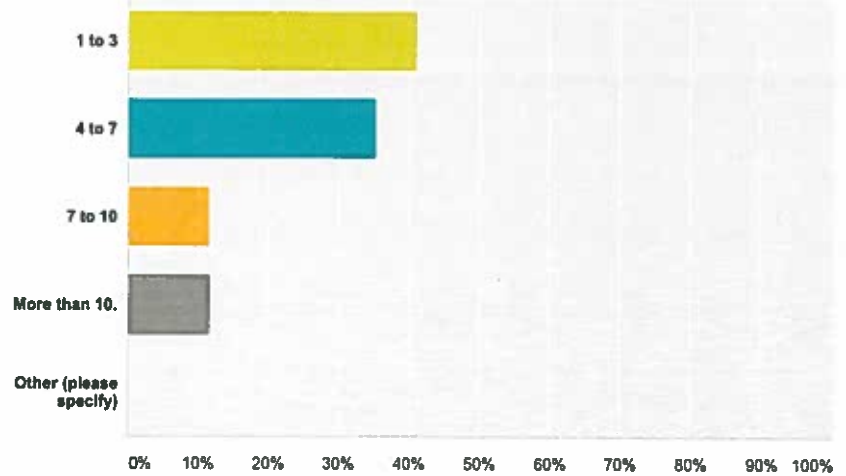
Answer Choices	Responses	Count
Yes	87.50%	14
No	12.50%	2
<b>Total</b>		<b>16</b>

Q6

Customize Export

### How many times per week (on average) do you receive deliveries?

Answered: 17 Skipped: 0



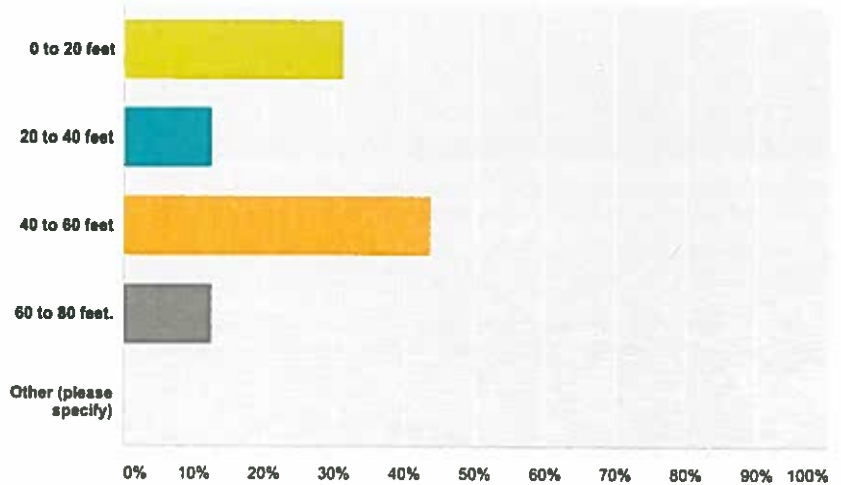
Answer Choices	Responses	Count
1 to 3	41.18%	7
4 to 7	35.29%	6
7 to 10	11.76%	2
More than 10.	11.76%	2
Other (please specify)	0.00%	0
<b>Total</b>		<b>17</b>

Q7

Customize Export

### How long do you believe is the longest commercial vehicle used to make your deliveries?

Answered: 16 Skipped: 1



Answer Choices	Responses	
▼ 0 to 20 feet	31.25%	5
▼ 20 to 40 feet	12.50%	2
▼ 40 to 60 feet	43.75%	7
▼ 60 to 80 feet	12.50%	2
▼ Other (please specify)	Responses	0.00%
Total		16

Community: [Developers](#) • [Facebook](#) • [Twitter](#) • [LinkedIn](#) • [Our Blog](#) • [Google+](#) • [YouTube](#)

About Us: [Leadership Team](#) • [Board of Directors](#) • [Integrations](#) • [Newsroom](#) • [Office Locations](#) • [Jobs](#) • [Sitemap](#) • [Help](#)

Policies: [Terms of Use](#) • [Privacy Policy](#) • [Anti-Spam Policy](#) • [Security Statement](#) • [Email Opt-In](#) • [Accessibility](#)



Language: [English](#) • [Español](#) • [Português](#) • [Deutsch](#) • [Nederlands](#) • [Français](#) • [Русский](#) • [Italiano](#) • [Dansk](#) • [Svenska](#) • [日本語](#) • [한국어](#) • [中文\(繁體\)](#) • [Türkçe](#) • [Norsk](#) • [Suomi](#)

Copyright © 1999-2017 SurveyMonkey



**Q1: What is the name and address of your business?**

Bob Adams Towing Inc  
2499 Cole St  
Birmingham, MI 48009

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

15 or more times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

60 to 80 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

60 to 80 feet.

**Q1: What is the name and address of your business?**

Downriver Refrigeration Supply  
925 S. Eton

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

1 to 3 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

20 to 40 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

4 to 7

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

60 to 80 feet.

**Q1: What is the name and address of your business?**

2015 Hazel st., Ste. C, Birmingham, MI 48009

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

No

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

0 to 20 feet



**Q1: What is the name and address of your business?**

2051 Villa Rd. #202

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

4 to 7 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

*Respondent skipped this question*

**Q1: What is the name and address of your business?**

Big Rock Chophouse  
The Reserve

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

7 to 10 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

20 to 40 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

More than 10.

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

40 to 60 feet

**Q1: What is the name and address of your business?**

LaurenAssociates, 2254 Cole  
Many other tenants in building that use commercial vehicles

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

4 to 7 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

40 to 60 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

More than 10.

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

40 to 60 feet

**Q1: What is the name and address of your business?** \_\_\_\_\_

Canine Academy

**Q2: Does the operation of your business require the use of commercial vehicles?** \_\_\_\_\_

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?** \_\_\_\_\_

1 to 3 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?** \_\_\_\_\_

10 to 20 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?** \_\_\_\_\_

Yes

**Q6: How many times per week (on average) do you receive deliveries?** \_\_\_\_\_

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?** \_\_\_\_\_

0 to 20 feet

**Q1: What is the name and address of your business?**

Roy, Shecter & Vocht, P.C.

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

4 to 7

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

0 to 20 feet

**Q1: What is the name and address of your business?**

Deneweth Properties  
707/717 S. Eton

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

4 to 7

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

20 to 40 feet



**Q1: What is the name and address of your business?**

Newingham Dental Center  
2425 E. Lincoln St. #110  
Birmingham, MI 48009

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

0 to 20 feet

**Q1: What is the name and address of your business?**

2205 Holland Street

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

15 or more times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

20 to 40 feet.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

40 to 60 feet

**Q1: What is the name and address of your business?**

2305 Cole Street

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

4 to 7

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

40 to 60 feet

**Q1: What is the name and address of your business?**

Griffin Claw Brewery  
575 S. Eton

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

7 to 10

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

40 to 60 feet

**Q1: What is the name and address of your business?**

Dogtopia

**Q2: Does the operation of your business require the use of commercial vehicles?**

No

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

Not applicable.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

*Respondent skipped this question*

**Q6: How many times per week (on average) do you receive deliveries?**

1 to 3

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

0 to 20 feet

**Q1: What is the name and address of your business?**

1081 S Eton Street

**Q2: Does the operation of your business require the use of commercial vehicles?**

Yes

**Q3: Approximately how many times per day do your commercial vehicles use S. Eton in a day?**

1 to 3 times a day.

**Q4: What is the overall length of your largest commercial vehicle including the trailer?**

Not applicable.

**Q5: Do you receive deliveries from companies using commercial vehicles?**

Yes

**Q6: How many times per week (on average) do you receive deliveries?**

7 to 10

**Q7: How long do you believe is the longest commercial vehicle used to make your deliveries?**

20 to 40 feet



## NOTICE OF PUBLIC HEARING

<b>BIRMINGHAM CITY COMMISSION</b>
<b>SPECIAL LAND USE PERMIT &amp; FINAL SITE PLAN</b>

Meeting Date, Time, Location:	Monday, August 14, 2017 at 7:30 PM Municipal Building, 151 Martin Birmingham, MI
Location of Request:	Birmingham Theater, 211 S. Old Woodward
Nature of Hearing:	To consider the Final Site Plan and Special Land Use Permit to allow for the addition of a theater liquor license
City Staff Contact:	Jana Ecker 248.530.1841 <a href="mailto:jecker@bhamgov.org">jecker@bhamgov.org</a>
Notice Requirements:	Mailed to all property owners and occupants within 300 feet of subject address. Publish July 30, 2017
Approved minutes may be reviewed at:	City Clerk's Office

Persons wishing to express their views may do so in person at the hearing or in writing addressed to City Clerk, City of Birmingham, 151 Martin, Birmingham, MI 48009.
Persons with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk's Office at 248.530.1880 (voice) or 248.644.5115 (TDD) at least one day in advance to request mobility, visual, hearing or other assistance.



## MEMORANDUM

Planning Division

**DATE:** August 2, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Jana L. Ecker, Planning Director

**SUBJECT:** Public Hearing for 211 S. Old Woodward – Birmingham Theater  
Special Land Use Permit and Final Site Plan

---

The subject site, Birmingham Theater, is located at 211 S. Old Woodward, on the east side of S. Old Woodward at Merrill. The parcel is zoned B-4, Business-Residential and D-4 in the Downtown Overlay District. The applicant, Birmingham Teatro, LLC, is applying for a Special Land Use Permit (SLUP) to operate with a Class C liquor license under the new ordinance allowing a movie theater to operate with a liquor license. Birmingham Teatro is owned equally by Daniel Shaw and Nicholas Lekas, who in addition to operating the theater, are also part owners of Birmingham Theater, LLC, which is the sub-landlord for 211 S. Old Woodward.

Article 2, section 2.37, B4 (Business-Residential) District requires that any establishment with alcoholic beverage sales (on-premise consumption) shall obtain a Special Land Use Permit. Accordingly, the applicant is required to obtain a recommendation from the Planning Board on the Final Site Plan and Special Land Use Permit, and then obtain approval from the City Commission for the Final Site Plan and Special Land Use Permit.

On July 12, 2017, the Planning Board conducted a public hearing to discuss a request by the applicant to permit the service of alcoholic liquors at the Birmingham Theater. The Planning Board voted unanimously to recommend approval to the City Commission of the Special Land Use Permit ("SLUP") and Final Site Plan for 211 S. Old Woodward, Birmingham Theater, with no conditions.

As there are no proposed exterior changes to the Birmingham Theater building, the applicant is not required to appear before the before the Historic District Commission (HDC), even though the property is located within the Central Business District Historic District.

Thus, the City Commission set a public hearing date for August 14, 2017 to consider approval of the Final Site Plan and Special Land Use Permit to allow the addition of a theater liquor license at 211 S. Old Woodward. Please find attached the staff report presented to the Planning Board, along with the relevant meeting minutes for your review.

**SUGGESTED ACTION:**

To approve the Final Site Plan and Special Land Use Permit for 211 S. Old Woodward to allow for the addition of a theater liquor license for the Birmingham Theater.



LAW OFFICES

# ADKISON, NEED, ALLEN, & RENTROP

PROFESSIONAL LIMITED LIABILITY COMPANY

PHILLIP G. ADKISON  
KELLY A. ALLEN  
SALAM F. ELIA  
GREGORY K. NEED  
G. HANS RENTROP

39572 Woodward, Suite 222  
Bloomfield Hills, Michigan 48304  
Telephone (248) 540-7400  
Facsimile (248) 540-7401  
www.ANAfirm.com

OF COUNSEL:  
KEVIN M. CHUDLER  
SARAH J. GABIS  
LINDA S. MAYER

April 17, 2017

VIA HAND DELIVERY

Unit 1 – Licensing Division  
Michigan Liquor Control Commission  
525 W. Allegan Street  
P.O. Box 30005  
Lansing, Michigan 48909

**Re: Request to Transfer Ownership and Location of the Class C Liquor License with Sunday Sales (AM and PM) Permit and Entertainment Permit from Thumper's Splatter, LLC, Business ID No. 235577 (In Escrow at 230 E Auburn Rd., Rochester Hills, Oakland County, Michigan) to Birmingham Teatro, LLC, to be Located at 211 S. Old Woodward, Birmingham, Oakland County, Michigan; Request for a New Additional Bar Permit; and Request to Cancel the Existing Sunday Sales (AM) Permit.**

To Whom It May Concern:

This is Birmingham Teatro, LLC's application to transfer ownership and location of the Class C Liquor License with Sunday Sales (AM and PM) Permit and Entertainment Permit from Thumper's Splatter, LLC, Business Id. No. 235577 (currently in escrow at 230 E Auburn, Rochester Hills, Oakland County, Michigan), to be located at 211 S Old Woodward, Birmingham, Oakland County, Michigan; request for a new Additional Bar Permit; and request to cancel the existing Sunday Sales (AM) Permit.

Enclosed, to begin the investigation, are the following:

1. LCC-100 for Birmingham Teatro, LLC (including Page 3 for members: Daniel Shaw and Nicholas Lekas);
2. LCC-301 for Birmingham Teatro, LLC;
3. Proposed Articles of Organization and Operating Agreement for Birmingham Teatro, LLC;

4. Liquor License Purchase Agreement with deposit check; and
5. Sublease Agreement and Lease Agreement.

Additionally, enclosed is a credit card authorization form for payment of fees totaling \$1,162.50 (\$70.00 for the inspection fees, \$600.00 for the Class C License, \$350.00 for the Additional Bar Permit, and \$142.50 for the Sunday Sales PM Permit).

If you have any questions or need any further information, please do not hesitate to contact my office.

Very truly yours,

ADKISON, NEED, ALLEN, & RENTROP, PLLC



Kelly A. Allen

/lbp  
Enclosures

cc: Nicholas Lekas (*with enclosures, via electronic mail*)



**Retail License & Permit Application**

For information on retail licenses and permits, including a checklist of required documents for a completed application, please visit the Liquor Control Commission's frequently asked questions website [by clicking this link](#).

**Part 1 - Applicant Information**

Individuals, please state your legal name. Corporations or Limited Liability Companies, please state your name as it is filed with the State of Michigan Corporation Division.

Applicant name(s): Birmingham Teatro, LLC	
Address to be licensed: 211 S Old Woodward Ave	
City: Birmingham	Zip Code: 48009
City/township/village where license will be issued: City of Birmingham	County: Oakland
Federal Employer Identification Number (FEIN):	

- Are you requesting a new license?  Yes  No
- Are you applying ONLY for a new permit or permission?  Yes  No
- Are you buying an existing license?  Yes  No
- Are you modifying the size of the licensed premises?  Yes  No  
If Yes, specify:  Adding Space  Dropping Space  Redefining Licensed Premises
- Are you transferring the location of an existing license?  Yes  No
- Is this license being transferred as the result of a default or court action?  Yes  No
- Do you intend to use this license actively?  Yes  No

*Leave Blank - MLCC Use Only*

**Part 2 - License Transfer Information (If Applicable)**

If transferring ownership of a license ONLY and not transferring the location of a license, fill out only the name of the current licensee(s)

Current licensee(s): Thumper's Splatter, LLC	
Current licensed address: 230 E Auburn	
City: Rochester Hills	Zip Code: 48307
City/township/village where license is issued: City of Rochester Hills	County: Oakland

**Part 3 - Licenses, Permits, and Permissions**

Off Premises Licenses - Applicants for off premises licenses, permits, and permissions (e.g. convenience, grocery, specialty food stores, etc.) must complete the attached Schedule A and return it with this application. Transfer the fee calculations from the Schedule A to Part 4 below.

On Premises Licenses - Applicants for on premises licenses, permits, and permissions (e.g. restaurants, hotels, bars, etc.) must complete the attached Schedule A and return it with this application. Transfer the fee calculations from the Schedule A to Part 4 below.

**Part 4 - Inspection, License, and Permit Fees - Make checks payable to State of Michigan**

Inspection Fees - Pursuant to MCL 436.1529(4) a nonrefundable inspection fee of \$70.00 shall be paid to the Commission by an applicant or licensee at the time of filing of a request for a new license or permit, a request to transfer ownership or location of a license, a request to increase or decrease the size of the licensed premises, or a request to add a bar. Requests for a new permit in conjunction with a request for a new license or transfer of an existing license do not require an additional inspection fee.

License and Permit Fees - Pursuant to MCL 436.1525(1), license and permit fees shall be paid to the Commission for a request for a new license or permit or to transfer ownership or location of an existing license.

Inspection Fees:	\$70.00	License & Permit Fees:	\$1,092.50	<b>TOTAL FEES:</b>	<b>\$1,162.50</b>
------------------	---------	------------------------	------------	--------------------	-------------------



**Schedule A - Licenses, Permits, & Permissions**

Applicant name: Birmingham *Teatro, LLC*

- Off Premises License Type:** **Base Fee:** Fee Code MLCC Use Only
- New Transfer
- SDM License \$100.00
  - SDD License \$150.00
  - Resort SDD License Upon Licensure/\$150.00

- Off Premises Permits:** **Base Fee:**
- Sunday Sales Permit (AM)\* \$160.00
  - Sunday Sales Permit (PM)\*\* \$22.50  
*(Held with SDD License)*
  - Catering Permit \$100.00
  - Secondary Location Permit - Complete Form LCC-201
  - Beer and Wine Tasting Permit No charge
  - Living Quarters Permit No charge

- On/Off Premises Permission Type:** **Base Fee:**
- Off-Premises Storage No charge
  - Direct Connection(s) No charge
  - Motor Vehicle Fuel Pumps No charge

\*Sunday Sales Permit (AM) allows the sale of liquor, beer, and wine on Sunday mornings between 7:00am and 12:00 noon, if allowed by the local unit of government.

\*\*Sunday Sales Permit (PM) allows the sale of liquor on Sunday afternoons and evenings between 12:00 noon and 2:00am (Monday morning), if allowed by the local unit of government. No Sunday Sales Permit (PM) is required for the sale of beer and wine on Sunday after 12:00 noon. The Sunday Sales Permit (PM) fee is 15% of the fee for the license that allows the sale of liquor. Additional bar fees and B-Hotel room fees are also calculated as part of the permit fee.

Licenses, permits, and permissions selected on this form will be investigated as part of your request. Please verify your information prior to submitting your application, as some licenses, permits, or permissions cannot be added to your request once the application has been sent out for investigation by the Enforcement Division.

**Inspection, License, Permit, & Permission Fee Calculation**

Number of Licenses: <u>1</u> x \$70.00 Inspection Fee	
Total Inspection Fee(s): <small>Fee Code: 4036</small>	\$70.00
Total License Fee(s):	\$600.00
Total Permit Fee(s):	\$492.50
<b>TOTAL FEES DUE:</b>	<b>\$1,162.50</b>

Please note that requests to transfer SDD licenses will require the payment of additional fees based on the seller's previous calendar year's sales. These fees will be determined prior to issuance of the license to the applicant.

Make checks payable to **State of Michigan**

- On Premises License Type:** **Base Fee:** Fee Code MLCC Use Only
- New Transfer
- B-Hotel License \$600.00
  - Number of guest rooms: \_\_\_\_\_
  - A-Hotel License \$250.00
  - Number of guest rooms: \_\_\_\_\_
  - Class C License \$600.00 4034
  - Tavern License \$250.00
  - Resort License Upon Licensure
  - Redevelopment License Upon Licensure
  - Brewpub License \$100.00
  - G-1 License \$1,000.00
  - G-2 License \$500.00
  - Aircraft License \$600.00
  - Watercraft License \$100.00
  - Train License \$100.00
  - Continuing Care Retirement Center License \$600.00
  - MCL 436.1545(1)(b)(i)  MCL 436.1545(1)(b)(ii)

*B-Hotel or Class C Licenses Only:*

- Additional Bar(s) \$350.00 4012
- Number of Additional Bars: 1

B-Hotel or Class C licenses allow licensees to have one (1) bar within the licensed premises. A \$350.00 licensing fee is required for each additional bar over the one (1) bar initially issued with the license.

- On Premises Permits:** **Base Fee:**
- Sunday Sales Permit (AM)\* \$160.00
  - Sunday Sales Permit (PM)\*\* \$142.50 4032
  - Catering Permit \$100.00
  - Banquet Facility Permit - Complete Form LCC-200

A Banquet Facility Permit is an extension of the license at a different location. It may have its own permits and permissions. It is not a banquet room on the licensed premises.

- Outdoor Service No charge
- Dance Permit No charge
- Entertainment Permit No charge
- Extended Hours Permit: No charge

Dance  Entertainment Days/Hours: \_\_\_\_\_

- Specific Purpose Permit: No charge

Activity requested: \_\_\_\_\_

Days/Hours requested: \_\_\_\_\_

- Living Quarters Permit No charge
- Topless Activity Permit No charge



**Schedule B - New Specially Designated Merchant License Supplemental Application - New SDM License Applications ONLY**

Applicant name: Birmingham Teatro, LLC

Effective January 4, 2017 pursuant to MCL 436.1533(5), Specially Designated Merchant (SDM) licenses are quota licenses based on one (1) SDM license for every 1,000 of population in a local governmental unit. MCL 436.1533 provides for several exemptions from the quota for qualified applicants. Please carefully read the requirements in the boxes below, selecting the applicable approved type of business option(s) from Section 1 and an applicable new SDM license quota option from Section 2.

**Section 1 - Requirements to Qualify as Approved Type of Business for New SDM License Applicants**

Applicant must meet one (1) or more of the following conditions (check those that apply to your business):

- a. Applicant holds and maintains retail food establishment license or extended retail food establishment license under the Food Law of 2000, MCL 289.1101 to MCL 289.8111.
- b. Applicant holds or has been approved for Specially Designated Distributor license (Applicant must also hold and maintain food establishment license as described above).
- c. Applicant holds or has been approved for an on-premises license, such as a Class C, A-Hotel, B-Hotel, Tavern, Club, G-1, or G-2 license.

**Section 2 - Quota Requirements for New SDM License Applicants**

Applicant must qualify under one of the following sections of the Liquor Control Code regarding the SDM quota:

- a. Applicant is an applicant for or holds a Class C, A-Hotel, B-Hotel, Tavern, Club, G-1, or G-2 license.  
*MCL 436.1533(5)(a) - SDM license is exempt from SDM quota and license cannot be transferred to another location.*
- b. Applicant's establishment is at least 20,000 square feet and at least 20% of gross receipts are derived from the sale of food.  
*MCL 436.1533(5)(b)(i) - SDM license is exempt from SDM quota and license cannot be transferred to another location.*
- c. Applicant's establishment is a pharmacy as defined in the Public Health Code, MCL 333.17707.  
*MCL 436.1533(5)(b)(ii) - SDM license is exempt from SDM quota and license cannot be transferred to another location.*
- d. Applicant's establishment qualifies as a marina under MCL 436.1539.  
*MCL 436.1533(5)(e) - SDM license is exempt from SDM quota and license may be transferred to another location if the applicant complies with MCL 436.1539 at the new location.*
- e. Applicant does not qualify under any of the quota exemptions or waiver listed above.  
*MCL 436.1533(5) - Commission shall issue one (1) SDM for every 1,000 population in a local governmental unit and an unissued SDM must be available in the local governmental unit for the applicant to qualify. SDM license may be transferred to another location.*

**Documents Required To Be Submitted with New SDM License Application**

In addition to the documents listed on the application checklist, the new SDM license applicant must submit the documents listed below, as applicable, with its application to comply with the requirements described above. Select one or more of the following:

- Copy of retail food establishment license or extended retail food establishment license for a SDM license or a SDM license to be issued in conjunction with a Specially Designated Distributor license. The name on the food establishment license must match the applicant name in Part 1 of this application form. *A food establishment license is not required for a SDM license to be issued in conjunction with an on-premises license.*
- If applying under Section 2b above, documentary proof that applicant's establishment is at least 20,000 square feet and at least 20% of gross receipts are derived from the sale of food.
- If applying under Section 2c above, a copy of the pharmacy license issued under the Public Health Code.

**REMOVED  
DUE TO CLIENT  
CONFIDENTIALITY**

**REMOVED  
DUE TO CLIENT  
CONFIDENTIALITY**

**Part 6 - Contact Information**

Provide information on the contact person for this application. Please note that corporations and limited liability companies must provide documentation (e.g. meeting minutes, corporate resolution) authorizing anyone other than the applicant or an attorney of record to be the contact person. If an authorization is not provided, your contact person will not be acknowledged if they are anyone other than the applicant or attorney.

What is your preferred method of contact?			<input type="radio"/> Phone	<input type="radio"/> Mail	<input checked="" type="radio"/> Email	<input type="radio"/> Fax
What is your preferred method for receiving a Commission Order?			<input type="radio"/> Mail	<input checked="" type="radio"/> Email	<input type="radio"/> Fax	
Contact name: Laura Peters		Relationship: legal assistant				
Mailing address: 39572 Woodward Ave Ste 222, Bloomfield Hills, MI 48304						
Phone: 248-540-7400		Fax number:		Email: lpeters@anafirm.com		

**Part 7 - Attorney Information (If You Have An Attorney Representing You For This Application)**

Attorney name: Kelly Allen		Member Number: P-				
Attorney address: 39572 Woodward Ave Ste 222, Bloomfield Hills, MI 48304						
Phone: 248-540-7400		Fax number:		Email: kallen@anafirm.com		
Would you prefer that we contact your attorney for all licensing matters related to this application?						<input checked="" type="radio"/> Yes <input type="radio"/> No
Would you prefer any notices or closing packages be sent directly to your attorney?						<input checked="" type="radio"/> Yes <input type="radio"/> No

**Part 8 - Signature of Applicant**

**Be advised that the information contained in this application will only be used for this request. This section will need to be completed for each subsequent request you make with this office.**

**Notice:** When purchasing a license, a buyer can be held liable for tax debts incurred by the previous owner. Prior to committing to the purchase of any license or establishment, the buyer should request a tax clearance certificate from the seller that indicates that all taxes have been paid up to the date of issuance. Obtaining sound professional assistance from an attorney or accountant can be helpful to identify and avoid any pitfalls and hidden liabilities when buying even a portion of a business. Sellers can make a request for the tax clearance certificate through the Michigan Department of Treasury.

Under administrative rule R 436.1003, the licensee shall comply with all state and local building, plumbing, zoning, sanitation, and health laws, rules, and ordinances as determined by the state and local law enforcements officials who have jurisdiction over the licensee. Approval of this application by the Michigan Liquor Control Commission does not waive any of these requirements. The licensee must obtain all other required state and local licenses, permits, and approvals for this business before using this license for the sale of alcoholic liquor on the licensed premises.

I certify that the information contained in this form is true and accurate to the best of my knowledge and belief. I agree to comply with all requirements of the Michigan Liquor Control Code and Administrative Rules. I also understand that providing **false** or **fraudulent** information is a violation of the Liquor Control Code pursuant to MCL 436.2003.

The person signing this form has demonstrated that they have authorization to do so and have attached appropriate documentation as proof.

Nicholas Lekas \_\_\_\_\_ 4/4/17  
 Print Name of Applicant & Title                      Signature of Applicant                      Date  
 Managing Member

Please return this completed form along with corresponding documents and fees to:  
 Michigan Liquor Control Commission  
 Mailing address: P.O. Box 30005, Lansing, MI 48909  
 Hand deliveries or overnight packages: Constitution Hall - 525 W. Allegan, Lansing, MI 48933  
 Fax to: 517-373-4202



Michigan Department of Licensing and Regulatory Affairs  
 Liquor Control Commission (MLCC)  
 Toll-Free: 1-866-813-0011 - [www.michigan.gov/lcc](http://www.michigan.gov/lcc)

Business ID: \_\_\_\_\_

Request ID: \_\_\_\_\_

**Report of Stockholders, Members, or Partners**

(For MLCC Use Only)

(Authorized by MCL 436.1529(1), R 436.1051, and R 436.1110)

**Part 1 - Licensee Information**

Please state your name as it is filed with the State of Michigan Corporation Division.

Licensee name(s): Birmingham Teatro, LLC		
Address: 211 S Old Woodward Ave		
City: Rochester Hills		Zip Code: 48009
Contact name: Janet Lekas	Phone:	Email: janet@oakmanagement.com

**Part 2a - Corporations** - Please complete this section and attach more copies of this page if more room is needed.

Name and address of all stockholders:	No. of Shares Issued:	Date Issued/Acquired:

Name and address of Corporate Officers and Directors, pursuant to administrative rule R 436.1109:


**Part 2b - Limited Liability Companies** - Please complete this section and attach more copies of this page if more room is needed.

Name and address of all members:	Percent % Issued:	Date Issued/Acquired:
Daniel Shaw 4880 Lakeview Blvd Clarkston MI 48348	50%	4-17-2017
Nicholas Lekas, 4553 Racewood Commerce MI 48382	50%	4-17-2017

Name and address of Managers and Assignees, pursuant to administrative rule R 436.1110:

Nicholas Lekas, 4553 Racewood Commerce MI 48382-manager



Michigan Department of Licensing and Regulatory Affairs  
 Liquor Control Commission (MLCC)  
 Toll-Free: 1-866-813-0011 - [www.michigan.gov/lcc](http://www.michigan.gov/lcc)

Business ID: \_\_\_\_\_  
 Request ID: \_\_\_\_\_  
 (For MLCC Use Only)

**Report of Stockholders, Members, or Partners**

(Authorized by MCL 436.1529(1), R 436.1051, and R 436.1110)

**Part 2c - Limited Partnerships** - Please complete this section and attach more copies of this page if more room is needed.

Name and address of all partners:	Percent % Issued:	Date Issued/Acquired:

Name and address of Managers, pursuant to administrative rule R 436.1111:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Part 3 - Authorized Signers** (Authorized in compliance with R 436.1109(1)(c) for a corporation or R 436.1110(1)(g) for a limited liability company)

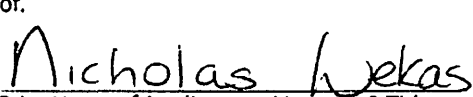
Name & Title:	Daniel Shaw, Nicholas Lekas,	Members
Name & Title:	Kelly Allen-attorney	
Name & Title:	Laura Peters-legal assistant	
Name & Title:		
Name & Title:		


**Part 4 - Signature of Applicant or Licensee**

I certify that the authorized signers under Part 3 of this form have been authorized in compliance with R 436.1109(1)(c) for a corporation or R 436.1110(1)(g) for a limited liability company.

I certify that the information contained in this form is true and accurate to the best of my knowledge and belief. I agree to comply with all requirements of the Michigan Liquor Control Code and Administrative Rules. I also understand that providing false or fraudulent information is a violation of the Liquor Control Code pursuant to MCL 436.2003.

The person signing this form has demonstrated that they have authorization to do so and have attached appropriate documentation as proof.

  
 \_\_\_\_\_  
 Print Name of Applicant or Licensee & Title  
 Managing Member

  
 \_\_\_\_\_  
 Signature of Applicant or Licensee

\_\_\_\_\_  
 Date  
 4/4/17

Please return this completed form to:  
 Michigan Liquor Control Commission  
 Mailing address: P.O. Box 30005, Lansing, MI 48909  
 Hand deliveries or overnight packages: Constitution Hall - 525 W. Allegan, Lansing, MI 48933  
 Fax to: 517-763-0059



**MICHIGAN DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS  
CORPORATIONS, SECURITIES & COMMERCIAL LICENSING BUREAU**

Date Received

**(FOR BUREAU USE ONLY)**

This document is effective on the date filed, unless a subsequent effective date within 90 days after received date is stated in the document.

Name

Anthony G. Mammina

Address

370 E. Maple Road, Suite 230

City

Birmingham



State

MI

ZIP Code

48009

EFFECTIVE DATE:

 Document will be returned to the name and address you enter above.  If left blank, document will be returned to the registered office.

**ARTICLES OF ORGANIZATION  
For use by Domestic Limited Liability Companies  
(Please read information and instructions on reverse side)**

Pursuant to the provisions of Act 23, Public Acts of 1993, the undersigned executes the following Articles:

**ARTICLE I**

The name of the limited liability company is: Birmingham Teatro, L.L.C.

**ARTICLE II**

The purpose or purposes for which the limited liability company is formed is to engage in any activity within the purposes for which a limited liability company may be formed under the Limited Liability Company Act of Michigan.

**ARTICLE III**

The duration of the limited liability company if other than perpetual is: \_\_\_\_\_

**ARTICLE IV**

1. The name of the resident agent at the registered office is: Nicholas Lekas

2. The street address of the location of the registered office is:

211 South Old Woodward Birmingham , Michigan 48009  
(Street Address) (City) (Zip Code)

3. The mailing address of the registered office if different than above:

\_\_\_\_\_, Michigan \_\_\_\_\_  
(P.O. Box or Street Address) (City) (Zip Code)

**ARTICLE V (Insert any desired additional provision authorized by the Act; attach additional pages if needed.)**

Signed this 17th day of April, 2017

By  \_\_\_\_\_  
(Signature(s) of Organizer(s))

Nicholas Lekas  
(Type or Print Name(s) of Organizer(s))

Preparer's Name Anthony G. Mammina

Mammina & Ajlouny, P.C.

Business telephone number ( 248 ) 642-1330

### INFORMATION AND INSTRUCTIONS

1. This form may be used to draft your Articles of Organization. A document required or permitted to be filed under the act cannot be filed unless it contains the minimum information required by the Act. The format provided contains only the minimal information required to make the document fileable and may not meet your needs. This is a legal document and agency staff cannot provide legal advice.
2. Submit one original of this document. Upon filing, the document will be added to the records of the Corporations, Securities & Commercial Licensing Bureau. The original will be returned to your registered office address unless you enter a different address in the box on the front of this document.

Since this document will be maintained on electronic format, it is important that the filing be legible. Documents with poor black and white contrast, or otherwise illegible, will be rejected.

3. This document is to be used pursuant to the provisions of Act 23, P.A. of 1993, by one or more persons for the purpose of forming a domestic limited liability company. **Use form BCS/CD 701 if the limited liability company will be providing services rendered by a dentist, an osteopathic physician, a physician, a surgeon, a doctor of divinity or other clergy, or an attorney-at-law.**
4. Article I - The name of a domestic limited liability company is required to contain the words Limited Liability Company or the abbreviation L.L.C. or L.C., with or without periods.
5. Article II- Under section 203(b) of the Act, it is sufficient to state substantially, alone or with specifically enumerated purposes, that the limited liability company is formed to engage in any activity within the purposes for which a limited liability company may be formed under the Act.
6. Article V - Section 401 of the Act specifically states the business shall be managed by members unless the Articles of Organization state the business will be managed by managers. If the limited liability company is to be managed by managers instead of by members, insert a statement to that effect in Article V.
7. This document is effective on the date endorsed "Filed" by the Bureau. A later effective date, no more than 90 days after the date of delivery, may be stated as an additional article.
8. The Articles must be signed by one or more persons organizing the Limited Liability Company. Type or print the name of the organizers signing beneath their signature.
9. If more space is needed, attach additional pages. All pages should be numbered.
10. **NONREFUNDABLE FEE:** Make remittance payable to the State of Michigan. Include limited liability company name on check or money order.....\$50.00

Submit with check or money order by mail:

Michigan Department of Licensing and Regulatory Affairs  
 Corporations, Securities & Commercial Licensing Bureau  
 Corporations Division  
 P.O. Box 30054  
 Lansing, MI 48909

To submit in person:

2501 Woodlake Circle  
 Okemos, MI  
 Telephone: (517) 241-6470

Fees may be paid by check, money order, VISA or Mastercard when delivered in person to our office.

MICH-ELF (Michigan Electronic Filing System):

First Time Users: Call (517) 241-6470, or visit our website at <http://www.michigan.gov/corporations>  
 Customer with MICH-ELF Filer Account: Send document to (517) 636-6437

LARA is an equal opportunity employer/program. Auxiliary aids, services and other reasonable accommodations are available upon request to individuals with disabilities.

**OPERATING AGREEMENT FOR**  
**Birmingham Teatro, L.L.C.**  
**A Michigan Limited Liability Company**

THIS OPERATING AGREEMENT ("Agreement"), is made and entered into as of this 17th day of April 2017, with respect to Birmingham Teatro, L.L.C., a Michigan limited liability company ("Company"), by and among Nicholas Lekas and Daniel Shaw and all of those persons who shall hereafter be admitted as members (individually, a "Member" and collectively, the "Members") who agree as follows:

**ARTICLE I**

**ORGANIZATION**

1.1 **Formation.** The parties have formed the Company pursuant to the Michigan Limited Liability Company Act, being Act No.23, Public Acts of 1993, ("Act") by the filing of Articles of Organization ("Articles") with the Michigan Department of Commerce.

1.2 **Name.** The name of the Company is Birmingham Teatro, L.L.C. The Company may also conduct its business under one or more assumed names.

1.3 **Purposes.** The purposes of the Company are to engage in any activity within the purposes for which a limited liability company may be formed under the Act and any and all activities and transactions as may be necessary or desirable in connection with the achievement of any or all of the foregoing purposes.

1.4 **Duration.** The Company's existence shall be perpetual and shall continue unless and until the Company shall be sooner dissolved and its affairs wound up in accordance with the Act or this Operating Agreement.

1.5 **Registered Office and Resident Agent.** The Registered Office and Resident Agent of the Company shall be as designated in the initial Articles or any amendment thereof. The Registered Office and/or Resident Agent may be changed from time to time, in accordance with the Act. If the Resident Agent shall resign, the Company shall promptly appoint a successor.

1.6 **Intention for Company.** The Members have formed Birmingham Teatro, L.L.C. as a limited liability company under and pursuant to the Act. The Members specifically intend and agree that the Company not be a partnership and the Company shall elect, and shall be treated for tax and accounting purposes as an s-corporation pursuant to the Act and other applicable law. No Member shall be construed to be a partner in the Company or a partner of any other Member or person.

**ARTICLE II**

**DEFINITIONS**

2.1 **"Capital Contribution"** shall mean the initial amount of cash contributed to the capital of the Company by a Member, increased by any additional cash contributions made to the capital of the Company by such Member and decreased by the amount of any cash distributions made by the Company to such Member which constitutes a return of capital in

accordance with the terms of this Agreement. Any reference to the Capital Contribution of a Member shall include the Capital Contribution made by a predecessor in interest of such Member.

2.2 "Consent of the Members" shall mean the consent of the Members holding a majority in interest of the Membership Interests of all Members, unless specifically provided otherwise in this Agreement.

2.3 "Member" shall mean those persons and/or entities who execute this Agreement as Members and who are admitted to the Company as Members pursuant to the terms of this Agreement.

2.4 "Manager" shall mean any Manager hereinafter appointed by a unanimous consent of the Members, or his or her successors or assigns, in accordance with the terms of this Agreement.

2.5 "Membership Interest" as to each Member shall mean such Member's percentage share in the Company, and such Member's share of profits, losses and distributions of the Company.

2.6 "Net Cash Flow" shall mean all cash receipts from whatever source, less cash expenditures by the Company to persons other than Members in their capacity as Members, and less cash reserves established by the Manager.

### ARTICLE III

#### CAPITAL, PARTICIPATION IN PROPERTY AND LIABILITY

3.1 Members' Initial Capital Contributions and Loans. Each Member agrees to contribute to the capital of the Company the amount identified in Exhibit A, which is attached hereto and made a part hereof, in exchange for that Member's Membership Interest in the Company.

3.2 Company Capital. The capital of the Company shall be the aggregate amount of the Capital Contributions made by the Members and the capital accounts as stated on the Company books and records. A separate capital account shall be determined and maintained for each Member in accordance with applicable law.

3.3 Percentage Interest In Company. The Members shall have and own the Membership Interests which are identified on Exhibit A, which is attached hereto and made a part hereof.

3.4 Additional Capital Contributions. The Members shall not be required under this Agreement to make any additional Capital Contributions to the Company.

3.5 Voluntary Member Loans. If any Member agrees, with the consent of the Manager, to loan funds to the Company, such loans, together with interest thereon at the rate established by mutual agreement of the Member making the loan to the Company and the Manager, shall be repaid prior to any distributions of Net Cash Flow or other distributions of Company proceeds to the Members.

3.6 Third Party Loans to the Company. If the Company obtains a commitment

for financing which requires the personal guaranties of the Members, such financing shall require the unanimous consent of the Members. If the Members unanimously approve such financing, each individual Member shall furnish the required guaranty. If the lender requires such guaranties to be on a joint and several basis for each of the Members, and if any one or more of the Members shall become liable and in fact pay any obligation under such guaranties, each of the Members shall, upon demand, be liable for their share of the total obligations incurred by any one or more of the Members, on a pro rata basis, in accordance with their respective Membership Interests. The foregoing obligations shall survive the dissolution of the Company or the termination of this Agreement.

3.7 Restrictions Relating to Capital. Except as otherwise specifically provided in this Agreement, no Member shall have the right to withdraw or reduce his or her Capital Contribution and no Member shall have the right to receive property other than cash, if any, in return for his or her Capital Contribution.

3.8 No Third Party Rights. Nothing contained in this Article III is intended for the benefit of any creditor or other person (other than a Member in his or her capacity as such) to whom the Company owes any debts, liabilities or obligations or who otherwise has any claim against the Company, and no third party shall have any rights by virtue of the provisions of this Article III.

## ARTICLE IV

### DISTRIBUTION OF CASH AND ALLOCATIONS OF PROFIT AND LOSS

4.1 Tax Liability, Profits and Losses. For accounting and federal, state and local income tax purposes, the net profits and losses, and other items of income, gain, loss, deduction and credit of the Company shall be allocated and treated as an s-corporation.

4.2 Distributions of Net Cash Flow. In the event that a majority of the Members determine that all or part of the Company's Net Cash Flow should be distributed to the Members, such distribution shall be made to the Members, on a pro rata basis, in accordance with their respective Membership Interests.

4.3 Tax Provision. Notwithstanding the discretionary nature of cash distributions set forth in Section 4.2 above, to the extent the Company has available Net Cash Flow (computed for this purpose without any reserve for replacements or contingent liabilities), the Company shall distribute sufficient cash to its Members to enable the Members to pay any additional state and/or federal income tax which they incur as a direct result of any income to the Members.

4.4 Sale of Assets. The proceeds resulting from any sale of all or substantially all of the Company's assets, whether as a result of dissolution or otherwise, shall be distributed and applied in the following priority:

- (a) To the payment of any debts and liabilities of the Company;
- (b) To the establishment of any reserves which the Manager deems necessary to provide for the payment of any debts or liabilities of the Company. At the expiration of a reasonable period of time as the Manager deems advisable, the balance of such

reserve funds remaining after payment of any such debts, liabilities or contingencies, shall be distributed in the manner provided in subparagraph (c) below;

- (c) To the Members, on a pro rata basis, in accordance with their respective Membership Interests.

## **ARTICLE V**

### **MANAGEMENT**

5.1 **Management of Business.** The Company shall be managed by one or more persons ("Manager"). The Manager shall be Nicholas Lekas. The Manager shall serve in his capacity as Manager for the term and subject to removal as specified in Section 5.4 below.

5.2 **General Powers of Manager.** The Manager shall have the exclusive right to manage the business of the Company, except as expressly limited in Section 5.3. No Member other than a Manager, shall have any control over Company business, or shall have the power to bind the Company. The Manager is authorized and empowered to carry out and implement any and all of the purposes of the Company and to manage, control and make all decisions affecting the business and assets of the Company in the Manager's full and exclusive discretion, and the foregoing decisions and actions by the Manager shall not require the consent of the Members, except as limited by Section 5.3 below. The Manager is authorized to execute and deliver, for and on behalf of the Company, all agreements, documents and instruments to take any actions on behalf of the Company, except as limited by Section 5.3 below. Without limiting the generality of the foregoing, the Manager has the power to:

- (a) purchase, lease or otherwise acquire real or personal property;
- (b) sell, convey, mortgage, grant a security interest in, pledge, lease, exchange or otherwise dispose or encumber any real or personal property;
- (c) open one or more depository accounts and make withdrawals against and/or from such accounts which shall exceed \$25,000.00;
- (d) borrow money and incur liabilities or other obligations;
- (e) engage employees and agents, define their respective duties, and establish their compensation or remuneration;
- (f) establish pension plans, trusts, profit sharing plans and other benefit and incentive plans for Members, employees and agents of the Company;
- (g) obtain insurance covering the business of the Company, its property and the lives and well-being of its Member employees and agents;
- (h) commence prosecution or defend any proceeding in the Company's name; and
- (i) participate with others in enterprises, joint ventures and other associations and strategic alliances.

5.3 **Limitation on Powers.** Notwithstanding anything to the contrary contained



in this Article V, the Members shall have the right to vote on the following matters:

- (a) the dissolution of the Company pursuant to Section 8.1(d) of this Agreement;
- (b) the merger of the Company with one or more other limited liability companies or other entities;
- (c) a transaction involving an actual or potential conflict of interest between a Manager and the Company; and
- (d) an amendment to this Agreement altering, amending and/or limiting Manager's power.

5.4 Term: Removal of Manager

(a) A Manager shall serve in his or her capacity as Manager until his or her resignation, death, disability, bankruptcy or legal incapacity to serve as a Manager or until such Manager is removed for cause in accordance with the provisions of Section 5.4(b) below. In the event of the resignation, death, disability, legal incapacity or removal of a Manager, the Members holding a majority interest of the total Membership Interests of all Members shall select a successor Manager, who agrees to serve in such capacity.

(b) A Manager may be removed for cause by the Members holding a majority interest of the total Membership Interests of all Members. In the event any Member requests that the Manager be removed for cause, such Member shall request a meeting for such purpose and the Manager who is subject to being removed for cause shall have reasonable advance notice of the allegations against him or her and an opportunity to be heard at the meeting. The Manager who is subject to being removed for cause shall also have the right to vote his or her Membership Interest with respect to such issue. Members shall not have the right to remove a Manager without cause.

5.5 Standard of Care: Liability. The Manager shall discharge his or her duties as a Manager in good faith, with the care an ordinarily prudent person in a like position would exercise under similar circumstances, and in a manner he reasonably believes to be in the best interests of the Company. The Manager shall not be liable for any monetary damages to the Company for any breach of such duties which arise out of any act or omission performed or omitted by the Manager in good faith on behalf of the Company except for:

- (a) receipt of a financial benefit to which the Manager is not entitled; or
- (b) a knowing violation of the law.

5.6 Indemnification of Manager. The Company shall, to the fullest extent permitted by law, indemnify and hold harmless the Manager, his or her successors, heirs and assigns, from and against any and all losses, liabilities, obligations, claims, causes of action, demands, costs, and expenses (including reasonable attorney fees) incurred by the Manager with respect to any act or omission performed by such Manager within the scope of the authority conferred upon him by this Agreement, provided that the Manager acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Company and the Members; provided, however, the Manager shall not be indemnified for any acts described in Section 5.5(a) or (b).

5.7 Compensation of Manager. The Members and the Manager shall not receive any compensation for rendering services to the Company in their capacity as a Member or Manager. Manager and/or the Members may, however, be employed in other capacities within the Company. All reasonable expenses incurred by a Member or Manager in connection with the operation of the Company's business shall be reimbursed in full by the Company upon presentation of evidence of the payment of such expense.

5.8 Nature of Member's Interest. Membership Interests in the Company shall be personal property for all purposes. All property owned by the Company, whether real or personal, tangible or intangible, shall be deemed to be owned by the Company as an entity. No Member, individually, shall have ownership of such property. The Members hereby agree that no Member, nor any successor in interest to any Member, shall have the right while this Agreement remains in effect, to have any Company assets partitioned, or to file a complaint or institute any proceedings at law or in equity to have such asset partitioned. Each Member, on behalf of himself or herself, his or her successors, successors-in-title, and assigns, hereby waives any such right.

5.9 Bank Accounts. The bank account or accounts of the Company shall be maintained in the banking institution or institutions selected by the Manager. All funds of the Company shall be deposited into account(s) of the Company and any and all checks or other instruments used to draw funds of the Company in excess of \$25,000.00 shall require the signature of the Manager or an authorized representative of the Manager.

5.10 Activity of the Manager and Members. The Manager shall devote such time and effort as may be reasonably required to conduct the Company's business and perform his or her responsibilities under Section 5.2 above. The Members and the Manager shall not in any way be prohibited from or restricted in engaging or owning an interest in any other business venture of any kind, nature, character or description whatsoever, whether independently or with others, directly or indirectly, excepting only those businesses which may be directly competitive with the primary line of business of the Company within a two (2) mile radius of the current or future location of the Company.

## ARTICLE VI

### DISPOSITION OF MEMBERSHIP INTERESTS; WITHDRAWAL

#### 6.1 Restrictions on Transfer and Assignment.

- (a) Except as expressly provided in Section 6.1(b) and (c) and Section 8.3 of this Agreement, no Member shall sell, assign, transfer, convey, pledge or otherwise encumber all or any portion of his or her Membership Interest, without obtaining the unanimous consent of the other Members. Any attempted disposition of a Membership Interest in violation of this Section 6.1(a) shall be void and of no effect.
- (b) A Member may, without obtaining the consent of the other Members, assign his or her Membership Interest to any of the following assignees: (i) to another Member; (ii) to an inter vivos or testamentary trust primarily for the benefit of that Member's immediate family so long as that Member is the sole trustee of such trust.
- (c) Other than an assignment based upon 6.1(b)(i) and (ii) above, the permitted assignment of a Membership Interest does not entitle the assignee to participate in the management and affairs of the Company or to become or exercise any rights of a

Member, including the right to vote on any matter requiring a vote of the Members, unless and until such assignee is admitted as a substitute Member in accordance with Section 6.2 below. Unless a permitted assignee is admitted as a substitute Member in accordance with the provisions of Section 6.2 below, such assignee shall only be entitled to receive, to the extent assigned, the distributions to which the assignor would be entitled.

- (d) In the event of a permitted assignment that does not result in the admission of the assignee as a substitute Member, the assignor/Member shall not be entitled to continue to exercise the rights of a Member under this Agreement, however, such assignor Member and his or her assignee shall continue to be jointly and severally liable to the Company for such Member's obligations to the Company under Article III or under the Act, and in the event of default, such Membership Interest shall be subject to all of the remedies and options otherwise available to the Company.

6.2 Admission of Substitute Members. An assignee of a Membership Interest shall not be admitted as a substitute Member, unless all of the following conditions are satisfied:

- (a) a majority of the other Members unanimously consent to the admission of such assignee as a substitute Member;
- (b) the assignor and assignee execute and deliver to the Members a copy of the written assignment which gives the assignee the right to become a substitute Member;
- (c) if requested by the other Members, the assignor provides to the Company an opinion of counsel, in form and substance satisfactory to the Members, that neither the offering nor assignment of the Membership Interest violates any provisions of federal or state securities laws; and
- (d) the assignee executes and delivers to the Company a written agreement to be bound by all of the terms and provisions of this Agreement and to assume all of the obligations of the assignor Member.

An assignee who is admitted as a substitute Member in accordance with the foregoing provisions shall have all of the rights and powers, and shall be subject to all of the restrictions, obligations and liabilities of a Member under this Agreement and the Act.

6.3 Sale / Transfer of Membership Interest. If any Member: (a) desires to voluntarily transfer and/or sell all or part of his or her Membership Interest, or (b) is required by law for any reason to involuntarily transfer and/or sell all or part of his or her Membership Interest (collectively, an "Offer"), that Member (the "Selling Member") must immediately provide the Company and each of the other Members with a written notice detailing the specific terms and conditions of the Offer, the basis upon which the Offer is being proposed and provide each with a copy of all agreements and documents relating to the Offer (collectively, the "Notice"). For thirty (30) days following the receipt of the Notice of the Offer, the Company shall have the exclusive right and option to elect to purchase and liquidate the Membership Interest subject to the Offer (the "First Option"), for the same price and terms as the Offer or for the "book value" of the Membership Interest as of the last day of the month preceding the Offer as calculated by the Company's primary accountancy firm (the "Book Value"), whichever the Company shall choose in its sole discretion.

If the Company fails to exercise the First Option, then, for an additional thirty (30) days, the remaining Members of the Company shall have the exclusive right and option to elect to purchase the Membership Interest subject to the Offer (the "Second Option"), for the same price and terms as the Offer or for the Book Value, whichever the remaining Members shall choose in their sole discretion. The Members shall purchase the Membership Interest on a pro rata basis. "Pro rata basis" with reference to the transfer and/or purchase of any Membership Interest by the Members (the "Purchasing Members"), shall mean in proportion to the percentage of Membership Interest owned by each Purchasing Members as compared to the total percentage of Membership Interest owned by all the Purchasing Members (the "Purchasing Percentage"), provided, however, that if one or more of the Purchasing Members decline to purchase the maximum percentage of Membership Interest available for purchase by that Member (the "Declining Member"), then such remaining Membership Interest shall again be offered to those Purchasing Members who are not Declining Members, in accordance with each of their respective Purchasing Percentages (as revised to exclude the Membership Interest of the Declining Members), and this process shall be repeated until there is no remaining Membership Interest or none of the Purchasing Members wish to purchase any of the remaining Membership Interest.

If the remaining Members fail to exercise the Second Option, for an additional thirty (30) days, the remaining Members shall have the exclusive right and option to secure a third-party purchaser of their choosing to purchase the Membership Interest subject to the Offer (the "Third Option"), for the same price and terms as the Offer.

If the remaining Members fail to exercise the Third Option, then the Selling Member may sell the Membership Interest subject to the Offer to the purchaser named therein. If the sale pursuant to the Offer is not consummated within sixty (60) days following the expiration of the Third Offer, the offer process set forth in this Section 6.3 shall reset and the Selling Member must again comply will all the terms and conditions of this Section 6.3, including the First Option, Second Option and Third Option.

The purchaser of a Selling Member's Membership Interest pursuant to this Section, that is not an existing Member, shall not be admitted as a substitute Member unless and until all requirements contained in Section 6.2 above have been satisfied.

6.4 Mandatory Offer on Death or Disability. On the death or disability of any Member, such Member shall be deemed to have made an Offer to sell all of his or her Membership Interest pursuant to Section 6.3, with the purchase price being the fair market value of the Membership Interest as of the last day of the month proceeding the date of the deemed offer to sell (the "Fair Market Value"), and the Company and the remaining Members shall have the options as set forth in Section 6.3. If the Membership Interest of a deceased or disabled Member are not purchased by exercise of the options described in Section 6.3, such Membership Interest shall be transferred, without payment, to the deceased or disabled Member's heirs and remain subject to the terms and conditions of this Agreement. However, the successor or assignee shall not have the rights of a Member unless the successor or assignee is admitted as a Substitute Member in accordance with Section 6.2 above. For purposes of this Agreement, "disabled" or "disability" shall mean a Member who has a physical or mental impairment that substantially limits one or more life activities that exists for sixty (60) consecutive days and the impairment is reasonably expected to continue for more than an additional six month period.

6.5 Withdrawal. Unless a Member has assigned and transferred his or her entire Membership Interest to another Member or other assignee who has been admitted as a substitute Member, a Member may not withdraw from the Company except with the unanimous

written consent of the other Members. Any Member who withdraws in violation of the provisions of this Section 6.5 shall not be entitled to any distributions under this Agreement and shall be liable to the Company and the remaining Members for any damages incurred by the Company or such remaining Members as a result of the withdrawing Member's breach of the provisions of this Section 6.5.

6.6 Amount and Payment of Purchase Price. The purchase price to be paid upon any transfer or sale of any Membership Interest shall be that as set forth in Section 6.3 and Section 6.4 above. Unless the terms of a Bona Fide Offer are accepted by the purchaser under Section 6.3, the purchase price shall be paid, within sixty (60) days of the determination of the purchase price as follows: (i) in full by a certified or bank cashier's check; or (ii) at the sole election of the purchaser, by the delivery of a certified or bank cashier's check in an amount equal to 20 percent of the purchase price, the balance to be paid pursuant to a nonnegotiable promissory note of each purchaser providing for equal annual payments of principal, together with accrued interest at the prime rate, over the following five years.

## ARTICLE VII

### MEETINGS OF MEMBERS

7.1 Voting. All Members shall be entitled to vote on any matter submitted to a vote of the Members.

7.2 Required Vote. Unless a greater vote is required by the Act, the Articles or this Agreement, any action requiring the vote, determination or consent of the Members shall require the affirmative vote or consent of the Members holding a majority in interest of the Membership Interests of all the Members entitled to vote.

7.3 Meetings. Meetings of Members for any proper purpose or purposes may be called at any time by any Member upon reasonable advance notice to the Members. Members may attend meetings in person, by proxy given to another Member or via telephonic communication device. The Company shall deliver or mail written notice stating the date, time, place and purposes of any meeting to each Member entitled to vote at the meeting. Such notice shall be given not less than ten (10), and no more than sixty (60) days, before the date of the meeting. The Manager shall preside at all meetings of Members.

7.4 Consent. Any action required or permitted to be taken at a meeting of the Members may be taken without a meeting, without prior notice, and without a vote, if consents in writing, setting forth the action so taken, are signed by the Members having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all Membership Interests entitled to vote on the action were present and voted. Every written consent shall bear the date and signature of each Member who signs the consent. Prompt notice of the taking of action without a meeting by less than unanimous written consent shall be given to all Members who have not consented in writing to such action.

## ARTICLE VIII

### DISSOLUTION AND WINDING UP

8.1 Dissolution. The Company shall dissolve and its affairs shall be wound up on the first to occur of the following events:

- (a) at any time specified in the Articles or this Agreement;
- (b) upon any Member voting deadlock in a matter wherein a majority vote of membership interest is required, and such deadlock is not resolved between the Members within 60 days of any Member's written notice to the other Member(s) that dissolution will occur under Section VIII unless the deadlock is resolved within that 60 day period.
- (c) the sale or other disposition by the Company of all or substantially all of its property and assets not in the ordinary course of business, unless all of the Members agree to continue the Company;
- (d) by the unanimous consent of all of the Members;
- (e) upon the death, dissolution, bankruptcy or legal incapacity of any of the Members or the trustee of any Member that is a trust, or the occurrence of any other event that terminates the continued membership of a Member in the Company (the "Retiring Member"), unless within ninety (90) days from the occurrence of one of the foregoing events, the remaining Members holding a majority in interest of the aggregate Membership Interests of all remaining Members consent to continue the business of the Company and the Membership Interest of the Retiring Member is transferred in accordance with Article VI of this Agreement;
- (f) upon the entry of a final judgment, order or decree of judicial dissolution, and the expiration of any applicable appeal period in which to appeal therefrom.

8.2 Distribution on Liquidation. Upon the dissolution of the Company, the Manager shall proceed to liquidate the assets of the Company and wind up its affairs. A reasonable time shall be allowed for the orderly liquidation of the Company's assets and the payment of its liabilities so as to enable the Manager to minimize the normal losses attendant upon liquidation. The provisions of Article IV relating to the allocation of profits and losses of the Company shall be applicable during the period of liquidation. Proceeds of liquidation shall be applied and distributed in the following order of priority:

- (a) To the payment of any debts and liabilities of the Company;
- (b) To the establishment of any reserves which the Manager deems necessary to provide for the payment of any debts or liabilities of the Company. At the expiration of a reasonable period of time as the Manager deems advisable, the balance of such reserve funds remaining after payment of any such debts, liabilities or contingencies, shall be distributed in accordance with subparagraph (c) below;
- (c) To the Members, on a pro rata basis, in accordance with their respective Membership Interests.

## **ARTICLE IX**

### **BOOKS, RECORDS AND ACCOUNTING**

9.1 Books and Records. The Company shall maintain complete and accurate books and records of the Company's business and affairs as required by the Act and such books



and records shall be kept at the Company's Registered Office.

9.2 Accounting. The Company shall maintain proper books and records in accordance with generally accepted accounting principles. The fiscal and taxable year of the Company shall be the calendar year. All Members and their representatives shall have the right to inspect the Company's books and records at any time upon reasonable notice.

9.3 Member's Accounts. Separate capital accounts shall be maintained by the Company for each Member. Each Member's capital account shall reflect the Member's Capital Contributions and increases for the Member's share of any net income or gain of the Company. Each Member's capital account shall also reflect decreases for distributions made to the Member and the Member's share of any losses and deductions of the Company.

## ARTICLE X

### MISCELLANEOUS PROVISIONS

10.1 Binding Effect. Subject to the provisions of this Agreement relating to assignment and transferability, this Agreement will be binding upon and shall inure to the benefit of the parties, and their respective distributees, heirs, successors and assigns.

10.2 Certificates. The Members shall promptly execute and file Articles of Organization and all other legally required fictitious names or other applications, registrations, publications, certificates and affidavits required to be filed with governmental authorities.

10.3 Amendment. This Agreement may be amended or revoked at any time by a written agreement executed by all of the Members. No change or modification to this Agreement shall be valid unless in writing and signed by all of the Members.

10.4 Notices. Any notice permitted or required under this Agreement shall be conveyed to the party at the address reflected in this Agreement and will be deemed to have been given, when deposited in the United States mail, postage paid, or when delivered in person, or by courier or by facsimile transmission.

10.5 Severability. The invalidity or unenforceability of any particular provision of this Agreement shall not affect the other provisions hereof, and this Agreement shall be construed in all respects as if such invalid or unenforceable provisions were omitted.

10.6 Choice of Law and Forum Selection. This Agreement shall be interpreted and construed in accordance with the laws of the State of Michigan. All actions arising directly or indirectly out of this Agreement shall be litigated only in the United States District Court for the Eastern District of Michigan, Southern Division, or in the Oakland County, Sixth Judicial Circuit Court, and the parties hereby irrevocably consent to the personal jurisdiction and venue of those courts over the parties to this Agreement.

10.7 Terms. Nouns and pronouns will be deemed to refer to the masculine, feminine, neuter, singular and plural, as the identity of the person or persons, firm or corporation may in the context require.

10.8 Headings. The titles of the sections have been inserted as a matter of convenience for reference only and shall not control or affect the meaning or construction of any

of the terms or provisions of this Agreement.

10.9 Counterparts. This Agreement may be executed in several counterparts, each of which will be deemed an original but all of which will constitute one and the same.

10.10 Entire Agreement. This Agreement constitutes the entire agreement among the parties hereto and contains all of the agreements among said parties with respect to the subject matter hereof.

The Members have executed this Agreement on the date set forth above.

"COMPANY"

**BIRMINGHAM TEATRO, L.L.C.**,  
a Michigan limited liability company

By:



Nicholas Lekas, Manager  
Address: 211 South Old Woodward  
Birmingham, MI 48009

"MEMBERS"



Nicholas Lekas  
Address: 1480 W. Romeo Rd.  
Leonard, MI 48367

---

Daniel Shaw  
Address: 4980 Lakeview Blvd.  
Clarkston, MI 48348

10.7 Terms. Nouns and pronouns will be deemed to refer to the masculine, feminine, neuter, singular and plural, as the identity of the person or persons, firm or corporation may in the context require.

10.8 Headings. The titles of the sections have been inserted as a matter of convenience for reference only and shall not control or affect the meaning or construction of any of the terms or provisions of this Agreement.

10.9 Counterparts. This Agreement may be executed in several counterparts, each of which will be deemed an original but all of which will constitute one and the same.

10.10 Entire Agreement. This Agreement constitutes the entire agreement among the parties hereto and contains all of the agreements among said parties with respect to the subject matter hereof.

The Members have executed this Agreement on the date set forth above.

"COMPANY"  
**BIRMINGHAM TEATRO, L.L.C.**,  
a Michigan limited liability company

By:

\_\_\_\_\_  
Nicholas Lekas, Manager  
Address: 211 South Old Woodward  
Birmingham, MI 48009

"MEMBERS"

\_\_\_\_\_  
Nicholas Lekas  
Address: 1480 W. Romeo Rd.  
Leonard, MI 48367

\_\_\_\_\_  
Daniel Shaw  
Address: 4980 Lakeview Blvd.  
Clarkston, MI 48348

**EXHIBIT A**

**BIRMINGHAM TEATRO, L.L.C.**

<u>Member</u>	<u>Initial Capital Contribution</u>	<u>Membership Interest In Company</u>
Nicholas Lekas	\$50,000.00	50%
Daniel Shaw	\$50,000.00	50%
TOTAL	\$100,000.00	100%

"COMPANY"

**BIRMINGHAM TEATRO, L.L.C.,**  
a Michigan limited liability company

By:



Nicholas Lekas, Manager

"MEMBERS"



Nicholas Lekas

\_\_\_\_\_  
Daniel Shaw

**EXHIBIT A**

**BIRMINGHAM TEATRO, L.L.C.**

<u>Member</u>	<u>Initial Capital Contribution</u>	<u>Membership Interest In Company</u>
Nicholas Lekas	\$50,000.00	50%
Daniel Shaw	\$50,000.00	50%
<b>TOTAL</b>	<b>\$100,000.00</b>	<b>100%</b>

"COMPANY"

**BIRMINGHAM TEATRO, L.L.C.,**  
a Michigan limited liability company

By:

\_\_\_\_\_  
Nicholas Lekas, Manager

"MEMBERS"

\_\_\_\_\_  
Nicholas Lekas

\_\_\_\_\_  
Daniel Shaw

## LIQUOR LICENSE PURCHASE AGREEMENT

**THIS LIQUOR LICENSE PURCHASE AGREEMENT** is entered into on this \_\_\_ day of April, 2017 ("Effective Date") by and between Thumper's Splatter, LLC, a Michigan Limited Liability Company whose address is 230 E. Auburn Road, Rochester Hills MI 48307 ("Seller") and Birmingham Teatro, LLC, a Michigan Limited Liability Company whose address is 211 S. Old Woodward Avenue, Birmingham, MI 48009 ("Buyer") (collectively, the "Parties").

**WHEREAS**, the Seller owns certain Class C liquor licenses issued by the Michigan Liquor Control Commission ("MLCC") (License No. 238118, Business Id. No. 235577), which licenses and attendant permits, if any (collectively, the "Liquor License"), are currently in escrow in Seller's name, at 230 E. Auburn Road, Rochester Hills MI 48307, Oakland County, Michigan; and

**WHEREAS**, the Seller desires to sell said Liquor License and Buyer desires to purchase same;

**NOW, THEREFORE**, in consideration of the covenants and agreements contained herein, the Parties agree as follows:

1. **Sale of Liquor License.** Seller agrees to sell to Buyer and Buyer agrees to purchase the Liquor License, free and clear of any liens, encumbrances, restrictions, obligations, and claims of any nature whatsoever, subject only to the conditions and contingencies set forth herein. The Parties shall execute and deliver, each to the other, any legal instrument, application or document of whatsoever nature or kind may be necessary to effect and consummate this transaction, including the right to an MLCC appeal.
2. **Payment of Purchase Price.** It is agreed that Buyer shall pay to Seller, in consideration hereof, the sum of Sixty Five Thousand and No/100ths Dollars (\$65,000.00) (the "Purchase Price"), as follows:
  - A. **Deposit.** At the time of the execution of this Agreement, Buyer shall deposit the sum of Five Thousand and No/100ths Dollars (\$5,000.00) ("Deposit") with Adkison, Need, Allen, & Rentrop, PLLC ("Escrow Agent") The same is to be kept and held in the trust account by the Escrow Agent, who is specifically authorized by both Seller and Buyer to act as their Escrow Agent, until such time as the MLCC authorizes the transfer of the Liquor License from the Seller to Buyer or the Deposit is otherwise returned or distributed pursuant to the terms of this Agreement. Upon approval by the MLCC, and execution of a Bill of Sale and Assignment and any other instruments necessary to consummate this transaction, in form and content reasonably satisfactory to Buyer, said Deposit is to be paid by Escrow Agent to the Seller.
  - B. **Balance.** At the time of the closing of this transaction, an additional Sixty Thousand and No/100ths Dollars (\$60,000.00) shall be paid to the Seller by cashier's check, wire transfer or other immediately available funds.
3. **Inventory.** There is no inventory included in this Agreement.



4. **Closing Contingency.** The Parties' performance on this Agreement is contingent upon the occurrence of each of the following conditions precedent. Should any one of the following fail to occur, then the same shall constitute an automatic termination of this Agreement, Buyer shall be entitled to an immediate refund, in full, of the Deposit made hereunder, and neither party shall have any further obligation hereunder:
  - A. Buyer's receipt of written approval from the City of Birmingham and the MLCC for transfer of ownership of the Liquor License to the Buyer for use at 211 S. Old Woodward Avenue, Birmingham, MI 48009 (the "Premises"), after appeal of any denial, at Buyer's sole and absolute discretion (the "Governmental Approvals"). The Buyer shall apply to the MLCC and the City of Birmingham, if required, for the transfer of Seller's interest in the Liquor License to Buyer within twenty (20) days after full execution of this Agreement, and both parties shall diligently and expeditiously proceed with whatever steps shall be necessary to obtain the approval for the transfer. Both Seller and Buyer agree to immediately fulfill any directives or requirements from the MLCC and the City of Birmingham to expedite the transfer. Buyer shall pay all fees required in connection with the transfer of the Liquor License, including but not limited to inspection fees, fees for other permits (such as, by way of example and not by way of limitation, outdoor service permits) any other fees for any permits included in the Liquor License. Seller shall pay all fees that may have accrued prior to the date of closing, including without limitation, all renewal and/or escrow fees and any licensing fees not associated with the transfer that accrued prior to the date of closing. However, the renewal fee for 2017-2018 shall be prorated, on a per diem basis, to the date of Closing. The Buyer shall reimburse the Seller for its portion of the renewal fee at Closing.
  
5. **Closing.** The sale and transfer shall be consummated within twenty (20) days after the satisfaction or waiver of the contingency set forth in paragraph 4 hereof, at a time and place determined by the Parties ("Closing Date"). The Parties agree that, except as specifically set forth herein, the consummation of the transfer shall take place no later than one hundred eighty (180) days after the date of this Agreement ("Outside Closing Date"). If, through no fault of the Buyer, the Governmental Approvals have not been obtained because of delays by the MLCC processing normal paperwork, and not because of Buyer's non-performance or failure to timely respond to requests from the MLCC, the local police or the local unit of government, then the Parties hereby agree that the Outside Closing Date shall be extended an additional thirty (30) days to facilitate completion of the application processing and consideration of the transfer by the MLCC ("Extended Closing Date").

If the application is approved for transfer by the MLCC, but subject to a final inspection or other conditions outside the control of the Seller, then the closing shall be consummated as set forth above, and the Liquor License shall remain in escrow until such time as the conditions may be satisfied ("Escrowed Closing"). In the event of an

Escrowed Closing, and in the event that the Liquor License has not finally transferred prior to the next succeeding MLCC renewal deadline, the Seller shall cooperate with Buyer to facilitate renewal of the Liquor License by timely forwarding the executed MLCC renewal form to Buyer's counsel for processing before the April 30 renewal deadline.

If, through no fault of either party, the contingencies have not been satisfied or waived by the Buyer, or the sale is not consummated on or before the Outside Closing Date or Extended Closing Date, either party may terminate this Agreement by written notice delivered to the other party on or before the Outside Closing Date or Extended Closing Date, as applicable, in which event the Buyer shall receive a refund of the Deposit in full termination of this Agreement, and neither party shall have any further obligation hereunder.

In the event that the contingencies contained herein have not been satisfied by the Outside Closing Date, and the delay or failure is a result of misrepresentation, concealment, fraud, non-performance or untrue/unstated representations made by either party or its agents, the party committing such misrepresentation, concealment, fraud or non-performance shall be deemed to be in default and the non-defaulting party shall have the remedies set forth in paragraph 11, below.

6. **Termination Upon Failure of Contingencies.** In the event that the Closing Contingency set forth in paragraph 4, above, is not satisfied, for any reason other than the breach by Buyer or Seller of the express terms of this Agreement, after the Parties have complied with all of the terms and provisions provided herein, then this Agreement shall become null and void and the Escrow Agent shall immediately return to the Buyer the entire Deposit and Buyer shall have no further liability or obligation to Seller. The Escrow Agent is specifically required to make such return.
7. **Conveyance of Clear Title.** All taxes and assessments of every nature and kind, and all obligations, debts or claims which have been or may become a lien upon the Liquor License or which arise during or by virtue of Seller's ownership thereof, shall be paid by Seller prior to the Closing Date. Any liens or assessments not paid by the Seller on or before the Closing Date may be paid by the Buyer and credited against the Purchase Price due to the Seller at closing.
8. **Representations, Warranties, and Covenants of Seller.** Seller represents and warrants to and covenants with Buyer as follows:
  - A. **Marketable Title.** That Seller is the sole owner of, and has good and marketable title to, and authority to sell and transfer the Liquor License, which Liquor License shall be free and clear of all liens and encumbrances as of the Closing Date, and that there are no transfer applications or other transactions pending with anyone concerning the transfer of, or ownership of, the Liquor License; and

- B. **Liens.** That no judgments, liens, or security interests will be outstanding at the time of the closing against Seller which would affect Seller's title to, or Seller's ability to transfer, such Liquor License to Buyer.
- C. **Taxes.** All taxes and assessments of every nature and kind, which have been or may become a lien upon the Liquor License or which arise during, or by virtue of, Seller's ownership thereof, shall be paid by Seller prior to the Closing Date. There shall be no outstanding taxes due at the Closing Date that could result in successor liability under MCL 205.27a.
- i. Immediately after execution of this Agreement, Seller shall complete and file Michigan Department of Treasury form 5156, Request for Tax Clearance Application (Parts 1 and 4) which shall include authorization of Purchaser's Counsel to receive information relative to Seller's tax status. Immediately after Closing, Seller shall make application for issuance of a conditional tax clearance to the Michigan Department of Treasury, and shall prepare and file all necessary and appropriate returns and reports for issuance of conditional tax clearance.
  - ii. As security for the payment of the tax liabilities and issuance of the tax clearance, Seller agrees to deposit with Adkison, Need, Allen, & Rentrop, PLLC ("Tax Escrow Agent") an amount equal to 1 ½ times the total outstanding tax obligation as reported by Treasury in response to Seller's initial Request for Tax Clearance Application, to be held and distributed pursuant to the terms of an escrow agreement executed by the parties at the Closing. Escrow Agent shall hold the fund until the Certificate of Conditional Tax Clearance has been received from the state of Michigan showing that Seller has filed all tax returns and reports required to be filed before closing and that Seller has paid all taxes due pursuant to Section 27a of the Michigan Revenue Act, MCL 205.27a, and until evidence of any other information is furnished to assure transfer of unencumbered title to the Assets, subject to the provisions of this Agreement.
  - iii. In the event that the parties establish the Escrow Fund and it is not sufficient to pay the taxes, Seller and Seller's Member, individually, jointly and severally, shall hold, defend, and indemnify Buyer harmless for any and all liability for taxes in excess of the amount of the Escrow Fund created above.
- D. **No Violations.** There are no violations of the Michigan Liquor Control Code, or the rules promulgated thereunder, currently pending regarding the Liquor License. In the event that such a violation does exist, and Seller fails to remedy such violation, the Buyer shall have the right, but not the obligation, to itself remedy the violation in order to facilitate the transfer of the Liquor License to Buyer, in which event Seller shall indemnify and hold Buyer harmless from any and all

liability, including without limitation, fines, penalties and actual attorney fees associated with Buyer remedying Seller's or Seller's predecessor's outstanding violations of the Michigan Liquor Control Code or Rules. In the alternative, Buyer may deduct the amount Buyer pays in fines, penalties, and actual attorneys' fees associated with Buyer remedying Seller's or Seller's predecessor's outstanding violations of the Michigan Liquor Control Code or Rules from the Purchase Price paid at closing.

- E. **Authorization.** This Agreement has been duly and validly authorized by any and all necessary corporate action of Seller and, upon due execution and delivery, will constitute a valid and binding agreement of Seller.
9. **Representations, Warranties, and Covenants of Buyer.** Buyer represents and warrants with Seller as follows:
- A. **Qualification.** Buyer acknowledges that there are requirements of the City of Birmingham and the MLCC associated with the transfer of the Liquor License from Seller to Buyer. With respect to this transfer, Buyer knows of no reason why Buyer, or any of Buyer's members or shareholders, would not be approved by the City of Birmingham or the MLCC for the transfer of the Liquor License.
- B. **Authorization.** This Agreement has been duly and validly authorized by any and all necessary action of Buyer and, upon due execution and delivery, will constitute a valid and binding agreement of Buyer.
10. **Brokerage Commission.** There is no broker involved in this transaction.
11. **Default and Remedy.**
- A. **Seller Default.** In the event that Seller defaults on any of its obligations under this Agreement, and Seller fails to cure such default within ten (10) days of written notice thereof, Buyer shall have the option to either (1) waive such default and proceed to closing, (2) terminate this Agreement, in which event the Deposit shall be returned to Buyer, or (3) seek the remedy of specific performance.
- B. **Buyer Default.** In the event that Buyer defaults on any of its obligations under this Agreement, and Buyer fails to cure such default within ten (10) days of written notice thereof, Seller shall have the option to either (1) waive such default, or (2) terminate this Agreement, in which event the Deposit shall be released to Seller as liquidated damages, and neither party shall have any further obligation to the other.

12. **Miscellaneous.**

A. **Notice.** All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to be duly given if delivered or mailed first class, postage prepaid to the following addresses, or to the e-mail addresses below, until notification of a different address:

(1) To the Seller:  
Lisa A. Ebert  
2850 Riverside Dr.  
Waterford, MI 48329  
e-mail: Lebert248@comcast.net

(2) To the Buyer:  
Nicholas Lekas  
Birmingham Teatro, LLC  
211 S. Old Woodward Avenue  
Birmingham, MI 48009  
e-mail: \_\_\_\_\_

(3) With a copy to (which shall not constitute notice):  
Kelly A. Allen, Esq.  
Adkison, Need, Allen, & Rentrop, PLLC  
39572 Woodward Ave., Suite 222  
Bloomfield Hills, Michigan 48304

B. **Applicable Law.** This Agreement shall be governed by Michigan law.

C. **Assignment.** This Agreement shall not be Assigned without the prior written consent of both Parties.

D. **Survival.** The covenants, representations and warranties of all Parties set forth herein will be effective on the date hereof, on the Closing Date, and shall survive closing.

E. **Pronouns.** The pronouns and relative words herein used are written in the singular only. If more than one Buyer and/or Seller join in the execution hereof, such pronouns and words shall be read as if written in plural.

F. **Governing Law.** This Agreement shall be governed in all respects by the laws of the State of Michigan.

G. **Merger and Amendment.** This Agreement is and shall be deemed the complete and final expression of the agreement between the Parties as to matters herein contained and relative thereto, and supersedes all previous agreements between

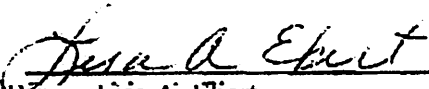
the Parties pertaining to such matters. It is clearly understood that no promise or representation not contained herein was an inducement to either party or was relied on by either party in entering into this Agreement. This Agreement cannot be amended, altered or any of the provisions waived on behalf of either party, except in writing by a duly authorized agent of either party.

- H. **Waiver of Performance.** Any failure of either party to insist upon strict compliance with any provisions of this Agreement shall not constitute a waiver thereof and all provisions herein shall remain in full force and effect.
- I. **Headings.** The paragraph headings used in this Agreement are included solely for convenience and shall not affect or be used in connection with the interpretation of this Agreement.
- J. **Severability.** If any part of this Agreement is held to be invalid or unenforceable under Michigan law, the remaining provisions shall be enforceable to the maximum extent permitted by law; provided that the remaining provisions effectuate fully the intent of the Parties as manifested herein.
- K. **Waiver of Conflict.** The Buyer and Seller acknowledge that the Firm of Adkison, Need, Allen, & Rentrop, PLLC represents both Parties with regard to this Agreement for purposes of handling the procedures required by the MLCC. However, the Seller has been advised to seek separate counsel to review the terms of this Agreement.
- L. **Counterparts and Electronically Transmitted Signatures.** This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. For purposes of this Agreement, an electronically transmitted signature shall be deemed the same as an original.

IN WITNESS WHEREOF, the Parties have entered into this Agreement to be effective as of the date first set forth above.

SELLER:  
Thumper's Splatter, LLC,  
a Michigan Limited Liability Company

BUYER:  
Birmingham Teatro, LLC,  
a Michigan Limited Liability Company

  
\_\_\_\_\_

By: Lisa A. Ebert  
Its: Member

By: Nicholas Lekas  
Its: Member

Dated: 4-17-17

Dated: \_\_\_\_\_



the Parties pertaining to such matters. It is clearly understood that no promise or representation not contained herein was an inducement to either party or was relied on by either party in entering into this Agreement. This Agreement cannot be amended, altered or any of the provisions waived on behalf of either party, except in writing by a duly authorized agent of either party.

- H. **Waiver of Performance.** Any failure of either party to insist upon strict compliance with any provisions of this Agreement shall not constitute a waiver thereof and all provisions herein shall remain in full force and effect.
- I. **Headings.** The paragraph headings used in this Agreement are included solely for convenience and shall not affect or be used in connection with the interpretation of this Agreement.
- J. **Severability.** If any part of this Agreement is held to be invalid or unenforceable under Michigan law, the remaining provisions shall be enforceable to the maximum extent permitted by law; provided that the remaining provisions effectuate fully the intent of the Parties as manifested herein.
- K. **Waiver of Conflict.** The Buyer and Seller acknowledge that the Firm of Adkison, Need, Allen, & Rentrop, PLLC represents both Parties with regard to this Agreement for purposes of handling the procedures required by the MLCC. However, the Seller has been advised to seek separate counsel to review the terms of this Agreement.
- L. **Counterparts and Electronically Transmitted Signatures.** This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. For purposes of this Agreement, an electronically transmitted signature shall be deemed the same as an original.

IN WITNESS WHEREOF, the Parties have entered into this Agreement to be effective as of the date first set forth above.

SELLER:  
Thumper's Splatter, LLC,  
a Michigan Limited Liability Company

BUYER:  
Birmingham Teatro, LLC,  
a Michigan Limited Liability Company

By: Lisa A. Ebert  
Its: Member

By:   
Its: Member

Dated: \_\_\_\_\_

Dated: 4-17-17

## ACKNOWLEDGEMENT OF ESCROW

Adkison, Need, Allen, & Rentrop, PLLC, the Escrow Agent named, does hereby consent to act as Escrow Agent under the terms of this Agreement, and does hereby acknowledge receipt of the sum of Five Thousand and No/100ths Dollars (\$5,000.00) from Buyer, and agrees to hold same in escrow as provided in this Agreement and to deliver same to the persons entitled thereto upon the performance or nonperformance of the terms and conditions of this Agreement.

  
\_\_\_\_\_  
Kelly A. Allen

VENDOR ID	NAME	PAYMENT NUMBER	CHECK DATE				
ADKISON, NEED	Adkison, Need, Allen, \$ Rentrop,	00000000000038182	3/31/2017	2883			
OUR VOUCHER NUMBER	YOUR VOUCHER NUMBER	DATE	AMOUNT	AMOUNT PAID	DISCOUNT	WRITE-OFF	NET
DEP LIQUOR LIC	3/31/2017		\$5,000.00				
			\$5,000.00	\$5,000.00	\$0.00		\$5,000.00

COMMENT

**BIRMINGHAM THEATRE, LLC**  
 211 SOUTH OLD WOODWARD  
 BIRMINGHAM, MICHIGAN 48009  
 (248) 723-6230

JPMORGAN CHASE BANK, N.A.  
 9-32/720

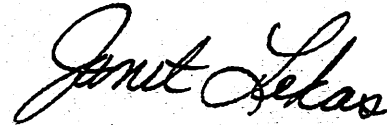
DATE AMOUNT  
 3/31/2017 \$5,000.00

PAY

Five Thousand Dollars and 00 Cents

TO THE  
 ORDER  
 OF

Adkison, Need, Allen, \$ Rentrop, PLLC  
 39572 Woodward, Suite 222  
 Bloomfield Hills MI 48304



AUTHORIZED SIGNATURE

Security features. Details on back.

⑈002883⑈ ⑆072000326⑆

727267192⑈

## **SUBLEASE AGREEMENT**

**THIS SUBLEASE AGREEMENT** (the "Sublease") is dated as of the 17th day of April 2017, by and between **Birmingham Theatre, L.L.C.**, a Michigan limited liability company, located at 211 South Old Woodward, Birmingham, MI 48009 ("Sublandlord"), and **Birmingham Teatro, L.L.C.**, a Michigan limited liability company ("Subtenant") located at 211 South Old Woodward, Birmingham, MI 48009. Sublandlord and Subtenant are each sometimes referred to herein as a "Party" and collectively as the "Parties".

### **R E C I T A L S:**

The following is a recital of the facts underlying this Sublease:

A. Sublandlord is a tenant pursuant to a written Lease dated January 3, 2017 with Fuller Central Park Properties, L.L.C., a Michigan limited liability company (the "Primary Landlord"), located at 112 Peabody St., Birmingham, MI 48009 (the "Primary Lease").

B. The Primary Lease relates to a lease of the building commonly known as 211 S. Old Woodward, Birmingham, Michigan (the "Building"). The Primary Lease runs through December 31, 2024 (the "Term").

C. This Sublease is subject to the Primary Lease at all times.

**IN CONSIDERATION** of the mutual covenants contained herein, the parties agree as follows:

1. **Sublease.** Sublandlord hereby leases to Subtenant, and Subtenant hereby leases from Sublandlord, the Subleased Premises on the terms and conditions set forth herein and subject to the terms of the Primary Lease.

2. **Modified Provisions.** Notwithstanding the provisions of the terms of the Primary Lease, this Sublease is on the following terms:

A. **Rent.** Subtenant shall pay to Sublandlord all Rent as is set forth in the Lease. Monthly rental payments shall be paid to Sublandlord in advance on the first (1<sup>st</sup>) day of each calendar month during the Term without setoff, deduction or counterclaim. Any period which is less than a full calendar month shall be prorated accordingly.

B. **Occupancy.** Subtenant shall be given occupancy/access of the Subleased Premises on April 17, 2017 (the "Commencement Date").

C. **Condition of Subleased Premises.** Subtenant agrees that it will take possession of the Subleased Premises in their "As-Is, Where-Is" condition.

D. **Payment of Rent.** All rent shall be paid by Subtenant to Sublandlord at the following address:

112 Peabody St.  
Birmingham, Michigan 48009

**E. No Right To Assign Or Sublease.** Subtenant acknowledges and agrees that it has no right to sublease the Subleased Premises or to assign its rights under this Sublease in whole or in part, without the prior written consent of Sublandlord and Landlord.

**F. Insurance.** Subtenant shall procure and maintain at its sole cost and expense policies of insurance of the types required to cover its contents and business interruption. Sub-landlord shall continue its general commercial liability insurance coverage of the entire building (including the Subleased Premises) as required under the Primary Lease. Such policies shall name Landlord and Sublandlord and Subtenant as additional insureds.

**G. Subtenant's Improvements.** Subtenant shall not have the right to make any structural improvements to the Subleased Premises. Any non-structural improvements, to the Subleased Premises shall be subject to the Sublandlord's prior approval, which approval shall not be unreasonably withheld, conditioned or delayed, as well as the Landlord's prior approval.

**H. Counterparts/Electronic Delivery.** This Sublease may be signed in two or more counterparts, each of which shall be deemed an original, and all of which when taken together shall constitute one and the same instrument. A photocopy, electronic image file or facsimile of this Sublease shall have the same force and effect as an original.

IN WITNESS WHEREOF the Parties have executed this Sublease the day and year above written:

**SUBLANDLORD**

Birmingham Theatre, L.L.C.,  
a Michigan limited liability company

By: Janet Lexas

Its: Member

*Additional signatures appear on the following page*

**SUBTENANT**

Birmingham Teatro, L.L.C.,  
a Michigan limited liability company

By: 

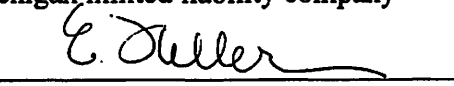
Its: member

**LANDLORD'S CONSENT**

By signing below, Landlord consents to Sublandlord's entering into the Sublease with Subtenant. Landlord and Subtenant acknowledge and agree that this instrument constitutes a sublease only, and not an assignment of the Primary Lease, whether in whole or in part.

**LANDLORD**

Fuller Central Park Properties, L.L.C.,  
a Michigan limited liability company

By: 

Its: MANGR



LEASE AGREEMENT  
RETAIL

FULLER CENTRAL PARK PROPERTIES, L.L.C.  
112 Peabody Street  
Birmingham, MI 48009-6329  
(248) 642-0024

This Lease made this 31<sup>st</sup> day of January, 2017 ("Effective Date"), by and between, FULLER CENTRAL PARK PROPERTIES, L.L.C., a Michigan limited liability company, of 112 Peabody Street, Birmingham, Michigan 48009-6329, the Lessor, hereinafter designated as the Landlord, and BIRMINGHAM THEATRE, L.L.C., a Michigan limited liability company, 211 S. Old Woodward Avenue, Birmingham, Michigan 48009, the Lessee, hereinafter designated as the Tenant.

WITNESSETH:

For and in consideration of the Leased Premises, the covenants herein, and other valuable consideration, the receipt and adequacy of which are hereby mutually acknowledged, the parties hereto agree:

1. Leased Premises. Landlord, in consideration of the rents to be paid and the covenants and agreements to be performed by the Tenant, does hereby lease unto the Tenant and Tenant hereby hires and leases from Landlord the following-described Leased Premises ("Leased Premises") situated in Landlord's building (the "Building") located in the City of Birmingham, County of Oakland, State of Michigan, to-wit:

Approximately 32,500 square feet more commonly known as  
211 S. Old Woodward Avenue, Birmingham, Michigan.

2. Term. The term of this Lease is eight (8) years from and after the first day of January, 2017, unless terminated earlier by Landlord or Tenant as provided herein.

3. Rent. Tenant shall pay during the continuance of this Lease unto the Landlord for rent of the Leased Premises for said term the sum of Two Million Nine Hundred Four Thousand Six Hundred Forty-six and (\$2,904,646.08) 08/100ths Dollars in lawful money of the United States payable in ninety-six (96) consecutive monthly installments in advance upon the first day of each and every month as follows:

\$30,256.73 per month	01/01/17 – 12/31/24	\$2,904,646.08
-----------------------	---------------------	----------------

Tenant shall pay as Additional Rent any money and charges required to be paid by Tenant pursuant to the terms of this Lease, whether or not same may be designated "Additional Rent."

All payments of Base Rent shall be made without demand; and all payments of Additional Rent and all other payments to Landlord required hereunder shall be made as and when called for herein and if not herein specified then upon demand by Landlord; all payments

hereunder including Base Rent and Additional Rent shall be made without deduction or off-set, in cash or by check drawn upon a U.S. banking institution payable to Landlord, with collected funds on deposit when such check is written and presented, and shall be delivered to Landlord at its address set forth in this Lease, or to such other party and place as may be designated by notice in writing from Landlord to Tenant from time to time.

No payment by Tenant or receipt and acceptance by Landlord of a lesser amount than the Base Rent, Additional Rent, or other payments to Landlord required hereunder shall be deemed to be other than part payment of the full amount then due and payable, nor shall any endorsement or statement on any check or any document accompanying any check, payment of rent or other payment, be deemed an accord and satisfaction or modification of Tenant's liabilities; and Landlord may accept such part payment without prejudice to Landlord's right to recover the balance due and payable or pursue any other remedy in this Lease provided and without regard to any such endorsement or document, which, between the parties, shall be ineffective as a diminishment of Tenant's obligations.

4. Late Payments. Tenant shall pay to Landlord a late charge equal to five (5%) percent of the amount of each installment of Base Rent or any other sum owing from Tenant to Landlord under the terms hereof which is not received by Landlord within seven (7) days after its due date, in order to defray the legal, management, bookkeeping and other administrative costs resulting from Tenant's failure to timely make such payments, and an additional late charge of two (2%) percent per month on any installment of Base Rent or other payment owing from Tenant to Landlord under the terms hereof which is overdue thirty (30) days or longer. Tenant shall pay to Landlord interest at the rate of twelve (12%) percent per annum on any sums advanced until payment thereof is received by Landlord. To the extent any sums collected above are in excess of the amounts which Landlord may lawfully collect, the excess shall instead be applied to the immediately succeeding installment(s) of Base Rent due hereunder or shall be returned to Tenant, at Landlord's option.

5. Assignment. Tenant shall not, in whole or in part, assign or transfer this Lease or any rights hereunder or hypothecate or mortgage same or sublet or grant a license within the Leased Premises, or any part thereof, without the prior written consent of Landlord in each instance, such consent not to be unreasonably withheld. Any such assignment, transfer, hypothecation, mortgage, license or subletting shall not release Tenant hereunder, and any assignee or subtenant shall expressly assume all of the Tenant's covenants, warranties and obligations hereunder. In the event the rent or any other charge to be paid by a subtenant, licensee or assignee of Tenant exceeds the sum of the rent due under this Lease from Tenant to Landlord (as a whole or on a square foot basis for the space involved), Tenant shall pay to Landlord, as Additional Rent, an amount equal to such excess at the time or times the same is paid by such subtenant, licensee or assignee to Tenant. Any attempted assignment, transfer, hypothecation, mortgage, license or subletting without Landlord's prior written consent shall give Landlord the right to terminate this Lease and re-enter and repossess the Leased Premises and Tenant shall be liable to Landlord for all damages in connection therewith, in addition to and cumulative of any other remedies of Landlord provided herein and by law. The transfer(s), attempt(s) to transfer, grant of an option or encumbrance of or for more than twenty-five (25%) percent of the stock or membership interest of Tenant or a change in the management or control of Tenant shall, for the purposes of this paragraph, be an assignment of this Lease.

6. Bankruptcy and Insolvency. If the estate created hereby shall be taken in execution, or by other process of law, or if the Tenant shall be declared bankrupt or insolvent, according to law, or any receiver be appointed for the business and property of the Tenant, or if any assignment shall be made of the Tenant's property for the benefit of creditors, then and in such event this lease may be canceled at the option of the Landlord.

7. Right to Mortgage. The Landlord reserves the right to subject and subordinate this lease at all times to the lien of any mortgage or mortgages now or hereafter placed upon the Landlord's interest in the Leased Premises and/or on the land and buildings of which the Leased Premises are a part or upon any buildings hereafter placed upon the land of which the Leased Premises form a part. Tenant shall execute and deliver upon demand such further instrument or instruments subordinating this lease to the lien of any such mortgage or mortgages as shall be desired by the Landlord and any mortgagees or proposed mortgagees and hereby irrevocably appoints the Landlord the attorney-in-fact of the Tenant to execute and deliver any such instrument or instruments for and in the name of the Tenant. Any such mortgage and Tenant's subordination thereto shall provide that Landlord's default and/or any foreclosure or other enforcement of any such mortgage shall not terminate this Lease or disturb Tenant's rights, possession and/or use of the Leased Premises, unless Tenant shall be in default, or shall subsequently default.

If, as a condition of making such mortgage, Landlord's mortgagee shall request reasonable modifications of this Lease. Tenant shall not unreasonably withhold or delay its agreement to such modifications, provided that such modifications do not increase the obligations or materially and adversely affect the rights of Tenant under this Lease.

8. Use and Occupancy. It is understood and agreed between the parties hereto that the Leased Premises during the continuance of this Lease shall be used and occupied for the operation of eight (8) movie theatres for the showing of movies (except adult or pornographic films) and for any lawful business appurtenant to the foregoing, including but not limited to the sale of drinks, confections, candy, and similar items; for the sale of personal property incidental or related to films; for the sale of alcoholic beverages if an appropriate license is obtained by Tenant; and for no other purpose or purposes without the written consent of the Landlord, and that the Tenant will not use the Leased Premises for any purpose in violation of any law, municipal ordinance or regulation, and that on any breach of this agreement the Landlord may at its option terminate this Lease forthwith and re-enter and repossess the Leased Premises.

9. Risk of Loss. All property in the Leased Premises, including, but not limited to, all inventory and merchandise, shall be and remain the Tenant's sole risk, and the Landlord shall not be liable for any damage to, or loss of property or other damages arising from any act or negligence of any persons or entities other than those grossly negligent or intentional acts, omissions of Landlord or its employees or agents. Landlord shall not be liable for any damage to or loss of property or other damage or injury arising from the roof leaking, or from the bursting, leaking, or overflowing of water, sewer or sprinkler system pipes, or from heating or plumbing fixtures, or from electric wires or fixtures, or from any other cause whatsoever, nor shall the Landlord be liable for any injury to the person of the Tenant, its officers, agents, employees, representatives, invitees or other persons in the Leased Premises. It is expected that all such

losses will be borne and/or covered by insurance that Tenant is to maintain pursuant to this Lease.

10. Casualty. If the Leased Premises are wholly or partially destroyed by fire or other casualty, Tenant shall give immediate notice thereof in writing to Landlord, and shall fully cooperate with Landlord in filing all necessary proofs of claim with insurance companies. The proceeds of such insurance applicable to the Leased Premises, to the extent permitted by any mortgage then encumbering the Leased Premises, and provided sufficient insurance proceeds, in Landlord's judgment, are available, shall be used by Landlord to promptly commence to rebuild, repair or restore the Leased Premises to their condition at the time immediately preceding the loss or damage. Landlord may, however, elect to retain such insurance proceeds and shall not be required to rebuild, repair or restore the Leased Premises to their condition at the time immediately preceding the loss or damage. Landlord may, however, elect to retain such insurance proceeds and shall not be required to rebuild, repair or restore the Leased Premises by notifying Tenant within fourteen (14) days of such casualty, and either Landlord or Tenant may elect to terminate the Lease if more than one-half of the Leased Premises are so damaged or destroyed. In the event of total destruction of the Leased Premises and the Lease is not terminated as provided above, the rent shall abate during the period of rebuilding, repair or restoration by Landlord or, in the event of partial destruction of the Leased Premises, the rent shall abate pro rata during the period of rebuilding, repair or restoration based upon the portion of the Leased Premises rendered unusable during the period of rebuilding, repair or restoration by Landlord. The estimated time for rebuilding, repair or restoration shall be given to Tenant within thirty (30) days of any such loss or damage and, in the event that the work of restoring the Leased Premises to pre-casualty condition, based upon such estimate cannot, or in fact, such rebuilding, repair or restoration is not substantially completed within one hundred eighty (180) days after said loss or damage, Tenant shall have the one time option to terminate this Lease by sending certified written notice to Landlord at any time prior to Landlord's tender of the substantially repaired Leased Premises to Tenant.

11. Eminent Domain. If the whole or any part of the Leased Premises shall be taken by any public authority under the power of eminent domain, then the term of this Lease shall cease on the part so taken from the day the possession of that part shall be required for any public purpose and all rent and other obligations of Tenant shall be paid up to the day and from that day the Tenant shall have the right either to cancel this Lease and declare the same null and void or to continue in the possession of the remainder of the same under the terms herein provided except that rent shall be reduced in proportion to the amount of the Leased Premises taken. All damages awarded for such taking shall belong to and be the property of the Landlord whether such damages shall be awarded as compensation for diminution in value to the leasehold or to the fee of the Leased Premises; provided, however, that the Landlord shall not be entitled to any portion of the award made to the Tenant for loss of business.

12. Certain Insurance. Tenant shall procure and keep in effect fire insurance (including special covered causes of loss endorsements) for the full replacement cost of Tenant's equipment, all inventory, merchandise and all other personal property and cause Landlord to be named as an additional insured in connection therewith.

13. Insurance and Indemnification.

(a) Tenant's Insurance. Tenant agrees to and does hereby indemnify and hold Landlord harmless of, from and against all liability for damages to any person or property in, on or about the Leased Premises from any cause whatsoever, including, without limitation, as a result of Tenant's acts or omissions. During the term of this Lease, Tenant at Tenant's expense shall maintain in full force and effect general public liability and property damage insurance against claims for injury, wrongful death and property damage, including, but not limited to, coverage for damage to all plate glass, occurring upon, in or about the Leased Premises and the appurtenances thereto for the benefit of the Landlord, and which shall name Landlord as an additional insured, in the aggregate sum of not less than Three Million (\$3,000,000.00) Dollars.

(b) Waiver of Subrogation. Each casualty, fire and extended coverage or all-perils insurance policy required under this Lease shall contain a clause in which the underlying insurance carrier waives all rights of subrogation with respect to losses payable under such policies. By this Paragraph 14, Landlord and Tenant intend that the risk of loss or damage be borne by the parties' insurance carriers and Landlord and Tenant shall look solely to and seek recover from only their respective insurance carriers in the event of a loss is sustained for which insurance is required under this Lease. For this purpose, applicable deductible amounts shall be treated as though they were recoverable under such policies.

14. Policies of Insurance. All of Tenant's insurance policies shall contain an agreement by the insurers that such policies shall not be canceled or amended to materially affect the Landlord or any coverage which may affect the Landlord, without at least thirty (30) days prior written notice to Landlord. Such insurance shall be obtained and evidence thereof delivered to Landlord prior to any occupancy of the Leased Premises by Tenant or upon the commencement of the Lease Term, whichever shall first occur, and Tenant shall pay the renewal premium on such insurance and deliver evidence thereof to Landlord not less than fourteen (14) days prior to the expiration of such insurance. Upon Tenant's failure to procure or maintain said insurance, Landlord may, but shall have no obligation to, at its option, obtain such insurance and the cost thereof, with interest thereon as provided in Paragraphs 4 and 5 hereof, shall be paid in full by Tenant, as Additional Rent, due and payable on the same date as the next installment of Base Rent. The policy or policies obtained by Tenant pursuant to Tenant's obligations hereunder shall contain a clause or provision pursuant to which the insurance carrier or carriers waive all rights of subrogation against the Landlord with respect to losses payable under such policies. Tenant shall deliver to Landlord upon execution of this Lease, copies of its insurance policies maintained pursuant to this paragraph and shall notify Landlord promptly of any change of the terms of any such policies.

15. Repairs and Alterations. The Tenant will, at its own expense, during the continuance of this Lease, keep the Leased Premises and every part thereof in as good repair and at the expiration of the term yield and deliver up the Leased Premises in like condition as when Tenant first commences business, reasonable use and wear thereof excepted. The Tenant shall not make any alterations, additions or improvements to the Leased Premises without the Landlord's written consent, which shall not be unreasonably withheld, and all alterations, additions or

improvements made by either of the parties hereto upon the Leased Premises, except movable displays, furniture and movable trade fixtures put in at the expense of the Tenant, shall be the property of the Landlord, and shall remain upon and be surrendered with the Leased Premises at the termination of this Lease, without molestation or injury. This paragraph shall be construed to include and refer to anything as part of the Leased Premises that is attached to the floor, walls or ceiling of the Leased Premises by means of glue, screws, nails, tacks, bolts or otherwise.

The Tenant covenants and agrees that if the Leased Premises consists of only a part of a structure owned or controlled by the Landlord, the Landlord may, upon making a reasonable attempt to provide Tenant with advance notice thereof, enter the Leased Premises at reasonable times and install or repair pipes, wires and other appliances or make any repairs deemed by the Landlord necessary to the use and occupancy of other parts of the Landlord's property.

Additionally, it will be Tenant's obligation during any Tenant's construction, remodeling, or making of improvements to utilize Landlord's mechanical contractors and to secure from city, county, and state agencies any and all necessary permits.

16. Roof, Outer Wall, Door and Window Repairs. The Landlord shall be responsible only for the maintenance and repair of the roof, all structural portions of the Leased Premises (not including any structural portions of any improvements made by Tenant to the Leased Premises), and the four outer walls of the Leased Premises (collectively referred to hereinafter as the "Structural Repairs"). Landlord shall not be responsible for such Structural Repairs if the need for such Structural Repairs was/is caused by the acts of Tenant or Tenant's agents. The Tenant shall be solely responsible to maintain and keep in good order and repair the doors, door frames, all window and door glass and plate glass (interior and exterior), window casings, window frames, windows and any of the appliances or appurtenances of said doors or window casings, window frames and windows, any improvements made by Tenant or its agents, and any attachment or attachments to said building or Leased Premises and all systems used in connection therewith. If Tenant fails to perform any repairs that it is required to make hereunder within 15 days after its receipt of written notice from Landlord, Landlord shall have the right but not the obligation to make such repairs and, provided such repairs were made in a good and workmanlike manner, Tenant shall promptly reimburse Landlord for Landlord's reasonable expenses in making such repairs. All repairs made by either party shall comply with all legal requirements applicable to such repairs.

17. Reservation. The Landlord reserves the right of free access at all times to the roof and/or ceiling area of said Leased Premises and reserves the right to rent said roof and outer walls for advertising purposes.

18. Care of Leased Premises. The Tenant shall not perform any acts or carry on any practices which may injure the Building or be a nuisance or menace to other tenants in the Building or adjacent property and shall keep the Leased Premises under its control.

19. Comply with Laws. The Tenant shall at its own expense under penalty of forfeiture and damages promptly comply with all laws, orders, regulations or ordinances of all municipal, county, state and federal authorities affecting the Leased Premises hereby leased and the cleanliness, safety, occupation and use of same.

20. Smoking. These Leased Premises are non-smoking Leased Premises. No smoking of any substance is permitted in, on or around the Leased Premises and/or Leased Premises, including any common areas. Any violation of this clause shall constitute a breach of this Lease upon which Landlord may terminate this Lease. Landlord otherwise reserves all other rights and remedies available under this Lease and/or pursuant to the law. This provision applies to the Tenant, Tenant's invitees, and any other person on and/or in the Leased Premises.

21. Condition of Leased Premises at Time of Lease. The Tenant acknowledges that it has examined the said Leased Premises prior to the making of this Lease and knows and accepts "as is" the condition thereof.

22. Re-renting. The Tenant hereby agrees that for a period commencing one hundred twenty (120) days prior to the termination of this Lease, the Landlord may show the Leased Premises to prospective tenants, and ninety (90) days prior to the termination of this Lease may display in and about the Leased Premises and in the windows thereof signs indicating the Leased Premises are for rent.

23. Holding Over. It is hereby agreed that in the event of the Tenant holding over after the termination of this Lease, thereafter the tenancy shall be from month to month in the absence of a written agreement to the contrary at a monthly rental rate in an amount equal to one hundred fifty (150%) percent of the rate called for during the last month of the Lease Term.

24. Utilities. Tenant shall pay all charges made against or in respect to the Leased Premises for all utilities, as the same shall become due.

25. Heating and Cooling System. Tenant agrees, at its own expense to maintain its own air conditioning system and/or any other heating or cooling system presently on or hereinafter installed on the Leased Premises in good operating condition, and at the end of the lease term to return same to Landlord in good operating condition.

26. Signage. No sign shall be displayed excepting such as shall be approved in writing by the Landlord prior to display, and no awning or other outside attachment shall be installed or used on the exterior of said Building unless approved in writing by the Landlord prior to such installation.

27. Access to Leased Premises. The Landlord shall have the right to enter upon the Leased Premises at all reasonable hours upon reasonable notice for the purpose of inspecting the same. Tenant hereby authorizes Landlord to enter into and/or to allow any public safety officials to enter into the Leased Premises at any time in the event that the Landlord has a reasonable basis to believe that an emergency situation that exists which would place people and/or property in imminent jeopardy, however, Landlord will, as soon as reasonably possible thereafter, provide Tenant with notice of such entry and the reasons therefore. If the Landlord deems any repairs necessary, it may demand that the Tenant make the same in writing; and if the Tenant refuses or neglects forthwith to commence such repairs and complete the same with reasonable dispatch, the Landlord may make or cause to be made such repairs and shall not be responsible to the Tenant for any loss or damage that may accrue to its stock or business by reason thereof. If the



Landlord makes or causes to be made such repairs, the Tenant agrees that it will forthwith on demand pay to the Landlord the cost thereof.

28. Quiet Enjoyment. The Landlord covenants that the said Tenant, on payment of all sums called for herein and performing all the covenants set forth herein, shall and may peacefully and quietly have, hold and enjoy the Leased Premises for the Lease Term. However, should Landlord enter into a construction project on any of its properties or Leased Premises, adjacent to the normal construction project or otherwise, disturbance, debris and/or inconvenience shall not be considered a violation of Tenant's quiet enjoyment.

29. Default. If Tenant should fail to pay any sum of the monthly rent or other amounts due under this Lease or shall breach any of the terms and/or conditions of this Lease and same shall not be remedied within seven (7) calendar days after written notice from the Landlord to the Tenant that such payment is past due or such breach has occurred, such non-payment and/or breach after such 7-day period shall constitute a default under this Lease by the Tenant (an "Event of Default"). If an Event of Default shall occur and be continuing for more than the 7-day period, or if Tenant can establish that it timely commenced its efforts to cure any non-monetary default upon notice of same and is diligently pursuing a reasonable cure, Tenant shall have an additional period not to exceed thirty (30) days from the original date of written notice to cure or the Landlord may terminate the Lease, demand Tenant vacate the Leased Premises and/or may demand and/or file suit seeking all of the Landlord's resulting damages.

30. Expenses and Damages - Re-entry. In the event that the Landlord shall obtain possession of the Leased Premises by re-entry, summary proceedings or otherwise, the Tenant hereby agrees to pay the Landlord all reasonable expenses incurred in obtaining possession of the Leased Premises and in pursuing its remedies for breach of the Lease, including recovery of all unamortized funds which Landlord expended and/or contributed toward tenant improvements, all expenses and commissions which may be paid in and about the re-letting of the Leased Premises or any part thereof and all other damages, including actual attorneys' fees and costs. Landlord will use commercially reasonable efforts to mitigate its damages in the event of a Tenant default.

31. Remedies not Exclusive. It is agreed that each and every of the Landlord's rights, remedies and benefits provided by this Lease shall be cumulative and shall not be exclusive of any other of said rights, remedies and benefits, or of any other rights, remedies, and benefits otherwise allowed by law.

32. Waiver. Landlord's failure to enforce any of its rights hereunder shall at no time be considered as a waiver of its rights to do so at any later time or times. One or more express waivers of any covenant or condition by the Landlord shall not be construed as a waiver of a further breach of the same covenant or condition.

33. Delay of Possession. It is understood that if the Tenant shall be unable to enter into and occupy the Leased Premises hereby leased at the time above provided, by reason of the Leased Premises not being ready for occupancy, or by reason of the holding over of any previous occupancy of said Leased Premises, or as a result of any cause or reason beyond the direct control of the Landlord, the Landlord shall not be liable in damages to the Tenant therefor, but during the period the Tenant shall be unable to occupy said Leased Premises as hereinbefore

provided, the rental therefor shall be abated and the Landlord is to be the sole judge as to when the Leased Premises are ready for occupancy by Tenant.

34. Non-liability of Landlord. In the event the Landlord hereunder or any successor owner of the Leased Premises shall sell or convey the Leased Premises, all liabilities and obligations on the part of the original Landlord or such successor owner under this Lease accruing thereafter shall terminate, and thereupon all such liabilities and obligations shall be binding upon the new owner. Tenant shall attorn to such new owner.

If Landlord shall fail to perform any covenant, term or condition of this Lease upon Landlord's part to be performed, and, if as a consequence of such default, Tenant shall recover a money judgment against Landlord, such judgment shall be satisfied only against the right, title and interest of Landlord in the Leased Premises and out of rents or other income from the Leased Premises receivable by Landlord, or out of the consideration received by Landlord from the sale or other disposition of all or any part of Landlord's right, title and interest in the Leased Premises, and Landlord shall not be liable for any deficiency.

35. Estoppel Certificate. At any time and from time to time but not more than ten (10) days subsequent to request by Landlord, Tenant shall promptly execute, acknowledge and deliver to Landlord, a certificate indicating (a) that this Lease is unmodified and in full force and effect (or, if there have been modifications, that this Lease is in full force and effect, as modified, and stating the date and nature of each modification), (b) the date, if any, to which rental and other sums payable hereunder have been paid, (c) that no notice has been received by Tenant of any default which has not been cured, except as to defaults specified in said certificate, and (d) such other matters as may be reasonably requested by Landlord. Any such certificate may be relied upon by any prospective purchaser, mortgagee or beneficiary under any deed of trust of the Leased Premises or any part thereof.

36. Taxes. Tenant will pay all its pro rata share of all real property taxes, assessments and special assessments on the Leased Premises, when billed by Landlord. Additionally, Tenant will pay its own personal property taxes.

37. Option to Renew/Right of First Offer. Provided that Tenant is not in default of this Lease at the time of the notice of exercise and at the time of the commencement of the hereinafter provided Option Terms, Landlord grants to Tenant One (1) successive Five (5)-year option to extend this Lease upon same terms and conditions, except for the annual Base Rent, which shall, at the commencement of the Option Term, be increased by three percent (3%) of the per square foot Lease rate annually. To exercise any such Option, Tenant must tender written notice to Landlord exercising such Option not less than twelve (12) months prior to the expiration date of the Lease Term or immediately preceding Option Term. Failure of Tenant to timely tender written notice of its exercise of an Option shall terminate such Option, time being of the essence.

38. Notices. Whenever under this Lease a provision is made for notice of any kind it shall be deemed sufficient notice and service thereof if such notice to the receiving party is in writing addressed to the receiving party at its last known post office address or at the Leased Premises and deposited in the mail with postage prepaid; and/or hand delivered to the receiving

party to be noticed. Notice need be sent to only one Tenant or Landlord where the Tenant or Landlord is more than one person.

39. Pronouns. It is agreed that in this Lease the word "it" shall be used as synonymous with the words "she," "he," and "they," and the word "its" synonymous with the words "her," "his," and "their."

40. Successors. The covenants, conditions, and agreements made and entered into by the parties hereto and the benefits hereunder are binding on, and the benefits hereunder shall accrue to the parties hereto and their respective heirs, successors, representatives, and assigns.

41. Severability. The unenforceability or invalidity, if any, of any provision of this Lease shall not render any other provision or provisions unenforceable or invalid and the remainder of this Lease shall not be affected thereby and the balance of the terms and provisions of this Lease shall be valid and enforceable. If any provision of this Lease is partially unenforceable or invalid, the remaining portion thereof shall be enforced to the fullest extent permitted by law.

42. Security Provision. The Landlord herewith acknowledges the receipt of no monies.

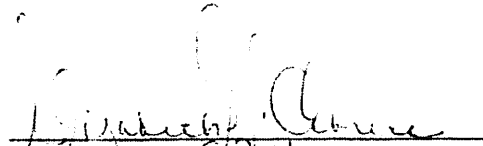
43. Recording. Tenant hereby covenants and agrees not to record this Lease or any memorandum or affidavit thereof or cause same or any memorandum or affidavit thereof to be recorded by any third persons.

44. Headings. The paragraph headings provided herein are for the convenience of the parties, but shall not be deemed to qualify, modify or amend the text of each paragraph of the Lease.

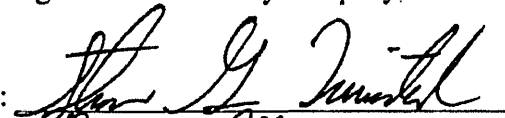
45. Entire Agreement. This Lease constitutes the entire agreement between the parties and may not be modified in any manner except by a writing signed by the parties.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals the day and year first above written.

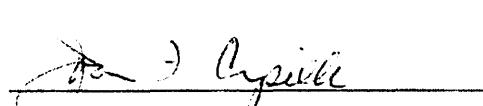
WITNESSED BY:

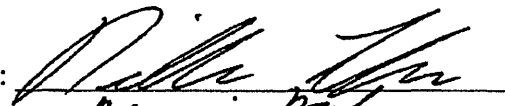
  
Elizabeth G. Cabrer

FULLER CENTRAL PARK PROPERTIES,  
a Michigan limited liability company, LANDLORD

By:   
Its: Property Manager

BIRMINGHAM THEATRE, L.L.C., a Michigan  
limited liability company, TENANT

  
Joan F. Cipelle

By:   
Its: Manager



LAW OFFICES

**ADKISON, NEED, ALLEN, & RENTROP**

PROFESSIONAL LIMITED LIABILITY COMPANY

PHILLIP G. ADKISON  
KELLY A. ALLEN  
JESSICA A. HALLMARK  
GREGORY K. NEED  
G. HANS RENTROP

39572 Woodward, Suite 222  
Bloomfield Hills, Michigan 48304  
Telephone (248) 540-7400  
Facsimile (248) 540-7401  
www.ANAfirm.com

OF COUNSEL:  
KEVIN M. CHUDLER  
SARAH J. GABIS  
LINDA S. MAYER

May 1, 2017

*Via Hand Delivery*

Commander Chris Busen  
Birmingham Police Department  
151 Martin  
Birmingham, MI 48012

**Re: Birmingham Teatro, LLC  
211 Old S. Woodward, Birmingham**

Dear Commander Busen:

We represent Birmingham Teatro, LLC (“Birmingham Teatro”), which will do business as Birmingham Theater at 211 S. Old Woodward in Birmingham. Birmingham Teatro is requesting to transfer ownership and location of the Class C license from Thumper’s Splatter, LLC, formerly located in Rochester Hills. Birmingham Teatro is requesting a Sunday Sales (AM and PM) permit, an additional bar permit, and an entertainment permit. We have submitted the required requests to the City Manager and the City Planner for the SLUP application for Birmingham Teatro.

Birmingham Teatro is owned equally by Daniel Shaw and Nicholas Lekas. Birmingham Teatro has a sublease for the real estate and furniture, fixtures and equipment with landlord Fuller Central Park Properties, LLC, which is effective April 17, 2017, and expires December 31, 2024. The monthly payments are \$30,256.73. The only cost to Birmingham Teatro is for the liquor license and alcoholic beverage inventory. This amount will be financed by a loan from Birmingham Theatre, LLC, which is the sub-landlord. Mr. Lekas and Mr. Shaw are part owners of Birmingham Theatre, LLC.

The liquor license will allow customers to purchase alcohol while enjoying the movie experience. In recent years there has been a national trend with prominent movie theatres to offer this service. The service of alcohol at movie theatres is now popular in Michigan as well. The service of the alcohol will be primarily out of the concession area on the second floor, except during the slower hours; then the alcohol will be served from the first floor concession area.

Birmingham Teatro's hours of operation are 7 days a week from 11:00 am to 1:00 am. The total capacity is 597.

Enclosed for your review are the following:

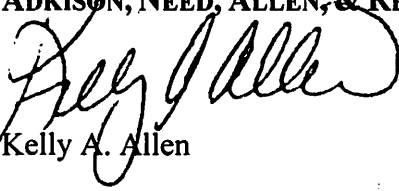
- Check payable to the City of Birmingham for \$1,500;
- City of Birmingham Application and Release, driver's license, birth certificate, and 2014, 2015, and 2016 tax returns for Daniel Shaw;
- City of Birmingham Application and Release, driver's license, passport, and 2014, 2015, and 2016 tax returns for Nicholas Lekas;
- Liquor License Purchase Agreement (contained in the binder);
- Filed Articles of Organization and Operating Agreement for Birmingham Teatro, LLC (contained in the binder);
- Sublease Agreement and Lease Agreement (contained in the binder);
- Statement of Money Lender for the loan from Birmingham Theatre, LLC to Birmingham Teatro, LLC;
- Bank letters and 2015 and 2016 tax returns for Birmingham Theatre, LLC; and
- Floor plan.

We have also enclosed the applications submitted to the MLCC requesting the transfer of ownership and location of the Class C Liquor License and permits.

If you have any questions whatsoever, please do not hesitate to call me or my legal assistant, Laura Peters. I appreciate your assistance in this matter.

Very truly yours,

**ADKISON, NEED, ALLEN, & RENTROP, PLLC**



Kelly A. Allen

/lbp  
Enclosures



# MEMORANDUM

Planning Department

**DATE:** June 14<sup>th</sup>, 2017  
**TO:** Planning Board  
**FROM:** Nicholas Dupuis, Planning Intern  
**APPROVED BY:** Jana Ecker, Planning Director  
**SUBJECT:** 211 S. Old Woodward SLUP and Final Site Plan Review

---

## Executive Summary

The subject site, Birmingham Theater, is located at 211 S. Old Woodward, on the east side of the street just south of Merrill. The parcel is zoned B-4, Business-Residential and D-4 in the Downtown Overlay District. The applicant, Birmingham Teatro, LLC, is applying for a Special Land Use Permit (SLUP) to operate with a Class C liquor license under the new ordinance allowing a movie theater to operate with a liquor license. Birmingham Teatro is owned equally by Daniel Shaw and Nicholas Lekas, who in addition to operating the theater, are also part owners of Birmingham Theater, LLC, which is the sub-landlord for 211 S. Old Woodward.

Article 2, section 2.37 (B4) of the Zoning Ordinance requires that a theater seeking to provide alcoholic beverage sales (on-premise consumption) shall obtain a Special Land Use Permit and site plan review. Accordingly, the applicant is required to obtain a recommendation from the Planning Board on the Final Site Plan and Special Land Use Permit, and then obtain approval from the City Commission for the Final Site Plan and Special Land Use Permit.

### 1.0 Land Use and Zoning

- 1.1 Existing Land Use - The existing site is used as a theater. Land uses surrounding the site are retail and commercial.
  - 1.2 Existing Zoning – The property is currently zoned B-4, Business-Residential, and D-4 in the Downtown Overlay District. The existing use and surrounding uses appear to conform to the permitted uses of each Zoning District.
  - 1.3 Summary of Land Use and Zoning - The following chart summarizes existing land use and zoning adjacent to and/or in the vicinity of the subject site.
-



	<b>North</b>	<b>South</b>	<b>East</b>	<b>West</b>
<b>Existing Land Use</b>	Commercial / Retail	Commercial / Retail	Commercial / Retail	Commercial / Retail
<b>Existing Zoning District</b>	B-4, Business-Residential	B-4, Business-Residential	B-4, Business-Residential	B-4, Business-Residential
<b>Downtown Overlay Zoning District</b>	D-4	D-4	D-4	D-4

## **2.0 Screening and Landscaping**

2.1 Screening – No changes are proposed.

2.2 Landscaping – No changes are proposed.

## **3.0 Parking, Loading, Access, and Circulation**

3.1 Parking – As the subject site is located within the Parking Assessment District, the applicant is not required to provide on-site parking.

3.2 Loading – No changes are proposed.

3.3 Vehicular Access & Circulation - Vehicular access to the building will not be altered.

3.4 Pedestrian Access & Circulation – No changes are proposed.

3.5 Streetscape – The applicant is not proposing to alter the existing sidewalk, street trees, or light poles.

## **4.0 Lighting**

No new lighting is proposed at this time.

## **5.0 Departmental Reports**

5.1 Engineering Division – The Engineering Division has no concerns.

- 5.2 Department of Public Services – No concerns were reported from the DPS.
- 5.3 Fire Department – No comments were received from the Fire Department.
- 5.4 Police Department - The Police Department has no concerns.
- 5.5 Building Division – No comments were received from the Building Division.

## **6.0 Theater Liquor License Requirements**

Earlier this year, the City Commission approved amendments to the Zoning Ordinance and Chapter 10, Alcoholic Liquors, to allow the service of liquor at existing theaters in the D4 zone district. The purpose of the amendments were to create a policy and conditions to allow the City Commission the ability to approve a request to transfer a liquor license into the city in excess of the city's quota licenses if the request is deemed to constitute a substantial benefit to the city for the continuation and development of theaters, to establish criteria for selecting applicants, and to evaluate the impact of increased liquor licenses on the city. Theaters are defined as a building, part of a building for housing dramatic presentations, stage entertainments or motion picture shows.

The applicant, Birmingham Teatro, LLC operates the Birmingham 8 Theater at 211 S. Old Woodward, which houses motion picture shows to the public. The trend in the nation is to provide this service at entertainment/movie venues. The applicant has advised that it is necessary to the experience and the viability of the Theater to serve alcoholic liquors in order to compete in this market. The entire Theater will be licensed by the MLCC. The applicant has advised that alcohol will be primarily served at the existing concession stand on the second floor, with the occasional sale at the first floor concession stand when business is slow.

Chapter 10, Alcoholic Liquors, section 101 outlines the following requirements when applying for a liquor license for a theater:

Persons desiring to transfer a liquor license from outside the city limits into the city limits in excess of the city's quota licenses shall make an application to the city commission and pay the applicable theater liquor license transfer review fee as set forth in appendix A of this Code. In addition to those items and conditions set forth in section 10-42, the application shall set forth in detail its proposed project, including, but not limited to:

- (1) Utilization of said liquor licenses and details on the number of quota liquor licenses in escrow at the time of application.
  - (2) Proposed and/or existing site plan of the property, building floor plan and an operations floor plan.
  - (3) An economic impact analysis.
  - (4) A copy of the special land use permit application and supporting documentation submitted by the applicant.
-

- (5) All documentation submitted to the LCC requesting the transfer.
- (6) Full identification and history of the license holder(s) as it pertains to the license proposed to be transferred, including all complaints filed with the state liquor control commission (LCC) or actions taken by any municipality or the LCC to suspend, revoke or deny the non-renewal of said license and all other documentation setting forth the detail of the existing theater or proposed theater by the applicant, including the approximate dollar amount of the investment to be made, number of jobs to be created, minimum of 150 seats and other benefits to the city.
- (7) Information detailing how the proposed operation will create or sustain the theaters in the city.
- (8) Such other items deemed necessary by city administration.

The applicant has advised that all quota liquor licenses are currently in use, with the exception of the following, which are currently in escrow:

1. BELLAR BIRMINGHAM VENTURES LLC (Attached to the building)
2. MONDIAL PROPERTIES III, L.L.C. (Transfer pending with the MLCC)
3. PEABODY'S OF BIRMINGHAM, INCORPORATED (Asking price is \$750K)

The applicant has provided a floor plan of the existing theater at 211 S. Old Woodward. No site plan has been provided, however no exterior changes are proposed.

The applicant has submitted an economic impact analysis that states that the economic impact of the Birmingham Theater having a liquor license will be positive for the City. Specifically, the full service aspect of the oldest and most iconic theater in town will allow the Birmingham Theater to thrive and to bring customers to the middle of the downtown area to enjoy other retail and dining establishments.

The applicant has submitted the required SLUP application and supporting documentation, as well as all documentation submitted to the LCC requesting the transfer of a liquor license to 211. S. Old Woodward. Please see attached.

The applicant has provided information on the proposed license holder, Birmingham Teatro, which is owned equally by Daniel Shaw and Nicholas Lekas. Identification and information has been provided on each of these co-owners. In addition, the following information regarding LCC complaints at other establishments owned or partially owned by the applicant(s) have been submitted:

1. E.A Fuller Oak Management Corporation, which does business as the Baypointe Golf Club, located at 4001 Haggerty Rd, West Bloomfield. This license does not have any violation history with the MLCC.
-

2. Fuller Oak Management, LLC and Oakland County Parks & Recreation Commission, doing business as, Glen Oaks Golf & Country Club, located at 30500 w. 13 Mile Rd, Farmington Hills. This license has a warning ticket issued by the MLCC for allowing the sale of two drinks for the price of one.

The applicant has indicated that the amount of investment proposed to be made at the existing theater is \$70,000. The applicant has stated that the Birmingham Theater provides a total of 625 seats, and there are currently 35 – 40 employees. The applicant has advised that the service of alcohol is required for the continued operation of the Birmingham 8 Theater, given market trends and the need to compete with the Emagine Palladium Theater, which also provides the service of alcohol to theater patrons. Emagine and the Birmingham Theater are the only two movie theaters in the City. Granting the SLUP to the Birmingham Theater will enable it to serve alcohol, the theaters will be similarly situated, and both should be able to sustain their businesses into the future.

Chapter 10, Alcoholic Liquors, Section 102 also establishes the following criteria for reviewing applications for theater liquor licenses:

- (a) Selection criteria. In addition to the usual factors and criteria used by the city commission for liquor license requests, including those listed in section 10-42, the commission shall consider the following non-exclusive list of criteria to assist in the determination of which of the existing establishment applicants, if any, should be approved:
  - (1) The applicant's demonstrated ability to finance the proposed project.
  - (2) The applicant's track record with the city including responding to city and/or citizen concerns.
  - (3) Whether the applicant has an adequate site plan to handle the proposed liquor license activities.
  - (4) Whether the applicant has adequate health and sanitary facilities.
  - (5) The percentage of proceeds from the sale of tickets and food products as compared to the sale of alcoholic beverages.
  - (6) Whether the applicant has outstanding obligations to the city (i.e. property taxes paid, utilities paid, etc.).
- (b) Maximum number of theater licenses. The city commission may approve a maximum of two theater licenses each calendar year in addition to the existing quota licenses otherwise permitted by state law.
- (d) If any new transfers of licenses for theaters are to be considered, the city commission shall set a schedule setting forth when all applicants must submit their application and supporting documentation, when interviews may be conducted and a timeframe within which a decision will be anticipated.

The applicant has advised that the applicant and its Landlord have been operating the Birmingham Theater since 1976. The only additional financial commitment from the Theater

---

is the cost of the Class C liquor license and alcohol inventory in the approximate amount of \$70,000. The source of these funds is from the operating income of the Theater.

The applicant has an outstanding track record of responding to both City and citizen concerns both with regard to the Birmingham Theater and numerous other properties owned throughout the City.

The applicant has demonstrated an adequate site plan and floor plan that will accommodate the proposed service of liquor. The existing theater has adequate health and sanitary facilities for the proposed use.

The applicant has indicated that approximately 5% of total sales will be from the sale of alcoholic beverages, and approximately 95% of total sales will be from the sale of tickets and food products.

The applicant does not currently have any outstanding obligations to the City.

In accordance with Chapter 10, section 102, the City Commission may approve a maximum of two theater licenses each calendar year in addition to the existing quota licenses. The City Commission must set a schedule for the review and consideration of applications for theater licenses. The Birmingham Theater is the only existing theater in the City that is qualified to apply for a theater liquor license under Chapter 10, Alcoholic Liquors due to its location in the B4 zone district.

## **6.0 Design Review**

The applicant is proposing no interior or exterior design changes to the building at this time.

Hours of operation for liquor sales will be seven days a week from 11:00 AM to 1:00 AM. The enforcement of liquor sales and handling will be done by all of the employees. Every employee of the Theater who deals with alcohol sales will be formally trained by "TIPS". This a program approved by the MLCC. Also, every person, regardless of their age, will be carded when purchasing alcohol. The bar will be full service with beer, wine and mixed drinks.

## **7.0 Downtown Birmingham 2016 Overlay District**

The 2016 Birmingham Master Plan recommended a mix of retail, food services and entertainment in Downtown Birmingham. The first floor theater use is consistent with the recommendations contained in the 2016 Plan.

## **8.0 Approval Criteria**

In accordance with Article 7, section 7.27 of the Zoning Ordinance, the proposed plans for development must meet the following conditions:

---

- (1) The location, size and height of the building, walls and fences shall be such that there is adequate landscaped open space so as to provide light, air and access to the persons occupying the structure.
- (2) The location, size and height of the building, walls and fences shall be such that there will be no interference with adequate light, air and access to adjacent lands and buildings.
- (3) The location, size and height of the building, walls and fences shall be such that they will not hinder the reasonable development of adjoining property not diminish the value thereof.
- (4) The site plan, and its relation to streets, driveways and sidewalks, shall be such as to not interfere with or be hazardous to vehicular and pedestrian traffic.
- (5) The proposed development will be compatible with other uses and buildings in the neighborhood and will not be contrary to the spirit and purpose of this chapter.
- (6) The location, shape and size of required landscaped open space is such as to provide adequate open space for the benefit of the inhabitants of the building and the surrounding neighborhood.

## **9.0 Approval Criteria for Special Land Use Permits**

Article 07, section 7.34 of the Zoning Ordinance specifies the procedures and approval criteria for Special Land Use Permits. Use approval, site plan approval, and design review are the responsibilities of the City Commission. This section reads, in part:

Prior to its consideration of a special land use application (SLUP) for an initial permit or an amendment to a permit, the **City Commission shall refer the site plan and the design to the Planning Board for its review and recommendation. After receiving the recommendation, the City Commission shall review the site plan and design of the buildings and uses proposed** for the site described in the application of amendment.

The City Commission's approval of any special land use application or amendment pursuant to this section shall constitute approval of the site plan and design.

## **10.0 Suggested Action**

Based on a review of the site plans submitted, the Planning Division recommends that the Planning Board recommend APPROVAL to the City Commission of the applicant's request for Final Site Plan and a SLUP for 211 S. Old Woodward, Birmingham Theater.

## **11.0 Sample Motion Language**

Based on a review of the site plans submitted, the Planning Division recommends that the Planning Board recommend APPROVAL to the City Commission of the applicant's request for Final Site Plan and a SLUP for 211 S. Old Woodward, Birmingham Theater.

---

OR

Motion to recommend DENIAL of the Final Site Plan and SLUP to the City Commission for 211 S. Old Woodward, Birmingham Theater for the following reasons:

1. \_\_\_\_\_
2. \_\_\_\_\_

OR

Motion to POSTPONE the Final Site Plan and SLUP for 211 S. Old Woodward, Birmingham Theater, pending receipt of the following:

1. \_\_\_\_\_
2. \_\_\_\_\_





## Department of Licensing and Regulatory Affairs

[MICHIGAN.GOV](http://MICHIGAN.GOV)
[Michigan.gov Home](http://Michigan.gov/Home)
[LLIST Home](#) | [MLCC Home](#) | [Contact MLCC](#) | [LARA Home](#)

### Michigan Liquor Control Commission

#### BAYPOINTE GOLF CLUB

<b>County Name</b>	<b>OAKLAND</b>
<b>LGU Name</b>	<b>WEST BLOOMFIELD TWP</b>
<b>Insurance Company</b>	<b>ILLINOIS UNION INSURANCE COMPANY (12/31/2015-Present)</b>
<b>Business Id</b>	<b>224110</b>
<b>Business Tax Id</b>	<b>382036734</b>
<b>Business Address</b>	<b>4001 Haggerty Rd, West Bloomfield, 48323</b>
<b>Business Phone</b>	<b>248.360.0600</b>
<b>Number of Bars</b>	<b>2</b>

*No Violation  
history*

#### Licensees

**E. A. FULLER OAK MANAGEMENT CORPORATION**

#### Stockholders/Members

**FULLER, EDWARD A**

**LEKAS, JANET J**

**LEKAS, NICHOLAS**

**SHAW, DANIEL J**

#### Contacts

Name	Purpose/Function	Phone Nbr	Fax Nbr	Address
NONE				

#### Liquor License Specifics

License (Type-NBR-YR)	Permits	Transfer Status	MCL Act
CLASS C-204009-2017	1.CATERING 2.SS 3.DANC-ENT 4.OD-SERV 5.SPECIFIC PURPOSE(FOOD,GOLF) 6.ADDBAR	TRANSFERABLE	NONE
SPECIALLY DESIGNATED MERCHANT-204010-2017	NONE	TRANSFERABLE	NONE

[ReQuery](#)
[Return](#)
[Print Window](#)
[Close Print Window](#)

[Michigan Liquor Control Commission](#)

Lansing, MI 48909-7505

Ph: 866-813-0011

Fx: 517-763-0059

[Michigan.gov Home](#) | [LLIST Home](#) | [Contact MLCC](#) | [LARA Home](#) | [State Websites](#)  
[Accessibility Policy](#) | [Link Policy](#) | [Security Policy](#)

Copyright © 2005-2017 State of Michigan



# Department of Licensing and Regulatory Affairs

[MICHIGAN.GOV](http://MICHIGAN.GOV)

[Michigan.gov Home](http://Michigan.gov/Home)
[LLIST Home](#) | [MLCC Home](#) | [Contact MLCC](#) | [LARA Home](#)

## Michigan Liquor Control Commission

### GLEN OAKS GOLF & COUNTRY CLUB

<b>County Name</b>	<b>OAKLAND</b>
<b>LGU Name</b>	<b>FARMINGTON HILLS CITY</b>
<b>Insurance Company</b>	<b>ILLINOIS UNION INSURANCE COMPANY (12/31/2015-Present)</b>
<b>Business Id</b>	<b>339</b>
<b>Business Tax Id</b>	<b>NONE</b>
<b>Business Address</b>	<b>30500 W 13 Mile Rd,Farmington Hills,48334</b>
<b>Business Phone</b>	<b>248.858.4944</b>
<b>Number of Bars</b>	<b>1</b>

#### Licensees

FULLER OAK MANAGEMENT, L.L.C.  
OAKLAND COUNTY PARKS & RECREATION COMMISSION

#### Stockholders/Members

FULLER, EDWARD A  
LEKAS, JANET J  
LEKAS, NICHOLAS  
SHAW, DANIEL J

### Contacts

Name	Purpose/Function	Phone Nbr	Fax Nbr	Address
NONE				

### Liquor License Specifics

License (Type-NBR-YR)	Permits	Transfer Status	MCL Act
CLASS C-523-2017	1.DANC-ENT 2.OD-SERV 3.SS 4.ADDBAR 5.SPECIFIC PURPOSE(FOOD) 6.SS(AM) 7.SPECIFIC PURPOSE(GOLF) 8.BANQUET-DANC-ENT,OD-SERV,SPECIFIC PURPOSE(FOOD),SS,SS(AM) 9.CATERING	TRANSFERABLE	NONE

[ReQuery](#)
[Return](#)
[Print Window](#)
[Close Print Window](#)
[Michigan Liquor Control Commission](#)

Lansing, MI 48909-7505

Ph: 866-813-0011

Fx: 517-763-0059

[Michigan.gov Home](#) | [LLIST Home](#) | [Contact MLCC](#) | [LARA Home](#) | [State Websites](#)  
[Accessibility Policy](#) | [Link Policy](#) | [Security Policy](#)

Copyright © 2005-2017 State of Michigan



Department of Licensing and Regulatory Affairs



[Michigan.gov Home](#)

[LLIST Home](#) | [MLCC Home](#) | [Contact MLCC](#) | [LARA Home](#)

Michigan Liquor Control Commission

**Violation History of Business: 339 FULLER OAK MANAGEMENT, L.L.C.**

Violation Date	MLCC Complaint Number	Violation Description	Decision or Event
7/13/16	177888		7/13/2016 6/23/16 WARNING TICKET ISSUED R 436.1438(1)

[ReQuery](#)

[Return](#)

[Print Window](#)

[Close Print Window](#)

[Michigan Liquor Control Commission](#)

Lansing, MI 48909-7505

Ph: 866-813-0011

Fx: 517-763-0059

[Michigan.gov Home](#) | [LLIST Home](#) | [Contact MLCC](#) | [LARA Home](#) | [State Websites](#)  
[Accessibility Policy](#) | [Link Policy](#) | [Security Policy](#)

Copyright © 2005-2017 State of Michigan



LAW OFFICES

**ADKISON, NEED, ALLEN, & RENTROP**

PROFESSIONAL LIMITED LIABILITY COMPANY

PHILLIP G. ADKISON  
KELLY A. ALLEN  
JESSICA A. HALLMARK  
GREGORY K. NEED  
G. HANS RENTROP

39572 Woodward, Suite 222  
Bloomfield Hills, Michigan 48304  
Telephone (248) 540-7400  
Facsimile (248) 540-7401  
www.ANAfirm.com

OF COUNSEL:  
KEVIN M. CHUDLER  
SARAH J. GABIS  
LINDA S. MAYER

June 22, 2017

*Via Electronic Mail*

Jana Ecker, Planning Director  
City of Birmingham  
151 Martin St.  
Birmingham, MI 48012

**Re: SLUP Application for the Birmingham Theater**

Dear Ms. Ecker:

In addition to the information we have provided to the Planning Department, we are providing responses to the relevant ordinances set forth below.

*Chapter 10 Sec. 10-102. - Application for transfer of liquor license into the city for theater purposes.*

*In addition to those items and conditions set forth in section 10-42, the application shall set forth in detail its proposed project, including, but not limited to:*

*(1) Utilization of said liquor licenses and details on the number of quota liquor licenses in escrow at the time of application.*

**RESPONSE:** There are currently three Class C licenses in escrow in the City. The licenses are listed below. None of these licenses are available to the Birmingham Theater.

1. BELLAR BIRMINGHAM VENTURES LLC (Attached to the building)
2. MONDIAL PROPERTIES III, L.L.C. (Transfer pending with the MLCC)
3. PEABODY'S OF BIRMINGHAM, INCORPORATED (Asking price is \$750K)

*(2) Proposed and/or existing site plan of the property, building floor plan and an operations floor plan.*

**RESPONSE:** Provided.

(3) *An economic impact analysis.*

**RESPONSE:** The economic impact of the Birmingham Theater having a liquor license will be positive for the City. Specifically, the full service aspect of the oldest and most iconic theater in town will allow the Birmingham Theater to thrive and to bring customers to the middle of the downtown area to enjoy other retail and dining establishments.

(4) *A copy of the special land use permit application and supporting documentation submitted by the applicant.*

**RESPONSE:** Provided.

(5) *All documentation submitted to the LCC requesting the transfer.*

**RESPONSE:** Attached.

(6) *Full identification and history of the license holder(s) as it pertains to the license proposed to be transferred, including all complaints filed with the state liquor control commission (LCC) or actions taken by any municipality or the LCC to suspend, revoke or deny the non-renewal of said license and all other documentation setting forth the detail of the existing theater or proposed theater by the applicant, including the approximate dollar amount of the investment to be made, number of jobs to be created, minimum of 150 seats and other benefits to the city.*

**RESPONSE:** Provided.

(7) *Information detailing how the proposed operation will create or sustain the theaters in the city.*

**RESPONSE:** There are only two movie theaters in the City, Emagine and the Birmingham Theater. By granting the SLUP to the Birmingham Theater, which would enable it to serve alcohol, the theaters will be similarly situated, and should both be able to sustain their businesses into the future.

(8) *Such other items deemed necessary by city administration.*

**RESPONSE:** No further information.

*The Applicant is also providing responses to Chapter 10, Alcoholic Liquors, Section 102 which establishes the following criteria for reviewing applications for theater liquor licenses:*

(a) *Selection criteria. In addition to the usual factors and criteria used by the city commission for liquor license requests, including those listed in section 10-42, the commission shall consider the following non-exclusive list of criteria to assist in the determination of which of the existing establishment applicants, if any, should be approved:*

*(1) The applicant's demonstrated ability to finance the proposed project.*

**RESPONSE:** The Applicant and its Landlord have been operating the Birmingham Theater since 1976. The only additional financial commitment from the Theater is the cost of the Class C liquor license and alcohol inventory in the approximate amount of \$70,000. The source of these funds is from the operating income of the Theater.

*(2) The applicant's track record with the city including responding to city and/or citizen concerns.*

**RESPONSE:** Provided.

*(3) Whether the applicant has an adequate site plan to handle the proposed liquor license activities.*

**RESPONSE:** Provided.

*(4) Whether the applicant has adequate health and sanitary facilities.*

**RESPONSE:** Provided.

*(5) The percentage of proceeds from the sale of tickets and food products as compared to the sale of alcoholic beverages.*

**RESPONSE:** The ticket and food sales percentage vs. the alcohol sales percentage is estimated to be 95% to 5%.

*(6) Whether the applicant has outstanding obligations to the city (i.e. property taxes paid, utilities paid, etc.).*

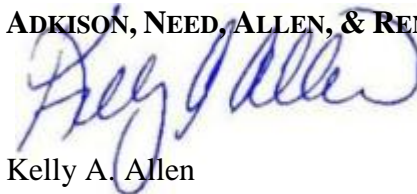
**RESPONSE:** The City is obtaining this information from the Treasurer.

Please let us know if you require any further information.

Thank you for your great work on this.

Very truly yours,

**ADKISON, NEED, ALLEN, & RENTROP, PLLC**



Kelly A. Allen

/kjf

m:\fuller, ted\birmingham theater\corres\2017-06-22 ltr to jecker re responses to ordinance for slup application.docx

**Planning Board Minutes  
June 28, 2017**

**SPECIAL LAND USE PERMIT ("SLUP") REVIEW  
FINAL SITE PLAN AND DESIGN REVIEW**

**1. 211 S. Old Woodward Ave.  
Birmingham Theater  
Request for approval to serve alcoholic liquors in the existing theater  
operating under a Class C Liquor License**

Chairman Cline **Clein** took back the gavel at this time.

Ms. Ecker advised the subject site is located on the east side of S. Old Woodward Ave. just south of Merrill. The parcel is zoned B-4, Business-Residential and D-4 in the Downtown Overlay District. The applicant, Birmingham Teatro, LLC, is applying for a SLUP to operate with a Class C Liquor License under the new ordinance allowing a movie theater to operate with a liquor license. Birmingham Teatro is owned equally by Daniel Shaw and Nicholas Lekas, who in addition to operating the theater, are also part owners of Birmingham Theater, LLC, which is the sub-landlord for 211 S. Old Woodward.

Article 2, section 2.37 (B4) of the Zoning Ordinance requires that a theater seeking to provide alcoholic beverage sales (on-premise consumption) shall obtain a SLUP and site plan review. Accordingly, the applicant is required to obtain a recommendation from the Planning Board on the Final Site Plan and Special Land Use Permit, and then obtain approval from the City Commission for the Final Site Plan and SLUP.

The applicant has advised that the service of alcohol is required for the continued operation of the Birmingham 8 Theater, given market trends and the need to compete with the Emagine Palladium Theater, which also provides the service of alcohol to theater patrons. Emagine and the Birmingham Theater are the only two movie theaters in the City. Granting the SLUP to the Birmingham Theater will enable it to serve alcohol, the theaters will be similarly situated, and both should be able to sustain their businesses into the future.

The sale of alcohol will be a relatively small amount of the Birmingham Theater's business, but they believe it will help them to provide a full service experience.

*Design Review*

The applicant is proposing no interior or exterior design changes to the building at this time other than the service of alcohol primarily from the second-floor concession stand.

As the applicant was not present, the following motion was made:

---



**Motion by Mr. Williams**

**Seconded by Mr. Share to postpone the SLUP and Final Site Plan And Design Review for 211 S. Old Woodward Ave., Birmingham Theater, to July 12, 2017.**

No one from the public wished to comment on the motion.

**Motion carried, 6-1.**

VOICE VOTE

Yeas: Williams, Clein, Koseck, Lazar, Share, Whipple-Boyce

Nays: Jeffares

Absent: Boyle

---

**DRAFT Planning Board Minutes  
July 12, 2017**

**OLD BUSINESS**

- 1. 211 S. Old Woodward Ave.  
Birmingham Theater  
Request for approval of a Special Land Use Permit ("SLUP") and Final Site Plan Review to serve alcoholic liquors in the existing theater operating under a Class C Liquor License** (postponed from the meeting of June 28, 2017)

Ms. Ecker advised the subject site is located on the east side of S. Old Woodward Ave. just south of Merrill. The parcel is zoned B-4, Business-Residential and D-4 in the Downtown Overlay District. The applicant, Birmingham Teatro, LLC, is applying for a SLUP to operate with a Class C Liquor License under the new ordinance allowing a movie theater to operate with a liquor license. Birmingham Teatro is owned equally by Daniel Shaw and Nicholas Lekas, who in addition to operating the theater, are also part owners of Birmingham Theater, LLC, which is the sub-landlord for 211 S. Old Woodward.

Ms. Ecker stated she had reviewed this application thoroughly at the last meeting. The board had a few questions for the applicant who was not present for the last meeting.

Ms. Kelly Allen, Adkison, Need, Allen & Rentrop, LLC, appeared on behalf of the applicant, Birmingham Teatro, LLC. She apologized for not being present at the last meeting.

She responded to questions from last time:

- Why they are requesting to serve liquor until 1 a.m.?  
The answer is they will stop serving liquor an hour before the movies are over but in any event, no later than 1 a.m.
- Can anyone come in and go upstairs to the little bar area?  
Customers must purchase a ticket to enter the theater. To get upstairs they must provide a ticket.
- The concession area has not changed except for new tile and paint. There will no longer be popcorn there. There are four tables with chairs for people to sit. The idea is that patrons can carry their beverage into the movie theater.

Ms. Whipple-Boyce received confirmation that liquor will only be served upstairs.

No one from the public wished to comment on this appeal at 7:38 p.m.

**Motion by Mr. Williams**

**Seconded by Ms. Whipple-Boyce that based on a review of the site plans submitted, the Planning Board recommends approval to the City Commission of the applicant's request for Final Site Plan and a SLUP for 211 S. Old Woodward Ave., Birmingham Theater.**

**Motion carried, 7-0.**

---

No one spoke from the public at 7:39 p.m.

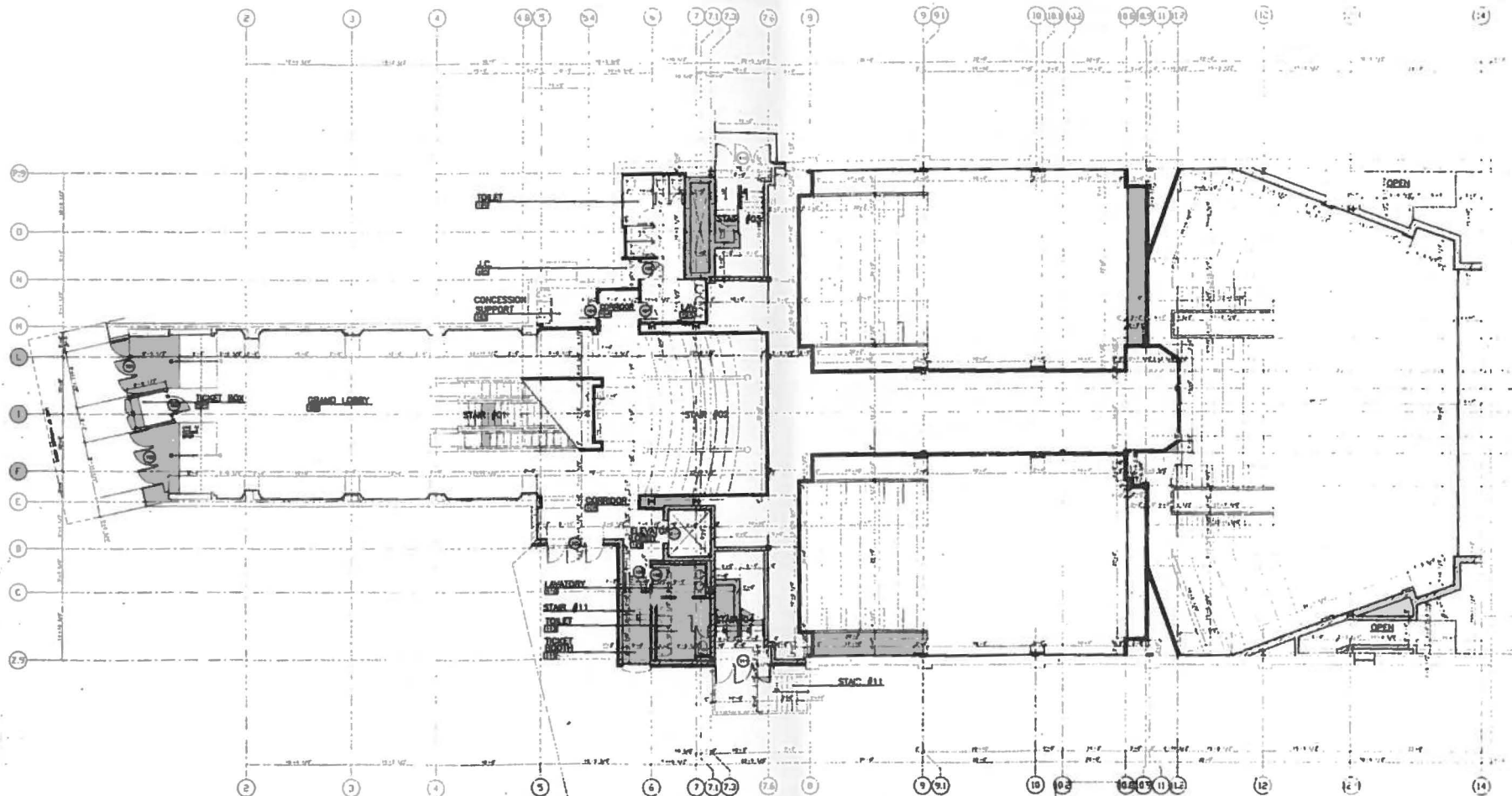
VOICE VOTE

Yeas: Williams, Whipple-Boyce, Boyle, Clein, Jeffares, Lazar, Prasad

Nays: None

Absent: Koseck

---



**PROPOSED LOBBY LEVEL FLOOR PLAN**

SCALE: 1/8" = 1'-0"

- WALL LEGEND**
- CONCRETE WALL TO EXTERIOR
  - ▨ CONCRETE WALL TO INTERIOR
  - ▧ CONCRETE WALL TO EXTERIOR / INTERIOR
  - ▩ CONCRETE WALL TO EXTERIOR / INTERIOR
  - CONCRETE WALL TO EXTERIOR / INTERIOR
  - CONCRETE WALL TO EXTERIOR / INTERIOR
  - ▬ CONCRETE WALL TO EXTERIOR / INTERIOR
  - ▭ CONCRETE WALL TO EXTERIOR / INTERIOR
  - ▮ CONCRETE WALL TO EXTERIOR / INTERIOR
  - ▯ CONCRETE WALL TO EXTERIOR / INTERIOR

PROJECT ARCHITECT:  
 VICTOR SORANI & ASSOCIATES  
 ARCHITECTS, P.C.  
 525 North Woodward Ave.  
 Birmingham, MI 48009  
 810.256.5707  
 fax 810.258.5515

ASMX WALL ARCHITECT:  
 HELMS FRICTION DOCUMENTS  
 PRIME DESIGN SYSTEMS, INC.  
 877 South Adams Rd.  
 Suite 202  
 Birmingham, MI 48009  
 810.540.1711  
 fax 810.573.3856

STRUCTURAL ENGINEER:  
 L & B, INC.  
 29580 Northwestern Hwy.  
 Suite 100  
 Southfield, MI 48034  
 810.356.7750  
 fax 810.356.1210

MECHANICAL/ELECTRICAL ENGINEER:  
 JAMES PARTRIDGE ASSOCIATES, INC.  
 925 South Adams Rd.  
 Birmingham, MI 48009  
 810.645.1465  
 fax 810.645.1590

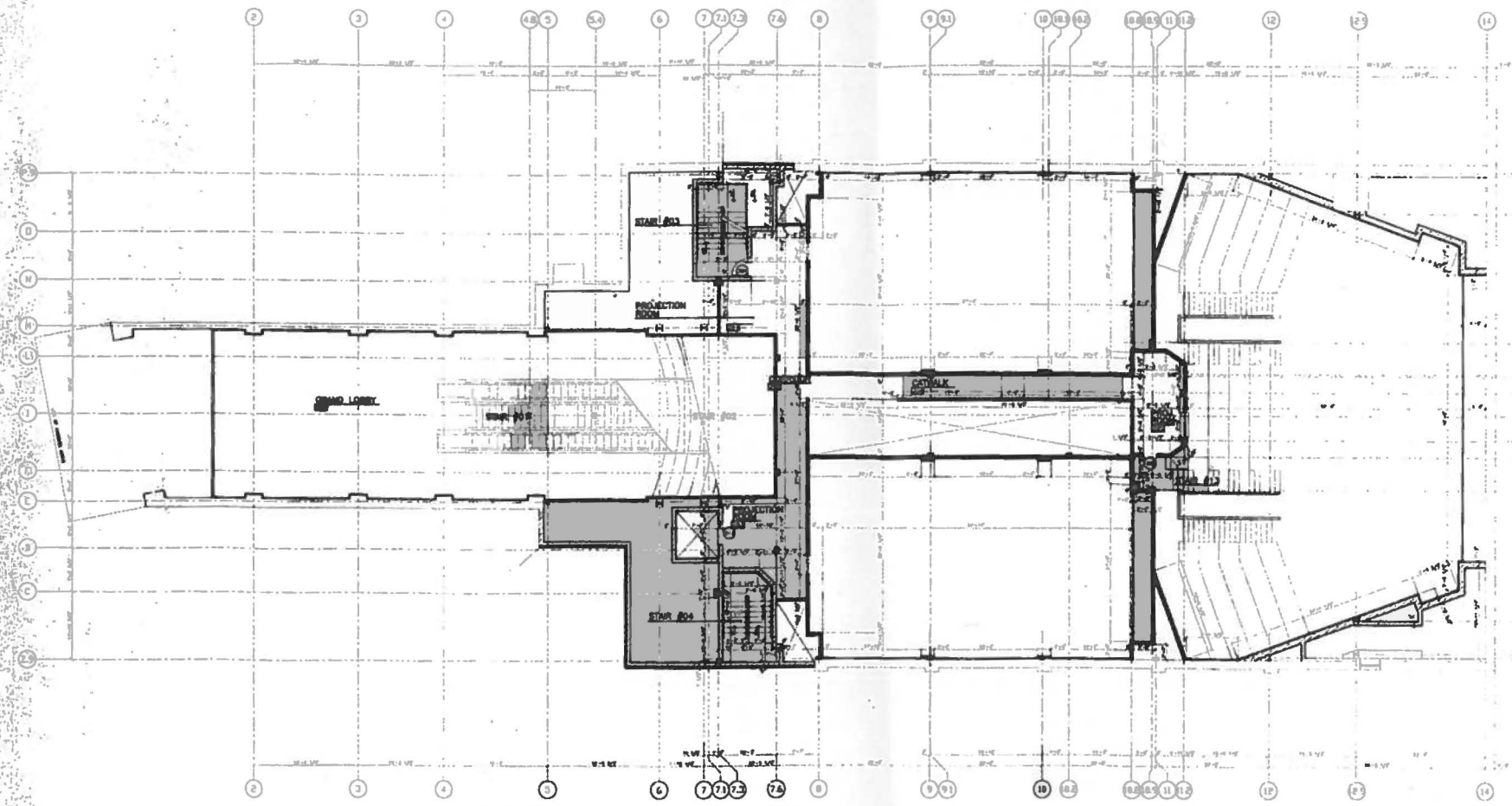
CONSTRUCTION MANAGER:  
 INTEGRATED CONSTRUCTION  
 SERVICES, INC.  
 155 South Woodward Ave.  
 Suite 200  
 Birmingham, MI 48009  
 810.642.9800  
 fax 810.642.9870

BIRMINGHAM THEATRE  
 Uptown Theatres  
 211 South Woodward Ave.  
 Birmingham, MI 48009

Date: Issued For:  
 10/14/05 REVISION PLANS  
 10/14/05 DESIGN THEATRE SET  
 11/14/05 REVISION SET

Project Number:  
 10-011  
 Sheet Title:  
 PROPOSED  
 LOBBY LEVEL FLOOR PLAN

Sheet Number:  
**A1.03**



**PROPOSED LOWER LEVEL PROJECTION MEZZANINE PLAN**  
 SCALE: 1/8" = 1'-0"

- WALL LEGEND**
- 000000 000000 000000
  - 000000 000000 000000
  - ||||| 000000 000000 000000
  - 000000 000000 000000
  - 000000 000000 000000
  - 000000 000000 000000
  - 000000 000000 000000
  - 000000 000000 000000

PROJECT ARCHITECT:  
 DESIGN  
**VICTOR TORANI & ASSOCIATES**  
 ARCHITECTS, P.C.  
 525 North Woodward Ave.  
 Birmingham, MI 48009  
 810.258.5700  
 fax 810.258.5515

ASSOCIATE ARCHITECT  
 CONSTRUCTION DOCUMENTS  
**PAIRIS DESIGN SYSTEMS, INC.**  
 877 South Adams Rd.  
 Suite 202  
 Birmingham, MI 48009  
 810.540.1711  
 fax 810.540.3856

STRUCTURAL ENGINEER:  
**L & H, INC.**  
 29580 Northwestern Hwy.  
 Suite 100  
 Southfield, MI 48034  
 810.356.7750  
 fax 810.356.1210

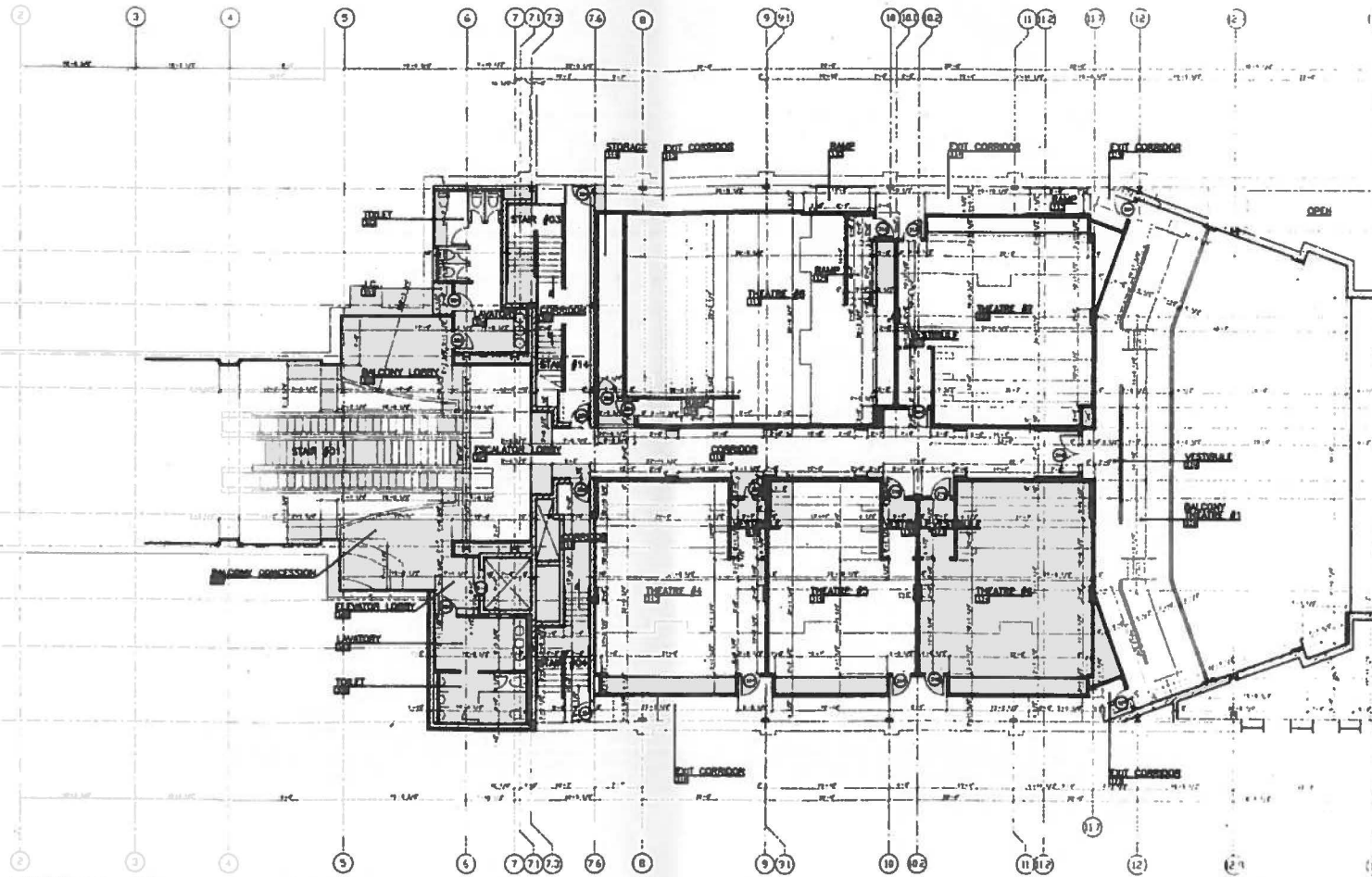
MECHANICAL/ELECTRICAL ENGINEER:  
**JAMES PORTER & ASSOCIATES, INC.**  
 925 South Adams Rd.  
 Birmingham, MI 48009  
 810.645.1465  
 fax 810.645.1590

CONSTRUCTION MANAGER:  
**INTEGRATED CONSTRUCTION**  
**SCOTT, INC.**  
 155 South Woodward Ave.  
 Suite 200  
 Birmingham, MI 48009  
 810.642.9800  
 fax 810.642.9870

**BIRMINGHAM THEATRE**  
 Uptown Theatres  
 211 South Woodward Ave.  
 Birmingham, MI 48009

Date: Issued For:  
 11/19/03  
 11/19/03  
 11/19/03

Project Number:  
 20441  
 Sheet Title:  
 PROPOSED  
 LOWER LEVEL PROJECTION  
 MEZZANINE PLAN  
 Sheet Number:  
**A1.04**



**PROPOSED UPPER LEVEL FLOOR PLAN**

SCALE: 1/8" = 1'-0"

**WALL LEGEND**

- EXISTING WALL TO REMAIN
- NEW EXTERIOR FINISHED WALL
- NEW EXTERIOR BRICK WALL
- NEW EXTERIOR CONCRETE BLOCK WALL
- NEW EXTERIOR MASONRY WALL
- NEW EXTERIOR FINISHED WALL
- NEW EXTERIOR BRICK WALL
- NEW EXTERIOR CONCRETE BLOCK WALL
- NEW EXTERIOR MASONRY WALL

PROJECT ARCHITECT  
DESIGN  
**VICTOR SOROKI & ASSOCIATES  
ARCHITECTS, P.C.**  
525 North Woodward Ave.  
Birmingham, MI 48009  
810.258.5707  
fax 810.258.5515

ASSOCIATE ARCHITECT  
CONSTRUCTION DOCUMENTS  
**PRIME DESIGN SYSTEMS, INC.**  
877 South Adams Rd.  
Suite 203  
Birmingham, MI 48009  
810.540.1711  
fax 810.540.3856

STRUCTURAL ENGINEER  
**I. G. B. INC.**  
2950 Northwestern Hwy.  
Suite 100  
Southfield, MI 48034  
810.355.7750  
fax 810.356.1210

MECHANICAL/ELECTRICAL ENGINEER  
**JAMES BARTINGE ASSOCIATES, INC.**  
925 South Adams Rd.  
Birmingham, MI 48009  
810.645.1465  
fax 810.645.1590

CONSTRUCTION MANAGER  
**INTEGRATED CONSTRUCTION  
SERVICES, INC.**  
353 South Woodward Ave.  
Suite 200  
Birmingham, MI 48009  
810.642.9800  
fax 810.642.9870

**BIRMINGHAM THEATRES**  
Uptown Theatres  
211 South Woodward Ave.  
Birmingham, MI 48009

Date: Issued For:  
11-04-95 PRELIMINARY PERMIT  
10-12-95 DESIGN PHASE 2A  
11-04-95 PERMIT SET

Project Number:  
214-01  
Sheet Title:  
**PROPSCO  
UPPER LEVEL  
FLOOR PLAN**  
Sheet Number:  
**A1.05**

**CONTRACT FOR A PRINCIPAL SHOPPING DISTRICT LIQUOR LICENSE**  
**(THEATER)**

This Contract is entered into this \_\_\_\_ day of \_\_\_\_\_, 2017, by and between **BIRMINGHAM TEATRO, LLC**, a Limited Liability Company, whose address is 211 S. Old Woodward, Birmingham, Michigan (Licensee) and the **CITY OF BIRMINGHAM**, a Michigan Municipal Corporation, whose address is 151 Martin Street, Birmingham, Michigan 48012 (City).

**R E C I T A L S:**

**WHEREAS**, Licensee wishes to obtain a liquor license pursuant to MCLA 436.1521a(1)(b) for a theater; and,

**WHEREAS**, local legislative approval is required by the **CITY OF BIRMINGHAM** for the issuance of a liquor license pursuant to MCLA §436.152a(1)(b) of the Michigan Liquor Control Code of 1998; and,

**WHEREAS**, Licensee desires to enter into this Contract as an inducement to the **CITY OF BIRMINGHAM** to approve the request of the aforementioned issuance of the liquor license; and,

**WHEREAS**, the **CITY OF BIRMINGHAM** is relying upon this Contract in giving its approval to the issuance of the on-premises licenses as described herein.

**NOW, THEREFORE**, the parties agree as follows:

1. Licensee shall be permitted to obtain a liquor license for use solely at the Property. Any transfer of the aforementioned license from the Property to any other location in the CITY OF BIRMINGHAM shall require the approval of the Birmingham City Commission in accordance with Section 10-83. In addition, any expansion of the building location at the Property shall also require the approval of the Birmingham City Commission.
2. Licensee does hereby agree that it shall establish a theater, as defined in Birmingham City Code Chapter 126, Zoning, Article 9, section 9.02, at the Property within 18 months from the date of Special Land Use Permit approval granted by the Birmingham City Commission. Licensee agrees that the theater must be open and fully operational within this time period, or approval of the Special Land Use Permit will automatically be revoked by the City.
3. Licensee further acknowledges that it must secure a special land use permit for a theater as required by the Birmingham City Code. It is further agreed that it shall comply with all provisions of the special land use permit, or any amendments thereto, as a condition of this contract. Licensee further acknowledges and agrees that a violation of any provision of the special land use permit or the Michigan Liquor Control Code is a violation of the terms of the contract entitling the City to exercise any or all of the remedies provided herein.
4. Licensee acknowledges that no modifications to the site plan, floor plan, elevations or operation of the theater may be made unless approved by the City Commission through a Special Land Use Permit Amendment as required in the Zoning Ordinance. Modifications include, but are not limited to, name changes, ownership changes, remodeling, changes in the



number of interior or exterior seats, the use of eisenglass and other enclosure materials on any outdoor dining area, relocation or addition of bar, etc.

5. Licensee acknowledges that it shall have a duty of continuing compliance with regards to off-street parking as required in the Zoning Ordinance, and further agrees to resolve any future parking issues that may arise, including but not limited to parking overflow and encroachment into residential areas or public parking facilities, to the satisfaction of the City or the Special Land Use Permit may be cancelled by the City Commission.

6. Licensee further acknowledges that outdoor dining is seasonally permitted from April 1st through November 15<sup>th</sup> only, with a valid Outdoor Dining Permit. The use of an enclosure system(s) does not allow the outdoor dining season to be extended.

7. Licensee further agrees that it shall not apply or seek from the Michigan Liquor Control Commission any permit endorsements to its liquor license whether available in the current Michigan Liquor Control Code or in future Michigan Liquor Control Codes, or amendments thereto, without the prior approval of the Birmingham City Commission.

8. Licensee further agrees that it shall not seek any change in its license status/class whether such changes are available now in the current Michigan Liquor Control Code or in future Michigan Liquor Control Codes, or amendments thereto, without prior approval of the Birmingham City Commission.

9. Licensee agrees that it shall adhere to all federal, state and local laws currently in effect or as subsequently amended or enacted.

10. Licensee agrees that its failure to follow any of the provisions herein shall be grounds for the Michigan Liquor Control Commission to suspend, revoke or not renew its liquor license and/or for the Birmingham City Commission to revoke the special land use permit, either of which would prohibit Licensee from operating the theater. Licensee agrees that in addition to the City of Birmingham's right to seek suspension, revocation or non-renewal of its liquor license and/or revocation of the special land use permit, the City retains any and all rights to enforce this Contract that may be available to it in law or in equity. Licensee further agrees that it shall reimburse the City all of its costs and actual attorney fees incurred by the City in seeking the suspension, revocation or non-renewal of its liquor license and revocation of the special land use permit, as well as enforcing such other rights as may be available at law and/or in equity.

11. To the fullest extent permitted by law, Licensee and any entity or person for whom Licensee is legally liable, agrees to be responsible for any liability, defend, pay on behalf of, indemnify, and hold harmless the City, its elected and appointed officials, employees and volunteers and others working on behalf of the City against any and all claims, demands, suits, or loss, including all costs connected therewith, including all costs and actual attorney fees, and for any damages which may be asserted, claimed or recovered against or from the City, its elected and appointed officials, employees, volunteers or others working on behalf of the City, by reason of personal injury, including bodily injury, death and/or property damage, including loss of use thereof, which arises out of or is in any way connected or associated with Licensee's operation of a theater at the Property.

12. In the event Licensee fails to reimburse the City the costs and/or attorney fees as required herein, or any part thereof, then said amount could be transferred to the tax roll in accordance with Section 1-14 of the Birmingham City Code.

13. Any disputes arising under this Contract, not within the jurisdiction of the Michigan Liquor Control Commission, shall be settled either by commencement of a suit in Oakland County Circuit Court or by compulsory arbitration, at the election of the City. The Licensee shall notify the City of any dispute it has arising out of this Contract and shall demand that the City elect whether the dispute is to be resolved by submitting it to compulsory arbitration or by commencement of a suit in Oakland County Circuit Court. The City shall make its election in writing within thirty (30) days from the receipt of such notice. If the City elects to have the dispute resolved by compulsory arbitration, it shall be settled pursuant to Chapter 50 of the Revised Judicature Act for the State of Michigan, with each of the parties appointing one arbitrator and the two thus appointed appointing a third. In the event the City fails to make such an election, any dispute between the parties may be resolved by the filing of a suit in the Oakland County Circuit Court.

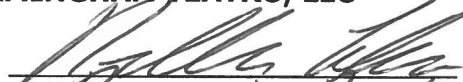
14. This Contract shall be governed by and performed, interpreted and enforced in accordance with the laws of the State of Michigan.

15. If any provision of this contract is declared invalid, illegal or unenforceable, such provision shall be severed from this contract and all other provisions shall remain in full force and effect.

16. This Contract shall be binding upon and apply and inure to the benefit of the parties hereto and their respective successors or assigns. The covenants, conditions, and the agreements herein contained are hereby declared binding on the CITY OF BIRMINGHAM and Licensee. It is further agreed that there shall be no change, modification, or alteration hereof, except in writing, signed by both of the parties hereto. Neither party shall assign any of the rights under this contract without prior approval, in writing, of the other. Any attempt at assignment without prior written consent shall be void and of no effect.

**IN WITNESS WHEREOF**, the parties hereby have executed this Contract as of the date set forth above.

**BIRMINGHAM TEATRO, LLC**

By:   
Its: Maryam Thoma  
Date: 8-8-17

**CITY OF BIRMINGHAM**

By: \_\_\_\_\_  
Mark Nickita, Mayor  
Date: \_\_\_\_\_  
By: \_\_\_\_\_

Cherilynn Brown City Clerk

Date: \_\_\_\_\_

**BIRMINGHAM TEATRO, LLC  
DBA BIRMINGHAM 8 THEATER  
211 S. OLD WOODWARD  
SPECIAL LAND USE PERMIT  
2017**

WHEREAS, Birmingham Teatro, LLC filed an application pursuant to Article 7, section 7.34 of Chapter 126, Zoning, of the City Code to serve alcoholic liquors at an existing theater with the City;

WHEREAS, The land for which the Special Land Use Permit is sought is located on the east side of S. Old Woodward at Merrill Street;

WHEREAS, The land is zoned B4 (Business-Residential), which permits theaters serving alcoholic liquors with a Special Land Use Permit;

WHEREAS, Article 7, section 7.34 of Chapter 126, Zoning requires a Special Land Use Permit to be considered and acted upon by the Birmingham City Commission, after receiving recommendations on the site plan and design from the Planning Board for the proposed Special Land Use;

WHEREAS, The Planning Board on July 12, 2017 reviewed the application for Final Site Plan Review and a Special Land Use Permit and recommended approval with no conditions;

WHEREAS, The Birmingham City Commission has reviewed Birmingham Teatro, LLC's Special Land Use Permit application and the standards for such review as set forth in Article 7, section 7.36 of Chapter 126, Zoning, of the City Code;

NOW, THEREFORE, BE IT RESOLVED, The Birmingham City Commission finds the standards imposed under the City Code have been met, subject to the conditions below, and that Birmingham Teatro, LLC's application for a Special Land Use Permit authorizing the service of alcoholic liquors at the existing theater at 211 S. Old Woodward in accordance with Chapter 10, Alcoholic Liquors, is hereby approved;

BE IT FURTHER RESOLVED, That the City Commission determines that to assure continued compliance with Code standards and to protect public health, safety, and welfare, this Special Land Use Permit is granted subject to the following conditions:

1. Birmingham Teatro, LLC shall abide by all provisions of the Birmingham City Code;
2. The Special Land Use Permit may be cancelled by the City Commission upon finding that the continued use is not in the public interest;
7. Birmingham Teatro, LLC shall enter into a contract with the City outlining the details of the proposed service of alcoholic liquors at the existing theater;
9. Birmingham Teatro, LLC shall have a duty of continuing compliance with regards to off-street parking as required in the Zoning Ordinance;

10. Birmingham Teatro, LLC agrees to resolve any future parking issues that may arise, including but not limited to parking overflow and encroachment into residential areas or public parking facilities, to the satisfaction of the City or the Special Land Use Permit by be cancelled by the City Commission; and
11. Birmingham Teatro, LLC is required to have any modifications to the site plan, floor plan or operation of the theater approved through a Special Land Use Permit Amendment as required in the Zoning Ordinance.

BE IT FURTHER RESOLVED, That failure to comply with any of the above conditions shall result in termination of the Special Land Use Permit.

BE IT FURTHER RESOLVED, Except as herein specifically provided, Birmingham Teatro, LLC and its heirs, successors, and assigns shall be bound by all ordinances of the City of Birmingham in effect at the time of the issuance of this permit, and as they may be subsequently amended. Failure of Birmingham Teatro, LLC to comply with all the ordinances of the city may result in the Commission revoking this Special Land Use Permit.

I, Cherilynn Mynsberge, City Clerk of the City of Birmingham, Michigan, do hereby certify that the foregoing is a true and correct copy of the resolution adopted by the Birmingham City Commission at its regular meeting held on August 14, 2017.

---

Cherilynn Mynsberge, City Clerk

## NOTICE OF PUBLIC HEARING

### BIRMINGHAM CITY COMMISSION CONSIDERATION OF BROWNFIELD PLAN

Meeting Date, Time, Location:	Monday, August 14, 2017, 7:30 PM Municipal Building, 151 Martin, Birmingham, MI
Location of Request:	35975 Woodward Ave Birmingham, MI 48009 (The property is a former gas station site located on Woodward.)
Nature of Hearing:	To consider adoption of a brownfield plan, in accordance with the provisions of the Brownfield Redevelopment Financing Authority Act, being act 381 of the Public Acts of the State of Michigan of 1996, as amended.
City Staff Contact:	Jana Ecker 248.530.1850 <a href="mailto:jecker@bhamgov.org">jecker@bhamgov.org</a>
Notice Requirements:	Publish: July 30 (Observer & Eccentric) and August 2, 2017 (Eagle) Mail to: Taxing jurisdictions that levy taxes subject to capture under this act.
Approved minutes may be reviewed at: Maps, plats, and a description of the brownfield plan are available for public inspection at:	City Clerk's Office

All aspects of the brownfield plan are open for discussion at the public hearing.

At the hearing, all citizens, taxpayers and property owners of the City of Birmingham and officials from any taxing jurisdiction whose millage may be subject to capture under the proposed brownfield plan shall have the right to be heard in regard to the adoption of the brownfield plan.

Persons wishing to express their views may do so in person at the hearing or in writing addressed to City Clerk, City of Birmingham, 151 Martin, Birmingham, MI 48009.

Persons with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk's Office at (248) 530-1880 (voice) or (248) 644-5115 (TDD) at least one day in advance to request mobility, visual, hearing or other assistance.



## **Notice of Public Hearing to Taxing Jurisdictions**

The City of Birmingham City Commission will hold a public hearing on **August 14, 2017**, at 7:30 p.m. at the City Commission chambers located at 151 Martin Street, Birmingham, Michigan, concerning a brownfield plan for property located at **35975 Woodward Ave**, Birmingham, Michigan.

The City of Birmingham (the City) has established a Brownfield Redevelopment Authority (the Authority) pursuant to the Brownfield Redevelopment Act, 1996 PA 381, as amended (Act 381). Act 381 authorizes local units of government to facilitate the revitalization of environmentally distressed areas through the use of brownfield plans incorporating tax increment financing. Tax increment financing allows the Authority to capture tax revenues attributable to increases in the taxable value of real and personal property located on eligible property, which may include adjacent or contiguous parcels. Increases in taxable value may be attributable to several factors, including new construction, rehabilitation, remodeling, alterations, additions, and the installation of personal property on eligible property.

The Authority has considered and recommended adoption of a brownfield plan related to the property located at **35975 Woodward Ave**, Birmingham, Michigan (the Property). The proposed use for the Property is a two-story office building with a basement and associated surface parking. The Property has been determined to contain hazardous substances as defined under applicable environmental laws and regulations. The brownfield plan proposes to capture some tax increment revenues generated on the Property for approved purposes. The attached schedule describes the estimated fiscal and economic implications of the proposed brownfield plan. The City Commission must approve the brownfield plan.

The property is located at the southeast corner of Woodward Avenue and Oak Street in the City of Birmingham. The property is adjacent to the Rouge River.

Maps, plats, and a description of the brownfield plan are available for public inspection at the office of the City Clerk located at 151 Martin Street, Birmingham, Michigan. All aspects of the brownfield plan are open for discussion at the public hearing.

If you wish to express your views or recommendations, or if you have any questions or comments, concerning the brownfield plan, you have the right to be heard in regard to the adoption of the brownfield plan.

Dated: July 28, 2017  
J. Cherilynn Brown  
City Clerk  
City of Birmingham, Michigan





cheryl arft <carft@bhamgov.org>

---

## City of Birmingham-Act 381 Brownfield Plan Public Hearing Notification

1 message

---

cheryl arft <carft@bhamgov.org>

Fri, Jul 28, 2017 at 2:06 PM

To: SMEDLEYR@michigan.gov, GARZAR8@michigan.org, Mark Gerber <Mgerber@bhamgov.org>, Teresa Klobucar <Tklobucar@bhamgov.org>

Cc: Cherylynn Brown <cbrown@bhamgov.org>, jhaynes@bhlaw.us.com, Jana Ecker <Jecker@bhamgov.org>

Attached please find a Notice of Public Hearing to Taxing Jurisdictions re: 35975 Woodward Avenue, Birmingham, Michigan scheduled for Monday, August 14, 2017.

Also attached is a copy of the proposed Brownfield Plan for the subject property.


Cheryl Arft  
Deputy City Clerk  
City of Birmingham  
151 Martin Street  
Birmingham, MI 48009

248-530-1880  
248-530-1080 (fax)

[carft@bhamgov.org](mailto:carft@bhamgov.org)

---

### 2 attachments

 **NOTICE TO TAXING JURISDICTIONS.pdf**  
107K

 **35975 WW Final Brownfield Plan 072617 to DEQ.pdf**  
10399K



## MEMORANDUM

Planning Division

**DATE:** August 7, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Jana L. Ecker, Planning Director

**SUBJECT:** Public Hearing for a Brownfield Plan for 35975 Woodward  
(vacant site, former gas station)

---

The State Brownfield Redevelopment Statute (Public Act 381 of 1996, as amended) allows the City to approve a Brownfield Plan in order to help finance the cleanup of a contaminated site through the use of Tax Increment Financing (TIF).

In March 2017, the owner of the above-captioned property submitted a draft Brownfield Plan ("the Plan") to the City in anticipation of the construction of a new two story commercial development proposed for the site. The Brownfield Plan outlines numerous environmental concerns on the site, including historical operations and contamination of the adjacent sites, and contamination on the subject site. Extensive soil and groundwater contamination was found, including the presence of various volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals at concentrations exceeding Part 201 Generic Residential Criteria. The contamination of the soil and groundwater has been demonstrated to be pervasive across the entire site, as shallow as 0.5 feet below ground surface and as deep as 13 feet below ground surface.

City staff, the City Attorney and our environmental consultants at AKT Peerless reviewed the draft Plan and requested additional information. The applicant submitted the requested details, and on May 9, 2017, AKT Peerless completed their review and recommended approval (see attached letter). The applicant is now requesting approval of the Brownfield Plan and the future reimbursement of \$826,210 in environmental costs in order to clean up the site to meet the Michigan Department of Environmental Quality standards.

On June 27, 2017, the Brownfield Redevelopment Authority ("BRA") met and reviewed the applicant's Brownfield Plan and the associated Reimbursement Agreement. After much discussion regarding the history of contamination, previous property owners, and potential liable parties, the BRA postponed the matter and requested that the applicant reach out to BP (previous owner) and determine if they are willing to assist with the vapor intrusion and soil removal costs.

On July 12, 2017, the BRA again met to discuss the proposed Brownfield Plan and associated Reimbursement Agreement for 35975 Woodward. The applicant advised that they had contacted BP, and had a letter from them indicating that they were not liable for assisting with any environmental clean up costs. The BRA questioned BP potential liability, but after much discussion voted to approve a maximum of \$826,210 in environmental clean up costs, to be reimbursed over a maximum of 10 years. Further, the agreement states that if relevant State of Michigan agencies do not approve the School Taxes component of the Brownfield Plan (estimated to be \$247,243), then the City will not reimburse the developer for such amounts from the local Taxes component. In this case, reimbursable eligible costs will not exceed \$580,570, and reimbursement from Local Taxes will not exceed \$333,327.

Both the City's legal counsel and the City's environmental consultant have reviewed the Brownfield Plan for 35975 Woodward, and all previously requested amendments have been made by the applicant. A copy of the Brownfield Plan and the proposed Reimbursement Agreement are attached for your review.

The City Commission set a public hearing date for August 14, 2017 to consider approval of the revised Brownfield Plan as recommended by the Brownfield Redevelopment Authority on July 12, 2017, as well as the associated Reimbursement Agreement. Please find attached all relevant documents and the draft meeting minutes for your review.

**SUGGESTED ACTION:**

To approve the Brownfield Plan and Reimbursement Agreement for 35975 Woodward.

**CITY OF BIRMINGHAM**

**RESOLUTION APPROVING A BROWNFIELD PLAN  
FOR 35975 WOODWARD**

Moved by Commission Member \_\_\_\_\_; seconded by Commission Member \_\_\_\_\_.

**WHEREAS**, the Birmingham Brownfield Redevelopment Authority (the "Authority"), pursuant to 1996 PA 381, as amended (the "Act"), prepared and recommended for approval by this Commission a brownfield plan ("the Plan") for property located at 35975 Woodward, Birmingham, Michigan; and,

**WHEREAS**, the City of Birmingham, at least ten days before the meeting of this Commission at which this resolution is considered, provided notice of a hearing to all taxing jurisdictions which are affected by the Plan (the "Taxing Jurisdictions") and fully informed the Taxing Jurisdictions about the fiscal and economic implications of the Plan; and,

**WHEREAS**, the City of Birmingham, at least ten days before the meeting of this Commission at which this resolution is considered, provided notice of the hearing to the Department of Environmental Quality and the Michigan Strategic Fund (or its designee); and,

**WHEREAS**, this Commission held a public hearing on the Plan at which officials from the Taxing Jurisdictions had an opportunity to be heard in regard to the adoption of the brownfield plan, interested persons had an opportunity to be heard, any written communications with reference to the Plan were received and considered, and a record of the public hearing, including all data presented at the hearing, was made and preserved.

**NOW, THEREFORE, BE IT RESOLVED THAT**

1. The Plan constitutes a public purpose.
2. The Plan meets all of the requirements for a brownfield plan set forth in Section 13 of the Act.
3. The proposed method of financing the costs of the eligible activities, as described in the Plan, is feasible and the Authority has the ability to arrange the financing.
4. The costs of the eligible activities proposed in the Plan are reasonable and necessary to carry out the purposes of the Act.
5. The amount of captured taxable value estimated to result from the adoption of the Plan is reasonable.
6. The Plan is approved.

7. The reimbursement agreement pertaining to the Plan is approved.

AYES: \_\_\_\_\_

NAYS: \_\_\_\_\_

ABSENT: \_\_\_\_\_

MOTION CARRIED.

I, Cherilynn Mynsberge, Clerk of the City of Birmingham, certify that the foregoing is a true and compared copy of a Resolution duly made and passed by the Birmingham City Commission at a meeting held on August 14, 2017.

\_\_\_\_\_  
Cherilynn Mynsberge, City Clerk



# MEMORANDUM

Planning Division

**DATE:** June 2, 2017  
**TO:** Brownfield Redevelopment Authority  
**FROM:** Jana L. Ecker, Planning Director  
**SUBJECT:** Review of Brownfield Plan for 35975 Woodward

---

In March 2017, the owner of the above-captioned property submitted a draft Brownfield Plan ("the Plan") to the City in anticipation of the construction of a new two story commercial development proposed for the site. The Brownfield Plan outlines numerous environmental concerns on the site, including historical operations and contamination of the adjacent sites, and contamination on the subject site. Extensive soil and groundwater contamination was found, including the presence of various volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals at concentrations exceeding Part 201 Generic Residential Criteria. The contamination of the soil and groundwater has been demonstrated to be pervasive across the entire site, as shallow as 0.5 feet below ground surface and as deep as 13 feet below ground surface.

City staff, the City Attorney and our environmental consultants at AKT Peerless reviewed the draft Plan and requested additional information. The applicant submitted the requested details, and on May 9, 2017, AKT Peerless completed their review and recommended approval (see attached letter). The applicant is now requesting approval of the Brownfield Plan and the future reimbursement of \$826,210 in environmental costs in order to clean up the site to meet the Michigan Department of Environmental Quality standards.

Both the City's legal counsel and the City's environmental consultant have reviewed the Brownfield Plan for 35975 Woodward, and all previously requested amendments have been made by the applicant. A copy of the Brownfield Plan and the proposed Reimbursement Agreement are attached for your review.

**SUGGESTED ACTION:**

To adopt a resolution approving the Brownfield Plan and associated Reimbursement Agreement pertaining to the Brownfield Plan for **35975 Woodward** (currently vacant land) and requesting the City Clerk to forward the Brownfield Plan and Reimbursement Agreement to the Birmingham City Commission for their review and consideration.

**RESOLUTION APPROVING THE BROWNFIELD PLAN FOR  
35975 WOODWARD AVENUE**

Whereas, the City of Birmingham has created a Brownfield Redevelopment Authority and appointed members to serve on the Authority, pursuant to 1996 PA 381, and

Whereas, the Brownfield Redevelopment Authority is charged with the review of Brownfield Plans for Brownfield projects in the City of Birmingham, and

Whereas, August, LLC, the owner and developer of 34977 Woodward, Suite 530, Birmingham, Michigan, intends to develop a two story commercial building at 35975 Woodward, and has determined that the subject property needs approximately \$826,210 in environmental costs in order to meet Michigan Department of Environmental Quality standards, and

Whereas, Soils and Materials Engineers, Inc. has prepared a Brownfield Plan for the site, dated June 5, 2017, and

Whereas, the Brownfield Redevelopment Authority has reviewed the Brownfield Plan.

NOW THEREFORE BE IT RESOLVED THAT:

The Brownfield Redevelopment Authority approves the Brownfield Plan for 35975 Woodward Avenue and requests the City Clerk to forward the Brownfield Plan and associated Reimbursement Agreement to the Birmingham City Commission for its review and approval pursuant to Act 381.

Ayes: \_\_\_\_\_

Nays: \_\_\_\_\_

Abstain: \_\_\_\_\_



## BROWNFIELD REIMBURSEMENT AGREEMENT

THIS AGREEMENT (the "Agreement") dated 8.4.17, is entered into between the **CITY OF BIRMINGHAM** ("City") and the **CITY OF BIRMINGHAM BROWNFIELD REDEVELOPMENT AUTHORITY** (the "Authority"), an authority established pursuant to Act 381 of Public Acts of 1996, MCL 125.2651 *et seq.*, ("Act 381"), whose addresses are 151 Martin Street, Birmingham, Michigan 48009; and **AUGUST, LLC** (the "Developer"), a Michigan limited liability company, whose address is 34977 Woodward Ave, Ste 530, Birmingham, Michigan 48009.

### Recitals

- A. In accordance with Act 381, the Authority has adopted a Brownfield Plan for 35975 Woodward Avenue, Birmingham, Michigan, that the City Commission of the City has approved (the "Brownfield Plan").
- B. The Developer owns property in the City located at 35975 Woodward Avenue, Birmingham, Michigan (the "Property"), which is described on the attached Exhibit A. The Property is included in the Brownfield Plan as an eligible Property because it is a Facility due to the presence of hazardous substances on the Property as described in the Brownfield Plan.
- C. The Developer plans to redevelop the Property by constructing a two-story office building, including a basement, and associated surface parking (the "Improvements"). The Improvements are intended to create temporary construction jobs and new full time jobs, increase the tax base of the City, and otherwise enhance the economic vitality and quality of life of the City.

D. Act 381 authorizes the Authority to reimburse a developer for the costs of Eligible Activities on Eligible Property using Tax Increment Revenues generated by the redevelopment of the property.

E. To make the Improvements on the Property, the Developer may incur costs to conduct Eligible Activities—including Baseline Environmental Assessment Activities, Due Care Activities, Additional Response Activities, and the reasonable costs to prepare the Brownfield Plan—each of which may require the services of contractors, engineers, environmental consultants, and other professionals (the “Eligible Costs”). The Developer estimates the Eligible Costs, including contingencies, to be approximately \$826,210.

F. The Brownfield Plan authorizes the use of Tax Increment Revenues that are generated by Local Taxes and School Taxes imposed on the Property to reimburse the Developer for Eligible Costs.

G. The parties are entering into this Agreement to establish the procedure for reimbursing the Eligible Costs and using Tax Increment Revenues in accordance with Act 381 and the Brownfield Plan.

Accordingly, the parties agree with each other as follows:

1. The Brownfield Plan. The Brownfield Plan is attached as Exhibit B and incorporated in this Agreement. To the extent provisions of the Brownfield Plan conflict with this Agreement, this Agreement controls. To the extent provisions of the Brownfield Plan or this Agreement conflict with Act 381, Act 381 controls.

2. Term of Agreement. In accordance with the Brownfield Plan, the Authority will capture the Tax Increment Revenues generated by the Improvements on the Property to reimburse the Eligible Costs until the earlier of the date that all the Eligible Costs are fully reimbursed under

this Agreement or ten years after the date the Authority begins to capture Tax Increment Revenues under the Brownfield Plan.

3. Eligible Activities. The Authority will reimburse the Developer for Eligible Costs identified in the Brownfield Plan that were incurred before the Birmingham City Commission approves the Brownfield Plan if permitted under Act 381. The Developer must diligently pursue completion of the Eligible Activities set forth in the Brownfield Plan.

4. Reimbursement Source. During the term of this Agreement, the Authority will capture the Tax Increment Revenues generated by the Improvements from Local Taxes and School Taxes imposed on the Property and any personal property located on the Property and use those Tax Increment Revenues to reimburse the Eligible Costs (including interest) in accordance with the Brownfield Plan and this Agreement.

5. Limitations on Reimbursement. The Authority will reimburse Eligible Costs up to but not exceeding the line item costs described in the Brownfield Plan, plus a maximum of 15% contingency for each line item. If relevant State of Michigan agencies do not approve the School Taxes component of the Brownfield Plan, estimated to be \$247,243, the Brownfield Authority will not reimburse the developer for such amounts from the local Taxes component. Reimbursable Eligible Costs will not exceed \$580,570. Reimbursement from Local Taxes will not exceed \$333,327.

6. Reimbursement Process. (a) On a quarterly basis, the Developer may submit to the Authority a request for cost reimbursement for the Eligible Costs the Developer incurred during the prior period. This request will be in the form attached as Exhibit C ("Petition"). The Petition will identify whether the Eligible Activities are: (1) Baseline Environmental Assessment Activities; (2) Due Care Activities; (3) Additional Response Activities; or (4) the reasonable costs

to prepare the Brownfield Plan. The Petition must describe each activity claimed as an Eligible Activity and the associated costs of that activity. Documentation of the costs incurred must be included with the Petition, including proof of payment and detailed invoices for the costs incurred sufficient to determine whether the costs incurred were for Eligible Activities. The Petition must be signed by an authorized representative of Developer.

(b) The Authority will review a Petition within 60 days after receiving the Petition. The Developer will cooperate with the Authority by providing information and documentation to supplement the Petition as requested by, and as deemed reasonable and necessary by, the Authority. Within such 60 days, the Authority will identify in writing to Developer (i) all costs approved for reimbursement, and (ii) any costs deemed ineligible for reimbursement and the basis for the determination. The Developer then has 45 days to provide supplemental information or documents to support reimbursement of any costs deemed ineligible by the Authority. Within 30 days after the Developer provides the supplemental information or documents, the Authority will decide on the eligibility of the disputed cost and inform the Developer in writing of its decision. The Developer may appeal the Authority's decision pursuant to law.

(c) Twice a year, after the summer and winter taxes are collected on the Property, the Authority will capture the Tax Increment Revenues in accordance with the Brownfield Plan and will use those Tax Increment Revenues to reimburse the Developer for approved Eligible Costs (including accrued interest). The Authority is not obligated to reimburse the Developer for any approved Eligible Costs during any period of time that the Developer is delinquent in the payment of real or personal property taxes imposed on the Property or delinquent in the payment to the City for administrative, legal, or other costs invoiced to the Developer.

(d) If there are insufficient funds available from Tax Increment Revenues captured under subparagraph 6(c) at any time to pay all the Developer's unreimbursed Eligible Costs and accrued interest, the Authority is not required to reimburse the Developer from any other source. The Authority will, however, make additional payments toward the Developer's remaining unreimbursed Eligible Costs and accrued interest in accordance with this Agreement as additional Tax Increment Revenues become available under subparagraph 6(c).

(e) Subject to subparagraph 6(d), payment of Eligible Costs to the Developer is not conditioned on the completion of any of the Improvements at any time or in any sequence so long as Developer is in compliance with its obligations and duties under this Agreement.

(f) The Authority will reimburse the Developer for Eligible Costs as follows:

Check shall be payable to: August, LLC  
Delivered to the following address: 34977 Woodward Ave, Ste 530  
Birmingham MI 48009  
Attn: Diane Wells

By certified mail.

(g) Developer may assign its payments to any person by providing 45 days' prior notice to the Authority of such assignment. Any such assignment does not discharge or release Developer from any of its obligations and duties under this Agreement.

7. Information. The Developer will provide to the Authority any information the Authority considers necessary to fulfill any reporting obligation to the State of Michigan under Act 381.

8. Legislative Authorization. This Agreement is governed by and subject to the restrictions set forth in Act 381. If legislation is enacted in the future that alters or affects the terms of this Agreement, including, but not limited to, the amount of Tax Increment Revenues subject to capture or the definition of Eligible Property or Eligible Activity, then the Developer's rights and

the Authority's obligations under this Agreement may be modified accordingly by agreement of the parties.

9. Freedom of Information Act. All Petitions and documentation submitted by Developer are open to the public under the Freedom of Information Act, 1976 PA 442, as amended, MCL 15.231 *et seq.* The Developer will not bring any claim of trade secrets or other privilege or exception to the Freedom of Information Act related to such Petitions and documentation.

10. Plan Modification. The Brownfield Plan may be modified to the extent allowed under Act 381 by mutual agreement of the parties.

11. Notices. All notices shall be given by registered or certified mail addressed to the parties at their respective addresses as shown above. Either party may change the address by written notice sent by registered or certified mail to the other party.

12. Assignment. The interest of any party under this Agreement shall not be assignable without the other party's written consent, which shall not be unreasonably withheld, except that the Developer may assign this Agreement for purposes of securing financing for the Improvements without the prior consent of the Authority.

13. Entire Agreement; Amendment. This Agreement constitutes the entire agreement between the parties. No other agreements, written, oral, express or implied, have been made or entered into by the parties concerning the subject matter of this Agreement. This Agreement may be modified or amended only by subsequent written agreement executed by all of the parties. This Agreement has been the subject of negotiations between the parties and may not be construed against any party as drafter.

14. Non-waiver. No delay or failure by either party to exercise any right under this Agreement, and no partial or single exercise of that right, will constitute a waiver of that or any other right, unless otherwise expressly provided in this Agreement.

15. Headings. Headings in this Agreement are for convenience only and may not be used to interpret or construe its provisions.

16. Governing Law. This Agreement is to be construed in accordance with and governed by the laws of the State of Michigan.

17. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which together constitute one and the same instrument.

18. Binding Effect. The provisions of this Agreement are binding upon and inure to the benefit of each of the parties and their respective heirs, legal representatives, successors, and assigns.

19. Definitions. Unless otherwise defined in this Agreement, words or phrases used in this Agreement that are defined in Act 381 have the definitions given to them by Act 381.

The parties have executed this Agreement of the dates set forth below.

**CITY OF BIRMINGHAM**

By: \_\_\_\_\_

Title: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_



Date: \_\_\_\_\_

**CITY OF BIRMINGHAM BROWNFIELD  
REDEVELOPMENT AUTHORITY**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

~~AUGUST, LLC~~

By:  \_\_\_\_\_

Title: MANAGER \_\_\_\_\_

Date: 8.4.17 \_\_\_\_\_

## **Exhibit A**

### Property Description

Land situated in the City of Birmingham, County of Oakland, State of Michigan, and described as follows:

Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as: Beginning at a point in the Westerly line of Hunter Boulevard (200.00 feet wide), said point located North 88 degrees 16 minutes 00 seconds West, 659.12 feet and North 49 degrees 21 minutes 00 seconds West, 120.93 feet from the Center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West, along the Westerly line of said Hunter Boulevard, 200.00 feet to the Southerly line of Oak Street (60.00 feet wide); thence South 40 degrees 39 minutes 00 seconds West, along said Southerly line, 171.16 feet; thence South 22 degrees 50 minutes 00 seconds East, 49.17 feet; thence North 40 degrees 39 minutes 00 seconds East, 77.11 feet; thence North 85 degrees 39 minutes 00 seconds East, 22.63 feet; thence South 49 degrees 21 minutes 00 seconds East, 113.19 feet; thence South 88 degrees 16 minutes 00 seconds East, 34.45 feet; thence North 40 degrees 39 minutes 00 seconds East, 78.36 feet to the Point of Beginning.

Tax Parcel Number(s): 08-19-25-179-001

**Exhibit B**

Brownfield Plan

**Exhibit C**

Brownfield Request for Cost Reimbursement  
For Eligible Activities

Date: \_\_\_\_\_

Listed below are total costs expended for each eligible activity category for the expenses being submitted with this request. Attached is evidence of each cost item, including proof of payment and detailed invoices.

<b>Eligible Activity Category</b>		<b>Total Cost</b>
1.	Phase I/Phase II/BEA	
2.	Due Care Activities	
3.	Additional Response Activities	
4.	Brownfield Plan preparation	
	Total Cost Reimbursement Request	

I certify that the information submitted on and with this Request for Cost Reimbursement is accurate and is an eligible cost described in the Brownfield Plan for this project approved by the City Council of the City of Birmingham.

**Developer:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Brownfield Redevelopment Authority**  
**MINUTES**  
**City Commission Room of the Municipal Building**  
**151 Martin Street, Birmingham, Michigan**  
**Tuesday, June 27, 2017**  
**8 a.m.**

1. Chairperson Beth Gotthelf welcomed everyone and convened the meeting at 8 a.m.

Members Present: Chairperson Beth Gotthelf  
Robert Runco  
Dani Torcolacci

Member Absent: Wendy Zabriskie

Also Present: Daniel R. Cassidy, Vice President of SME  
Troy Helmick, SME  
Dan Wells, AKT Peerless Sr. Project Manager  
Evan Yaldo, Architect with Saroki Architecture  
Jamie Lee Turnbull, Owner's Representative for August LLC

Brett Stuntz, AKT Peerless Environmental Services, City Brownfield Consultant

Administration: Jana Ecker, Planning Director  
Mark Gerber, Finance Director  
Jeffrey Haynes, Beier Howlett, City Attorney  
Carole Salutes, Recording Secretary  
Joseph Valentine, City Manager

The chairperson advised that Wendy Zabriskie was not present because she has a conflict of interest with the property at 35975 Woodward Ave. Also, Paul Robertson has resigned from the authority to pursue other opportunities.

2. Approval of March 21, 2017 Minutes

**Motion by Mr. Runco**

**Seconded by Ms. Torcolacci to approve the March 21, 2017 minutes as presented.**

**Voice**

**Vote: Yeas, 3**  
**Nays, 0**

**Absent, 1**

**Motion carried, 3-0.**

**3. Brownfield Plan Application for 35975 Woodward Ave.:**

**Resolution approving the Brownfield Plan and associated Reimbursement Agreement pertaining to the Brownfield Plan for 35975 Woodward Ave. (currently vacant land) and requesting the City Clerk to forward the Brownfield Plan and Reimbursement Agreement to the Birmingham City Commission for their review and consideration.**

Chairperson Gotthelf noted the purchase price of the property was reduced by \$302,000 because of the environmental challenges.

Ms. Ecker stated that in March 2017, the owner of the above-captioned property submitted a draft Brownfield Plan ("the Plan") to the City in anticipation of the construction of a new two-story commercial development proposed for the site. The first floor will be commercial with office above and a basement below with a reduced height for mechanical and storage. There is a two-car private garage as well as a surface parking lot. The development has received Preliminary and Final Site Plan approval from the Planning Board. Also, the Board of Zoning Appeals ("BZA") has granted a variance for the rear yard setback.

Ms. Evan Yaldo with Saroki Architecture detailed some of the challenges associated with the development which has roughly a 5,500 sq. ft. floor plate. All required parking is supported on-site. The property was formerly a gas station and it is adjacent to a dry cleaners which is currently operational. The site contains a significant amount of fill. Also there are challenges with cross easements that have to be left open to maintain access for the dry cleaners. They are using substantial quality materials along with a thoughtful design. Streetscape improvements are proposed to enhance this site that has been vacant for quite some time. She requested the authority's consideration for approval.

Mr. Dan Cassidy, SME, advised the variation in requested dollar amounts that appeared in the documents was because the numbers were revised several times. The current eligible cost is \$580,570. The payback is 11 years.

Mr. Runco noticed the amounts for excavation, transportation, and disposal are very much in line.

Chairperson Gotthelf said one thing this authority has always been cautious about is that there is no double dipping. That means the applicant both gets a discount in the purchase price

because of contamination expenses, and then gets reimbursed for those same costs through the Tax Increment Financing ("TIF").

Mr. Cassidy noted they are unable to recover the cost for non-environmental activities. The cost for constructability challenges with the site is not reflected in the Brownfield Plan. Only pure environmental costs are eligible in the City of Birmingham. So he doesn't believe there is a double dipping occurring.

Ms. Jamie Rae Turnbull, Owner's Representative, advised there were negotiations based on the complicated site and the environmental. The market price that has been paid for this site is well within what they feel is reasonable. Therefore, she thinks the construction complications and other items are not double dipping due to that.

Ms. Torcolacci asked for a summary of some of the items that were knocked off from the original reimbursement request of \$826,210. Mr. Cassidy replied the dollars/ton of soil management costs based on actual bids were extremely high. That reduced the dollar amount significantly. He believed they also reduced some of the groundwater management costs because that number is lower. One of the decisions made during the planning process was to locate the building as far away from the drycleaner and as far north as possible. They picked the cleanest and safest portion of the site to try to bring down the costs. The footprint helps as well, as it is not very large.

Ms. Torcolacci received clarification that the payback time shown on page 27 should be eleven years rather than nine.

In response to the chairperson, Mr. Cassidy advised the taxable value of the property is \$672,700. They are projecting it will be \$1.75 million at build-out. The investment dollar amount is \$5 million. Chairperson Gotthelf thought it would be interesting in some of the latest projects to see the difference of what was estimated vs. what was actually assessed. Maybe that information could be provided for the next meeting.

Another issue is to look at the prior use and the liable party. In this case, BP was the last owner and some of the cost of remediation may be incurred by them. Mr. Cassidy recalled that all Restrictive Covenants placed on the deed have been discharged with the exception of two land use items: the restriction of property use to commercial and the prohibition on installing a drinking water well.

Discussion brought out that from 1961 to 2000, BP owned the property. Chairperson Gotthelf noted her experience with BP has been when they are the liable party they have stepped in and covered the reasonable cost for remediation to the appropriate cleanup standard. Even when they are several owners behind and then there were other uses they have paid for the



increased cost of transportation and the vapor barrier. They would not pay for the Baseline Environmental Assessment ("BEA").

In response to Mr. Haynes, Mr. Cassidy stated there aren't any costs they are asking reimbursement for that would be costs of closure if the site were closed. They are just asking for recovery of the cost to excavate, transport and haul contaminated soil. The installation of the vapor barrier is necessitated by the development itself and is not going to contribute to closure. The BEA items are all related to liability management for the current owner. The Due Care Assessments only benefit the new owner. Groundwater management is only driven by the decisions during construction. None of the items will benefit the liable party.

Chairperson Gotthelf summarized they are talking about \$20,000 for the vapor intrusion, and \$151,000 for the soils. She thought it would be worth reaching out to BP this week to discuss their ability to assist with those costs. She committed to make the phone call to BP with SME in order to get started. Mr. Runco advised there may be reason for SME to investigate further whether the tonnage number might go up.

Ms. Jamie Rae Turnbull announced the timing is critical for them. It was agreed to set Wednesday, July 12 at 8 a.m. for the next meeting.

**Brownfield Redevelopment Authority  
MINUTES  
City Commission Room of the Municipal Building  
151 Martin Street, Birmingham, Michigan**

**Wednesday, July 12, 2017  
8 a.m.**

1. Chairperson Beth Gotthelf welcomed everyone and convened the meeting at 8:18 a.m.

Members Present: Chairperson Beth Gotthelf  
Robert Runco  
Dani Torcolacci

Member Absent: Wendy Zabriskie

Also Present: Troy Helmick, SME  
Brett Stuntz, AKT Peerless, City Brownfield Consultant  
Jamie Ray Turnbull, Owner's Representative for August LLC

Administration: Jana Ecker, Planning Director  
Mark Gerber, Finance Director  
Jeffrey Haynes, Beier Howlett, City Attorney  
Mario Mendoza, Recording Secretary

2. Approval of June 27, 2017 Minutes

**Motion by Mr. Runco  
Seconded by Ms. Torcolacci to approve the June 27, 2017 minutes as presented.**

**Voice  
Vote: Yeas, 3  
Nays, 0  
Absent, 1**

**Motion carried, 3-0.**

3. Brownfield Plan Application for **35975 Woodward Ave.:**

**Resolution approving the Brownfield Plan and associated Reimbursement Agreement pertaining to the Brownfield Plan for 35975 Woodward Ave. (currently vacant land) and requesting the City Clerk to forward the Brownfield Plan and Reimbursement Agreement to the Birmingham City Commission for their review and consideration.**

Chairperson Gotthelf recalled the Plan was discussed extensively at their last meeting. It was noted the property was a former gas station from 1961 or so until the '80s. From 1961 through

approximately 2000, BP owned the property while it was a gas station. The contamination is linked to the operations of the gas station. Under State law they are a liable party and therefore they can be responsible for some of the increased cost of the redevelopment because it is a result of contamination. So the Authority had given the owner time to talk to BP and to inform them that they are a liable party in the current situation.

Now a letter has been received from BP dated July 7, 2017 that indicates the site was sold to Armada Real Estate in 2005. As part of the sale, Armada assumed responsibility for all environmental liability on the site. Based on this information, the letter states that BP is not obligated and is not in a position to offer any contributions to the redevelopment of the property.

Mr. Troy Helmick indicated they spoke with BP who said they have a 2005 agreement with Armada Real Estate to transfer liability to them in exchange for a sum of money. That agreement is still in place. It is BP's opinion that Armada will not participate with a portion of the redevelopment. They tried to reach Armada Oil Co. but were not able to receive a contact person associated with the Armada Real Estate, LLC. portion of their company.

Responding to Ms. Torcolacci, Mr. Helmick said that BP has the original restrictive covenant on the property to protect against human contact ground water use. Deed restrictions were put on the property at a later time restricting building any sub-grade structures. That portion of the deed restriction was rescinded. None of those restrictions prohibit the City from trying to hold Armada as a liable party.

Mr. Haynes stated BP cannot transfer their liability, even though they have a document that says they have done that. So, the letter that BP sent is misleading. If they are, in fact a liable party, they remain a liable party. The Brownfield Authority has statutory authority to pursue liable parties for the reimbursement of any costs paid.

The applicant is asking for reimbursement of \$580,000. Of that, \$151,000 is cost of the soil management. BP would hopefully cover a portion of it. Chairperson Gotthelf said that \$70,000 for vapor intrusion, and any additional groundwater management fees might be something to talk to BP about as well. Also she wanted SME to be aware in the future that the authority is looking at certain limits on fees for preparation of the Brownfield Plan and the Work Plan.

Chairperson Gotthelf noted the Brownfield was created in order not to make contamination an obstacle for redevelopment. This Authority looks at reduction of the purchase price because the property is contaminated. The Authority also looks to see if someone else can pay the difference instead of them. That is why they asked SME to consider why BP is having the discussion about Armada. However, If the developer, August, LLC, is going to make this work they need financial assistance in the form of this Brownfield TIF. Also they need to have that promptly because otherwise they might lose their window of opportunity. The Authority has the following options:

- Approve as-is;
- Approve with a different amount, but the applicant always has the opportunity to come back and ask for an amendment;

- Delay for further information.

It was discussed that the timeline for negotiations between Armada and BP regarding reimbursement would be long and too costly to the developer and the owner, based on historical experience with these agreements. Ms. Jamie Rae Turnbull added that further delay would be a significant issue for the owner who is in his eighties. They are hoping to get a building permit today. Their contractors are ready to break ground.

Mr. Haynes commented that at the last meeting he asked Dan Cassidy if any of the environmental costs would be attributed to the cost of closure and he said no. So the Authority might want to think about consistency with the DFCU site at Maple Rd. and Cranbrook where there was a cost of closure associated that was deducted from the Brownfield reimbursement. In this case BP could come back and say that none of the costs are associated with their closure of the site; therefore they are not liable for any of them. Armada could say the same with regard to cost of closure.

**Motion by Ms. Torcolacci**

**Seconded by Mr. Runco to approve the Brownfield Plan and associated Reimbursement Agreement pertaining to the Brownfield Plan for 35975 Woodward Ave. (currently vacant land) and requesting the City Clerk to forward the Brownfield Plan and Reimbursement Agreement to the Birmingham City Commission for their review and consideration. Reimbursement Eligible Costs will not exceed \$580,570 limited to 10 years. Reimbursement from Local Taxes will not exceed \$333,327.**

**Voice**

**Vote: Yeas, 3  
Nays, 0  
Absent, 1**

**Motion carried, 3-0.**

Ms. Ecker said she said she will set a public hearing at the July 24 City Commission meeting which will likely be for August 14. Mr. Haynes agreed to send the full Reimbursement Agreement to SME. Two executed copies have to be signed by the developer before they go to the City Commission. Mr. Stuntz said that in order to qualify for State reimbursement the City must approve the Agreement.

4. Guidelines for future Brownfield Plan applications

Mr. Stuntz summarized some of the Brownfield project policies of municipalities around the State.

Ms. Ecker noted several regulations that the Authority might want to discuss:

- Consider only participating with State capture;
- Limiting Brownfield Plan for costs, interest, term;
- Capping the amount;

- Set the minimum cost on a development that is not going to add a lot of value to the community.

Mr. Haynes recommended:

- Taking another look at the taxable value after construction when the developer receives a Certificate of Occupancy and adjusting the time period of payback.

The group suggested that staff work on drafting a policy with focus on:

- Zero interest unless it is a significant project when interest would go to 3%.;
- Maximum of 10 years payback unless it is a significant project;
- If the State denies paying its portion, then the applicant would have to come back to the Authority to request a Plan Amendment for the Authority to pay that portion;
- Shorten the reimbursement term depending on the taxable value. This limits the amount the developer is getting back because they didn't increase the value as much as they thought.
- Developer doesn't get their check until the assessed value is there, which means the project is built.

5. Project Updates (none)

6. Open to the public for items not on the Agenda (no public available)

7. Adjournment

No further business being evident, the board passed a motion to adjourn at 9:32 a.m.

Respectfully submitted,

Carole Salutes  
Transcription Secretary

May 9, 2017

Jana Ecker  
Planning Director  
City of Birmingham  
151 Martin Street  
P.O. Box 3001  
Birmingham, Michigan, 48012

**Subject: Brownfield Plan Application for 35975 Woodward Avenue**

Dear Ms. Ecker,

We have reviewed the Brownfield Plan Application for a proposed redevelopment of 35975 Woodward Avenue and the applicant has satisfactorily answered the questions presented on the application. We reviewed the environmental data collected on the site and we concur that the proposed eligible activities proposed are reasonable in cost and will sufficiently alleviate Brownfield conditions on the site to permit redevelopment.

If you have any questions please call me at (616) 608-0229.

Sincerely,



Dan Wells  
Senior Project Manager  
AKT Peerless



## **BROWNFIELD PLAN FOR:**

35975 Woodward Avenue, Birmingham, Michigan

Birmingham Brownfield Redevelopment Authority  
151 Martin Street, PO Box 3001  
Birmingham, Michigan 48012  
Contact: Ms. Jana Ecker (248) 530-1841

Prepared with the assistance of:  
SME  
June 5, 2017





# TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
A.	PLAN PURPOSE .....	1
B.	PROPERTY DESCRIPTION.....	1
C.	BASIS OF ELIGIBILITY.....	1
D.	PROJECT DESCRIPTION .....	1
<b>II.</b>	<b>GENERAL DEFINITIONS AS USED IN THIS PLAN .....</b>	<b>2</b>
<b>III.</b>	<b>BROWNFIELD PLAN .....</b>	<b>2</b>
A.	DESCRIPTION OF COSTS TO BE PAID WITH TAX INCREMENT REVENUES AND SUMMARY OF ELIGIBLE ACTIVITIES.....	2
B.	ESTIMATE OF CAPTURED TAXABLE VALUE AND TAX INCREMENT REVENUES .....	3
C.	METHOD OF FINANCING PLAN COSTS AND DESCRIPTION OF ADVANCES BY THE MUNICIPALITY .....	3
D.	MAXIMUM AMOUNT OF NOTE OR BONDED INDEBTEDNESS .	4
E.	DURATION OF BROWNFIELD PLAN .....	4
F.	ESTIMATED IMPACT OF TAX INCREMENT FINANCING ON REVENUES OF TAXING JURISDICTIONS.....	4
G.	LEGAL DESCRIPTION, PROPERTY MAP, PROPERTY CHARACTERISTICS AND PERSONAL PROPERTY .....	4
H.	ESTIMATES OF RESIDENTS AND DISPLACEMENT OF FAMILIES	4
I.	PLAN FOR RELOCATION OF DISPLACED PERSONS .....	4
J.	PROVISIONS FOR RELOCATION COSTS.....	4
K.	STRATEGY FOR COMPLIANCE WITH MICHIGAN'S RELOCATION ASSISTANCE LAW .....	4
L.	DESCRIPTION OF THE PROPOSED USE OF LOCAL BROWNFIELD REVOLVING FUND (LBRF).....	5
M.	OTHER MATERIAL THAT THE AUTHORITY OR GOVERNING BODY CONSIDERS PERTINENT .....	5

**APPENDIX A**  
**LEGAL DOCUMENTS**

**APPENDIX B**  
**PROJECT CONCEPTUAL DRAWINGS**

**APPENDIX C**  
**ELIGIBLE ACTIVITIES COST TABLE**

**APPENDIX D**  
**SUMMARY OF TAX INCREMENT FINANCING AND REIMBURSEMENT  
OF ELIGIBLE ACTIVITIES**

**APPENDIX E**  
**ALTA SURVEY**

## **I. INTRODUCTION**

### **A. PLAN PURPOSE**

The purpose of this Brownfield Plan (the Plan), to be implemented by the Birmingham Brownfield Redevelopment Authority (Authority; BBRA), is to satisfy the requirements of Act 381 for including the eligible property described below, designated as 35975 Woodward Avenue, Birmingham, Michigan (the “Property”), in a Brownfield Plan. The Property consists of one parcel of land that is a “facility” as defined by Part 201 of Michigan’s Natural Resources and Environmental Protection Act (1994 P.A. 451, as amended). The Property is located within the boundaries of the City of Birmingham.

This Plan allows the BBRA to use tax increment revenue to reimburse the developer, August, LLC (August), for the costs of eligible activities required to prepare the Property for safe redevelopment and reuse (see Section III). Given the nature of the expenses proposed, the capture of tax increment generated by August’s proposed redevelopment is necessary to ensure the economic viability of the redevelopment.

### **B. PROPERTY DESCRIPTION**

The Property consists of one parcel of land occupying 0.538 acres of land at the southwest corner of Woodward Avenue and Oak Street in the City of Birmingham. The parcel identification number is 19-25-179-001 and the property address 35975 Woodward Avenue, Birmingham, Michigan. Additional property description information is provided in Section III (G).

### **C. BASIS OF ELIGIBILITY**

The Property is eligible for inclusion in this Brownfield Plan in accordance with MCL 125.2652(n) because the Property is a “facility” as defined by 1994 P.A. 451, as amended. The BBRA, duly established by resolution of the Birmingham City Commission, pursuant to the Brownfield Redevelopment Financing Act, Michigan Public Act 381 of 1996, MCLA 125.2651 et. seq., as amended (Act 381), is authorized to exercise its powers within the limits of the City of Birmingham.

### **D. PROJECT DESCRIPTION**

The Property was originally developed as an automotive filling and repair service station in 1962. Gasoline sales continued until 2003 when the Property was sold, although automobile repair operations continued until at least 2007. Previous environmental reports indicate the historical installation and removal of underground storage tanks (USTs) on the Property beginning in 1962. In 2003, remaining USTs were reportedly emptied and were later removed in 2007. All structures were demolished by 2015. In its current state, the Property is developed with a paved surface parking lot. A restrictive covenant was placed on the property on February 23, 1998, Liber 18211 (1998 RC). However, the 1998 RC was addressed as satisfied and officially discharged on October 8, 2007. A Quit Claim Deed dated May 19, 2005 stipulated below grade construction should be restricted on the site. This restriction was officially discharged in a document titled, “Modification and Discharge of Certain Terms and Conditions and Ratification of Remaining Terms and Conditions” dated October 8, 2007. A copy of the documents discharging the 1998 Restrictive Covenant and the below grade construction restriction are attached. The documents rescinding the 1998 Restrictive Covenant and the restriction from below grade construction are attached in Appendix A.

Subsurface investigations on the Property have evaluated the condition of soil and groundwater on the Property. Various volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals were measured in soil and groundwater at concentrations exceeding Part 201 Generic Residential Criteria. The contamination to soil has been demonstrated to be pervasive across the entire site, as

shallow as 0.5 feet below ground surface (bgs) and as deep as 13 feet bgs. Due to the extent and level of contamination in the soil across the site, no soil is suitable for reuse on site and must be disposed of at a Type II landfill. Contamination to groundwater was also demonstrated to be pervasive across the site in concentrations that will require on-site treatment followed by discharge to the sewer system. The presence of contaminated soil and groundwater presents costly and logistical challenges for redevelopment including the need for proper soil and groundwater management and installation of engineering control to prevent unacceptable human exposure to site contaminants.

August intends to redevelop the property with an 11,000 square-foot, two-story office building with a basement and associated surface parking. The building will be located on the northern corner of the Property, adjacent to the intersection of Oak Street and Woodward Avenue. Each floor will be approximately 5,500 square feet. The surface parking lot is designed to accommodate 30 cars including two handicapped parking spaces. Ingress and egress from the parking area will be available off Woodward Avenue and Oak Street. The office spaces will be leased to up to three tenants. Upon approval of the BBRA, August intends to begin construction in Summer of 2017. Construction is expected to be completed within 12 months. Conceptual design drawings for the project are provided in Appendix B.

Aside from the known contamination on the Property, the location is ideal for redevelopment. The Property is located at the northern gateway to downtown Birmingham and once redeveloped will provide an attractive entrance for the City. Until now, the Property has been left as a vacant and underutilized eyesore. Previous redevelopment have been planned; however, they were ultimately unsuccessful, largely due to the exorbitant upfront cost associated with the subsurface soil conditions. In addition to the aesthetic benefits, the redeveloped property will generate increased tax base. The anticipated investment for the project is approximately \$5 million. This project is expected to create 50+ temporary construction jobs, including two full time construction management personnel. This project is not expected to create any new, full-time positions directly related to day-to-day operations of the office building. However, the creation of the new office space may offer the opportunity for future tenants to expand their businesses and hire more staff. At this point in time, the future tenants are unknown and therefore we are unable to accurately quantify the number of new, full-time permanent jobs they may generate.

## **II. GENERAL DEFINITIONS AS USED IN THIS PLAN**

All words or phrases not defined herein shall have the same meaning as such words and phrases included in Act 381.

## **III. BROWNFIELD PLAN**

### **A. DESCRIPTION OF COSTS TO BE PAID WITH TAX INCREMENT REVENUES AND SUMMARY OF ELIGIBLE ACTIVITIES**

August requests reimbursement for the costs of eligible department specific (MDEQ) activities necessary to prepare the Property for redevelopment. The costs of eligible activities included in, and authorized by, this Plan, will be reimbursed with incremental local and school operating tax revenues generated by the Property after redevelopment and captured by the BBRA. Tax revenues captured will be subject to any limitations and conditions described in this Plan, approvals of the Michigan Department of Environmental Quality (MDEQ) for school operating tax capture, and the terms of a Reimbursement Agreement between August and the Authority (the "Reimbursement Agreement"). Administrative expenses of the BBRA will not be reimbursed through capture of incremental taxes. No personal property taxes are projected to be captured by this Plan.

The estimated total cost of activities eligible for reimbursement from tax increment revenues is \$580,570. The eligible activities are summarized in Table 1 in Appendix C. The individual costs activities eligible for reimbursement are estimated and may increase or decrease, depending on the nature and extent of unknown conditions encountered. No costs of eligible activities will be qualified for reimbursement except to the extent permitted in accordance with the terms and conditions of the Reimbursement Agreement and Section 2 of Act 381 of 1994, as amended (MCL 125.2652). The Reimbursement Agreement and this Plan will dictate the total cost of eligible activities subject to reimbursement. As long as the total cost limit described in this Plan is not exceeded, line item categories and costs of eligible activities may be adjusted without Plan amendment after the date of this Plan, to the extent the adjustments do not violate the terms of Act 381.

## **B. ESTIMATE OF CAPTURED TAXABLE VALUE AND TAX INCREMENT REVENUES**

The estimated 2016 taxable value of the Property is \$672,700, which is the initial taxable value for this Plan. This value was obtained from the City of Birmingham's Online Assessor's Office database. The anticipated taxable value at project completion is estimated to be \$1,750,000 based on 35% of the proposed development costs. For planning purposes, the taxable value for tax year 2018 is assumed to be 50% with the full taxable value appearing in tax year 2019. The actual taxable value will be determined by the City Assessor.

The BBRA will capture 100% of the incremental local tax revenues generated from the Property to reimburse August for the costs of eligible activities under this Plan in accordance with the Reimbursement Agreement. The BBRA will capture 100% of the incremental school operating tax revenues generated from real property to reimburse the costs of eligible department specific (MDEQ) activities pursuant to a work plan approved by the MDEQ. Estimated taxable values, tax increment revenues to be captured, impacts on taxing jurisdictions, and eligible activities reimbursement cash flows are presented in Table 2 (Appendix D). The actual annual incremental taxable value and captured tax increment revenue will be determined by the City of Birmingham. The actual increased taxable value of the land and all future taxable improvements on the Property may vary.

It is the intent of this Plan to provide for the proportional capture of all eligible tax increments in whatever amounts and in whatever years they become available until all eligible costs described in the Plan are paid or 30 years, whichever is shorter. It is estimated that all eligible costs will be reimbursed within nine (9) years. If the MDEQ elects not to participate in this Project, the portion of capture related to their proportionate share will be assumed by, made whole by, and become the responsibility of the other taxing entities to the extent allowed by Act 381.

## **C. METHOD OF FINANCING PLAN COSTS AND DESCRIPTION OF ADVANCES BY THE MUNICIPALITY**

August is ultimately responsible for financing the costs of eligible activities included in this Plan. Neither the BBRA nor the City of Birmingham will advance any funds to finance the eligible activities. All Plan financing commitments and activities and cost reimbursements authorized under this Plan shall be governed by the Reimbursement Agreement. The inclusion of eligible activities and estimates of costs to be reimbursed in this Plan is intended to authorize the BBRA to fund such reimbursements. The amount and source of any tax increment revenues that will be used for purposes authorized by this Plan, and the terms and conditions for such use and upon any reimbursement of the expenses permitted by the Plan, will be provided solely under the Reimbursement Agreement.

Reimbursements under the Reimbursement Agreement shall not exceed the cost of eligible activities and reimbursement limits described in this Plan, unless it is further amended.

## **D. MAXIMUM AMOUNT OF NOTE OR BONDED INDEBTEDNESS**

Not applicable.

## **E. DURATION OF BROWNFIELD PLAN**

The duration of this Brownfield Plan for the Property shall not exceed the shorter of the following: reimbursement of all eligible costs, cumulatively not to exceed \$580,570, or 30 years tax capture after the first year of tax capture under this Plan. The date for beginning tax capture shall be 2018, unless otherwise amended by the BBRA. It is anticipated that the eligible expenses should be fully reimbursed within 11 years, at which point the full increment will be available to the municipality and the State for use.

## **F. ESTIMATED IMPACT OF TAX INCREMENT FINANCING ON REVENUES OF TAXING JURISDICTIONS**

Incremental local and state tax revenues generated by the project will be captured by the BBRA until all incurred eligible brownfield redevelopment costs are reimbursed. The tax revenue available for capture by the BBRA will be split between local and state sources, with approximately 57% being reimbursed with local tax revenues and approximately 43% being reimbursed with state tax revenues, based on the 2016 millage rates obtained from the City of Birmingham Treasurer's Office. The impact of the BBRA incremental tax capture on local taxing authorities is presented in Table 2 (Appendix D).

## **G. LEGAL DESCRIPTION, PROPERTY MAP, PROPERTY CHARACTERISTICS AND PERSONAL PROPERTY**

The property consists of single, approximately 0.538-acre parcel with a current address of 35975 Woodward Avenue, Birmingham, Michigan. A legal description and an ALTA survey of the Property are included in Appendix E.

## **H. ESTIMATES OF RESIDENTS AND DISPLACEMENT OF FAMILIES**

No occupied residences are involved in the redevelopment, no persons reside at the Property, and no families or individuals will be displaced as a result of this development. Therefore, a demographic survey and information regarding housing in the community are not applicable and are not needed for this Plan.

## **I. PLAN FOR RELOCATION OF DISPLACED PERSONS**

No persons will be displaced as a result of this development; therefore, a Plan for relocation of displaced persons is not applicable and is not needed for this Plan.

## **J. PROVISIONS FOR RELOCATION COSTS**

No persons will be displaced as result of this development and no relocation costs will be incurred; therefore, provision for relocation costs is not applicable and is not needed for this Plan.

## **K. STRATEGY FOR COMPLIANCE WITH MICHIGAN'S RELOCATION ASSISTANCE LAW**

No persons will be displaced as result of this development; therefore, no relocation assistance strategy is needed for this Plan.

**L. DESCRIPTION OF THE PROPOSED USE OF LOCAL BROWNFIELD REVOLVING FUND (LBRF)**

The BBRA has decided not to capture incremental revenues for their LBRF for this Plan.

**M. OTHER MATERIAL THAT THE AUTHORITY OR GOVERNING BODY CONSIDERS PERTINENT**

There is no other material that the BBRA or governing body considers pertinent.



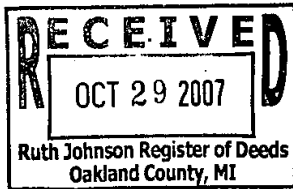
**APPENDIX A**  
**LEGAL DOCUMENTS**

LIBER39723 PG040

232703  
LIBER 39723 PAGE 40  
\$13.00 MISC RECORDING  
\$4.00 REMONUMENTATION  
11/02/2007 09:23:34 A.M. RECEIPT# 112387



PAID RECORDED - OAKLAND COUNTY  
RUTH JOHNSON, CLERK/REGISTER OF DEEDS



**DISCHARGE OF RESTRICTIVE COVENANT** (7)

KNOW ALL PERSONS BY THESE PRESENTS, that a certain Restrictive Covenant dated February 28, 1998, by AMOCO OIL COMPANY, now known as BP PRODUCTS NORTH AMERICA INC. and recorded in the office of the Register of Deeds for the County of Oakland and State of Michigan in Liber 18211, Page 238, on March 16, 1998, is fully satisfied and is discharged as to the following described property covered by said Restrictive Covenant:

Land located in the City of Birmingham, Oakland County, State of Michigan, and described as follows:

**SEE ATTACHED "EXHIBIT A" FOR COMPLETE LEGAL DESCRIPTION**

Commonly known as: 35975 Woodward Avenue, Birmingham  
Parcel ID No. 19-25-179-001

THIS DISCHARGE OF RESTRICTIVE COVENANT has been executed on the 08th day of October, 2007.

BP PRODUCTS NORTH AMERICA INC.

BY [Signature]  
John Frankental  
Its: Envir. Bus. Mgr.

(29)

STATE OF ILLINOIS )  
COUNTY OF DUPAGE )ss.

The foregoing instrument was acknowledged before me on OCTOBER 8th, 2007, by JOHN FRANKENTAL, the Envir. Bus. Mgr. of BP PRODUCTS NORTH AMERICA INC., on behalf of said corporation.



[Signature]  
Notary Public  
State of ILLINOIS County of DUPAGE  
My Commission Expires: 08/22/09  
Acting in the County of DUPAGE

Instrument drafted by Lucy R. Benham recorded return to:

Lucy R. Benham, Esq.  
Goldberg and Benham, PLC  
31700 Middlebelt Road, Suite 150  
Farmington Hills, MI 48334

BHC 265903

When recorded return to:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**O.K.-L.T.**

**Metropolitan**

LIBER 39723 PG 01  
(Attached to and becoming a part of document dated: October 27, 2007)  
8th

### EXHIBIT A

Land situated in the City of Birmingham, County of Oakland, State of Michigan, is described as follows:

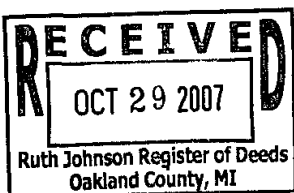
Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as follows: Beginning at a point in the Westerly line of Hunter Boulevard (200.00 feet wide), said point located North 88 degrees 16 minutes 00 seconds West 659.12 feet and North 49 degrees 21 minutes 00 seconds West 120.93 feet from the center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West along the Westerly line of said Hunter Boulevard, 200.00 feet to the Southerly line of Oak Street (60.00 feet wide); thence South 40 degrees 39 minutes 00 seconds West along said Southerly line, 171.16 feet; thence South 22 degrees 50 minutes 00 seconds East 49.17 feet; thence North 40 degrees 39 minutes 00 seconds East 77.11 feet; thence North 85 degrees 39 minutes 00 seconds East 22.63 feet; thence South 49 degrees 21 minutes 00 seconds East 113.19 feet; thence South 88 degrees 16 minutes 00 seconds East 34.45 feet; thence North 40 degrees 39 minutes 00 seconds East 78.36 feet to the Point of Beginning.

Tax Item No. 19-25-179-001

Tax Parcel Number(s): 19-25-179-001

BHC  
File Number: 265903

LIBER39723 PG008



232697  
LIBER 39723 PAGE 8  
\$25.00 MISC RECORDING  
\$4.00 REMONUMENTATION  
11/02/2007 09:23:02 A.M. RECEIPT# 112387  
PAID RECORDED - OAKLAND COUNTY  
RUTH JOHNSON, CLERK/REGISTER OF DEEDS

**MODIFICATION AND DISCHARGE OF CERTAIN TERMS AND CONDITIONS** ①  
**AND RATIFICATION OF REMAINING TERMS AND CONDITIONS**

KNOW ALL PERSONS BY THESE PRESENTS, that Exhibit B to that certain Quit Claim Deed dated May 24, 2005, by BP PRODUCTS NORTH AMERICA INC., a Maryland corporation, as Grantor, and ARMADA OIL & GAS CO., a Michigan corporation, as Grantee, and recorded in the office of the Register of Deeds for the County of Oakland and State of Michigan in Liber 36760, Page 708, on December 13, 2005, is modified as described below as to the following described property covered by said Quit Claim Deed:

Land located in the City of Birmingham, Oakland County, State of Michigan, and described as follows:

SEE ATTACHED "EXHIBIT A" FOR COMPLETE LEGAL DESCRIPTION

①  
BP  
P

Commonly known as: 35975 Woodward Avenue, Birmingham  
Parcel ID No. 19-25-179-001

A. Exhibit B, Section II, Paragraph A.1 is modified to add the following language:

#

Short-term dewatering for construction purposes is permitted provided the dewatering, including management and disposal of the groundwater, is conducted in accordance with all applicable local, state, and federal laws and regulations and does not cause or result in a new release, exacerbation of existing contamination, or any other violation of local, state, and federal environmental laws and regulations including, but not limited to, Part 201 of the NREPA.

B. Exhibit B, Section II, Paragraph A.2 is modified to remove the specific, limited restriction against use of the Property as "a medical or dental facility".

C. Exhibit B, Section II, Paragraph A.2 is further modified to add the following language:

The Owner shall prohibit all uses of the Property that are not compatible with the limited commercial category under Section 20120a(1)(g) of the NREPA and that are not consistent with the Industrial and Commercial Subcategory II, III and IV Land Use Categories described in the MDEQ's December 10, 2004 RRD Operational Memorandum No. 1 ("Land Use Categories"), such that residential, and Industrial and Commercial Subcategory I, uses of the Property are prohibited, all as generally described in the Description of Allowable Uses, attached hereto as Exhibit B. Cleanup criteria for

BHC 265903

Metropolitan  
O.K.-L.T.

LIBER39723 PGO09

land use-based response activities are located in the Government Documents Section of the State of Michigan Library. The prohibition of uses that are not consistent with the Industrial and Commercial Subcategory II, III and IV Land Use Categories shall not be applicable in the event future remedial action remedies conditions to the Property such that the Property is no longer a "Facility" as defined by Part 201 of NREPA and any amendments thereto.

- D. Exhibit B, Section II, Paragraph A.3.1 is hereby discharged.
- E. Exhibit B, Section II, is further modified to add a new Paragraph C:

Owner acknowledges that use restrictions contained herein are intended to comply with the applicable requirements of NREPA. Owner agrees that if the MDEQ determines that the form of these restrictions are insufficient, Owner shall execute and allow the recording of another Declaration of Restrictive Covenant, in a form acceptable to MDEQ. Any such additional Declaration of Restrictive Covenant shall, to the maximum extent possible, be retroactive to May 24, 2005 so that any such additional Declaration of Restrictive Covenant shall have priority over any mortgages, liens or other encumbrances to title filed after May 24, 2005.

- F. All terms and conditions contained in said Quit Claim Deed not herein discharged or modified are hereby ratified and confirmed.

THIS MODIFICATION AND DISCHARGE OF CERTAIN TERMS AND CONDITIONS AND RATIFICATION OF REMAINING TERMS AND CONDITIONS has been executed on this 8<sup>th</sup> day of October, 2007.

BP PRODUCTS NORTH AMERICA INC.  
a Maryland corporation

BY [Signature]  
Its: Envt. Bus. Mgr.

ARMADA OIL & GAS CO.  
a Michigan corporation

BY \_\_\_\_\_  
Its: \_\_\_\_\_

[notary signatures contained on next page]

LIBER39723 PGO 10

STATE OF ILLINOIS )  
 )ss,  
COUNTY OF DUPAGE )

The foregoing instrument was acknowledged before me on OCTOBER 8TH, 2007, by JOHN FRANKENTHAL, the MANAGER, BUS. MGR of BP PRODUCTS NORTH AMERICA INC., a Maryland corporation, on behalf of said corporation.



Arlene Bernicky  
Notary Public  
State of ILLINOIS, County of DUPAGE  
My Commission Expires: 8/22/09  
Acting in the County of DUPAGE

STATE OF MICHIGAN )  
 )ss,  
COUNTY OF \_\_\_\_\_ )

The foregoing instrument was acknowledged before me on \_\_\_\_\_, 2007, by \_\_\_\_\_, the \_\_\_\_\_ of ARMADA OIL & GAS CO., a Michigan corporation, on behalf of said corporation.

\_\_\_\_\_  
Notary Public  
State of Michigan, County of \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_  
Acting in the County of \_\_\_\_\_

Instrument drafted by when recorded return to

Lucy R. Benham, Esq.  
Goldberg and Benham, PLC  
31700 Middlebelt Road, Suite 150  
Farmington Hills, MI 48334

When recorded return to:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LIBER39723 PGO 11

land use-based response activities are located in the Government Documents Section of the State of Michigan Library. The prohibition of uses that are not consistent with the Industrial and Commercial Subcategory II, III and IV Land Use Categories shall not be applicable in the event future remedial action remedies conditions to the Property such that the Property is no longer a "Facility" as defined by Part 201 of NREPA and any amendments thereto.

- D. Exhibit B, Section II, Paragraph A.3.1 is hereby discharged.
- E. Exhibit B, Section II, is further modified to add a new Paragraph C:

Owner acknowledges that use restrictions contained herein are intended to comply with the applicable requirements of NREPA. Owner agrees that if the MDEQ determines that the form of these restrictions are insufficient, Owner shall execute and allow the recording of another Declaration of Restrictive Covenant, in a form acceptable to MDEQ. Any such additional Declaration of Restrictive Covenant shall, to the maximum extent possible, be retroactive to May 24, 2005 so that any such additional Declaration of Restrictive Covenant shall have priority over any mortgages, liens or other encumbrances to title filed after May 24, 2005.

- F. All terms and conditions contained in said Quit Claim Deed not herein discharged or modified are hereby ratified and confirmed.

THIS MODIFICATION AND DISCHARGE OF CERTAIN TERMS AND CONDITIONS AND RATIFICATION OF REMAINING TERMS AND CONDITIONS has been executed on this 8<sup>th</sup> day of October, 2007.

~~BP PRODUCTS NORTH AMERICA INC.  
a Maryland corporation~~

~~BY \_\_\_\_\_~~

~~Its: \_\_\_\_\_~~

ARMADA OIL & GAS CO.  
a Michigan corporation

BY [Signature]

Its: AMC Beggs  
Vice-President

[notary signatures contained on next page]

24



LIBER39723 PGO 12

STATE OF \_\_\_\_\_ )  
 )ss,  
COUNTY OF \_\_\_\_\_ )

The foregoing instrument was acknowledged before me on \_\_\_\_\_, 2007, by \_\_\_\_\_, the \_\_\_\_\_ of BP PRODUCTS NORTH AMERICA INC., a Maryland corporation, on behalf of said corporation.

\_\_\_\_\_  
Notary Public  
State of \_\_\_\_\_, County of \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_  
Acting in the County of \_\_\_\_\_

STATE OF MICHIGAN )  
 )ss,  
COUNTY OF WAYNE )

The foregoing instrument was acknowledged before me on October 8, 2007, by Allie Benny, the Vice President of ARMADA OIL & GAS CO., a Michigan corporation, on behalf of said corporation.

**DOUGLAS R. SWATOSH JR.**  
NOTARY PUBLIC - STATE OF MICHIGAN  
COUNTY OF WAYNE  
My Commission Expires March 22, 2013  
Acting in the County of Wayne

Douglas R. Swatosh Jr.  
Notary Public  
State of Michigan, County of Wayne  
My Commission Expires: 03/22/2013  
Acting in the County of Wayne

Instrument drafted by  
and when recorded returned:

Lucy R. Benham, Esq.  
Goldberg and Benham, PLC  
31700 Middlebelt Road, Suite 150  
Farmington Hills, MI 48334

When recorded return to:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

25

LIBER 39723 PGO 13

---

(Attached to and becoming a part of document dated: October 17, 2007)

**EXHIBIT A**

Land situated in the City of Birmingham, County of Oakland, State of Michigan, is described as follows:

Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as follows: Beginning at a point in the Westerly line of Hunter Boulevard (200.00 feet wide), said point located North 88 degrees 16 minutes 00 seconds West 659.12 feet and North 49 degrees 21 minutes 00 seconds West 120.93 feet from the center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West along the Westerly line of said Hunter Boulevard, 200.00 feet to the Southerly line of Oak Street (60.00 feet wide); thence South 40 degrees 39 minutes 00 seconds West along said Southerly line, 171.16 feet; thence South 22 degrees 50 minutes 00 seconds East 49.17 feet; thence North 40 degrees 39 minutes 00 seconds East 77.11 feet; thence North 85 degrees 39 minutes 00 seconds East 22.63 feet; thence South 49 degrees 21 minutes 00 seconds East 113.19 feet; thence South 88 degrees 16 minutes 00 seconds East 34.45 feet; thence North 40 degrees 39 minutes 00 seconds East 78.36 feet to the Point of Beginning.

Tax Item No. 19-25-179-001

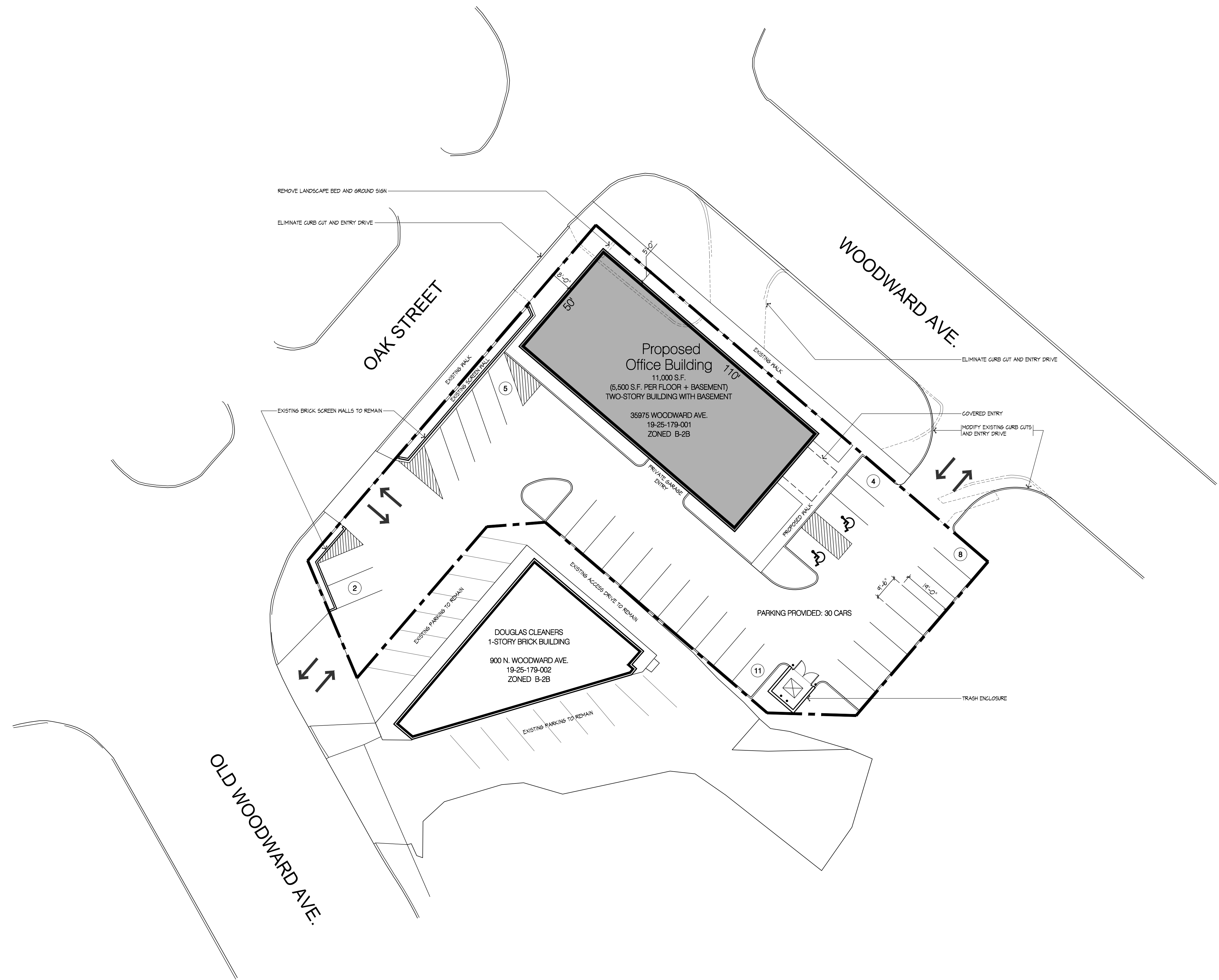
Tax Parcel Number(s): 19-25-179-001

BHC

File Number: 265903

**APPENDIX B**  
**PROJECT CONCEPTUAL DRAWINGS**

A  
B  
C  
D  
E  
F  
G  
H



REMOVE LANDSCAPE BED AND GROUND SIGN

ELIMINATE CURB CUT AND ENTRY DRIVE

OAK STREET

WOODWARD AVE.

WOODWARD AVE.

Proposed Office Building 110'  
11,000 S.F.  
(5,500 S.F. PER FLOOR + BASEMENT)  
TWO-STORY BUILDING WITH BASEMENT  
35975 WOODWARD AVE.  
19-25-179-001  
ZONED B-2B

EXISTING WALK  
EXISTING SCREEN WALL

EXISTING BRICK SCREEN WALLS TO REMAIN

EXISTING PARKING TO REMAIN

EXISTING ACCESS DRIVE TO REMAIN

EXISTING PARKING TO REMAIN

EXISTING PARKING TO REMAIN

EXISTING BRICK SCREEN WALLS TO REMAIN

EXISTING WALK

EXISTING WALK

ELIMINATE CURB CUT AND ENTRY DRIVE

COVERED ENTRY

MODIFY EXISTING CURB CUTS AND ENTRY DRIVE

PRIVATE GARAGE ENTRY

PROPOSED WALK

PARKING PROVIDED: 30 CARS

TRASH ENCLOSURE

**SAROKI**  
ARCHITECTURE

430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

Project:  
August, LLC  
35975 Woodward Ave.  
Birmingham, Michigan 48009

Date: 09-19-2016 Issued For: REVIEW

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

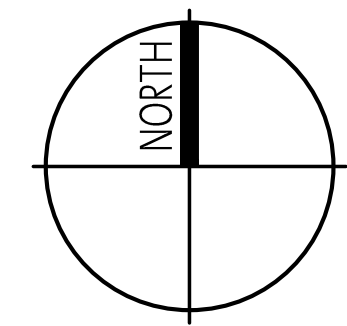
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Sheet No.:  
**A010**  
ARCHITECTURAL SITE PLAN

H6  
A010 Architectural Site Plan  
SCALE: 1" = 20'-0"

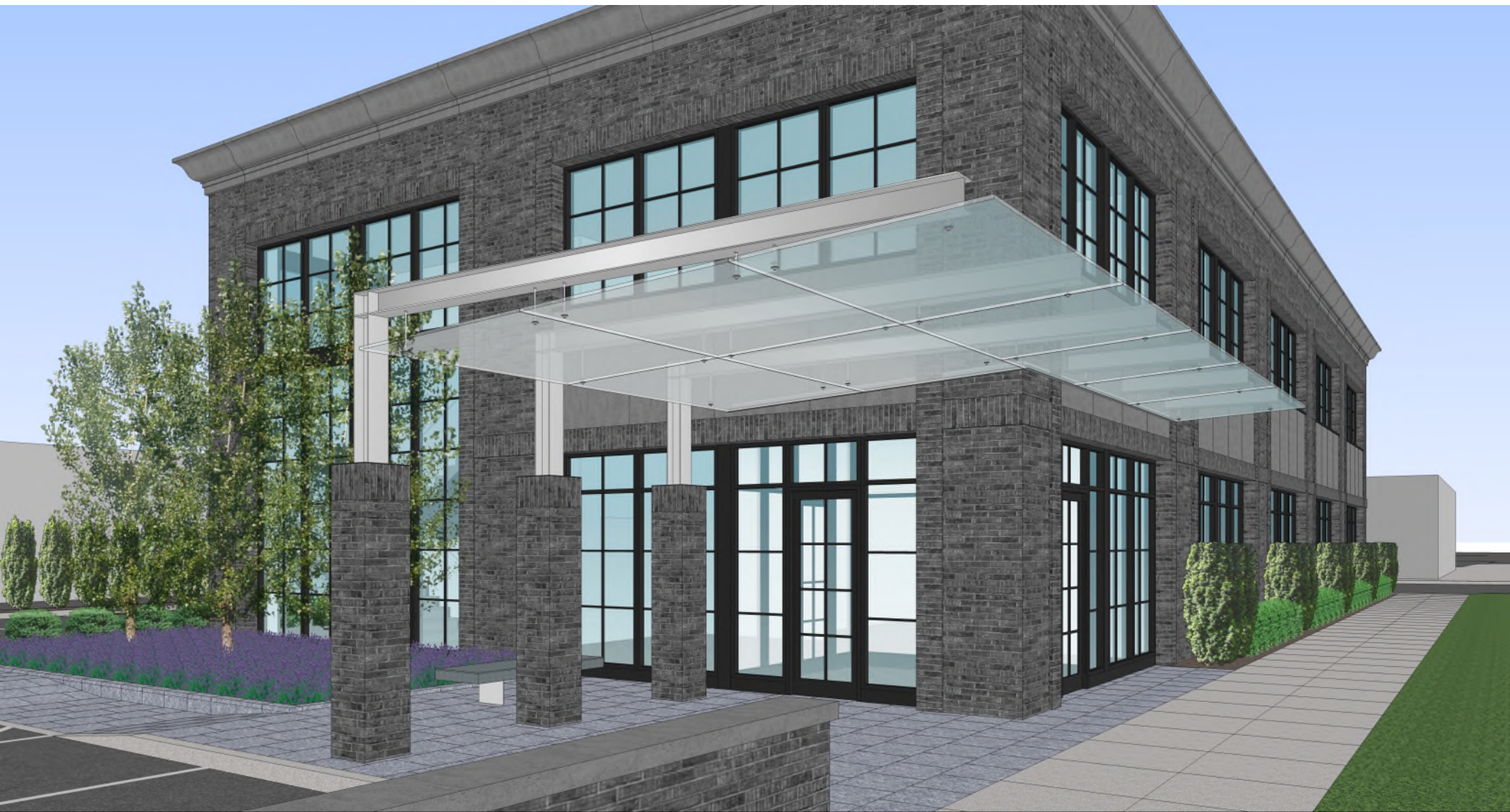


1 2 3 4 5 6 7 8 9 10









**APPENDIX C**  
**ELIGIBLE ACTIVITIES COST TABLE**





**TABLE 1**  
**ELIGIBLE ACTIVITIES**  
**35975 WOODWARD AVENUE REDEVELOPMENT**  
**BIRMINGHAM, MICHIGAN**  
 SME Project No: 075099.01  
 6/5/2017

ELIGIBLE ACTIVITIES											
TASK/ACTIVITY	COST ITEM	BROWNFIELD UNIT COST	GREENFIELD UNIT COST	UNITS	QUANTITY	BROWNFIELD COST (Extra costs incurred due to presence of contamination)	GREENFIELD COST (Development costs for a non-contaminated site)	ELIGIBLE COST (Brownfield cost - Greenfield cost)	TIF SOURCES		
									Local	State	
<b>DEPARTMENT SPECIFIC (MDEQ) ACTIVITIES</b>											
<b>BEA Activities</b>											
Phase I Environmental Site Assessment	Phase I ESA for All Appropriate Inquiry	\$2,800	\$0	ea.	1	\$2,800	\$0	\$2,800	\$1,608	\$1,192	
Phase II Environmental Site Assessment	Phase II ESA	\$10,000	\$0	ea.	1	\$10,000	\$0	\$10,000	\$5,741	\$4,259	
Baseline Environmental Assessment	BEA report	\$3,000	\$0	ea.	1	\$3,000	\$0	\$3,000	\$1,722	\$1,278	
								<b>BEA Activities Subtotal:</b>	<b>\$15,800</b>	<b>\$9,071</b>	<b>\$6,729</b>
<b>Due Care Activities</b>											
Documentation of Due Care Compliance	Preparation of due care compliance documentation, in accordance with Part 201 (two plans: construction and post-construction)	\$3,500	\$0	ea.	2	\$7,000	\$0	\$7,000	\$4,019	\$2,981	
Site Specific Health and Safety Plan	Health and Safety Plan for consultants and contractors	\$3,000	\$0	ea.	1	\$3,000	\$0	\$3,000	\$1,722	\$1,278	
Due Care Response Activity Planning and Management	Evaluation of engineering controls and remediation plans for response activities. Due care consulting and management during contractor bidding and throughout construction	\$10,000	\$0	ea.	1	\$10,000	\$0	\$30,000	\$17,224	\$12,776	
	Third party protection barrier from contamination during construction	\$8	\$0	lf.	1,000	\$8,000	\$0				
	On-site remediation excavation observation and equipment	\$1,200	\$0	days	10	\$12,000	\$0				
Soil Management	Disposal characterization sampling and analysis	\$3,000	\$0	ea.	1	\$3,000	\$0	\$151,000	\$86,695	\$64,305	
	Excavation of contaminated soil (Basement excavation dimensions: 110' x 50' x 15', basement egress ramp and sloped earth retention along west wall and south wall for approximately 145 feet, surface cut, and utility installation trenching)	\$10	\$3	tons	7,400	\$74,000	\$22,200				
	Transport of contaminated fill/soil to a Type II landfill	\$8	\$5	tons	7,400	\$59,200	\$37,000				
	Disposal of contaminated fill/soil to a Type II landfill	\$10	\$0	tons	7,400	\$74,000	\$0				
Groundwater Management	Groundwater disposal characterization sampling	\$5,000	\$5,000	ea.	4	\$20,000	\$0	\$180,000	\$103,345	\$76,655	
	Dewatering of contaminated groundwater	\$0.08	\$0.08	gal.	1,000,000	\$80,000	\$0				
	On-site treatment of waste water	\$40,000	\$0	ea.	2	\$80,000	\$0				
Prevent Exacerbation of Contaminated Soil	Excavation equipment decontamination and waste water handling	\$20,000	\$0	ea.	1	\$20,000	\$0	\$20,000	\$11,483	\$8,517	
Chemical Vapor Mitigation Controls	Design and engineering costs of Vapor Intrusion Mitigation System (VI System)	\$20,000	\$0	ea.	1	\$20,000	\$0	\$70,000	\$40,190	\$29,810	
	Installation of VI System	\$40,000	\$0	ea.	1	\$40,000	\$0				
	Monitoring of VI System installation and quality control testing of vapor mitigation system	\$10,000	\$0	ea.	1	\$10,000	\$0				
Brownfield Site Management	Tax Incremental Financing (TIF) cost tracking and BBRA/MDEQ consulting and coordination	\$15,000	\$0	ea.	1	\$15,000	\$0	\$15,000	\$8,612	\$6,388	
Abandon Existing Monitoring Wells	Decommission any existing monitoring wells	\$10,000	\$10,000	ea.	1	\$10,000	\$10,000	\$0	\$0	\$0	
								<b>Due Care Activities Subtotal:</b>	<b>\$476,000</b>	<b>\$273,290</b>	<b>\$202,710</b>
								<b>Environmental Activities Subtotal:</b>	<b>\$491,800</b>	<b>\$282,361</b>	<b>\$209,439</b>
<b>Environmental Activities Contingency<sup>1</sup></b>		\$491,800	\$0	ea.	0.15	\$73,770	\$0	\$73,770	\$42,354	\$31,416	
								<b>Environmental Activities Total:</b>	<b>\$565,570</b>	<b>\$324,715</b>	<b>\$240,855</b>
<b>Brownfield Plans</b>											
<b>Brownfield Plans</b>											
Preparation and review of Brownfield Plan and Act 381 Work Plan	Brownfield Plan	\$5,000	\$0	ea.	1	\$5,000	\$0	\$5,000	\$2,871	\$2,129	
	Act 381 Work Plan	\$10,000	\$0	ea.	1	\$10,000	\$0	\$10,000	\$5,741	\$4,259	
								<b>Brownfield Plans Subtotal:</b>	<b>\$15,000</b>	<b>\$8,612</b>	<b>\$6,388</b>
<b>TOTAL ELIGIBLE COSTS:</b>								<b>\$580,570</b>	<b>\$333,327</b>	<b>\$247,243</b>	

Notes:

1.The contingency amount is equal to 15% of the eligible costs; brownfield work plan costs are excluded.

**APPENDIX D**  
**SUMMARY OF TAX INCREMENT FINANCING AND REIMBURSEMENT OF**  
**ELIGIBLE ACTIVITIES**



**TABLE 2**  
**TAX CAPTURE + REIMBURSEMENT SCHEDULE**  
**35975 WOODWARD AVENUE REDEVELOPMENT**  
**BIRMINGHAM, MICHIGAN**  
 SME Project No: 075099.01  
 6/5/2017

		2018 (Y1)	2019 (Y2)	2020 (Y3)	2021 (Y4)	2022 (Y5)	2023 (Y6)	2024 (Y7)	2025 (Y8)	2026 (Y9)	2027 (Y10)	2028 (Y11)	TOTALS
<b>TAX INCREMENT</b>													
Initial Taxable Value	\$	672,700											
Taxable Value after Improvement <sup>(1)</sup>	\$	875,000	1,750,000	1,767,500	1,785,175	1,803,027	1,821,057	1,839,268	1,857,661	1,876,238	1,895,000	1,913,950	
<b>Total Capturable Taxable Value</b>	<b>\$</b>	<b>202,300</b>	<b>1,077,300</b>	<b>1,094,800</b>	<b>1,112,475</b>	<b>1,130,327</b>	<b>1,148,357</b>	<b>1,166,568</b>	<b>1,184,961</b>	<b>1,203,538</b>	<b>1,222,300</b>	<b>1,241,250</b>	
<b>YEARLY TAX CAPTURE</b>													
<b>State Taxes - Millages</b>													
State Education Tax (SET)	\$	1,214	6,464	6,569	6,675	6,782	6,890	6,999	7,110	7,221	7,334	7,448	
School Operating	\$	3,641	19,391	19,706	20,025	20,346	20,670	20,998	21,329	21,664	22,001	22,343	
<b>Total State Millages Available for Capture by BRA</b>	<b>\$</b>	<b>4,855</b>	<b>25,855</b>	<b>26,275</b>	<b>26,700</b>	<b>27,128</b>	<b>27,560</b>	<b>27,997</b>	<b>28,439</b>	<b>28,885</b>	<b>29,335</b>	<b>29,791</b>	
		43%											
<b>Local Taxes - Millages (2016)</b>													
City Operating	\$	2,263	12,049	12,245	12,442	12,642	12,844	13,047	13,253	13,461	13,671	13,883	
City Refuse	\$	176	936	951	966	982	998	1,013	1,029	1,046	1,062	1,078	
Library	\$	285	1,519	1,544	1,569	1,594	1,619	1,645	1,671	1,697	1,723	1,750	
Public Schools Supplemental	\$	1,719	9,152	9,300	9,451	9,602	9,755	9,910	10,066	10,224	10,384	10,545	
Oakland County Operating	\$	909	4,841	4,920	4,999	5,079	5,160	5,242	5,325	5,408	5,493	5,578	
Oakland County Community College	\$	318	1,692	1,720	1,747	1,775	1,804	1,832	1,861	1,890	1,920	1,950	
Oakland County Intermediate Schools	\$	676	3,598	3,656	3,715	3,775	3,835	3,896	3,958	4,020	4,082	4,146	
OCPTA/SMART	\$	201	1,071	1,088	1,106	1,124	1,142	1,160	1,178	1,196	1,215	1,234	
<b>Total Local Millages Available for Capture by BRA</b>	<b>\$</b>	<b>6,547</b>	<b>34,858</b>	<b>35,424</b>	<b>35,995</b>	<b>36,573</b>	<b>37,157</b>	<b>37,745</b>	<b>38,341</b>	<b>38,942</b>	<b>39,550</b>	<b>40,164</b>	
		57%											
<b>Available Tax Capture by BRA (Local + State Millages)</b>													
Total Available Tax Capture by BRA	\$	11,402	60,713	61,699	62,695	63,701	64,717	65,742	66,780	67,827	68,885	69,955	
City administrative (local only) <sup>(2)</sup>	\$	-	-	-	-	-	-	-	-	-	-	-	\$ -
State Revolving Fund (3 mills)	\$	607	3,232	3,285	3,338	3,391	3,445	3,500	3,555	3,611	3,667	3,724	\$ 27,964
Annual State Increment Capture by BRA for Reimbursement	\$	4,248	22,623	22,990	23,362	23,737	24,115	24,497	24,884	25,274	25,668	26,067	\$ 195,730
Annual Local Increment Capture by BRA for Reimbursement	\$	6,547	34,858	35,424	35,995	36,573	37,157	37,745	38,341	38,942	39,550	40,164	\$ 301,582
<b>Total Annual Increment Capture by BRA for Reimbursement<sup>(3)</sup></b>	<b>\$</b>	<b>10,795</b>	<b>57,481</b>	<b>58,414</b>	<b>59,357</b>	<b>60,310</b>	<b>61,272</b>	<b>62,242</b>	<b>63,225</b>	<b>64,216</b>	<b>65,218</b>	<b>66,231</b>	<b>\$ 497,312</b>
<b>MDEQ DEPARTMENT SPECIFIC COSTS</b>													
State Tax Reimbursement	\$	4,248	22,623	22,990	23,362	23,737	24,115	24,497	24,884	25,274	25,668	19,457	\$ 240,855
Unreimbursed Department Specific Costs (State portion)	\$	240,855	236,607	213,984	190,994	167,632	143,895	119,780	95,283	70,399	45,125	19,457	-
Local Tax Reimbursement	\$	6,547	34,858	35,424	35,995	36,573	37,157	37,745	38,341	38,942	39,550	40,164	\$ 324,715
Unreimbursed Department Specific Costs (Local portion)	\$	324,715	318,168	283,310	247,886	211,891	175,318	138,161	100,416	62,075	23,133	-	-
<b>Brownfield Plan Costs</b>													
State Tax Reimbursement	\$	-	-	-	-	-	-	-	-	-	-	6,388	\$ 6,388
Unreimbursed Brownfield Plan Costs (State portion)	\$	6,388	6,388	6,388	6,388	6,388	6,388	6,388	6,388	6,388	6,388	6,388	-
Local Tax Reimbursement	\$	-	-	-	-	-	-	-	-	-	8,612	-	\$ 8,612
Unreimbursed Brownfield Plan Costs (Local portion)	\$	8,612	8,612	8,612	8,612	8,612	8,612	8,612	8,612	8,612	8,612	-	-
<b>Annual Reimbursement to Developer</b>	<b>\$</b>	<b>10,795</b>	<b>57,481</b>	<b>58,414</b>	<b>59,357</b>	<b>60,310</b>	<b>61,272</b>	<b>62,242</b>	<b>63,225</b>	<b>64,216</b>	<b>65,218</b>	<b>25,845</b>	<b>\$ 580,570</b>
<b>Local Brownfield Revolving Fund (LBRF)<sup>(4)</sup></b>	<b>\$</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>\$ -</b>

**Notes:**  
<sup>(1)</sup> Taxable value after redevelopment was estimated as 35% of the total investment. The taxable value for 2018 assumes 50% of construction was complete with the full post redevelopment taxable value appearing in 2019. The taxable value growth was estimated at 1% per year.  
<sup>(2)</sup> City administrative funds will not be captured by this plan.  
<sup>(3)</sup> This projection does not include personal property tax due to the uncertainty of availability; however, if available, personal property tax will be captured.  
<sup>(4)</sup> Costs to fund the LBRF will not be captured by this plan.

**APPENDIX E**  
**LEGAL DESCRIPTION**

**LEGAL DESCRIPTION**

(Per First American Title Insurance Company, Commitment #751231, dated July 12, 2016)

The land referred to in this Commitment, situated in the County of Oakland, City of Birmingham, State of Michigan, is described as follows:

Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as: Beginning at a point in the Westerly line of Hunter Boulevard (200.00 feet wide), said point located North 88 degrees 16 minutes 00 seconds West, 659.12 feet and North 49 degrees 21 minutes 00 seconds West, 120.93 feet from the Center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West, along the Westerly line of said Hunter Boulevard, 200.00 feet to the Southerly line of Oak Street (60.00 feet wide); thence South 40 degrees 39 minutes 00 seconds East, 49.17 feet; thence North 40 degrees 39 minutes 00 seconds East, 77.11 feet; thence North 85 degrees 39 minutes 00 seconds East, 22.63 feet; thence South 49 degrees 21 minutes 00 seconds East, 113.19 feet; thence South 88 degrees 16 minutes 00 seconds East, 34.45 feet; thence North 40 degrees 39 minutes 00 seconds East, 78.36 feet to the Point of Beginning.

**ZONING**

(Per letter dated August 31, 2016 from City of Birmingham, Senior Planner, Mathew Baka and per Article 02 - Sections 2.31-2.32 of Zoning Ordinance)

- "The property at 35975 Woodward is currently zoned B2B."
- "There is currently an outstanding code enforcement violation on record for this property for the construction of a parking lot without site plan approval."

- SETBACKS:**
- |        |  |
|--------|--|
| Front: | n/a  |
| Rear:  | 10 feet when the rear open space abuts a P, B1, B2, B2B, B2C, B3, B4, O1, or O2 zoning district. 20 feet when adjacent to residential zoning district.   |
| Side:  | 0 feet for commercial, office or parking 0 feet for residential with walls facing side lot lines which do not contain windows 20 feet at each residential wall containing windows when the side lot lines do not abut a street or alley. |

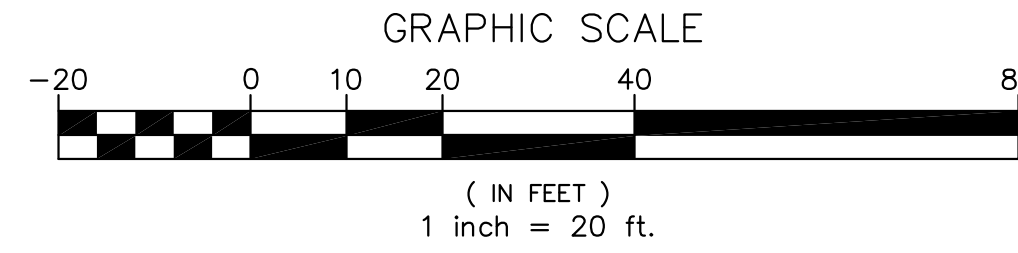
- MINIMUM FLOOR AREA PER UNIT:**
- 300 sq ft (single story hotel or motel)
  - 600 sq ft (efficiency or one bedroom)
  - 800 sq ft (two or more bedroom)
- MAXIMUM BUILDING HEIGHT:**
- 30 feet (commercial/office development or commercial/office with residential)
  - 2 stories (commercial/office development or commercial/office with residential)
  - 40 feet (residential only development)
  - 3 stories (residential only development)

**FLOODPLAIN NOTE:**

BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE "X". AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBERS 26125C0537F & 26125C0536F, DATED SEPTEMBER 29, 2006.

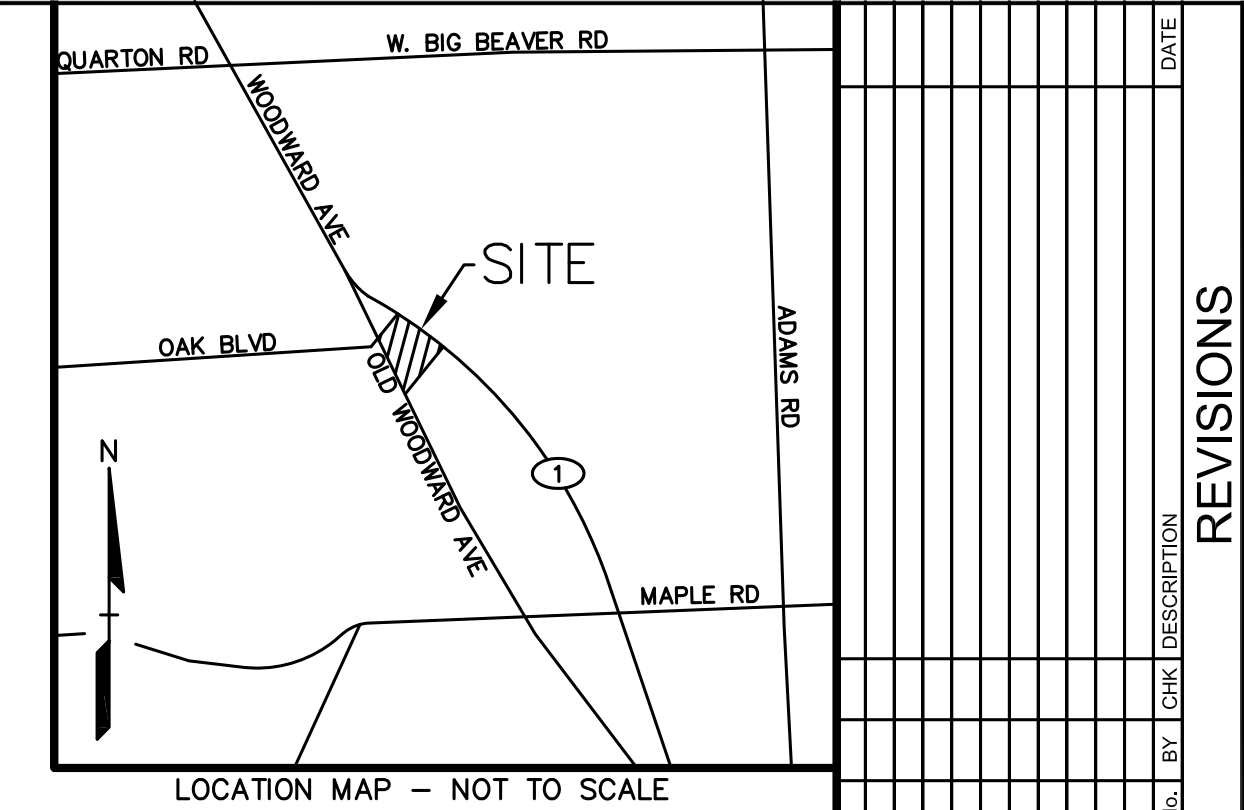
**SURVEY NOTES:**

- A. The subject parcel contains 46 parking spaces, including 2 handicapped spaces.
- B. There were no buildings observed on the subject parcel.
- C. There was no evidence of recent earth moving work, building construction, or building additions observed in the process of conducting the fieldwork.
- D. There was no information concerning any proposed changes in street right of way lines nor any evidence of recent street or sidewalk construction or repair observed in the process of conducting the fieldwork.
- E. There were no wetlands delineated by a qualified specialist hired by the client to locate at the time of survey.
- F. There are four square 2x2' hinged steel access lids to 2 foot deep vaults that contain piping that may be part of a current or formerly active monitoring/remediation system. The vaults themselves lie on Parcel 19-25-179-002 to the south, but the concrete pad they are set in crosses the subject parcel as depicted.
- G. Guy lines/anchors for pole cross parcel line as depicted.
- H. A water service lead crosses parcel as depicted.
- J. Fire Hydrant lies on parcel line.



**LEGEND**

● IRON FOUND	■ BRASS PLUG SET	④ SEC. CORNER FOUND	
⊠ IRON SET	■ MONUMENT FOUND	④ RECORDED	
⊠ NAIL FOUND	■ MONUMENT SET	⊠ MEASURED	
⊠ NAIL & CAP SET		⊠ CALCULATED	
	<b>EXISTING</b>		
— OH-ELEC	ELEC. PHONE OR CABLE TV OH LINE, POLE & GUY WRE		
— UG-CATV	UNDERGROUND CABLE TV, CATV PEDESTAL		
— UG-PHONE	TELEPHONE U.G. CABLE, MANHOLE & HANDHOLE		
— UG-ELEC	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE		
— GAS	GAS MAIN, VALVE & GAS LINE MARKER		
—	WASTEWATER, W/O. SATE VALVE, TAPPING SLEEVE & VALVE		
—	SANITARY SEWER, CLEANOUT & MANHOLE		
—	STORM SEWER, CLEANOUT & MANHOLE		
⊠	DOWNSPOUT		
⊠	COMBINED SEWER & MANHOLE		
⊠	SQUARE, ROUND & BERTHOFF CATCH BASIN		
⊠	COLLECTOR		
⊠	POST INDICATOR VALVE		
⊠	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF		
⊠	MALBOX, TRANSFORMER, IRRIGATION CONTROL VALVE		
⊠	MONITORING WELL		
⊠	2'x2' STEEL WALL		
⊠	UNIDENTIFIED STRUCTURE		
⊠	PEDESTRIAN CROSSING POLE		
⊠	DITCH		
⊠	FENCE		
⊠	GUARD RAIL		
⊠	LIGHT POLE		
⊠	SON		
#	PLOTTED SCHEDULE B-II EXCEPTION NUMBER		



**REVISIONS**

NO.	BY	DATE	DESCRIPTION

**SCHEDULE BII EXCEPTIONS**

(Per First American Title Insurance Company, Commitment #751231, dated July 12, 2016)

- Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or by making inquiry of persons in possession of the Land.
- Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
- Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title including discrepancies, conflicts in boundary lines, shortage in area, or any other facts that would be disclosed by an accurate and complete land survey of the Land, and that are not shown in the Public Records.
- Any lien or right to lien for services, labor or material imposed by law and not shown by the Public Records.
- Taxes and assessments not due and payable at Commitment Date.
- Terms and Conditions contained in Easement and Right of Way for ingress and egress as disclosed by instrument recorded in 4570, page 47 and as disclosed by Notice of Claim of Interest Under Marketable Record Title Act (MCL 565.001) recorded in Liber 39107, page 345. [As plotted.]
- Terms and Conditions contained in Restrictive Covenant as disclosed by instrument recorded in Liber 18211, page 238. [As plotted.]
- Any rights, title interest or claim thereof to that portion of the land taken, used or granted for streets, roads or highways.
- Interest of others in oil, gas and mineral rights, if any, recorded in the public records or unrecorded.
- Interest, if any, of the United States, State of Michigan, or any political subdivision thereof, in the oil, gas and minerals in and under and that may be produced from the captioned land.
- Rights of tenants, if any, under any unrecorded leases.
- Lien for outstanding water or sewer charges, if any.

**CAUTION!!**  
THE LOCATION AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EXPRESSED OR IMPLIED AS TO THE ACCURACY OF THESE DATA. CONTRACTOR SHALL BE OCCASIONALLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

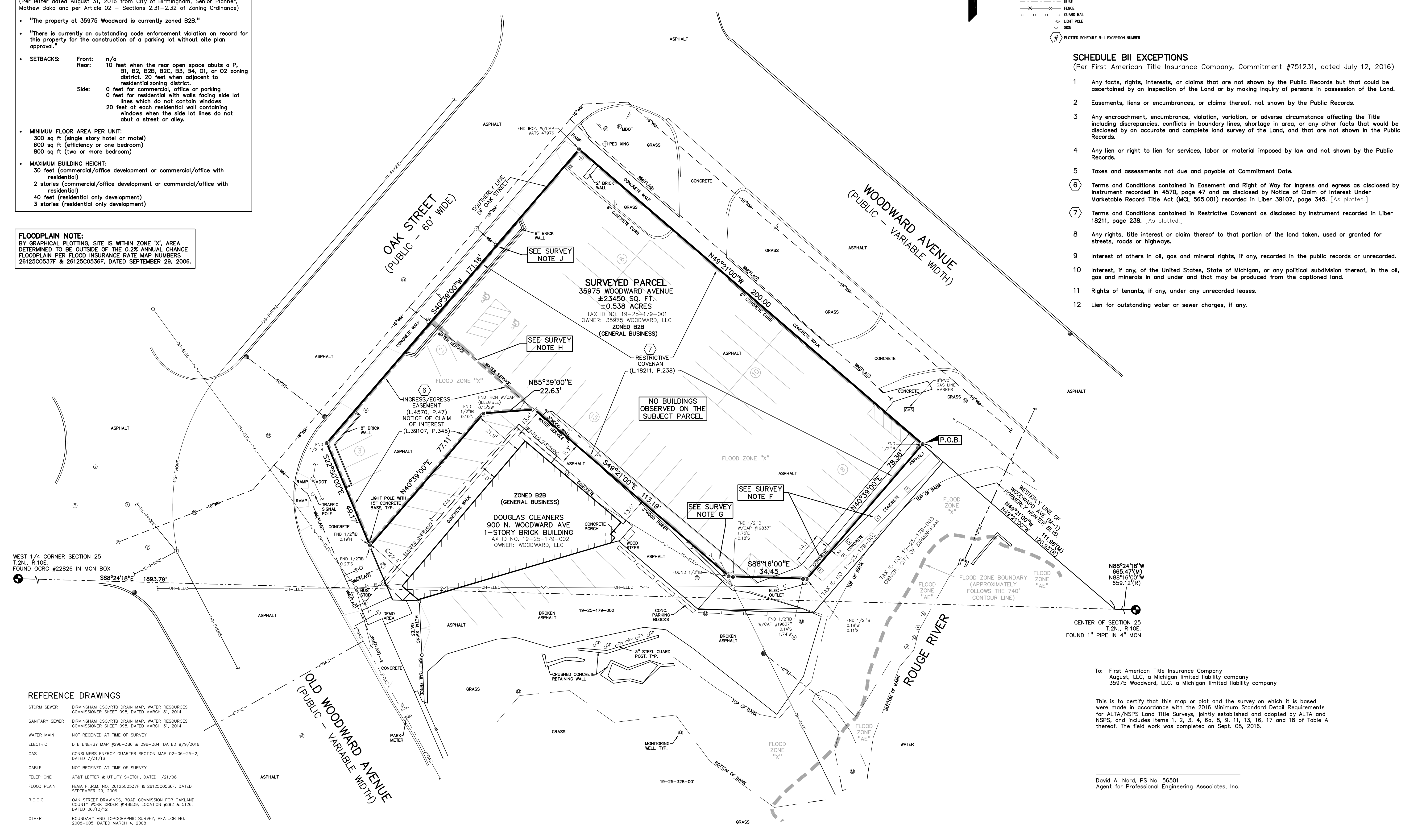
CONSTRUCTION CONTRACTOR AGREES THAT IN CONNECTION WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING SOLE AND COMPLETE RESPONSIBILITY FOR JOB SET CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY THAT ARE NEARBY TO THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF COPIES AND CHANGES TO ALL NEARBY PROPERTY OWNERS AND CONSTRUCTION CONTRACTORS IN WRITING PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF COPIES AND CHANGES TO ALL NEARBY PROPERTY OWNERS AND CONSTRUCTION CONTRACTORS IN WRITING PRIOR TO THE START OF CONSTRUCTION.

**3 FULL WORKING DAYS BEFORE YOU DIG CALL**  
**811**  
Know what's below  
Call before you dig  
MISS System, Inc.  
1-800-482-7171 www.missdig.net

**PEA**  
**PEA, Inc.**  
2430 Rochester Ct, Ste 100  
Troy, MI 48063-1872  
t: 248.689.9090  
f: 248.689.1044  
www.peainc.com

**AUGUST, LLC**  
C/O BODMAN, LLC  
DETROIT, MICHIGAN 48226  
**ALTA/NPS LAND TITLE SURVEY**  
**35975 WOODWARD**  
PART OF THE NORTHWEST 1/4 OF SECTION 25, T2N, R10E  
CITY OF BIRMINGHAM, OAKLAND COUNTY, MICHIGAN  
S:\PROJECTS\2016\2016-024-CR-OW-WOODWARD OFFICE - #FY(SURVEY)-DEPT\RESURVEY\16226-ALTA-AUG

ORIGINAL ISSUE DATE:  
SEPTEMBER 23, 2016  
PEA JOB NO.: 2016-226  
SCALE: 1" = 20'  
DRAWING NUMBER:  
**1**



**REFERENCE DRAWINGS**

STORM SEWER	BIRMINGHAM CSO/RTB DRAIN MAP, WATER RESOURCES COMMISSIONER SHEET 098, DATED MARCH 31, 2014
SANITARY SEWER	BIRMINGHAM CSO/RTB DRAIN MAP, WATER RESOURCES COMMISSIONER SHEET 098, DATED MARCH 31, 2014
WATER MAIN	NOT RECEIVED AT TIME OF SURVEY
ELECTRIC	DTE ENERGY MAP #298-386 & 298-384, DATED 9/9/2016
GAS	CONSUMERS ENERGY QUARTER SECTION MAP 02-06-25-2, DATED 7/31/76
CABLE	NOT RECEIVED AT TIME OF SURVEY
TELEPHONE	AT&T LETTER & UTILITY SKETCH, DATED 1/21/08
FLOOD PLAIN	FEMA F.I.R.M. NO. 26125C0537F & 26125C0536F, DATED SEPTEMBER 29, 2006
R.C.O.C.	OAK STREET DRAWINGS, ROAD COMMISSION FOR OAKLAND COUNTY WORK ORDER #148839, LOCATION #292 & 5126, DATED 06/15/12
OTHER	BOUNDARY AND TOPOGRAPHIC SURVEY, PEA JOB NO. 2008-005, DATED MARCH 4, 2008

To: First American Title Insurance Company  
August, LLC, a Michigan limited liability company  
35975 Woodward, LLC, a Michigan limited liability company

This is to certify that this map or plot and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NPS Land Title Surveys, jointly established and adopted by ALTA and NSP, and includes items 1, 2, 3, 4, 6a, 8, 9, 11, 13, 16, 17 and 18 of Table A thereof. The field work was completed on Sept. 08, 2016.

David A. Nord, PS No. 56501  
Agent for Professional Engineering Associates, Inc.





*Passionate People Building  
and Revitalizing our World*





## BROWNFIELD REDEVELOPMENT AUTHORITY PROJECT APPLICATION

*This application form must be completed and signed by the applicant in order to initiate the project review process by the City of Birmingham Brownfield Redevelopment Authority. Please submit Application; \$1,500 Application Fee; other applicable fees; and supplemental materials to the Birmingham Brownfield Redevelopment Authority, P.O. Box 3001, Birmingham, MI 48012.*

---

### APPLICANT INFORMATION

**Company Name:** August, LLC  
**Contact Person:** David Larsen  
**Mailing Address:** 6<sup>th</sup> Floor at Ford Field, 1901 St. Antione Street in Detroit, MI 48226  
**Telephone Number:** 313-393-7575  
**Fax Number:** None  
**E-mail Address:** [dlarsen@bodmanlaw.com](mailto:dlarsen@bodmanlaw.com)

---

### PROPERTY OWNER INFORMATION

**Company Name:** August, LLC  
**Contact Person:** Diane Wells  
**Mailing Address:** 34977 Woodward Ave #530 Birmingham MI 48009  
**Telephone Number:** 248 709 9185  
**Fax Number:** None  
**E-mail Address:** [dwells@vanelslandercapital.com](mailto:dwells@vanelslandercapital.com)  
  
**Project Address:** 35975 Woodward Avenue  
**Parcel ID Number(s):** 19-25-179-001



**Legal Description:** See attached ALTA survey for legal description

---

**Proposed Project Description:**

The Property was originally developed as an automotive filling and repair service station in 1962. Gasoline sales continued until 2003 when the Property was sold, although automobile repair operations continued until at least 2007. Previous environmental reports indicate the historical installation and removal of underground storage tanks (USTs) on the Property beginning in 1962. In 2003, remaining USTs were reportedly emptied and were later removed in 2007. All structures were demolished by 2015. In its current state, the Property is developed with a paved surface parking lot. A restrictive covenant was placed on the property on February 23, 1998, Liber 18211 (1998 RC). However, the 1998 RC was addressed as satisfied and officially discharged on October 8, 2007. A Quit Claim Deed dated May 19, 2005 stipulated below grade construction should be restricted on the site. This restriction was officially discharged in a document titled, "Modification and Discharge of Certain Terms and Conditions and Ratification of Remaining Terms and Conditions" dated October 8, 2007. A copy of the documents discharging the 1998 Restrictive Covenant and the below grade construction restriction are attached.

Subsurface investigations on the Property have evaluated the condition of soil and groundwater on the Property. Various volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals were measured in soil and groundwater at concentrations exceeding Part 201 Generic Residential Criteria. The presence of contaminated soil and groundwater presents costly and logistical challenges for redevelopment including the need for proper soil and groundwater management and installation of engineering control to prevent unacceptable human exposure to site contaminants.

August intends to redevelop the property with an 11,000 square-foot, two-story office building with a basement and associated surface parking. The building will be located on the northern corner of the Property, adjacent to the intersection of Oak Street and Woodward Avenue. Each floor will be approximately 5,500 square feet. The surface parking lot is designed to accommodate 30 cars including two handicapped parking spaces. Ingress and egress from the parking area will be available off Woodward Avenue and Oak Street. The office spaces will be leased to up to three tenants. Upon approval of the BBRA, August intends to begin construction in May of 2017. Construction is expected to be completed within 12 months. Conceptual design drawings for the project are provided in Appendix D.

Aside from the known contamination on the Property, the location is ideal for redevelopment. The Property is located at the northern gateway to downtown Birmingham and once redeveloped will provide an attractive entrance for the City. Until now, the Property has been left as a vacant and underutilized eyesore. Previous redevelopment have been planned; however, they were ultimately unsuccessful, largely due to the exorbitant upfront cost associated with the subsurface soil conditions. In addition to the aesthetic benefits, the redeveloped property will generate increased tax base. The anticipated investment for the project is approximately \$5 million. This project is expected to create 50+ temporary construction jobs, including two full time construction management personnel. This project is not expected to create any new, full-time positions directly related to day-to-day operations of the office building. However, the creation of the new office space may offer the opportunity for future tenants to expand their businesses and hire more staff. At this point in time, the future tenants are unknown and therefore we are unable to accurately quantify the number of new, full-time

permanent jobs they may generate.

**Proposed Redevelopment Use(s):**

The property will be redeveloped into high-end modern office space that will be leased out to a variety of tenants.

**PART A: INITIAL SCREENING**

**1. Is the property currently vacant? If so, how long has it been vacant?**

Yes, the property is currently vacant and has been since it was sold in 2007. All structures were demolished in 2015.

**2. What is the source of the contamination, constituents of concern and extent of the contamination?**

Volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals have been detected in soil and groundwater in concentrations exceeding Part 201 Generic Residential Criteria across the site. The on-site source of the contamination is associated with a former filling station and automobile repair shop located on the western portions of the site. The gas station was developed in 1962 and had underground storage tanks (USTs) containing gasoline and used oil on the Property until 2007. It is likely that the USTs and/or fuel dispensers leaked and/or contamination entered the subsurface during re-filling the USTs. Off-site contamination sources are likely migrating from the north-adjointing gas station site and the west-adjointing dry cleaning site.

The contamination to soil has been demonstrated to be pervasive across the entire site, as shallow as 0.5 feet below ground surface (bgs) and as deep as 13 feet bgs. Due to the extent and level of contamination in the soil across the site, no soil is suitable for reuse on site and must be disposed of at a Type II landfill. Contamination to groundwater was also demonstrated to be pervasive across the site in concentrations that will require on-site treatment followed by discharge to the sewer system.

**a. Was the contamination generated on site?**

Yes- former gas station and automobile repair operations.

**b. Is the contamination migrating from another site?**

Likely. A dry cleaning operation and gas station are located on the southwest and north adjoining sites, respectively. Subsurface investigations have indicated the presence of soil and groundwater contamination on the Property associated with dry cleaning and fuel storage. The Property does not have a historical dry cleaning use on record and therefore the contamination must have migrated from the adjoining site. The Property does have a history of historical gas station and automobile repair operations. It is possible that the contamination measured on site was a result on the on-site and off-site gas station operations.

**c. What is the proximity of the site to a river, stream, or floodplain?**

The Rouge River and the associated floodway runs across the southeast-adjointing and east-adjointing properties.

**d. What is the proximity of the site to residential uses?**

The nearest residential neighborhoods are located approximately 0.1 miles east and west of the Property.

**3. Has the contamination migrated onto any City property, including parks, alleys, and other rights of way?**

Unknown; however, soil and groundwater contamination was measured near the eastern Property boundary.

**4. Was the property last purchased or will it be purchased at a discount compared to its applicable fair market value or true cash value?**

Yes, the purchase price was reduced due to known environmental contamination.

**a. What was or will be the purchase price?**

The sales price of the Property \$2,198,000.

**b. Does the purchase price reflect the true fair market value of the property or has it been reduced because of known or potential contamination or other environmental issues?**

Yes, the purchase price was reduced due to known environmental contamination.

**c. How much of a price reduction, if any, was or will be related to environmental issues?**

The price was reduced by \$302,000 because of the known environmental issues.

**5. Break down soil transportation and disposal costs, tipping fees, etc.**

**a. How much would it cost per ton if the soil was completely clean (i.e., greenfield)?**

If the site were a Greenfield, the averaged costs to excavate and transport the soil are \$3/ton and \$5/ton, respectively.

**b. If the site is contaminated, how much would it cost per ton?**

Due to the nature and extent of contamination in soil, excavated contaminated soil will need to be disposed of at a Type II landfill. Current cost estimates for contaminated soil excavation, soil transportation and disposal costs are approximately \$10/ton, \$18/ton and \$10/ton respectively.

**6. Compare the development costs, including environmental cleanup costs, of the proposed project to development costs for the site if no contamination was present. (For example, demonstrate the cost difference between brownfield and greenfield cleanup for excavation, tipping, disposal, and vapor barrier expenses.)**

\$169,200 of the total environmental costs will be incurred solely because of the proposed development, regardless of the contamination on site. The contamination to soil and groundwater on the site is pervasive. No soil can be reused on site or come off as “clean” due to the nature and concentrations of contaminants. Our investigations on the groundwater found

contamination across the site at levels, which will require on-site treatment and discharge to the sewer.

If the site were a Greenfield there would be no incurred costs associated with Baseline Environmental Assessment (BEA) Activities, Documentation of Due Care Compliance or Site Specific Health and Safety Plans, Due Care Response Activity Planning and Management, Soil Management for Contaminated Soils, Groundwater Management for Contaminated Groundwater, Prevention of Exacerbation of Contaminated Soil, Chemical Vapor Mitigation Controls, Brownfield Site Management, and Preparation of Brownfield Plan and Act 381 Work Plan.

Please refer to the attached Eligible Activities table for further detail as to the Greenfield versus Brownfield costs.

**7. What amount of the environmental costs are being incurred solely because of the proposed development? (For example, would excavation be required for the development even if no environmental cleanup was required? And if such excavation was required for construction, are the costs of excavation and disposal increased due to contamination?)**

\$169,200 of the total environmental costs will be incurred solely because of the proposed development. If no environmental cleanup were necessary, excavation would still be necessary to create a basement (110'x50'x15') in addition to basement egress, surface cut, utility installation trenching, and sloped earth retention along the west wall of the basement excavation for approximately 145 feet. Due to the nature and extent of soil contamination on site, the soils will require disposal at a Type II landfill. If the site were a Greenfield, soils would still need to be excavated but could be transported and reused on a different site. Costs of excavation are increased due to the contaminated nature of the soil. Our contractor quotes estimate approximately \$3/ton for excavation of clean soil versus \$10/ton for excavation of contaminated soil.

Secondly, if the site were not contaminated costs would still be incurred relating to dewatering of excavations, and discharge of non-contaminated groundwater into the sewer. Further, regardless of the site's Brownfield status, any existing monitoring wells would need to be decommissioned during construction of the building and parking lot.

**8. Are there environmental cleanup costs proposed that are within the structure? (Such as asbestos removal, removal of a heating oil tank in the building versus the removal of contaminated soil on site arising from prior use of an external heating oil tank.)**

No structures are currently present on the Property.

## **PART B: ADDITIONAL PROJECT INFORMATION**

### **Anticipated Project Schedule and Critical Dates:**

Construction is currently anticipated to begin in May of 2017. Construction is expected to last approximately 12 months.

### **Status of Development Permits and Applications:**

The final site plan was approved by the City of Birmingham on March 22, 2017. The building permit application will be submitted to the City in April 2017 with the ultimate goal of beginning construction in May 2017.

### **Description of Known, or Suspected Environmental Contamination Concerns:**

Volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and metals have been detected in soil and groundwater in concentrations exceeding Part 201 Generic Residential Criteria. Please reference the attached 2016 BEA for more detail.

- *Attach additional pages if needed, and supporting documents or reports, if available.*

### **Summary of Needed Eligible Activities and Projected Costs (if known):**

The Eligible Activities can be broadly grouped into Baseline Environmental Assessment (BEA) Activities, Due Care Activities and Brownfield Plans. Specific activities include the preparation of Phase I and Phase II environmental site-use assessments, BEA, Documentation of Due Care Compliance Plans, and Site Specific Health and Safety Plans, and Due Care Response Activity Planning and Management, Soil Management, Groundwater Management, Prevention of Exacerbation of Contaminated Soil, Vapor Mitigation System, and Brownfield Site Management costs. Additionally, costs are requested to reimburse the preparation of the Brownfield Plan and Act 381 Work Plan. We are requesting \$431,070 of reimbursable costs for this project.

Refer to Table 1 for additional information and cost breakdowns.

### **Projected Private Investment in Redevelopment:**

August, LLC intends to invest a total of \$5 million into the redevelopment of the Property.

### **Anticipated Job Creation or Retention Impacts:**

50+ temporary construction jobs will be created as a result of redeveloping this property. Due to the nature of the redevelopment, no permanent full time jobs will be created associated with August, LLC. However, the office space will be leased to tenants who may be able to hire more staff after moving their business into the building.

### **Other Significant Project Information:**

The purchaser of the Property is paying in cash and will not be financing the project expenses. Consequently, a detailed budget is not available at this time. Please refer to the Brownfield Plan and associated tables for additional details on the redevelopment, associated costs, site history, and the current projected reimbursement schedule.

---

**Applicant's Signature**

---

**Date**

---

**Property Owner's Signature**

---

**Date**

**Attachments**

Please check each box to indicate that the required materials have been included with this application. All attached documents should be listed here.

- If the property owner is not the Applicant, a signed and notarized letter from the property owner, authorizing the Applicant to submit this application form must be submitted.
- A copy of the current title commitment and proof of ownership (2016 Warranty Deed).
- Copies of proposed preliminary site development, or concept plans, to illustrate how the proposed redevelopment and land uses will be situated on the subject property, and documenting access to all necessary utilities and infrastructure.
- A detailed project budget illustrating all related project expenses, sources of funding, and project financial needs. **Please note that the Brownfield Redevelopment Authority does not approve the payment of interest.**
- Other: Table 1- Eligible Activities from Brownfield Plan
- Other: 2016 Baseline Environmental Assessment
- Other: Discharge of Restrictive Covenant
- Other: Modification and Discharge Document
- Other: \_\_\_\_\_

**Office Use Only**

Date Application Received: \_\_\_\_\_  
Date Application Fee Received: \_\_\_\_\_ By: \_\_\_\_\_  
Date of Final Site Plan Approval by Planning Board (if required): \_\_\_\_\_  
Date of Initial Brownfield Redevelopment Authority Meeting: \_\_\_\_\_  
Date of Approval by Brownfield Redevelopment Authority: \_\_\_\_\_ Date  
of Final Approval by City Commission: \_\_\_\_\_

Notes:



CITY OF BIRMINGHAM  
ORDINANCE NO. 1868

AN ORDINANCE TO AMEND APPENDIX A - FEES, CHARGES, BONDS AND INSURANCE, SECTION 7.33, LICENSES FOR (A-D), OF THE CODE OF THE CITY OF BIRMINGHAM ESTABLISHING AN APPLICATION FEE FOR A BROWNFIELD DEVELOPMENT.

THE CITY OF BIRMINGHAM ORDAINS:

Section 7.33 of Appendix A, Fees, Charges, Bonds and Insurance, of the Code of the City of Birmingham shall be amended by adding the following:

Fee

Brownfield Developments:

Application fee (non-refundable and non-reimbursable).....\$1,500.00

ORDAINED this 27th day of June, 2005, to become effective upon publication.

Rackeline J. Hoff, Mayor

Nancy Weiss, City Clerk

CITY OF BIRMINGHAM  
ORDINANCE NO.1869

AN ORDINANCE TO AMEND APPENDIX A - FEES, CHARGES, BONDS AND INSURANCE, OF THE CODE OF THE CITY OF BIRMINGHAM BY ADDING A NEW SECTION 7.40, WHICH REQUIRES THE REIMBURSEMENT OF THE CITY'S OUTSIDE CONSULTANT FEES.

THE CITY OF BIRMINGHAM ORDAINS:

Appendix A, Fees, Charges, Bonds and Insurance, of the Code of the City of Birmingham shall be amended by adding a new Section 7.40 as follows:

[Sec.] 7.40 Outside Consultant Fees Reimbursement.

Where a review of applications, plans, construction documents, Brownfield development documents or any other documents is performed by outside consultants engaged by the city, a review fee shall be charged at 1.05 times the actual cost. Payment shall be in advance of the review based on estimated cost.

ORDAINED this 27th day of June, 2005, to become effective upon publication.

Rackeline J. Hoff, Mayor

Nancy Weiss, City Clerk

above ground storage tank  
air quality  
asbestos/lead-based paint  
baseline environmental assessment  
brownfield redevelopment  
building/infrastructure restoration  
caisson/piles  
coatings  
concrete  
construction materials services  
corrosion  
dewatering  
drilling  
due care analysis  
earth retention system  
environmental compliance  
environmental site assessment  
facility asset management  
failure analyses  
forensic engineering  
foundation engineering  
geodynamic/vibration  
geophysical survey  
geosynthetic  
greyfield redevelopment  
ground modification  
hydrogeologic evaluation  
industrial hygiene  
indoor air quality/mold  
instrumentation  
masonry/stone  
metals  
nondestructive testing  
pavement evaluation/design  
property condition assessment  
regulatory compliance  
remediation  
risk assessment  
roof system management  
sealants/waterproofing  
settlement analysis  
slope stability  
storm water management  
structural steel/welding  
underground storage tank

**BASELINE ENVIRONMENTAL  
ASSESSMENT  
CONDUCTED PURSUANT TO  
SECTION 20126(1)(c) OF 1994 PA 451,  
PART 201, AS AMENDED**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

**SME Project Number: PE56173  
November 16, 2007**



© 2007 soil and materials engineers, inc.

**Soil and Materials Engineers, Inc.**



**Soil and Materials Engineers, Inc.**

The Kramer Building  
43980 Plymouth Oaks Blvd.  
Plymouth, MI 48170-2584

tel (734) 454-9900  
fax (734) 454-0629  
www.sme-usa.com

Kenneth W. Kramer, PE  
Chairman Emeritus

Mark K. Kramer, PE  
Frank A. Henderson, PG  
Timothy H. Bedenis, PE  
Gerald M. Belian, PE  
Chuck A. Gemayel, PE  
Larry P. Jedele, PE  
Starr D. Kohn, PhD, PE  
Edward S. Lindow, PE  
Gerard P. Madej, PE  
Timothy J. Mitchell, PE  
Robert C. Rabeler, PE  
Daniel O. Roeser, PG

J. William Coberly, CET  
Andrew J. Emmert, CPA  
Sheryl K. Fountain  
James M. Harless, PhD, CHMM  
Davie J. Hurlburt, PE  
J. Art Johnson, CET  
Cheryl Kehres-Dietrich, CGWP  
Jeffery M. Krusinga, PE, GE  
James M. Less, CIH  
Michael S. Meddock, PE  
Larry W. Shook, PE  
Michael J. Thelen, PE  
John C. Zarzecki, CWI, CDT

November 20, 2007

Mr. Robert G. Mardigian  
Executive Vice President  
35980 Woodward  
Suite 210  
Bloomfield Hills, Michigan 48304

RE: Baseline Environmental Assessment  
35975 Woodward Avenue  
Birmingham, Michigan 48009  
SME Project Number: PE56173

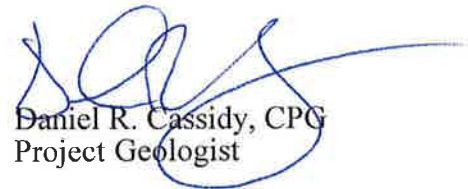
Dear Mr. Mardigian:

SME's Baseline Environmental Assessment (BEA) for the above referenced property is attached. The BEA and signed petition forms were delivered to the Michigan Department of Environmental Quality (MDEQ) for disclosure in accordance with Section 20126(1)(c)(i)(ii) of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended. Copies of the signed petition forms and cover letter submitted to the MDEQ are also attached.

If you have any questions or comments concerning the attached BEA please contact us.

Sincerely,

**SOIL AND MATERIALS ENGINEERS, INC.**



Daniel R. Cassidy, CPG  
Project Geologist

Attachment: Baseline Environmental Assessment  
MDEQ Cover Letter  
Signed Petition Form

Distribution (1 pc): RRD- MDEQ, Southeast Michigan District Office

Plymouth  
Bay City  
Grand Rapids  
Kalamazoo  
Lansing  
Shelby Township  
Toledo  
Traverse City

T:\PROJ\56000\PE56173\PE56173-112007-BEA.DOC

© 2007 soil and materials engineers, inc.

consultants in the geosciences, materials, and the environment



November 20, 2007

**Soil and Materials Engineers, Inc.**

The Kramer Building  
43980 Plymouth Oaks Blvd.  
Plymouth, MI 48170-2584

tel (734) 454-9900  
fax (734) 454-0629  
www.sme-usa.com

Kenneth W. Kramer, PE  
Chairman Emeritus

Mark K. Kramer, PE  
Frank A. Henderson, PG  
Timothy H. Bedenis, PE  
Gerald M. Belian, PE  
Chuck A. Gemayel, PE  
Larry P. Jedele, PE  
Starr D. Kohn, PhD, PE  
Edward S. Lindow, PE  
Gerard P. Madej, PE  
Timothy J. Mitchell, PE  
Robert C. Rabeler, PE  
Daniel O. Roeser, PG

J. William Coberly, CET  
Andrew J. Emmert, CPA  
Sheryl K. Fountain  
James M. Harless, PhD, CHMM  
Davie J. Hurlburt, PE  
J. Art Johnson, CET  
Cheryl Kehres-Dietrich, CGWP  
Jeffery M. Krusinga, PE, GE  
James M. Less, CIH  
Michael S. Meddock, PE  
Larry W. Shook, PE  
Michael J. Thelen, PE  
John C. Zarzecki, CWI, CDT

Mr. Oladipo Oyinsan  
Remediation and Redevelopment Division  
Michigan Department of Environmental Quality  
Southeast Michigan District Office  
27700 Donald Ct.  
Warren, MI 48092-2793

RE: Baseline Environmental Assessment  
35975 Woodward Avenue  
Birmingham, Michigan 48009  
SME Project Number: PE56173

Dear Mr. Oyinsan:

Please find enclosed the completed Baseline Environmental Assessment (BEA) for the above referenced property. The attached BEA was completed by SME on behalf of 35975 Woodward, L.L.C., the prospective purchaser, and is being submitted to the Michigan Department of Environmental Quality for disclosure in accordance with Section 20126(1)(c)(i)(ii) of Part 201 of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended.

If you have any questions or comments regarding the attached BEA, please contact us.

Sincerely,

**SOIL AND MATERIALS ENGINEERS, INC.**

Cheryl L. Becker  
Senior Environmental Engineer

Daniel R. Cassidy, CPG  
Project Geologist

Attachments:

- Disclosure Form
- BEA

Distribution (1 pc): Mr. Robert G. Mardigian

Plymouth  
Bay City  
Grand Rapids  
Kalamazoo  
Lansing  
Shelby Township  
Toledo  
Traverse City

© 2007 soil and materials engineers, inc.

consultants in the geosciences, materials, and the environment



DISCLOSURE OF A BASELINE ENVIRONMENTAL ASSESSMENT  
 (FORM EQP4446 (REV. 4/03))

(Under the authority of Part 201, 1994 Act 451, as amended, and the Rules promulgated thereunder)

**DO NOT use this form for requesting a Baseline Environmental Assessment ("BEA") adequacy determination, OR if the property is not a facility, OR if the BEA was complete before the effective date of the BEA rules. Please answer the following questions as completely as possible.**

Name and address of submitter* (individual or legal entity): <u>35975 Woodward, L.L.C.</u> <u>35980 Woodward Avenue, Suite 210</u> <u>Bloomfield Hills, Michigan 48304</u>	Status relative to the property:  <table border="0"> <tr> <td></td> <td style="text-align: center;">Former</td> <td style="text-align: center;">Current</td> <td style="text-align: center;">Prospective</td> </tr> <tr> <td>Owner*</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Operator*</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>		Former	Current	Prospective	Owner*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operator*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Address/location of property where BEA was conducted: <u>35975 Woodward Avenue</u> <u>Birmingham, Michigan</u> <u>48009</u>  County: <u>Oakland</u>
	Former	Current	Prospective											
Owner*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
Operator*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>											

**Provide the property tax identification number(s) or, if applicable, the ward and item number(s) for the property identified in the BEA.** Required pursuant to Rule 907.  
ID# 19-25-17-179-001

Contact person: Mr. Robert G. Mardigian Telephone #: 248-932-9600

If the address of the person seeking liability protection above is different from the address that should be used to correspond with the contact person, please provide the contact person's address:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Check the appropriate response to each of the following questions.

- Is it known that the source of contamination at the property is primarily from any of the following?**

	<b>YES</b>	<b>NO</b>
• A leaking underground storage tank (UST) regulated under Part 213, 1994 PA 451, as amended.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• A licensed landfill or solid waste management facility.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• A licensed hazardous waste treatment, storage, or disposal facility.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Oil and gas development related activities.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The source of the release that resulted in this property becoming a "facility" will determine which DEQ division will maintain a file regarding this BEA.
- Based on the Part 201 Rules, this BEA is a:**

Category N	<input checked="" type="checkbox"/>
Category D	<input type="checkbox"/>
Category S	<input type="checkbox"/>
- Is the property at which the BEA was conducted a "facility"\* as defined by Section 20101?** If the answer to this question is NO, do not submit the BEA to the DEQ.

	<b>YES</b>	<b>NO</b>
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

4. Was the BEA conducted\* prior to or within 45 days after the date of purchase\*, occupancy, or foreclosure of the property, whichever is earliest, and completed\* not more than 15 days after the date required by Section 20126(1)(c) or Rule 299.5903(8)? If the answer to either portion of this question is no, you are ineligible for an exemption from liability based on the BEA. YES  NO
5. Is the BEA being disclosed to the DEQ no later than 8 months after the earliest of the date of purchase, occupancy, or foreclosure? All disclosures pursuant to Rule 919(3) must be submitted to the DEQ no later than 8 months after the earliest of the date of purchase, occupancy, or foreclosure. YES  NO
6. Are any USTs or abandoned or discarded containers identified in the BEA? If yes, this information must be provided on Form EQP4476. YES  NO
7. Does this BEA rely on an isolation zone or an engineering control that requires an affidavit pursuant to Rule 299.5909(3) or 299.5909(4)? If yes, a completed affidavit, Form EQP4479, must be attached or the BEA will not be considered complete. YES  NO

With my signature below, I certify that the enclosed BEA and all related materials are complete and accurate to the best of my knowledge and belief. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.

Signature of Submitter:  \_\_\_\_\_ Date 11/16/07  
 (Person legally authorized to bind the person seeking liability protection)

Name (Typed or Printed) Mr. David H. Mardigian  
 Title Manager



**Senior Environmental Engineer**

Performs Phase I and Phase II Environmental Site Assessments (ESAs), Baseline Environmental Assessments (BEAs), excavation monitoring, and other related environmental and/or subsurface assessment activities.

**❖ Professional Qualifications:**

- Performed over 100 Phase I, Phase II ESAs and BEAs in southeast Michigan and Ohio. Assessments were performed for individuals, corporations, and lending institutions, in association with properties ranging from residential/commercial to industrial usages.
- Skilled at conducting Phase I ESAs, including property history research, site walkover observation, and Phase I ESA report preparation.
- Experienced at conducting Phase II ESAs, BEAs and other subsurface investigations, including assessing site conditions and history for soil probes, test pits, and/or monitoring well placement, delineation of subsurface impact, and assessment of potential exposure pathways. Knowledgeable in monitor well installation, soil and groundwater sampling, sample preservation, and quality control protocols. Experienced in data interpretation and reporting for a variety of subsurface applications.
- Skilled in leaking underground storage tank (UST) subsurface assessments. These activities include monitoring excavation and UST removal activities, conducting Verification of Soil Remediation (VSR) sampling, coordinating soil and/or groundwater disposal activities, and preparation of required documentation and/or reports.

**❖ Representative Project Experience:**

- Managed field operations for assessment of 14 above ground storage tank (AST) secondary containment systems for a major southeast Michigan utility company. Related activities included coordination of field activities; soil classification and sampling; data interpretation; observing well installation; groundwater sampling; preparation of maps, reports, and related documentation; and assisting with recommendations. Additional activities included free product observation, including assessment and documentation of migration and/or recharge during remediation activities.
- Performed quarterly groundwater monitoring for a variety of companies, including three former MGP sites and two natural gas compression stations. Related activities included using “low-flow” sampling techniques, field observation and interpretation of natural attenuation parameters, and assisting with assessment of groundwater evaluations of both DNAPL and LNAPL constituents.
- Performed soil condition assessment activities for a MDOT road improvement project. Coordinated soil sampling activities to determine parameters for landfill disposal, as well as for health and safety screening to protect highway workers from potential exposure.
- Prepared Toxic Release Inventory (TRI) reports for a local automotive assembly and stamping plants, including data collection, interpretation, and reporting requirements.
- Assisted in observing air quality sampling in over 50 homes where fungi and bacteria levels were being assessed.

**❖ Career History:** SME since 1999 - Self employed prior to employment at SME

**❖ Education:** B.S., Geological Engineering, Michigan Technological University  
Associate of Science/Associate of Arts, Northwestern Michigan College  
Graduate of Dale Carnegie Public Speaking Course

**❖ Certifications:** 8-Hour HAZWOPER Refresher Training – Health and Safety  
40-Hour HAZWOPER Training  
Certified Storm Water Management – Construction Site



Serves as senior client contact, senior reviewer and project manager for a multitude of projects, specializing in large/complex projects. Specialties include regulatory interaction to provide practical remediation strategies. Maintains contact with the MDEQ to monitor new environmental rules and regulations. Provides overall Quality Assurance/Quality Control and technical direction for the environmental group.

**❖ Professional Qualifications:**

- Expert at contamination investigations and development of remediation alternatives for industrial facilities, UST sites, groundwater and soil studies.
- Expert at Baseline Environmental Assessments (BEA), Compliance Analyses, Due Care and Brownfield planning for redevelopment of urban properties.

**❖ Representative Project Experience:**

- Serving as SME's senior project manager and chief technical consultant for Manufactured Gas Plants (MGP) Sites for two Michigan utility companies. Services include remedial investigations; evaluations of the extent of coal tar and non aqueous phase liquids (NAPLs); risk evaluations of relevant exposure pathways, preparation of remedial investigation reports, interim remedial action plans and specifications; and completion of interim remedial actions.
- Project Manager for the construction of a 200,000 square foot industrial building on property containing a land disposal area used from 1936 until the 1960's. Groundwater impact consisted of various constituents, including vinyl chloride. Services included a Phase I ESA, subsurface assessment, soil vapor survey, hydraulic evaluation of sedimentation forebay, evaluation of isolation zone soil, Category S BEA and Compliance Analysis, preparation of Brownfield work plan addendum, due care sheet for construction, and excavation monitoring of fill not suitable for construction. SME worked with the Owner and environmental legal counsel to obtain approximately \$650,000 in Brownfield tax increment financing. The Owner also received \$1,000,000 of single business tax credits. Project received the CREW-Detroit Real Estate Excellence Award in 2003.
- Project Manager for environmental monitoring at numerous construction sites for a major Michigan educational institution. For one project a total of 107,981 cubic yards of soil was removed from the site and disposed of at a licensed landfill. Project included soil probes and test pits to evaluate the condition of the soil to be removed, installation and sampling of groundwater monitoring wells, analyses of 162 Verification of Soil Remediation (VSR) samples, and preparation of a report documenting the effectiveness of the soil excavation effort.
- Project Manager/Senior Consultant for numerous contamination investigations for a major Michigan utility company. Services included determination of extent of contamination, evaluation of exposure pathways, risk assessment, development of remediation alternatives, and implementation of selected remedies, including thermal treatment, soil vapor extraction, groundwater pump and treat, and air sparging.
- Project Manager for numerous UST site investigations and remediations for industrial and commercial sites. Application of Risk Based Corrective Action (RBCA) process to UST sites.

- ❖ **Career History:** SME since 1986 - Other firms from 1982
- ❖ **Education:** B.S. and M.S. in Geology (Specialization in Hydrogeology) - MSU
- ❖ **Registrations:** CGWP, Certified UST Professional-MDEQ  
OSHA HAZWOPER Trained
- ❖ **Affiliations:** ASTM, MAEP (Board Member 1998-2003)  
Environmental Excellence Awards Committee Chair, 2004
- ❖ **Awards:** SME President's Award, 2003





- Senior Consultant for re-use of old landfill into a township park. Main concern was elevated levels of metals.
- Performed a risk assessment for an industrial site containing PCBs.
- Senior Reviewer for an industrial site in Indiana with soil and groundwater impact from historical discharges of chlorinated solvents. The project has included soil borings, soil probes, monitoring well installation, and quarterly groundwater sampling. Remediation alternatives that were evaluated included excavation and dewatering, chemical oxidation, use of hydrogen release compound, and demonstration of plume stability. The selected remediation alternative was to demonstrate plume stability with the placement of a use restriction on the property. The Mann-Kendall Trend Test was used to evaluate plume stability. Quarterly sampling included analyses of natural attenuation parameters. A final evaluation of the data was conducted and a Remediation Completion Report was prepared in 2004. The Indiana Department of Environmental Management (IDEM) is currently reviewing the Remediation Completion Report.
- Project Manager for a southeast Michigan developer specializing in light industrial construction. Projects have included BEAs and Compliance Analyses for sites with various former industrial uses. One site, which was previously occupied by an asphalt plant, was approved for \$430,000 of Brownfield tax increment financing. Services included preparation of a Brownfield Work Plan, monitoring of Interim Response Activities, and preparation of reports documenting completion of the Interim Response Activities. On another site, special due care considerations were required for two detention basins in areas of groundwater impacted by chlorides and solvents.



**Project Geologist**

Manages investigations and assessments for a variety of urban redevelopment projects. Professional services include brownfield management, management of Environmental Site Assessments (ESAs), Baseline Environmental Assessments (BEAs), Due Care Assessments, remediation monitoring, hydrogeologic assessments, underground storage tank (UST) closures, project specifications and bid packages, and asbestos surveys.

**❖ Professional Qualifications:**

- Experienced in managing contamination investigations and development of remediation alternatives at commercial and industrial facilities, and UST sites.
- Knowledgeable in Michigan Public Act 451, Part 201, Part 213, Part 211, Act 381, and EPA Brownfields Economic Redevelopment Initiative documents.

**❖ Project Experience:**

- Project manager for a USEPA Brownfields Cleanup Revolving Loan Fund (BCRLF) grant of \$1million for the City of Wyandotte, Michigan. Provided financial planning and cost-tracking services for all sources of project funding including, but not limited to the USEPA BCRLF program. Prepared project's Community Involvement Plan (CIP), Record of Decision for Environmental Response Actions, and assisted in development of the work plans for environmental response activities and non-environmental (infrastructure) activities.
- Project manager for a \$500,000 USEPA BCRLF grant for the City of Trenton, Michigan. Prepared project documents including Community Response Plan (CRP), Action Memorandum for Environmental Response Actions and provided financial planning and cost-tracking services for all sources of project funding.
- Project manager for a \$120 million brownfield redevelopment project in Allen Park, Michigan. Providing technical consulting to the Allen Park Brownfield Redevelopment Authority (BRA) during redevelopment of the clay mine landfill. Project involves commercial and retail space, and 34-acres of recreation.
- Performed investigation and site assessment on brownfield project in which over \$4 million in single business and tax increment financing (TIF) credits were obtained, including approximately \$2 million in TIF credits to address soils unsuitable from a construction perspective.
- Performed and managed aspects of a commercial brownfield redevelopment in Jackson, Michigan. Experience includes peer review of brownfield documents, preparation of ESAs, BEAs, and Due Care Compliance Analysis, soil and groundwater investigation, including evaluation of mercury impact.
- Senior geologist for Manufactured Gas Plant (MGP) sites. Experience includes soil and groundwater investigations, contractor coordination, pathway evaluations, preparation of remedial action work plans and remedial investigation reports.
- Project manager for numerous real estate transfers. Experience includes soil and groundwater investigations, evaluation of extent of impact, contractor coordination, pathway evaluations, and preparation of assessment reports.

**❖ Career History:** SME since 1997 - Other firms from 1996

**❖ Education:** B.S., Environmental Geoscience/Geology, Michigan State University  
Candidate for Juris Doctor, Wayne State University Law School  
Candidate for Masters of Business Administration, Wayne State University

**❖ Certifications:** Certified Professional Geologist – AIPG  
8-Hour HAZWOPER Refresher Training – Health & Safety  
40-Hour HAZWOPER Course

**❖ Affiliations:** American Institute of Professional Geologists (AIPG)  
Michigan Association of Environmental Professionals  
Royal Oak Downtown Development Authority  
Woodward Avenue Action Association – Economic Revitalization  
Committee



above ground storage tank  
air quality  
asbestos/lead-based paint  
baseline environmental assessment  
brownfield redevelopment  
building/infrastructure restoration  
caisson/piles  
coatings  
concrete  
construction materials services  
corrosion  
dewatering  
drilling  
due care analysis  
earth retention system  
environmental compliance  
environmental site assessment  
facility asset management  
failure analyses  
forensic engineering  
foundation engineering  
geodynamic/vibration  
geophysical survey  
geosynthetic  
greyfield redevelopment  
ground modification  
hydrogeologic evaluation  
industrial hygiene  
indoor air quality/mold  
instrumentation  
masonry/stone  
metals  
nondestructive testing  
pavement evaluation/design  
property condition assessment  
regulatory compliance  
remediation  
risk assessment  
roof system management  
sealants/waterproofing  
settlement analysis  
slope stability  
storm water management  
structural steel/welding  
underground storage tank

**BASELINE ENVIRONMENTAL  
ASSESSMENT  
CONDUCTED PURSUANT TO  
SECTION 20126(1)(c) OF 1994 PA 451,  
PART 201, AS AMENDED**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

**SME Project Number: PE56173  
November 16, 2007**



© 2007 soil and materials engineers, inc.

**Soil and Materials Engineers, Inc.**

## TABLE OF CONTENTS

	PAGE NO.
<b>1. IDENTIFICATION OF AUTHOR AND DATE BEA WAS CONDUCTED AND DATE BEA WAS COMPLETED.....</b>	<b>1</b>
<b>2. INTRODUCTION .....</b>	<b>1</b>
2.1 Historical and Current Uses.....	1
2.2 Basis for BEA .....	5
<b>3. PROPERTY DESCRIPTION &amp; INTENDED HAZARDOUS SUBSTANCE USE .....</b>	<b>8</b>
3.1 Property Description .....	8
3.2 Proposed Hazardous Substance Use.....	9
<b>4. KNOWN CONTAMINATION .....</b>	<b>9</b>
4.1 Relevant Pathways and Applicable Criteria .....	9
4.2 PME's Subsurface Assessment Activities .....	10
4.3 SME's Subsurface Assessment Activities .....	10
4.4 Summary of Contamination Identification and Location .....	10
<b>5. LIKELIHOOD OF OTHER CONTAMINATION .....</b>	<b>11</b>
<b>6. CONCLUSIONS .....</b>	<b>12</b>
<b>7. REFERENCES .....</b>	<b>13</b>

### APPENDICES:

- Attachment A: Figures and Property Legal Description
- Attachment B: SME's September 17, 2007 Phase I ESA
- Attachment C: PME Soil and Groundwater analytical Results Tables
- Attachment D: SME's November 1, 2007 Technical Memorandum
  - Appendix A- Figures
  - Appendix B - Soil Logs
  - Appendix C - Analytical Tables
  - Appendix D - Laboratory Analytical Report/Chain of Custodies

## **1. IDENTIFICATION OF AUTHOR AND DATE BEA WAS CONDUCTED AND DATE BEA WAS COMPLETED**

This Baseline Environmental Assessment (BEA) was prepared by Ms. Cheryl L. Becker, Senior Environmental Engineer, and reviewed by Ms. Cheryl A. Kehres-Dietrich, CGWP, Senior Consultant. The BEA was conducted on October 26, 2007, and completed on November 16, 2007.

## **2. INTRODUCTION**

This report presents the results of Soil and Materials Engineer's, Inc. (SME's) BEA of the property located at 35975 Woodward Avenue, Birmingham, Oakland County, Michigan, referred to herein as the Property. A Property Location Map is included in Attachment A. The Property consisted of approximately 0.5 acres of land developed with one approximately 2,300 square foot automotive repair station and remnant features of former gasoline retail operations.

This BEA was prepared and submitted on behalf of 35975 Woodward, L.L.C., the purchaser, pursuant to Section 20126(1)(c) of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451, 1994, as amended. This report is intended to meet the requirements of a Category "N" BEA and was prepared in accordance with the Michigan Department of Environmental Quality's (MDEQ) guidance document titled, *Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analysis*, dated March 11, 1999.

### **2.1 Historical and Current Uses**

Historical and current uses of the Property were evaluated based on review of available historical information and a site reconnaissance, conducted as part of SME's September 17, 2007, Phase I Environmental Site Assessment (SME's Phase I ESA). A copy of SME's Phase I ESA is included in Attachment B. The following paragraphs summarize the historical and current use of the Property.

#### **Historical Use**

Based on the review of historical information, the Property was first developed in 1962 as a gasoline retail and automotive service station. Prior to development, the Property appeared to be vacant land. City of Birmingham Fire Department records indicated four 6,000-gallon gasoline underground storage tanks (USTs) and one 550-gallon waste oil UST were installed at



the time of the Property's development. In 1970, one 8,000-gallon (gasoline) and one 1,000-gallon (unknown contents) were added to the existing USTs at the site. In approximately 1988, the four 6,000-gallon USTs and one 1,000-gallon UST were removed from the Property and were replaced with three 12,000-gallon gasoline USTs.

Gasoline retail operations continued at the Property from the time of development through approximately 2003. When the Property was sold in 2003, retail gasoline station operations were discontinued. The contents of the three 12,000-gallon gasoline USTs and one 550-gallon used oil UST were reportedly emptied in place at this time. Automotive repair operations continued at the Property from approximately 1962 to the present. In addition to the above mentioned operations, the Property was used for the storage and rental of vehicles from approximately 1997 to 2003.

### **Current Use**

On February 9, 2007, SME representative Mr. Jason Lafayette conducted an observational reconnaissance of the Property as part of SME's Phase I ESA. Photographs taken by Mr. Lafayette during the walkovers are included in the Phase I ESA in Attachment B. Figure No. 2 in Attachment A depicts Property features.

At the time of SME's reconnaissance, the Property consisted of approximately 0.5 acres of land, developed with one approximately 2,300 square-foot building used for an automotive repair station. Remnant features of the former gasoline retail operations were observed, and SME observed environmental monitoring wells at the Property. SME noted several areas of surface staining near used parts and waste material storage south of the Property building, and within the Property building. SME also noted chemical residue near a manhole, of unknown purpose, within the Property building. Two hydraulic vehicle hoists were noted on the Property. Though reportedly emptied of their contents, the three 12,000-gallon gasoline and the 550-gallon used oil USTs remained at the Property.

At the time of SME's reconnaissance, the Property was adjoined to the northwest, across Oak Street, by a Mobil gasoline station, located at 36101 Woodward Avenue. SME observed groundwater monitoring wells on the north adjoining gasoline station site. The Property was adjoined to the east, across Woodward Avenue, by commercial office buildings, and by the Rouge River to the south and southwest. The Property was adjoined to the west by Douglas Cleaners, located at 900 Old North Woodward.

SME identified the following RECs in connection with the Property as part of the September 17, 2007, Phase I ESA:

- The reported presence of soil and groundwater contamination.
- The existing hydraulic hoists and empty USTs.
- Potential abandoned USTs.
- Historical use of the Property for gasoline retail and automotive repair.
- Surface staining on various portions of the Property.
- Unknown contents of the structure below the manhole in the storage area of the building interior.
- Northwest adjoining Mobil gasoline station LUST site.
- West adjoining Douglas Cleaners.

A restrictive covenant was placed on the Property deed which included a limitation on subsurface construction activity, water use, and a future use limitation to commercial. SME understands the deed restrictions were removed prior to acquisition of the property by 35975 Woodward, L.L.C. in September 2007.

### Site Assessment Overview

A confirmed release from the Property USTs was reported on January 13, 1989 (release # C-0008-89). Based on PM Environmental's (PME's) May 11, 2006, Due Care Plan prepared for 35975 Woodward Avenue, the confirmed release was reportedly based on staining and odors noted during replacement of historical product piping. PME reported approximately 800 cubic yards of soil was removed during the piping replacement. Subsurface assessments and remedial investigations were initiated following the release, which established the site as a leaking underground storage tank (LUST) site.

PME reported that delineation monitoring wells were installed on several south adjoining Properties and within the Woodward Avenue right-of-way (ROW) east of the Property. Reportedly, sampling results indicated off-site migration of groundwater impacted above Part 213, Tier I Risk Based Screening Levels (RBSLs). A "sheen" was reportedly observed on the water surface of the Rouge River in the summer of 1995, following which, a pump and treat, active remediation system was installed at the site. A total of five recovery wells were installed, from which reportedly over 112,800 gallons of impacted groundwater was treated between July of 1996 and about March 1997.

In 1999, free phase hydrocarbons were identified in one of the Property's permanent monitoring wells, OW-12, located to the south of the southern pump islands. Figure 2 in Attachment A shows the general property features, including monitoring well locations. Monitoring well OW-12 was reportedly replaced with OW12R due to a rise in the water table with respect to the screened interval of the original well. Free phase liquid recovery activities were conducted at OW-12/OW-12R following discovery of the free phase liquid.

Results of environmental assessments and remedial investigation activities prior to 2005 were submitted to the MDEQ in previous reports (Confirmed Release: C-0008-89; Facility ID number 0-005681).

PME conducted a Phase I ESA of the Property, documented in PME's May 12, 2005, Phase I ESA report. PME conducted additional site assessments in October 2005 (groundwater monitoring), February 2006 (soil probes), and April 2006 (soil probes), to assess potential contamination from RECs identified in the May 12, 2005, Phase I ESA report. These assessment activities were previously documented in PME's April 27, 2006, Baseline Environmental Site Assessment (BEA) report (ID# 0806-3161) submitted to the MDEQ.

Following PME's assessments, SME conducted a Phase I ESA of the Property, documented in SME's September 17, 2007, Phase I ESA report. Based on results of SME's Phase I ESA, SME conducted soil probes, installed permanent monitoring wells, and conducted associated soil and groundwater sampling at the site in March of 2007. Figure No. 2 in Attachment A depicts soil borings/probes and monitoring well locations. SME conducted the additional subsurface assessment to satisfy the following objectives:

- To further evaluate the nature and extent of existing soil and groundwater impact to support planning for excavation and dewatering activities, off-site disposal planning, cost estimating and prevention of contamination exacerbation during redevelopment construction.
- To further evaluate the hydrogeologic conditions at the Property to identify potential plumes from off-site sources, support future retaining wall design, planning for excavation, dewatering, dewatering effluent management, and the support removal of free product, if confirmed to be present.
- To further evaluate potential due care concerns, such as protection of construction workers from chemical hazards, mitigation of exacerbation of existing environmental impact, and protection of third parties who may enter the site.
- To obtain current environmental impact data from the site sufficient to prepare a BEA on behalf of the prospective owner/developer.

The results of SME's March 2007, subsurface assessment activities are documented in SME's November 1, 2007, Technical Memorandum provided in Attachment C.

On October 11 and October 12 of 2007, three 12,000 gallon USTs were removed from the Property. SME collected a total of six assessment samples from the excavation floor to document in-situ soil conditions following UST removal activities. The assessment sampling results are provided in SME's November 1, 2007, Technical Memorandum provided in Attachment C. On November 1, 2007, the 550 gallon used oil UST was removed from the site.

## **2.2 Basis for BEA**

As indicated above, several subsurface assessments and remedial investigations have been conducted at the site. Results of environmental assessments and remedial investigation activities prior to 2005 were submitted to the MDEQ in previous reports (Confirmed Release: C-0008-89; Facility ID number 0-005681).

PME conducted environmental assessment at the site between May of 2005 and April 2006. As part of subsurface assessment of the site, PME conducted groundwater monitoring of site monitoring wells, OW-1, OW-4, OW-7, OW-11, OW-12R, MP-A, TW-1, TW-4, TMW-5, TMW-7, TMW-11, and TMW5R. Groundwater monitoring was conducted in October 2005, February 2006, and April 2006, during which select site wells were sampled for each event. In addition, PME conducted seventeen soil borings, SB-1 through SB-10 (February 2006); and SB2R through SB-5R, SB-7R, SB-8R, and SB10R (April 2006). As previously stated, these assessment activities were previously documented in PME's April 27, 2006, Baseline Environmental Site Assessment (BEA) report, submitted to the MDEQ. Tabulated results of PME's soil and groundwater sample laboratory analysis are provided on Table 1 and Table 2, respectively, in Attachment C.

SME's environmental assessments at the site were conducted between approximately September of 2007 and completion of this BEA in November of 2007. As part of March 2007 subsurface assessments of the site, conducted to assess RECs identified in SME's Phase I ESA, SME advanced 15 soil probes, SP1 through SP15, and installed nine monitoring wells, MW101 through MW109. In, addition, SME collected soil and groundwater samples during soil probe assessment activities, and conducted groundwater monitoring of newly installed and existing site monitoring wells. SME submitted a total of 33 analytical soil samples, and 12 analytical groundwater samples for laboratory analysis. Procedure descriptions and assessment results are provided in SME's Technical Memorandum provided in Attachment D. Tabulated soil and

groundwater analytical results are provided on Table 1, and Table 2, respectively, attached to SME's Technical Memorandum.

The analytical results of the SME's and PME's subsurface assessments were compared to Natural Resources and Environmental Protection Act (NREPA) Part 201 Generic Residential Cleanup Criteria, dated January 23, 2006, to assess which constituents were measured at the Property at concentrations above these criteria. The following tables summarize the combined results of SME and PME analytical soil and groundwater results that exceeded one or more of the Part 201 residential criteria judged by SME to be applicable. The summary tables provide the clean up criteria exceeded for each constituent, the highest concentration measured of each constituent, and the corresponding location of the highest concentration, based on the combined SME and PME analytical results.

### Soil Analytical Results Summary

Constituent	CAS #	Criteria Exceeded	Location of Highest Concentration	Highest Analytical Result
Benzene	71-43-2	DW, GSI, SVIAI, AAI	SP15 (SME)	68,000 ppb
Ethylbenzene	100-41-4	DW, GSI	SB-10 (PME)	88,000 ppb
MTBE	1634-04-4	DW	SP7 (SME)	13,000 ppb
Naphthalene	91-20-3	DW, GSI	SP15 (SME)	40,000 ppb
n-Butylbenzene	104-51-8	DW	SP15 (SME)	20,000 ppb
n-Propylbenzene	103-65-1	DW	SP15 (SME)	33,000 ppb
sec-Butylbenzene	135-98-8	DW	SP15 (SME)	2,400 ppb
Tetrachloroethene	127-18-4	DW, GSI	SP7 (SME)	1,100 ppb
Toluene	108-88-3	DW, GSI, GCP, SVIAI, DC, SAT	SP15 (SME)	910,000 ppb
1,2,3-Trimethylbenzene	NA	DW	SB-10R (PME)	54,000 ppb
1,2,4-Trimethylbenzene	95-63-6	DW, GSI, GCP, SVIAI, DC, SAT	SP15 (SME)	210,000 ppb
1,3,5-Trimethylbenzene	108-67-8	DW, GSI	SP15 (SME)	65,000 ppb

Constituent	CAS #	Criteria Exceeded	Location of Highest Concentration	Highest Analytical Result
Tetrahydrofuran	109-99-9	DW	SB-10R (PME)	150,000 ppb
Xylenes	1330-20-7	DW, GSI, GCP, SVIAI, DC, SAT	SP15 (SME)	460,000 ppb
Fluoranthene	206-44-0	GSI	SP8 (SME)	11,000 ppb
Arsenic	7440-38-2	DW, DC	SP9 (SME)	19,000 ppb
Lead	7439-92-1	DW, DC	SB-3 (PME)	2,100,000 ppb
Mercury	7439-97-6	GSI	SP9 (SME)	610 ppb
Selenium	7782-49-2	GSI	SP9 (SME)	1,200 ppb

Notes: DW= Drinking Water Protection Criteria,  
GSI= Groundwater/Surface Water Interface Protection Criteria  
GCP=Groundwater Contact Protection Criteria  
SVIAI=Groundwater Volatilization to Indoor Air Inhalation Criteria  
AAI=Ambient Air Volatile Soil Inhalation Criteria  
DC=Direct Contact Criteria  
SAT=Soil Saturation Concentration Screening Levels  
ppb=Parts Per Billion

### Groundwater Results Summary

Constituent	CAS #	Criteria Exceeded	Location of Highest Concentration	Highest Analytical Result
Benzene	71-43-2	DW, GSI, GC, GVIAI	TMW-5 (PME)	20,000 ppb
Ethylbenzene	100-41-4	DW, GSI	TMW-5 (PME)	4,400 ppb
MTBE	1634-04-4	DW, GSI	OW-7 (SME)	820 ppb
Naphthalene	91-20-3	GSI	MW102 (SME)	280 ppb
n-Propylbenzene	103-65-1	DW	TMW-7 (PME)	380 ppb
Toluene	108-88-3	DW, GSI	TMW-5 (PME)	33,000 ppb
1,2,3- Trimethylbenzene	NA	DW, GSI	TMW-7 (PME)	1,100 ppb
1,2,4- Trimethylbenzene	95-63-6	DW, GSI	TMW-7 (PME)	3,500 ppb

Constituent	CAS #	Criteria Exceeded	Location of Highest Concentration	Highest Analytical Result
1,3,5-Trimethylbenzene	108-67-8	DW, GSI	TMW-7 (PME)	890 ppb
Vinyl Chloride	75-01-4	DW, GSI	TMW-4 (PME)	29 ppb
Xylenes	1330-20-7	DW, GSI	TMW-5 (PME)	24,000 ppb
Acenaphthene	83-32-9	GSI	TMW-5 (PME)	45 ppb
Benzo(a)anthracene	56-55-3	DW	TMW-5 (PME)	33 ppb
Benzo(a)pyrene	50-32-8	DW	TMW-5 (PME)	22 ppb
Benzo(k)fluoranthene	207-08-9	DW	TMW-5 (PME)	23 ppb
Chrysene	218-01-9	DW	TMW-5 (PME)	41 ppb
Fluoranthene	206-44-0	GSI	TMW-5 (PME)	110 ppb
Fluorene	86-73-7	GSI	TMW-5 (PME)	48 ppb
2-Methylnaphthalene	91-57-6	DW	TMW-5 (PME)	2,300 ppb
Phenanthrene	85-01-8	DW, GSI	TMW-5 (PME)	140 ppb
Lead	7439-92-1	DW, GSI	TMW-7 and TMW-5 (PME)	1,300 ppb

Notes: DW= Drinking Water Protection Criteria,  
GSI= Groundwater/Surface Water Interface Protection Criteria  
GVIAI=Groundwater Volatilization to Indoor Air Inhalation Criteria  
GC=Groundwater Contact Criteria  
AAI=Ambient Air Volatile Soil Inhalation Criteria  
ppb=Parts Per Billion

Based on the analytical results of SME's and PME's subsurface assessments, the Property was indicated to be a "facility" as defined by Part 201.

### 3. PROPERTY DESCRIPTION & INTENDED HAZARDOUS SUBSTANCE USE

The following sections provide a description of the Property and the intended hazardous substance usage.

#### 3.1 Property Description

The Property consisted of approximately 0.5 acres of land located at 35975 Woodward Avenue, in the southeast ¼ of the northwest ¼ of Section 25, Township 2N, Range 10E, in



Oakland County. The Property's tax identification number, obtained from the City of Birmingham Geographic Information System online mapping service, is 19-25-17-179-001. The legal description of the Property is provided in Attachment A. Photographs of the Property taken at the time of SME's reconnaissance are included in the Phase I ESA in Attachment B. As previously stated, a previous BEA was conducted at the Property, dated April 27, 2006 (ID# 0806-3161), and submitted to the MDEQ.

### **3.2 Proposed Hazardous Substance Use**

35975 Woodward, L.L.C., reported their intention is to purchase the property and construct a building housing commercial retail and offices, and an underground parking structure. As part of the development, 35975 Woodward, L.L.C., also reported that sheet piling is planned to be installed at the site prior to excavation to prevent the exacerbation of existing impact. In addition, 35975 Woodward, L.L.C., intends to leave the sheet piling in place, sealed at the seams, to prevent potential migration of impact to the property from off-site sources.

SME understands the proposed site use will not result in "significant hazardous substance use" as defined by Rule 901(o). Rule 901(o) defines "significant hazardous substance use" as "the use, storage, handling, or management, at any time, of hazardous substances in quantities that exceed those commonly used for typical residential or office purposes." Therefore, SME prepared this Category "N" BEA as a means of documenting existing site contamination.

## **4. KNOWN CONTAMINATION**

The following sections describe the occurrence and extent of contaminants detected in the subsurface at the Property.

### **4.1 Relevant Pathways and Applicable Criteria**

SME evaluated relevant pathways and applicable criteria for the site. SME's evaluation of relevant pathways and applicable criteria is presented in Section 3.0 of SME's attached Technical Memorandum (Attachment D). Based on SME's evaluation, the following pathways were judged to be relevant for the site:

- Consumption/use of groundwater
- Direct contact with groundwater
- Direct contact with soil

- Inhalation of contamination released from soil or groundwater
- Aesthetic impacts

The respective MDEQ Part 201 Generic Residential Cleanup Criteria for the pathways identified above were used for evaluation of target contaminant concentrations in soil and groundwater samples.

#### **4.2 PME's Subsurface Assessment Activities**

As previously stated, PME's assessment activities were documented in PME's April 27, 2006, Baseline Environmental Site Assessment (BEA) report, submitted to the MDEQ. Tabulated results of PME's soil and groundwater sample laboratory analysis are provided on Table 1 and Table 2, respectively, in Attachment C.

#### **4.3 SME's Subsurface Assessment Activities**

As previously stated, SME's assessment activities were documented in SME's November 1, 2007, Technical Memorandum provided in Attachment C. The Technical Memorandum documents SME's field procedures, encountered subsurface conditions, and analytical results. Tabulated laboratory analytical results for soil and groundwater samples SME collected at the site are provided in the Analytical Tables attached to SME's Technical Memorandum. Table 1 and Table 2, respectively, present soil and groundwater analytical results. Chemical Abstract Service (CAS) numbers of tabulated constituents are provided on the tables. Copies of the laboratory analytical results are also attached.

#### **4.4 Summary of Contamination Identification and Location**

As reported by PME, the sampling locations and analytical parameters selected for PME's subsurface assessments were based upon RECs identified in PME's May 12, 2005, Phase I ESA. The sampling locations and analytical parameters selected for SME's subsurface assessments were based upon RECs identified in SME's September 17, 2007, Phase I ESA. In addition, SME sample locations were selected to supplement data collected previously at the site.

Tables summarizing the combined results of SME and PME analytical soil and groundwater results are provided in Section 2.2. The summary tables provide the clean up criteria exceeded for each constituent, the highest concentration measured of each constituent, and the corresponding location of the highest concentration, based on the combined SME and PME analytical results.

Compared to 2006 MDEQ Part 201 Generic Residential Criteria, the findings of SME's subsurface assessment at the site indicated benzene, ethylbenzene, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tetrachloroethene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, fluoranthene, arsenic, lead, mercury, and selenium, impact to soil above generic residential criteria. Results of assessment conducted by PME, prior to SME's assessment, indicated impact to soil from the constituents identified by SME, and in addition identified, MTBE, 1,2,3-trimethylbenzene, and tetrahydrofuran impact to soil above generic residential criteria.

Compared to 2006 MDEQ Part 201 Generic Residential Criteria, the findings of SME's subsurface assessment at the site indicated benzene, ethylbenzene, MTBE, naphthalene, n-propylbenzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, fluoranthene, and lead impact to groundwater above generic residential criteria. Results of assessment conducted by PME, prior to SME's assessment, indicated impact to groundwater from the constituents identified by SME, and in addition identified, 1,2,3-trimethylbenzene, vinyl chloride, acenaphthene, benzo(a)anthracene, benzo(a) pyrene, benzo(k)fluoranthene, crysene, fluoranthene, fluorene, 2-methylnaphthalene, phenanthrene impact to groundwater above generic residential criteria.

The Property is not indicated to be a "facility" with respect to the other constituents that were included in the laboratory testing program described in this BEA. The remaining parameters analyzed in soil and groundwater samples were either below the laboratory reporting limit or below MDEQ Part 201 residential criteria judged to be applicable. The identified constituents detected at the Property appear to be associated with historical gasoline operations at the site and with the west-adjointing dry cleaning operations located at 900 Old North Woodward.

## 5. LIKELIHOOD OF OTHER CONTAMINATION

As previously stated, the identified constituents detected at the Property appear to be associated with historical automotive repair and gasoline retail operations at the site and with the west-adjointing dry cleaning operations located at 900 Old North Woodward. SME identified no on-site areas of concern other than those addressed by the subsurface assessment activities. SME cannot guarantee all potential contaminants have been identified, or that unknown contamination may exist at the Property resulting from historical activities or off-site sources; therefore, the possibility exists that other potential contaminants may be present at the Property. Furthermore, the extent of identified constituents at elevated levels has not been fully determined.

In the September 2007 Phase I ESA, SME reported one 500-gallon heating oil UST possibly located south of the on-site building. Although SME was unable to find a record of removal, due diligence was conducted to locate the UST and no UST was found at the Property. A previous consultant was unable to find the UST by conducting a geophysical survey in the area of the UST, followed by a hand auger boring in the assumed location of the UST. Furthermore, SME observed no evidence of a UST south of the building, such as a fill port or vent pipes. Based on the due diligence performed and the previously discussed UST removal activities, no USTs or abandoned containers are known to remain at the Property.

## 6. CONCLUSIONS

SME has performed this Category “N” BEA of the approximately 0.5 acre property located at 35975 Woodward Avenue, Birmingham, Oakland County, Michigan. The results of the environmental subsurface evaluation indicated the Property meets the criteria of a "facility" with respect to benzene, ethylbenzene, MTBE, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tetrachloroethene, tetrahydrofuran, toluene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, vinyl chloride, xylenes, acenaphthene, benzo(a)anthracene, benzo(a) pyrene, benzo(k)fluoranthene, crysene, fluoranthene, fluorene, 2-methylnaphthalene, phenanthrene, arsenic, lead, mercury, and selenium. The identified constituents detected in soil and/or groundwater at the site appear to be associated with historical automotive repair and gasoline retail operations at the site and with the west-adjointing dry cleaning operations located at 900 Old North Woodward.

35975 Woodward, L.L.C., reported their intention to construct a building to house commercial retail and offices on the property. As such, the proposed site use will not result in “significant hazardous substance use” as defined by Rule 901(o). Therefore, SME prepared this Category “N” BEA as a means of documenting existing contamination.

In the process of obtaining information in preparation of this BEA, SME followed procedures that represent current reasonable and accepted engineering and hydrogeological practices and principles, in a manner consistent with the level of care and skill ordinarily exercised by members of these professions.

SME has performed the BEA based upon conditions observed by SME, projected future use of the Property, and soil conditions identified by SME. Based on subsurface, analytical, and historical data which have been collected; and the projected future use of the Property; it is

SME's opinion that this BEA is sufficient to provide a basis to distinguish potential future hazardous substance releases from the existing facility conditions.

## 7. REFERENCES

1. **Part 201 of 1994 PA 451, as amended, the Natural Resources and Environmental Protection Act.**
2. The Michigan Department of Environmental Quality, **Commonly Asked Questions and Answers about Part 201**, November 5, 1995.
3. The Michigan Department of Environmental Quality, **Part 201 Cleanup Criteria Training Material**, January 1998.
4. The Michigan Department of Environmental Quality, **Revised Interim Instructions for Preparing and Disclosing Baseline Environmental Assessments**, March 11, 1999.
5. The Michigan Department of Environmental Quality, **New Administrative Rules for Baseline Environmental Assessments (BEAs) and Compliance with Section 20107a("Due Care") and Related Materials**, March 3, 1999.
6. The Michigan Department of Environmental Quality, **Commonly Asked Questions about Baseline Environmental assessments and Section 7a ("Due Care") Compliance under Part 201**, June 24, 1999.
7. The Michigan Department of Environmental Quality – **Remediation and Redevelopment Division, Operational Memorandum No. 1**, January 23, 2006

**ATTACHMENT A**  
**FIGURES AND PROPERTY LEGAL DESCRIPTION**

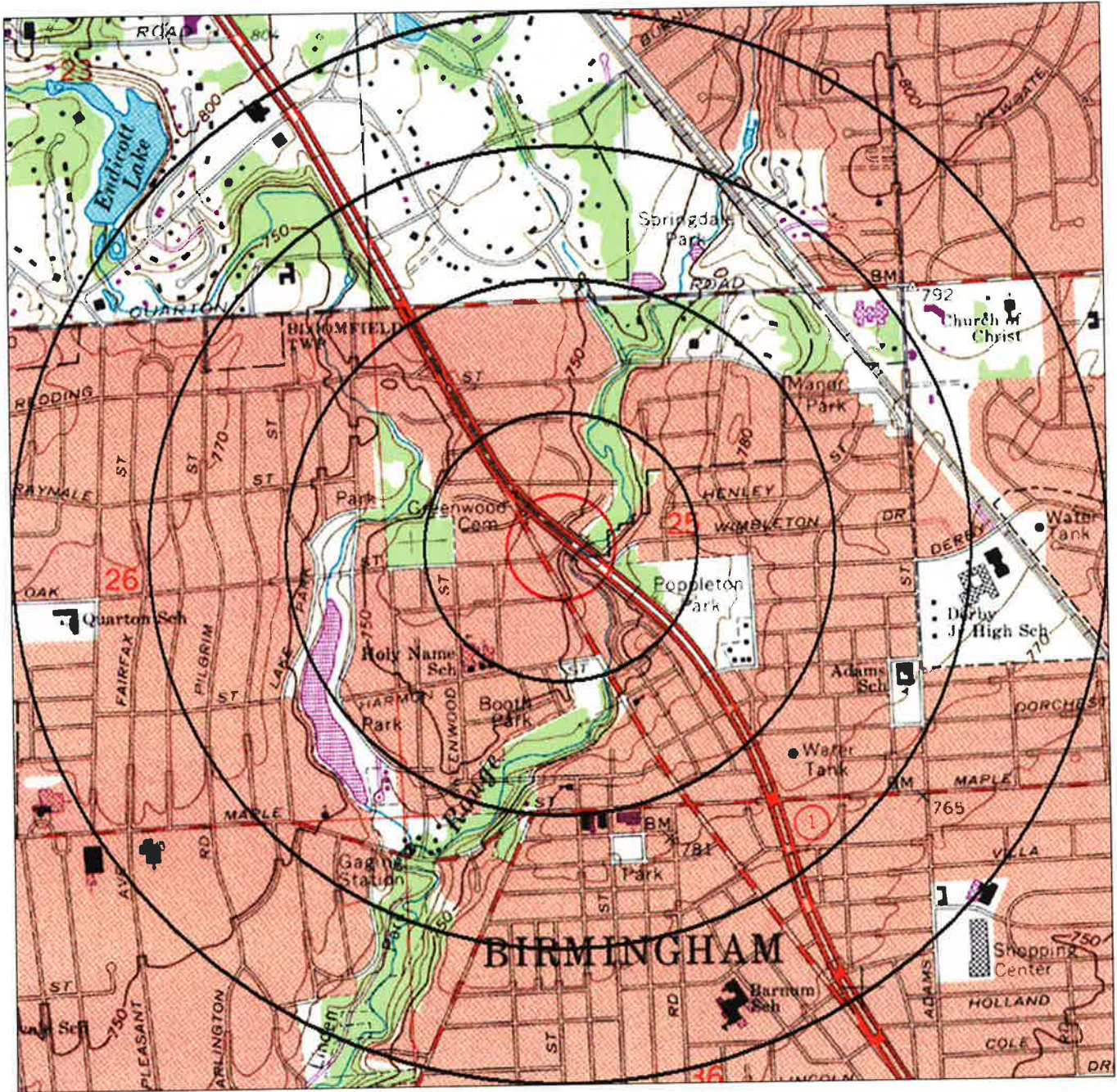


# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map

**35975 WOODWARD AVE, BIRMINGHAM MI 48009**



**Source:**

- Target Site (Latitude: 42.553677 Longitude: -83.218798)
- Identified Site, Multiple Sites, Receptor
- NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste
- Tribal Land

Map Name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--

Map Reference Code: 42083-E2-TF-024

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

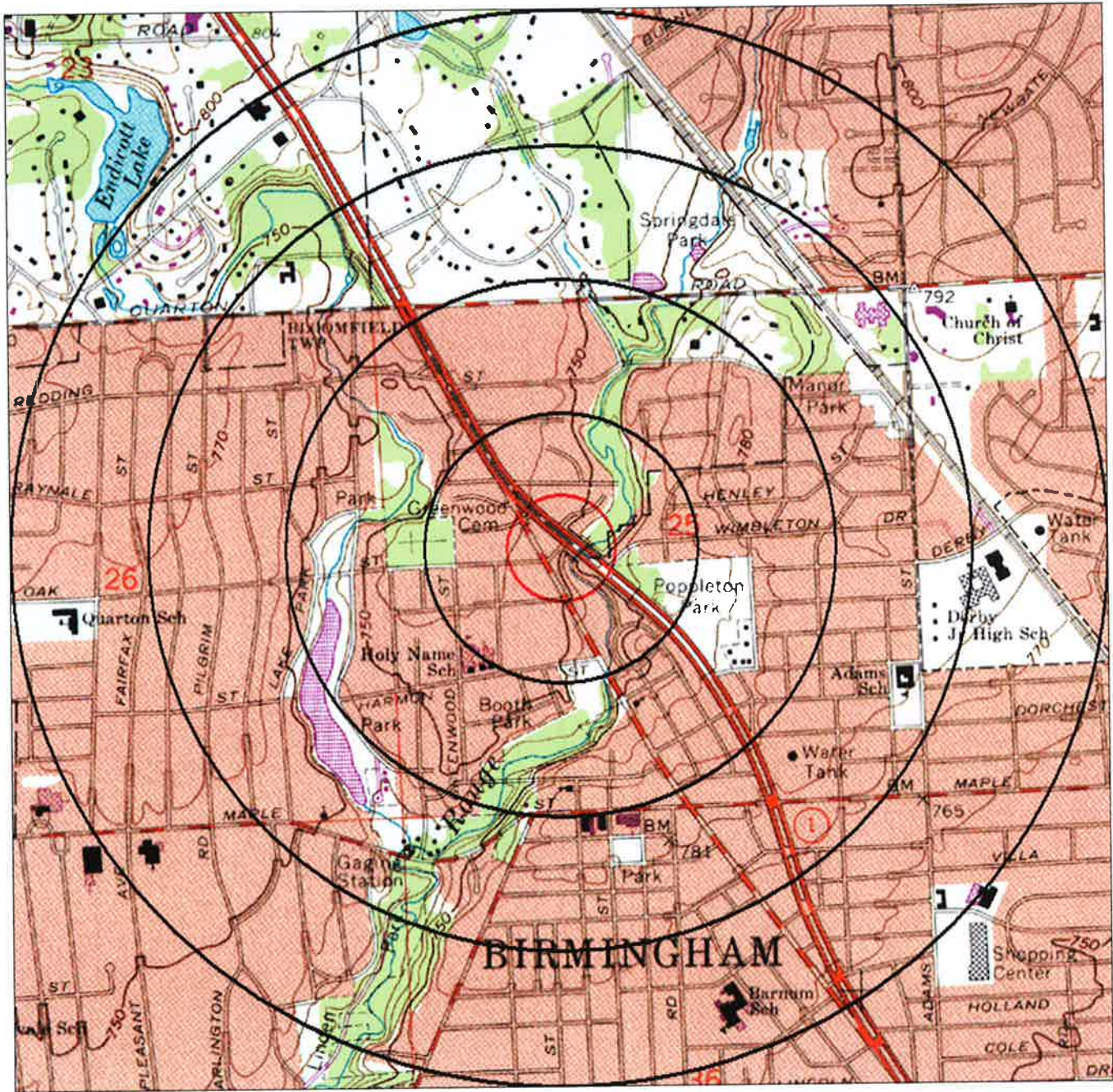








# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map

**35975 WOODWARD AVE, BIRMINGHAM MI 48009**



- Source:  
 Target Site (Latitude: 42.553677 Longitude: -83.218798) .....   
 Identified Site, Multiple Sites, Receptor .....     
 NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste .....   
 Tr id .....   
 Map name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--  
 Map Reference Code: 42083-E2-TF-024  
 Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius





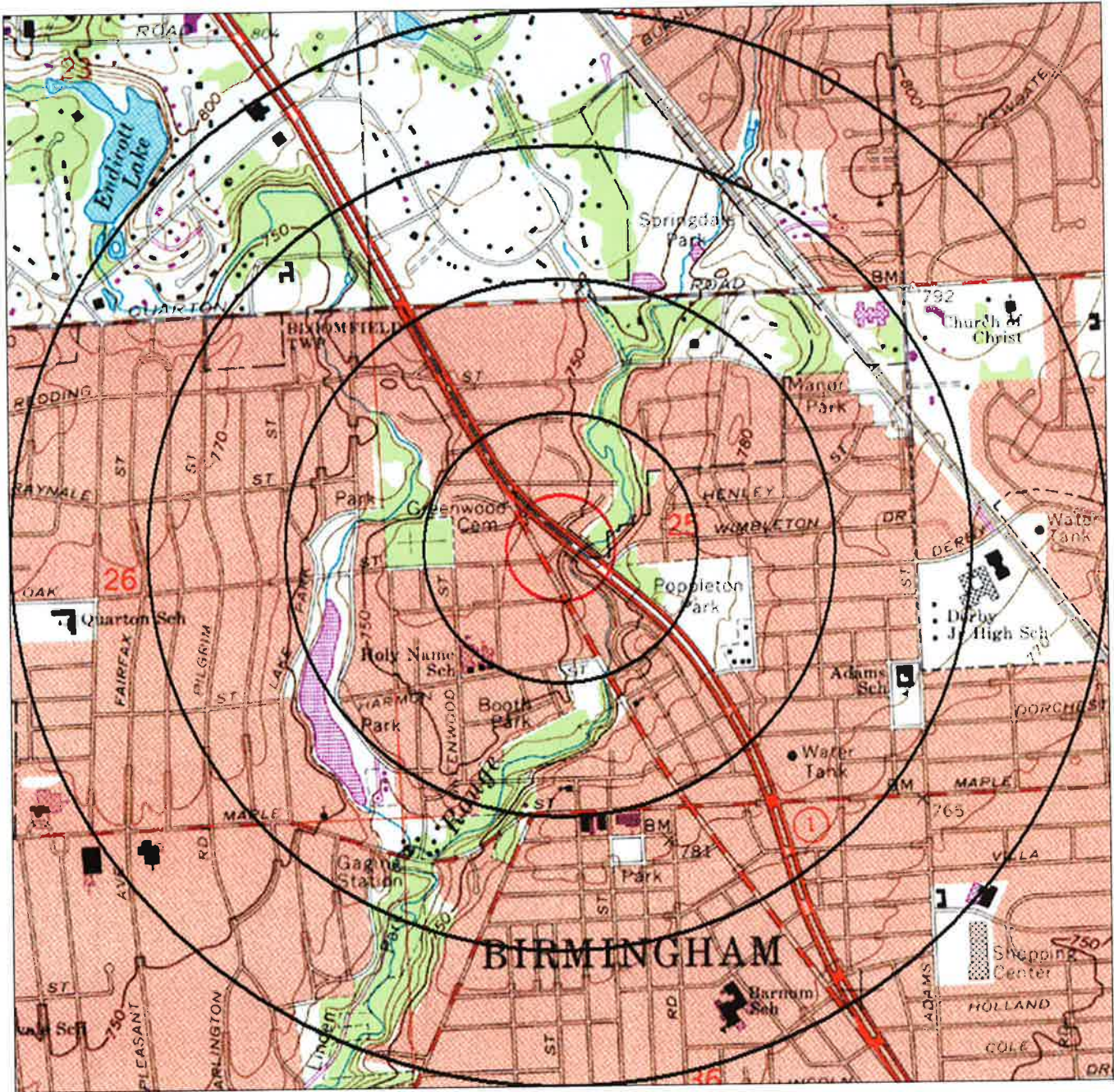
# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map



**35975 WOODWARD AVE, BIRMINGHAM MI 48009**



Source:  
 Target Site (Latitude: 42.553677 Longitude: -83.218798) .....  
 Identified Site, Multiple Sites, Receptor .....  
 NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste .....  
 Tr id .....  
 Map Name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--  
 Map Reference Code: 42083-E2-TF-024  
 Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius







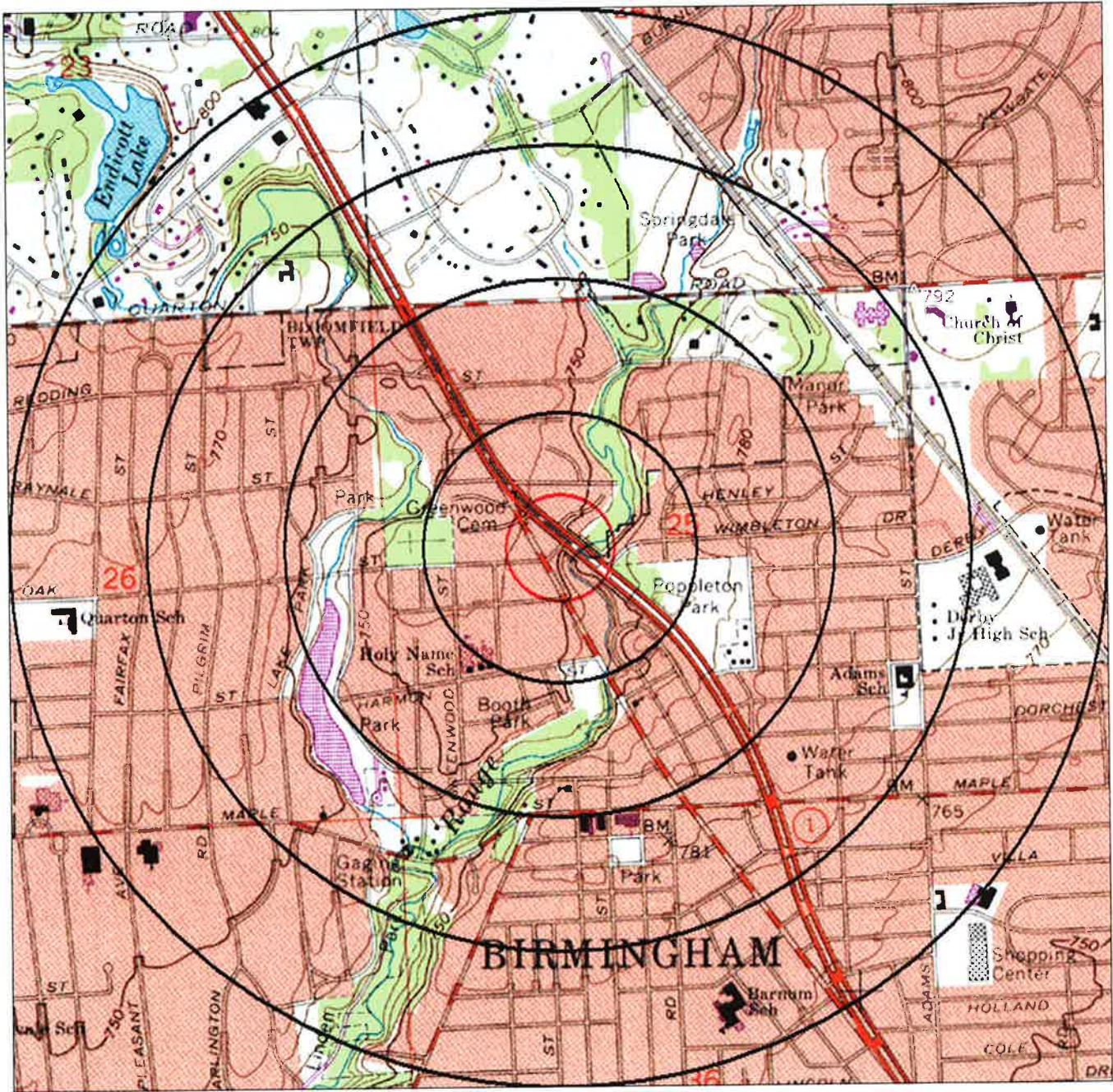
# Environmental FirstSearch


Topo : Current Map 1 Mile Radius

Current Topo Map

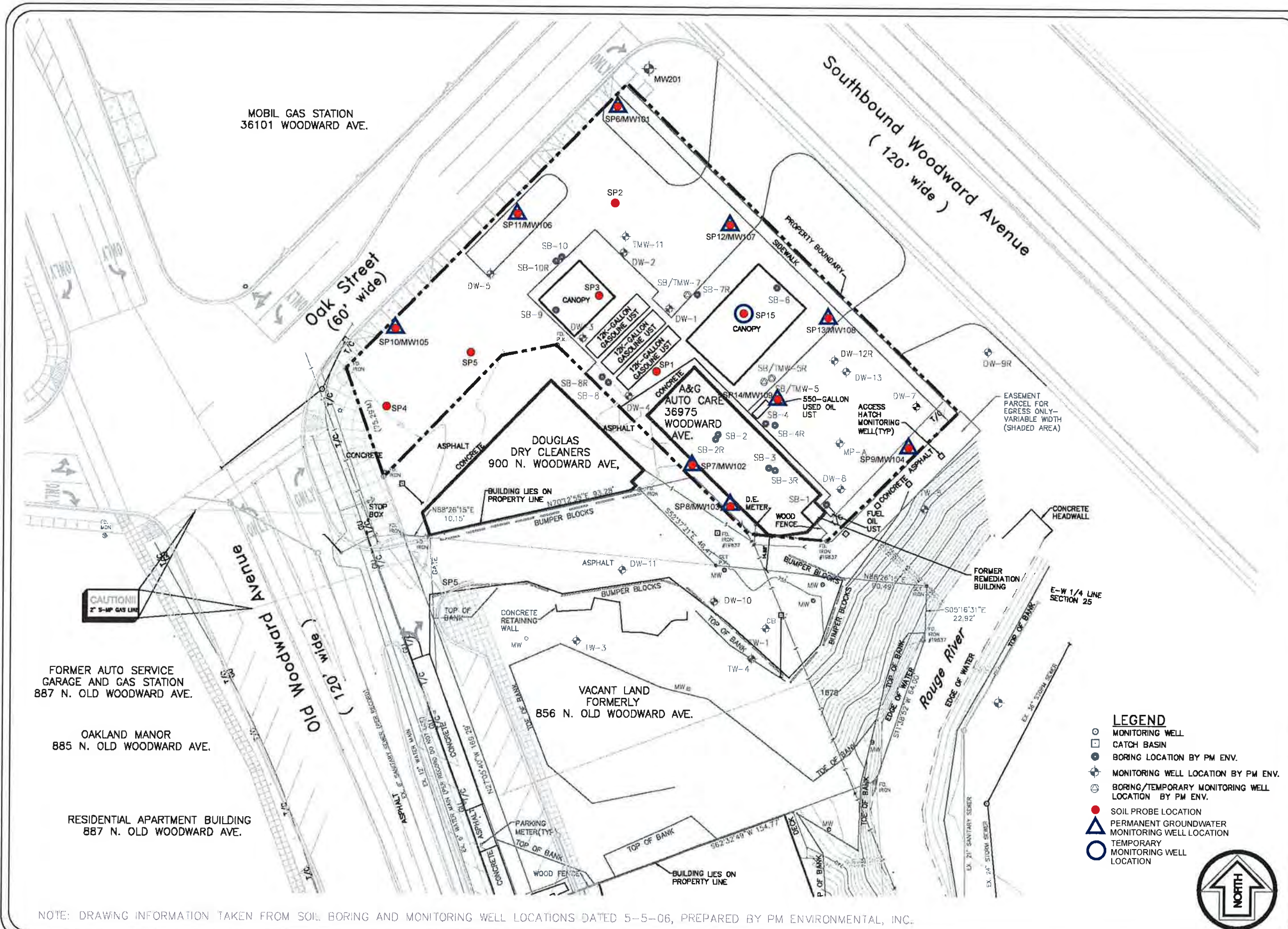


**35975 WOODWARD AVE, BIRMINGHAM MI 48009**



Source:  
 Target Site (Latitude: 42.553677 Longitude: -83.218798) .....   
 Identified Site, Multiple Sites, Receptor .....     
 NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste .....   
 Tri id .....   
 Map (name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--  
 Map Reference Code: 42083-E2-TF-024  
 Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius



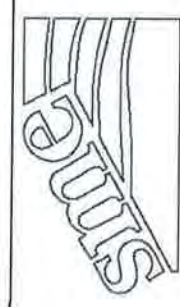


**SOIL BORING, SOIL PROBE AND  
MONITORING WELL LOCATION DIAGRAM**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

DATE: 2-21-07  
 SCALE: 1" = 40'  
 DRAFTER: JAB  
 JOB: PE54494C

- LEGEND**
- MONITORING WELL
  - CATCH BASIN
  - BORING LOCATION BY PM ENV.
  - ⊕ MONITORING WELL LOCATION BY PM ENV.
  - ⊖ BORING/TEMPORARY MONITORING WELL LOCATION BY PM ENV.
  - SOIL PROBE LOCATION
  - PERMANENT GROUNDWATER MONITORING WELL LOCATION
  - TEMPORARY MONITORING WELL LOCATION



PLYMOUTH - BAY CITY - GRAND RAPIDS  
 KALAMAZOO - LANSING - SHELBY TWP.  
 TOLEDO - TRAVERSE CITY

Feb 21, 2007 - 12:45PM - jblake  
 R:\Plymouth\_dwg\PE54494C\54494C.dwg

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

DUE TO ELECTRONIC DATA TRANSFER QUALITY, SITE "OW" MONITORING WELLS APPEAR AS "DW" (DW=OW).  
 MONITORING WELLS ARE REFERRED TO AS OW IN REPORT TEXTS.

Figure No. 2





# Assessor Real Property Information

6 February 2007

DISCLAIMER: The information provided on this site is for convenience only and is compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. Much of the data was not compiled or created by the City of Birmingham. In the preparation of this report, extensive efforts have been made to offer the most current, correct, and clearly expressed information possible. However, inadvertent errors, inaccuracies, and omissions can occur. Official versions should be used as a primary information source for verification of the information provided on these pages. Users are advised that their use of any of this information is at their own risk. The City of Birmingham, its consultants and data providers, do not assume, and hereby disclaim, legal responsibility for the information contained herein which is provided "as is" with no warranties of any kind whether such errors, inaccuracies or omissions result from negligence, accident or any other cause.

**Taxpayer Name** SIMON LAND  
**Property Address** 35975 WOODWARD  
BIRMINGHAM, MI 48009

**Property Number** 1925179001  
**Parcel Number** 1925179001

### 2006 Tax Information

**Tax Code** CITY OF BIRMINGHAM      **Assessed Value** \$1,309,980.00  
**Neighborhood** CG1      **Taxable Value** \$1,309,980.00  
**School** BIRMINGHAM CITY SCH  
**Property Class** 201

### Assessor Property Sales Records

**Sale Date** May-25-2005      **Sale Price** 300,000.00  
**Seller Name** ARMADA OIL & GAS      **Terms of Sale** 2-\$1orNoConsideratn  
**Buyer Name**      **Sale Document** PTA

### Assessor Building Records

**Building Class**      **Type of Structure**  
**Living Area (Sq.Ft.)** 0.00      **Year Built** 0  
**Bedrooms** 0      **Full Baths** 0  
**Garage #1** 0      **Half Baths** 0  
**Garage #2** 0      **Heating and Cooling**  
**Garage #3** 0      **Fireplaces** 0

### Assessor Parcel Records

**Appraised Land Value** \$0.00  
**Square Footage (Land)** 23,435.28  
**Acreage** 0.538

**Legal Description** T2N, R10E, SEC 25      PART OF NW 1/4      BEG AT PT DIST      N 88-16-  
00 W 659.12 FT &      N 49-21-00 W 120.93 FT      FROM CEN OF SEC.      TH N 49-  
21-00 W 200 FT,      TH S 40-39-00 W 171.16 FT,      TH S 22-50-00 E 49.17 FT,      TH N 40-  
39-00 E 77.11 FT,      TH N 85-39-00 E 22.63 FT,      TH S 49-21-00 E 113.19 FT,      TH S 88-  
16-00 E 34.45 FT,      TH N 40-39-00 E 78.36 FT      TO BEG      0.54 A

**ATTACHMENT B**  
**SME'S SEPTEMBER 17, 2007, PHASE I ESA**

above ground storage tank  
air quality  
asbestos/lead-based paint  
baseline environmental assessment  
brownfield redevelopment  
building/infrastructure restoration  
caisson/piles  
coatings  
concrete  
construction materials services  
corrosion  
dewatering  
drilling  
due care analysis  
earth retention system  
environmental site assessment  
facility asset management  
failure analyses  
forensic engineering  
foundation engineering  
geodynamic/vibration  
geophysical survey  
geosynthetic  
greyfield redevelopment  
ground modification  
hydrogeologic evaluation  
industrial hygiene  
indoor air quality/mold  
instrumentation  
ISO14001 EMS  
masonry/stone  
metals  
nondestructive testing  
pavement evaluation/design  
property condition assessment  
regulatory compliance  
remediation  
risk assessment  
roof system management  
sealants/waterproofing  
settlement analysis  
slope stability  
storm water management  
structural steel/welding  
underground storage tank

**PHASE I  
ENVIRONMENTAL SITE ASSESSMENT**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

SME Project Number: PE56173

September 17, 2007



© 2007 soil and materials engineers, inc.

**Soil and Materials Engineers, Inc.**





**Soil and Materials Engineers, Inc.**

The Kramer Building  
43980 Plymouth Oaks Blvd.  
Plymouth, MI 48170-2584

tel (734) 454-9900  
fax (734) 454-0629  
www.sme-usa.com

Kenneth W. Kramer, PE  
Chairman Emeritus

Mark K. Kramer, PE  
Frank A. Henderson, PG  
Timothy H. Bedenis, PE  
Gerald M. Belian, PE  
Chuck A. Gemayel, PE  
Larry P. Jedele, PE  
Starr D. Kohn, PhD, PE  
Edward S. Lindow, PE  
Gerard P. Madej, PE  
Timothy J. Mitchell, PE  
Robert C. Rabeler, PE  
Daniel O. Roeser, PG

J. William Coberly, CET  
Andrew J. Emmert, CPA  
Sheryl K. Fountain  
Davie J. Hurlburt, PE  
J. Art Johnson, CET  
Cheryl Kehres-Dietrich, CGWP  
Jeffery M. Krusinga, PE, GE  
James M. Less, CIH  
Michael S. Meddock, PE  
Larry W. Shook, PE  
Michael J. Thelen, PE  
John C. Zarzecki, CWI, CDT

September 17, 2007

Mr. Robert G. Mardigian  
Executive Vice President  
MCM Management Corp.  
35980 Woodward Avenue  
Suite 210  
Bloomfield Hills, Michigan 48304

RE: Phase I Environmental Site Assessment  
35975 Woodward Avenue  
Birmingham, Michigan, 48009  
SME Project Number: PE56173

Dear Mr. Mardigian:

SME has completed a Phase I Environmental Site Assessment (ESA) of the above referenced property, hereinafter referred to as the Property. This Phase I ESA report presents SME's interpretation of the observed conditions based on field observations, a review of readily available historical and regulatory records, and interviews.

The Phase I ESA was requested to identify recorded and readily observable recognized environmental conditions associated with the Property. SME understands MCM Management Corp. will rely upon the professional opinions and representations contained in the report in accordance with the terms and conditions agreed upon for the project. This reliance is not to be construed as a warranty or guarantee on the part of SME.

Thank you for the opportunity to provide these services. If you have any questions concerning this report, or if additional services are required, please call.

Very truly yours,

**SOIL AND MATERIALS ENGINEERS, INC.**

*for Rhonda Miller*  
Jason C. Lafayette  
Environmental Specialist

*[Signature]*  
Daniel R. Cassidy, CPG  
Project Geologist

Enclosures: 3 Reports

Plymouth  
Bay City  
Grand Rapids  
Kalamazoo  
Lansing  
Shelby Township  
Toledo  
Traverse City

T:\PROJ\56000\PE56173\PE56173-091707-PHASE I.DOC

© 2007 soil and materials engineers, inc.

consultants in the geosciences, materials, and the environment

**TABLE OF CONTENTS**

**1. SUMMARY ..... 1**

**2. INTRODUCTION ..... 3**

    2.1 Purpose..... 3

    2.2 Detailed Scope of Services..... 3

    2.3 Significant Assumptions ..... 4

    2.4 Limitations and Exceptions..... 4

    2.5 Special Terms and Conditions ..... 4

    2.6 User Reliance ..... 4

**3. PROPERTY DESCRIPTION..... 4**

    3.1 Property Location and Legal Description..... 5

    3.2 Property and Vicinity Characteristics..... 5

    3.3 Current Use of the Property ..... 5

    3.4 Current Uses of Adjoining Sites ..... 5

**4. USER PROVIDED INFORMATION..... 6**

    4.1 Reason for the Phase I ESA ..... 6

    4.2 Recorded Environmental Liens and AULs ..... 6

    4.3 Specialized Knowledge and Experience ..... 7

    4.4 Relationship of Purchase Price to Value ..... 7

    4.5 Commonly Known or Reasonably Ascertainable Information ..... 7

    4.6 Proceedings Involving the Property ..... 7

**5. RECORDS REVIEW ..... 8**

    5.1 Standard Environmental Record Sources..... 8

    5.2 Additional Environmental Record Sources..... 11

        5.2.1 County Environmental Health Department..... 11

        5.2.2 Fire Department ..... 11

        5.2.3 MDEQ Geological Survey Division ..... 12

        5.2.4 Other Record Sources ..... 12

    5.3 Physical Setting Sources ..... 14

        5.3.1 USGS – Current 7.5 Minute Topographic Map ..... 14

        5.3.2 Other Non-Standard Physical Setting Sources..... 14

    5.4 Historical Use Information on the Property ..... 14

        5.4.1 Aerial Photographs..... 15

        5.4.2 Fire Insurance Maps..... 15

        5.4.3 Property Tax Files..... 15

        5.4.4 Recorded Land Title Records..... 16

        5.4.5 USGS Topographic Maps ..... 16

        5.4.6 Local Street Directories..... 16

        5.4.7 Building Department Records..... 16

        5.4.8 Zoning/Land Use Records..... 17

        5.4.9 Other Historical Sources ..... 17

        5.4.10 Historical Usage Summary..... 17

    5.5 Historical Use Information on the Adjoining Sites..... 20



<b>6.</b>	<b>SITE RECONNAISSANCE .....</b>	<b>21</b>
6.1	Methodology and Limiting Conditions .....	21
6.2	General Property Setting .....	21
6.3	Exterior Observations .....	21
6.3.1	Chemical Use and Storage .....	22
6.3.2	USTs/ASTs .....	22
6.3.3	PCB Containing Equipment.....	22
6.3.4	Pits, Ponds, and Lagoons .....	22
6.3.5	Waste Generation, Treatment, Storage, and Disposal.....	22
6.3.6	Other Exterior Features .....	22
6.4	Interior Observations.....	23
6.4.1	Chemical Use and Storage .....	23
6.4.2	USTs/ASTs .....	23
6.4.3	PCB Containing Equipment.....	23
6.4.4	Drains and Sumps .....	24
6.4.5	Waste Generation, Treatment, Storage, and Disposal.....	24
6.4.6	Heating/Cooling .....	24
6.4.7	Other Interior Features .....	24
6.5	Adjoining Sites Observations.....	24
<b>7.</b>	<b>INTERVIEWS .....</b>	<b>25</b>
7.1	Interviews with Owner/Site Manager/Occupant .....	25
7.2	Interviews with Local Government Officials .....	26
7.3	Interviews with Others .....	26
<b>8.</b>	<b>FINDINGS AND OPINIONS .....</b>	<b>26</b>
<b>9.</b>	<b>CONCLUSIONS .....</b>	<b>28</b>
<b>10.</b>	<b>DEVIATIONS.....</b>	<b>28</b>
<b>11.</b>	<b>ADDITIONAL SERVICES .....</b>	<b>29</b>
<b>12.</b>	<b>REFERENCES .....</b>	<b>29</b>
<b>13.</b>	<b>GENERAL COMMENTS .....</b>	<b>29</b>

**SIGNATURE(S) OF ENVIRONMENTAL PROFESSIONAL(S)**

- Appendix A:** Figures
- Appendix B:** Photographs
- Appendix C:** Historical Research Documentation
- Appendix D:** Regulatory Records Documentation
- Appendix E:** Interview Documentation  
User Questionnaire  
Owner/Occupant Questionnaire
- Appendix F:** Qualifications of Environmental Professional(s)

## 1. SUMMARY

The findings of SME's Phase I Environmental Site Assessment (ESA) of 35975 Woodward Avenue, Birmingham, Oakland County, Michigan (the Property) are summarized below. A Property location map (Figure 1) is included in Appendix A.

The User, Mr. Robert Mardigian, reported there is currently a restrictive covenant for the Property which includes a limitation on subsurface construction activity, water use, and future use limitation to commercial use. The User reported having no specialized knowledge or experience that would indicate, or create suspicion of, the presence of environmental contamination on the Property. The User reported that the purchase price of the Property reflected fair market value; however, he is aware that the Property is a former gasoline service station with a reported release.

SME reviewed lists of sites of environmental concern. SME identified the Property, northwest adjoining site, and west adjoining site as recognized environmental conditions (RECs) associated with the regulatory database review.

At the time of SME's reconnaissance, the Property was developed with one approximately 2,300 square foot automotive repair station and remnant features of the former gasoline retail operations on the Property. Three 12,000-gallon gasoline USTs, one 550-gallon used oil UST, and two hydraulic vehicle hoists were noted on the Property. SME observed environmental monitoring wells on several portions of the Property. SME noted several areas of surface staining near used parts and waste material storage south of the Property building, near a commercial dumpster, and within the Property building. SME noted chemical residue near a manhole of unknown purpose and contents, within the Property building. SME observed no visual evidence of PCB containing equipment, pits, ponds, lagoons, or aboveground storage tank systems (ASTs) during Property reconnaissance.

SME identified no RECs in connection with the Property based on our review of the Michigan Department of Environmental Quality-Geological and Land Management Division's Oil and Gas Info System – Online Data Query.

Based on the findings of the Phase I ESA, SME identified the following RECs in connection with the Property:

- The reported presence of soil and groundwater contamination.
- The existing hydraulic hoists and empty USTs.
- Potential abandoned USTs.
- Historical use of the Property for gasoline retail and automotive repair.
- Surface staining on various portions of the Property.

- Unknown contents of the structure below the manhole in the storage area of the building interior.
- Northwest adjoining Mobil gasoline station LUST site.
- West adjoining Douglas Cleaners.

SME identified no data failures in connection with this Phase I ESA.

In SME's opinion no data gaps or limitations were identified in the course of this Phase I ESA that would impair the identification of RECs in connection with the property.

SME's team members on this project were as follows:

Preparer:	Mr. Jason C. Lafayette
Environmental Professional (EP):	Mr. Daniel R. Cassidy, CPG
Senior Technical Reviewer:	Ms. Rhonda F. Miller

## 2 INTRODUCTION

SME has performed a Phase I Environmental Site Assessment (ESA) of the property located at 35975 Woodward Avenue, Birmingham, Oakland County, Michigan, hereinafter referred to as the Property. The Phase I ESA was conducted according to the American Society for Testing and Materials (ASTM) Standard E 1527-05 (Standard), which is accepted by the U.S. Environmental Protection Agency regulations as satisfying the requirements of All Appropriate Inquiries (AAI) under the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA).

Mr. Robert Mardigian, on behalf of MCM Management Corp., the User, authorized this Phase I ESA to establish the environmental conditions of the Property prior to purchase. The Phase I ESA was based on SME's proposal dated January 30, 2007.

### **2.1 Purpose**

The purpose of this Phase I ESA was to satisfy relevant AAI requirements for qualifying the User of this report for applicable landowner liability protections under CERCLA (42 U.S.C. 9601). One of the primary objectives was to identify Recognized Environmental Conditions (RECs) in connection with the Property and assess the relative significance of the identified REC(s). ASTM defines a REC as:

*...the presence or likely presence of any hazardous substances\* or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.*

*\*For the purposes of this Phase I ESA, a hazardous substance is a substance as defined in the ASTM Standard E 1527-05.*

### **2.2 Detailed Scope of Services**

This Phase I ESA was conducted in conformance with the ASTM Standard on Environmental Site Assessments for Commercial Real Estate designation E 1527-05, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."

This Phase I ESA does not address the non-scope considerations as defined by Section 13 of ASTM E 1527-05.

The Environmental Professional responsible for the conduct of this Phase I ESA was Mr. Daniel R. Cassidy, CPG. The site reconnaissance and interviews were performed by Mr. Jason C. Lafayette. Resumes of Mr. Cassidy and Mr. Lafayette are attached in Appendix G.

### **2.3 Significant Assumptions**

Pursuant to the Standard, SME assumes that the information provided by all sources and parties, including the User, is accurate and complete, except where obvious inconsistencies or inaccuracies were identified.

### **2.4 Limitations and Exceptions**

The following limitations were encountered during site reconnaissance activities.

- Parked vehicles, which limited SME's ability to view portions of the ground surface at the Property.

The Standard's scope of services was implemented.

### **2.5 Special Terms and Conditions**

No special terms or conditions were imposed on SME as part of this Phase I ESA.

### **2.6 User Reliance**

SME has prepared this report to be used solely and exclusively by MCM Management Corp., the User, in accordance with terms and conditions agreed upon for the project. No other party may rely upon SME's opinions, conclusions or reports unless SME has agreed to such reliance in writing.

## **3. PROPERTY DESCRIPTION**

The following is a description of the Property, current uses and conditions of the Property, and current uses of the adjoining sites.



### **3.1 Property Location and Legal Description**

The Property was located at 35975 Woodward Avenue, Birmingham, Michigan. The legal description of the Property, obtained on February 6, 2007, from the City of Birmingham Geographic Information System online mapping service (<http://cityofbirmingham.plansightgis.com/publicaccess.htm>), is included in Appendix C. The Property's tax identification number, also obtained from the City of Birmingham Geographic Information System online mapping service, is 19-25-17-179-001.

### **3.2 Property and Vicinity Characteristics**

A Property Features Diagram was developed from the observations, field notes, photographs, and/or historical information and is included as Figure 2 in Appendix A. The Property consisted of approximately 0.5 acres of land, developed with an approximately 2,300 square-foot; one-story vehicle service station (former gasoline station), located on the southwestern portion of the Property. The Property was situated in a commercial and residential area of Birmingham, Michigan.

### **3.3 Current Use of the Property**

At the time of Property reconnaissance, the Property was used for vehicle repair operations. Vehicles for servicing were parked throughout the Property. Consumer's Energy supplied natural gas service to the Property. SME viewed a Consumer's Energy SIMS map for the area of the Property. According to the SIMS map, a two-inch medium pressure natural gas main was installed in the east Woodward Avenue (former North Hunter Boulevard) right-of-way in 1952, and a six-inch medium pressure natural gas main was installed in the west Old Woodward Avenue (former Woodward Avenue) right-of-way in 1949. However, no natural gas service connection date was identified for the Property.

### **3.4 Current Uses of the Adjoining Sites**

<b>Direction</b>	<b>Name/Address</b>	<b>Activity</b>
Northwest	Mobil Gas Station/36101 Woodward Avenue	Commercial
East	TSA/35990 Woodward Avenue AZD/35980 Woodward Avenue	Commercial
South and southwest	Tree and grass covered land including a branch of the Rouge River	No activity
West	Douglas Cleaners/900 Old North Woodward	Commercial

#### **4. USER PROVIDED INFORMATION**

The User of this Phase I ESA, Mr. Robert Mardigian, authorized representative for MCM Management Corp., provided information about the following issues in support of the all appropriate inquiry into environmental conditions on the Property:

- Reason for this Phase I ESA;
- Environmental cleanup liens and activity/use limitations (AULs) recorded for the Property;
- Specialized knowledge and experience of the User indicative of potential RECs associated with the Property;
- Relationship of purchase price to market value;
- Commonly known or reasonably ascertainable information about environmental conditions on the Property; and
- Legal/administrative proceedings related to hazardous substances, petroleum products, or environmental compliance issues in, on or emanating from the Property.

The User information was provided through completion of the **User Questionnaire** attached in Appendix E.

##### **4.1 Reason for the Phase I ESA**

The User reported the reason for this Phase I ESA of the Property was to conduct all appropriate inquiry in support of the User's intent to qualify for one of the landowner liability protections to CERCLA related to the planned purchase of the Property.

##### **4.2 Recorded Environmental Cleanup Liens and AULs**

The User retained Giamarco, Mullins & Horton, P.C. to review recorded land title records on file with the Register of Deeds for Oakland County, Michigan, for the purpose of identifying recorded environmental cleanup liens and AULs related to the Property.

The User identified land use limitations/restrictions recorded with the Oakland County Register of Deeds. A copy of the Quit Claim Deed to the Property with a Use and Operating Restrictions, Notices, Acknowledgement, and Covenants Exhibit is provided in Appendix E. No recorded environmental cleanup liens related to the Property were reported by the User. The land

use limitations/restrictions are a suspect REC in connection with the Property and are discussed in Section 8.

#### **4.3 Specialized Knowledge and Experience**

The User reported having no specialized knowledge or experience that would indicate, or create suspicion of, the presence environmental contamination on the Property. Specialized knowledge or experience includes familiarity with historical activities on the Property that could result in environmental impact, personal knowledge or experience that would indicate a risk of environmental impact associated with past Property uses, knowledge of the environmental history of the Property, and any other information that could indicate environmental impact or threat of environmental impact on the Property.

#### **4.4 Relationship of Purchase Price to Value**

Historically, environmentally contaminated properties often have been sold at prices below market value to entice buyers to acquire the property, contamination, and resultant liabilities; therefore, if a property's sale price is significantly below market value without any obvious impairments or reasons for the reduced price, the potential for environmental impact as a cause of the reduced price must be evaluated. The User reported that the purchase price of the Property reflected fair market value.

#### **4.5 Commonly Known or Reasonably Ascertainable Information**

The User reported having specialized knowledge or experience that would indicate, or create suspicion of, the presence of environmental contamination on the Property. The User's specialized knowledge is summarized below:

- The User reported that the site is the location of a former gasoline service station with a reported release.

The presence of a former gasoline service station is a suspect REC in connection with the Property.

#### **4.6 Proceedings Involving the Property**

The User, based on personal knowledge and experience related to the Property, reported no pending, threatened, or past litigation, related to hazardous substances or petroleum products in, on, or arising from the Property. However, the User reported a previously reported release from

the on-site underground storage tanks. The reported release from the on-site UST system is a suspect REC in connection with the Property.

## 5. RECORDS REVIEW

### 5.1 Standard Environmental Record Sources

SME retained FirstSearch Technology Corporation (FirstSearch) to query the following state, federal, and tribal regulatory agency lists to identify regulated and/or environmentally impacted sites within the specified approximate minimum search distances. These lists were available unless otherwise noted below. Sites found on these lists are identified in the table at the end of this section. The FirstSearch report includes site maps indicating the location of these listed sites relative to the Property, and dates the lists were updated. The FirstSearch report is included in Appendix D.

Non-geocoded sites, as identified by FirstSearch, are sites, which for various reasons cannot be mapped through the FirstSearch query system. SME has attempted to locate these non-geocoded sites where possible. Non-geocoded sites determined to be within the applicable approximate minimum search distance(s) are also included in the table at the end of this section.

1. **United States Environmental Protection Agency (USEPA) Superfund National Priority List (NPL), 1-mile search distance. (NPL)**
2. **USEPA Superfund Delisted National Priority List (NPL), 1/2-mile search distance. (NPL)**
3. **USEPA Superfund Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Hazardous Waste Sites, 1/2-mile search distance. (CERCLIS)**
4. **USEPA Superfund CERCLIS Archive No Further Remedial Action Planned (NFRAP) Sites, 1/2-mile search distance. (CERCLIS-NFRAP)**
5. **Federal Resource Conservation and Recovery Information System (RCRIS) Corrective Action (CORRACTS) Facilities List, 1-mile search distance. (CORRACTS)**
6. **USEPA RCRA Treatment Storage and Disposal (TSD) Facilities List, 1/2-mile search distance. (RCRA-TSD)**

7. **USEPA Federal Resource Conservation and Recovery Act of 1976 (RCRA) Large Quantity Generators (LQG) and Small Quantity Generators (SQG) List for Michigan, Property and adjoining sites. (RCRA-SQG / RCRA-LQG)**
8. **Federal Institutional Control / Engineering Control Registries, Property only.**
9. **USEPA Emergency Response Notification System (ERNS) List, Property only. (ERNS)**
10. **State / Tribal Sites of Environmental Contamination, 1-mile search distance (Part 201 / Tribal Contaminated Site)**
11. **State / Tribal Solid Waste Landfills; 1/2-mile search distance. (State/Tribal Landfill)**
12. **State / Tribal Open and Closed Leaking Underground Storage Tank (LUST) Sites, 1/2-mile search distance. (State/Tribal Open LUST/Closed LUST)**
13. **State / Tribal Registered USTs, Property and adjoining sites. (State/Tribal Registered UST)**
14. **State / Tribal Institutional Control / Engineering Control Registries, Property only.**  
FirstSearch reported no available records.
15. **State / Tribal Voluntary Cleanup Sites, 1/2 mile search distance.**  
FirstSearch reported no available records.
16. **State / Tribal Brownfield Sites, 1/2 mile search distance.**
17. **MDEQ Baseline Environmental Assessment (BEA) List, Property and adjoining sites. (BEA)**

**TABLE OF LISTED SITES (SUSPECT RECS)**

<b>Site Name and Address</b>	<b>Approximate Distance and Direction from Property</b>	<b>Name of List</b>
Amoco Station 5791 (former) 35975 Woodward Avenue	Property	BEA
A&G Auto Care 35975 Woodward Avenue		RCRA-SQG
Simon Land Development Group, LLC 35975 Woodward Avenue		Open LUST Active UST
Ghafari Properties Inc 36101 Woodward Avenue	Northwest adjoining site	Open LUST Active UST
Carman Tillard 910 North Hunter Blvd.		Closed LUST
Mobil Oil Corp SS KXN 910 North Hunter Blvd.		RCRA-SQG
Douglas Cleaners Inc 900 North Old Woodward Avenue	West adjoining site	RCRA-SQG
Chinese Restaurant 856 North Old Woodward Avenue	Southwest adjoining site	BEA
Michigan National Bank 980 North Hunter Blvd.	300 feet northwest	Closed LUST
Crissman Cadillac 1350 North Woodward	0.34 miles northwest	Open LUST

*FirstSearch sites are mapped by address. Distances and/or site directions listed above may be adjusted from those reported by First Search to better represent field conditions and potential site boundaries. Also, First Search sites that SME identified as outside the specified approximate minimum search distance were omitted from the Table of Listed Sites.*

In addition to the listed sites in the table above, 15 non-geocoded sites were listed on the FirstSearch report. SME noted the Crissman Cadillac site, identified above, as a non-geocoded site. Based on SME's review of the list it appeared the remaining 14 non-geocoded sites were either greater than one-half mile from the Property or did not fall within the specified approximate minimum search distance. The reported LUST listings for the Property and northwest adjoining Mobil gasoline station site are suspect RECs and are discussed in Section 8. Due to the multiple violations reported for the Douglas Cleaners site, the west adjoining site is a suspect REC, and is discussed in Section 8. Although located within the specified search radius, the remaining listed sites do not represent suspect RECs in connection with the Property based on listing status, distance and/or direction of the listed sites from the Property, and the reported subsurface profile and groundwater conditions presented in Section 5.3.2 below.

## **5.2 Additional Environmental Record Sources**

### **5.2.1 County Environmental Health Department**

On February 6, 2007, SME contacted the Oakland County Environmental Health Department via facsimile and requested information maintained by the department pertaining to environmental concerns associated with the Property and surrounding area, including information on septic systems and water wells, if any, located at the Property.

Mr. Steve Presby, Environmental Health Services Administrative Assistant, Oakland County Health Division (OCHD), indicated no records were available for the Property. Mr. Presby indicated he was aware of a LUST listing status for the Property; however, the OCHD keeps no pertinent files for LUST listings. The reported LUST listing of the Property is a suspect REC and is discussed in Section 8.

### **5.2.2 Fire Department**

On February 6, 2007, SME contacted Mr. Charlie Monti, Fire Marshall of the City of Birmingham Fire Department via telephone and requested records associated with the Property and surrounding properties. The following written records were provided to SME for review: Notices of Fire Hazards, fire inspections, site plans, product manuals, fire reports, various documentation relating to the installation and removal of various USTs at the Property, and documentation of a release of regulated substances (gasoline) into the subsurface at the Property.



The presence of USTs and the reported presence of subsurface impact at the Property are suspect RECs and are discussed in Section 8. A summary of the specific documentation reviewed at the Birmingham Fire Department is included in the historical summary table, provided in Section 5.4.10.

SME also questioned Mr. Monti about his personal knowledge of the Property history. Information provided by Mr. Monti is included in Section 7.2.

### **5.2.3 MDEQ Geological Survey Division**

SME queried the MDEQ-Geological Survey Division's (GSD) Oil and Gas Information System – Online Data Query for oil and gas permits/wells for the Property's township, range and section number. According to the February 6, 2007, query results, no known oil and/or gas well permits were recorded for the Property Section number.

### **5.2.4 Other Record Sources**

SME visited the MDEQ Remediation and Redevelopment (RRD) Southeast Michigan District Office, in Warren, Michigan to review available files for the Property. The following reports were included in the MDEQ-RRD file:

- *Testing Engineers and Consultants, Inc. (TEC) January 31, 1989, Proposed Hydrogeologic Investigation at the Amoco Service Station, 905 Hunter Boulevard, Birmingham, Michigan.*
- *Environmental Science and Technology, Inc. (ES&T) April 21, 1993, Project Status Letter with Proposed Additional Work – Active Amoco Station #5791.*
- *ES&T February 15, 1994, Phase II Hydrogeological Work Plan (210 day), Active Amoco Station #5791, 905 Hunter Boulevard, Birmingham, Michigan.*
- *ES&T November 17, 1994, Soil and Groundwater Feasibility Analysis, Active Amoco Station #5791, 905 Hunter Boulevard, Birmingham, Michigan.*
- *PM April 27, 2006, Category S Baseline Environmental Assessment, Gasoline Service Station, 35975 Woodward Avenue.*
- Multiple Site Status Updates, Quarterly Monitoring Reports, and Free Product Recovery Reports, dated 1995 to 2004.

Based on SME's review of the aforementioned reports, the former gasoline service station operated three 12,000-gallon gasoline USTs and one 550-gallon used oil UST. The USTs were reportedly emptied of their contents in 2003; however, the empty USTs are still present on the Property. The gasoline USTs are located in a tank basin north of the building and the used oil UST is located northeast of the service bays. Three 6,000-gallon gasoline USTs, one 8,000-

gallon gasoline UST, one 6,000-gallon diesel fuel UST, and one 560-gallon used oil UST were reportedly removed from the Property in 1988 or 1989. One 500-gallon fuel oil UST was reportedly located south of the building; however there is no record of removal for this UST. During previous environmental assessments, one hand auger soil boring was completed in the assumed location of the 500-gallon fuel oil UST. No indication of the presence of the UST was reported during the assessment. Three concrete pump islands were reportedly located east of the building and one concrete pump island was located north of the building. Fuel dispensers associated with the pump islands were reportedly removed in 2003.

A confirmed release was submitted to the Michigan Department of Natural Resources (MDNR) on January 13, 1989. Chemical analyses of subsequent soil and groundwater sampling at the Property indicated that the Property is a "facility" as defined by Part 201 of the Natural Resources Environmental Protection Act, Michigan Public Act 451 of 1994, as amended (NREPA). Concentrations of petroleum constituents exceeded MDEQ Part 201/213 industrial soil volatilization to indoor air inhalation criteria, ambient air infinite source volatile soil inhalation criteria, and/or direct contact criteria. The nature and extent of soil contamination was not defined during previous assessments. Soil contamination encountered in previous assessments was reported to be primarily concentrated around the former dispensers, UST areas, and beneath the service garage building. Petroleum constituents in groundwater reportedly exceeded the MDEQ Part 201/213 industrial drinking water, groundwater volatilization to indoor air, and/or groundwater contact criteria. Additionally, petroleum free product was reportedly encountered northwest of the UST basin. Several phases of sampling and corrective action were conducted at the Property since 1989 when the release was first reported. Free product was last documented at the Property in 2001. The extent of groundwater impact at the Property has not been defined. The presence of USTs and reported soil and groundwater impact at the Property are suspect RECs and are discussed in Section 8.

SME reviewed the MDEQ file for the northwest adjoining Open LUST site, located at 36101 Woodward Avenue. A gasoline service station was operated on the northwest adjoining property (36101 Woodward Avenue) from at least 1957 to the present. Three separate confirmed releases were reported to the MDEQ for the 36101 Woodward Avenue site. Petroleum contamination in soil and groundwater impact above Part 201 residential criteria was reported at the north adjoining site. According to an April 17, 2006, Final Assessment Report, a restrictive covenant was placed on the site and dissolved petroleum contamination has migrated off-site to the east and southeast. The current LUST listing of the north adjoining site and the reported off-site migration of petroleum contamination is a suspect REC and is discussed in Section 8.

In addition, a dry cleaner was operated on the west adjoining property from at least 1969 to the present; the RCRA database lists the site as a small quantity RCRA generator. Previous assessment for the Property reported solvent impact in groundwater on the southwest adjoining site. Based on the reported solvent contamination on the southwest adjoining site, the west adjoining dry cleaners site is a suspect REC, and is discussed in Section 8.

No other record sources were contacted as part of this Phase I ESA.

### **5.3 Physical Setting Source(s)**

#### **5.3.1 USGS – Current 7.5 Minute Topographic Map**

SME reviewed a United States Geological Survey (USGS) topographic map to evaluate the physical setting of the Property. According to the USGS 7.5 minute series Topographic Map Birmingham Quadrangle, Michigan, compiled in 1968, and photorevised in 1981, the Property was at an elevation of approximately 750 feet above mean sea level (MSL). The Property was depicted in a “built-up” area of the city of Birmingham, Michigan. A branch of the Rouge River was depicted adjoining the Property to the east, flowing from north to south. A second branch of the Rouge River was depicted approximately one-quarter to one-half mile west of the Property, flowing from north to south. A dry lake was also depicted approximately one-half mile southwest of the Property. Endicott Lake was depicted approximately one mile northwest of the Property. No other bodies of water were depicted within a one-mile radius of the Property.

#### **5.3.2 Other Non-Standard Physical Setting Sources**

The subsurface profile reported in previous subsurface assessment reports for the Property generally consisted of native and fill sands underlain by native clay. The fill was reported to generally increase in depth from approximately 5 feet below the ground surface (bgs) on the northwest side of the Property to approximately 22 feet bgs on the southeast side of the Property, towards the Rouge River. Discontinuous perched groundwater was reported in fill above the native clay at depths ranging from approximately five feet to ten feet bgs.

### **5.4 Historical Use Information on the Property**

SME conducted a review of the history of use of the Property, at intervals defined by ASTM, from the present back to the obvious first developed use of the Property or to 1940, whichever was earlier. For purposes of this section, “developed use” includes agricultural uses and placement of fill. The information reviewed was from reasonably ascertainable standard

sources, defined in the Standard as publicly available, obtainable from its source within reasonable time and cost constraints, and practicably reviewable.

Data failures encountered, as defined by ASTM, are described under each appropriate standard historical source. ASTM requires review of only as many of the standard historical sources as are necessary and both reasonably ascertainable and likely to be useful. Descriptions of ASTM standard historical sources, along with an indication of whether the sources were reviewed, are listed below.

#### **5.4.1 Aerial Photographs**

Aerial photographs are taken from an aerial platform at altitudes that allow identification of development and activities. Review of aerial photography is useful in identifying property features including building location and size, land usage, and RECs such as exposed soils, mounding, and debris deposition. The quality and scale of the aerial photographs limited SME's ability to make detailed observations and conclusions concerning historical uses of the Property and adjoining sites.

SME reviewed aerial photographs for the Property and surrounding areas, obtained from the Oakland County Planning and Economic Development Services, dated 1963, 1974, 1980, 1990, 1997, 2000, 2002, and 2005.

#### **5.4.2 Fire Insurance Maps**

Private companies produce fire insurance maps. Fire insurance maps indicate uses of properties at specified dates, and were created to document fire prevention hazards for urban areas. Sanborn® Fire Insurance Maps typically indicate type of building materials and property usage. The maps might also include UST, AST, and flammable material storage locations.

SME obtained Sanborn Fire Insurance Maps of the Property area for the years 1926 and 1931 from FirstSearch Technology Corporation (FirstSearch). The maps were reviewed to obtain information on past development of the Property.

#### **5.4.3 Property Tax Files**

Property tax files are maintained for property tax purposes by the local jurisdiction where the property is located and may include records of past ownership, appraisals, maps, sketches, photographs, or other information pertaining to the Property.

On February 9, 2007, SME visited the City of Birmingham Assessor's Department, provided a representative with the Property address (35975 Woodward Avenue) and requested records pertaining to the Property. In addition, SME requested records for the former address of the Property (905 North Hunter Boulevard). SME reviewed the provided records, which

included a record card and tax assessment field sheet, site photographs, and building permits. According to the tax assessment field sheet, 36,000 gallons of fuel were stored at the Property in USTs. The reported USTs at the Property are a suspect REC and are discussed in Section 8.

The Property's tax identification is 19-25-179-001. A copy of the record card/assessor's field sheet is included in Appendix C.

#### **5.4.4 Recorded Land Title Records**

Land title records include records of fee ownership, leases, land contracts, easements, liens, and other encumbrances on or of a property. Land title records are recorded in the place where land title records, by law or custom, are recorded for the local jurisdiction in which a property is located. Typically, the municipal or county recorder or clerk maintains these records. Information about the title to a property that is recorded in any place other than where land title records are, by law or custom, recorded for the local jurisdiction in which the property is located, are not considered part of the recorded land title record. Land title records are separate from the environmental liens and AULs discussed in the User section.

SME did not review land title records of the Property because information regarding the history of the Property was obtained from other historical sources identified herein. However, The User retained Giamarco, Mullins & Horton, P.C. to review recorded land title records on file with the Register of Deeds for Oakland County, Michigan. Information obtained from the title review was discussed in Section 4.2.

#### **5.4.5 USGS Topographic Maps**

SME reviewed the USGS 7.5 minute series Topographic Maps Birmingham Quadrangle, Michigan, compiled in 1945, 1968, and photorevised in 1981.

#### **5.4.6 Local Street Directories**

Local street directories are published by public and private sources and show occupancy and/or use of properties by reference to street address. SME reviewed local Polk street directories for the years 1937, 1944, 1949, 1954, 1959, 1964, 1965-66, 1969, 1972-73, 1978, 1983, 1988, 1992, 1997, 2000, and 2003 at the Baldwin Public Library, in Birmingham, Michigan.

#### **5.4.7 Building Department Records**

Local governments typically maintain building department records. These records indicate permission of the local government to construct, alter, or demolish improvements on a specified property. Information regarding installation and/or removal of USTs, municipal sewer

and water connection dates, and natural gas or electrical service installation might be contained in these records.

On February 9, 2007, SME visited the City of Birmingham Building Department, provided a representative with the Property addresses and requested records pertaining to the Property. SME reviewed the provided records, which included site plans, building permits, applications for vehicle rental license, and court proceedings relating to vehicle parking on the Property.

#### **5.4.8 Zoning/Land Use Records**

Zoning ordinances, enacted by the local government, indicate the uses permitted by the local government in particular zones within the limits of its jurisdiction. Various local government offices, such as the Planning Department or Commission, maintain zoning/land use records. According to the City of Birmingham Zoning Map, the Property was zoned B-2B, General Business.

#### **5.4.9 Other Historical Sources**

The term “other historical sources” refers to any source or sources other than standard historical sources that are credible to a reasonable person and that identify past uses of a property. This category includes miscellaneous maps, newspaper archives, and records or personal knowledge of a property owner or occupant.

In addition to the reports and documents discussed in Section 5.2.4, SME reviewed a PM Environmental, Inc. (PM) May 12, 2005, Phase I Environmental Site Assessment of the BP Gasoline Dispensing Station, Convenience Store, and Service Station, Located at 35975 Woodward Avenue, Birmingham, Michigan, for additional information regarding the history of the Property. PM identified the several RECs in connection with the Property, including; the historical gasoline fueling and automobile repair operations at the Property, the open LUST listing of the Property, the presence of several USTs and hydraulic hoists at the Property, limited sampling parameters for LUST assessment at the Property, staining near an on-site dumpster and stressed vegetation at the Property, and the northwest and west adjoining sites. The aforementioned historical operations and conditions at the Property are suspect RECs and are discussed in Section 8.

#### **5.4.10 Historical Usage Summary**

The following table presents a summary of historical usage of the Property based on the information collected from the sources outlined above.

### HISTORICAL USAGE SUMMARY

Year	Use/Comment	Source
1926, 1931	The Property was depicted as vacant land.	Sanborn Fire Insurance Map
1937, 1944	No address was listed for the Property.	City Directory
1945	The Property was depicted as vacant land.	Topographic Map
1949, 1954, 1959	No address was listed for the Property.	City Directory
1961	Installation permit for (4) 6,000-gallon gasoline USTs and (1) waste oil UST at the Property (of unreported capacity). Standard Oil Company listed as the Property occupant.	City of Birmingham Fire Department
1963	One structure was visible on the southwest portion of the Property. Three dispenser islands were visible on the southeast and north portions of the Property, respectively.	Aerial Photograph
1964	No address was listed for the Property  Fire report regarding an explosion during the maintenance of a vehicle gasoline tank at the Property.	City Directory  City of Birmingham Fire Department
1965, 1966	Hunter & Oak Standard Service was listed at 905 North Hunter Boulevard.	City Directory
1968	The Property was depicted in a "built-up" area.	Topographic Map
1969	Hunter & Oak Standard Service was listed at 905 North Hunter Boulevard.	City Directory
1970	Installation permit for (1) 8,000-gallon gasoline UST and (1) 1,000-gallon tank at the Property. Standard Oil Company listed as the Property occupant.	City of Birmingham Fire Department
1972, 1973	Hunter & Oak Standard Service was listed at 905 North Hunter Boulevard.	City Directory
1974	One structure was visible on the southwest portion of the Property. Three dispenser islands were visible on the southeastern and northern portions of the Property, respectively.	Aerial Photograph
1978	Hunter & Oak Standard Service was listed at 905 North Hunter Boulevard.	City Directory



### HISTORICAL USAGE SUMMARY

Year	Use/Comment	Source
1980	One structure was visible on the southwest portion of the Property. Three dispenser islands were visible on the southeastern and northern portions of the Property, respectively.	Aerial Photograph
1981	The Property was depicted in a “built-up” area.	Topographic Map
1983	Hunter & Oak Amoco Service was listed at 905 North Hunter Boulevard.	City Directory
1988	Hunter & Oak Amoco Service was listed at 905 North Hunter Boulevard.  Installation permit for (3) 12,000-gallon gasoline USTs, including the removal of (4) 6,000-gallon gasoline USTs, (1) 8,000-gallon gasoline UST, and (1) 1,000-gallon UST at the Property.	City Directory  City of Birmingham Fire Department
1989	Documentation of a confirmed release of a regulated substance (gasoline) at the Property.	City of Birmingham Fire Department
1990	One structure was visible on the southwest portion of the Property. Two canopies were visible in the areas of the previously noted dispensers.	Aerial Photograph
1992	Hunter & Oak Amoco Service was listed at 905 North Hunter Boulevard.	City Directory
1997	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Vehicle storage was observed on the southeastern portion of the Property.  Hunter & Oak Amoco Service and National Car Rental were listed at 905 North Hunter Boulevard.	Aerial Photograph  City Directory
2000	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Vehicle storage was observed on the southeastern portion of the Property.  Birmingham Amoco, Inc., Birmingham Towing, and National Car Rental were listed at 35975 Woodward Avenue.	Aerial Photograph  City Directory

### HISTORICAL USAGE SUMMARY

Year	Use/Comment	Source
2002	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Vehicle storage was observed on the southeastern portion of the Property.	Aerial Photograph
2003	Birmingham Amoco, Inc., Birmingham Towing, and National Car Rental were listed at 35975 Woodward Avenue.	City Directory
2005	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Vehicle storage was observed on the southeastern portion of the Property.	Aerial Photograph

Based on the review of historical information, the Property was first developed in 1962 as a gasoline retail and automotive service station. The remaining gasoline and used oil USTs at the Property were reportedly emptied, fuel dispensers were removed, and gasoline retail operations at the Property were discontinued in 2003, when the Property was sold. Automotive repair operations continued at the Property to the present. In addition to the above mentioned operations, the Property was used for the storage and rental of vehicles from approximately 1997 to 2003.

The historical usage of the Property for gasoline retail and vehicle maintenance, the current and historical presence of USTs at the Property, the reported release of a regulated substance at the Property, and the potential presence of other, abandoned, USTs at the Property are suspect RECs and are discussed in Section 8.

The historical research reported above is sufficient to develop a history of the previous uses of the Property in order to help identify the likelihood of past uses having led to RECs in connection with the Property.

#### **5.5 Historical Use Information on the Adjoining Sites**

An attempt was made to assess the historical uses of the adjoining properties by reviewing records referenced in Section 5.4. No adjoining sites of concern (suspect RECs), as identified only to the extent that this information was revealed in the course of researching the Property itself.

## 6. SITE RECONNAISSANCE

The following is a description of the use and conditions of the interior and exterior portions of the Property likely to involve the use, treatment, storage, disposal, or generation of hazardous substances or petroleum products. The site reconnaissance was used to obtain information that would identify the likelihood of RECs in connection with the Property.

### **6.1 Methodology and Limitations**

On February 9, 2007, Mr. Jason Lafayette of SME conducted a reconnaissance of the Property and observed Property conditions and features in an effort to identify RECs in connection with the Property. SME was unaccompanied during the reconnaissance, however, Mr. Sam Garbowai, Property lessee and station manager, was present at the time of the reconnaissance. SME presented Mr. Garbowai with a copy of SME's Owner/Occupant Questionnaire, and discussed the current and historical operations at the Property. Subsequent to the interview with Mr. Garbowai, SME conducted a reconnaissance of the interior of the Property building and the exterior grounds of the Property. Photographs taken during the reconnaissance, which illustrate observed Property conditions and surrounding areas, are contained in Appendix B. Limitations encountered during Property reconnaissance included the storage of vehicles on the southern portion of the Property (Section 2.4).

### **6.2 General Property Setting**

The Property consisted of approximately 0.5 acres of land, developed with an approximately 2,300 square-foot; one-story vehicle service station (former gasoline station), located on the southwestern portion of the Property. The Property was situated in a commercial and residential area of Birmingham, Michigan.

### **6.3 Exterior Observations**

At the time of reconnaissance, the Property was developed with an approximate 2,300 square foot, one-story automotive repair station. The concrete dispenser islands and overhead canopies, associated with the former gasoline retail operations at the Property, were located on the northern and eastern portions of the Property. The remaining portions of the Property were covered with concrete and asphalt pavement, and landscaped areas. Limitations encountered during the Property reconnaissance included parked vehicles, which limited SME's ability to view the ground surface on the southern portion of the Property. SME observed no evidence of septic systems or supply wells on the Property.

### **6.3.1 Chemical Use and Storage**

No use and/or storage of chemicals were observed during SME's reconnaissance of the exterior portions of the Property.

### **6.3.2 USTs/ASTs**

SME observed fill ports and access ports associated with three 12,000-gallon gasoline USTs, located north of the Property building and one 500-gallon used motor oil UST, located east of the northern service bay door of the Property building. According to Mr. Garbowai, the gasoline and used motor oil USTs had been previously drained and contained no fuel at the time of reconnaissance. Although the USTs had reportedly been emptied, the presence of USTs at the Property is a suspect REC and is discussed in Section 8.

### **6.3.3 PCB Containing Equipment**

SME observed no evidence of PCB containing equipment on the Property.

### **6.3.4 Pits, Ponds, and Lagoons**

SME observed no visual evidence of pits, ponds, or lagoons on the Property.

### **6.3.5 Waste Generation, Treatment, Storage, and Disposal**

SME observed three approximately 100-gallon drums containing used automotive fluids, used radiators, used fuel tanks, and several used tires, located south of the Property building. SME noted staining on the unpaved ground surface beneath the material storage. The observed staining on the ground surface near the stored containers represents a suspect REC, and is discussed in Section 8.

SME observed one commercial dumpster, located to the north of the Property building. The dumpster contained used oil containers, used vehicle parts, and general commercial refuse. SME noted significant staining on the dumpster and concrete ground surface around the dumpster. Disposal of used oil filters and associated staining was reported within the Property's dumpster in a 2005 PM Phase I ESA report for the Property. Based on the long term disposal practices and documented staining, the observed staining in and around the dumpster represents a suspect REC and is discussed in Section 8.

### **6.3.6 Other Exterior Features**

SME observed several environmental groundwater monitoring wells, located in various areas of the Property. The presence of the monitoring wells is a suspect REC, and is discussed in Section 8.

SME observed a vertical pipe, with apparent electrical port, located on the south portion of the Property. Mr. Sam Garbowai, Service Manager and Property tenant, reported he had no knowledge of the purpose or former use of the unknown feature.

#### **6.4 Interior Observations**

At the time of reconnaissance, the Property building was used for automotive repair operations. Three service bays were located in the central portion of the Property building. The southern portion of the building interior was used for equipment and used parts storage. The northern portion of the building interior consisted of office space, a restroom, and a customer service area.

##### **6.4.1 Chemical Use and Storage**

SME observed several automotive maintenance fluids, tires, and batteries for retail sale stored on shelves on the western wall of the vehicle maintenance area. The materials were typical to the operations at the Property, and no staining was noted on concrete surface below the stored products. Significant oil staining was noted on the concrete floor surface near a large automotive grease dispenser, located in the storage room of the Property building. The significant oil staining is a suspect REC in connection with the Property.

##### **6.4.2 USTs/ASTs**

SME observed no evidence of USTs or ASTs within the building interior. However, SME noted three hydraulic oil hoists, located in the vehicle maintenance area of the Property building. No staining was observed on or around the hoists, with the exception of that noted in Section 6.4.4. SME observed no aboveground hydraulic oil reservoirs for the hoists within the Property building. In SME's experience, hydraulic oil reservoir tanks are commonly located below the piston cylinders of the hoists. The potential presence of hydraulic oil USTs associated with the Property's hoist systems are a suspect REC, and are discussed in Section 8.

##### **6.4.3 PCB Containing Equipment**

SME observed two air compressors in the building interior. According to placards, located on the compressors, the air compressors were built in 2002 and 2003. No significant staining was observed on or around the compressors, with the exception of that mentioned in Section 6.4.4.

#### **6.4.4 Drains and Sumps**

SME observed a floor drain beneath one of the vehicle hoists in the vehicle maintenance area of the building. Significant oil staining was noted in and around the floor drain. An additional floor drain was noted in the restroom located on the north end of the building. No staining was noted on or around the restroom floor drain. SME observed staining within the interior of a wash basin located in the vehicle maintenance area of the building. SME noted a manhole in the storage area on the southern end of the Property building. Staining and chemical residue was noted on the cover of the manhole. SME was unable to open the manhole and observe the interior. Mr. Garbowai reported he had no knowledge of the purpose or former use of the manhole. The observed staining and unknown purpose of the manhole in the Property building are suspect RECs and are discussed in Section 8.

#### **6.4.5 Waste Generation, Treatment, Storage, and Disposal**

SME observed a parts washers and a used oil drum in the vehicle maintenance area of the building. No staining was observed on the concrete floor surface around the parts washers and storage drums. SME noted used batteries stored on the concrete floor surface in the vehicle maintenance area. No staining was noted in the area of the stored batteries.

#### **6.4.6 Heating/Cooling**

SME observed a natural gas furnace inside the building on the Property.

#### **6.4.6 Other Interior Features**

SME observed automotive repair equipment and used vehicle parts stored in the southern portion of the Property building. SME noted staining on the concrete floor surface near the used vehicle parts. The floor staining is a suspect REC, and is discussed in Section 8.

### **6.5 Adjoining Sites Observations**

SME viewed the adjoining sites from the Property's boundaries and adjoining road right-of-ways. The Property was adjoined to the northwest, across Oak Boulevard, by a Mobil gasoline station, located at 36101 Woodward Avenue. SME observed groundwater monitoring wells on the north adjoining gasoline station site. The Property was adjoined to the east, across Woodward Avenue, by commercial office buildings, located at 35980 and 35990 Woodward Avenue. Tree and grass covered land and a branch of the Rouge River adjoined the Property to the south and southwest. The Property was adjoined to the west by Douglas Cleaners, located at

900 Old North Woodward. As previously mentioned, the northwest adjoining gasoline station and the west adjoining dry cleaners are suspect RECs and are discussed in Section 8.

## 7. INTERVIEWS

As part of the conduct of this Phase I ESA, SME interviewed the following pertinent individuals other than the User of this report:

- Current Property owner – Mr. Faiz Simon
- Current Property occupant/tenant – Mr. Sam Garbowai/Service Manager
- City of Birmingham Fire Department – Mr. Charlie Monti, Assistant Fire Chief/Fire Marshall

### **7.1 Interviews with Owner/Site Manager/Occupant**

Prior to the Property reconnaissance, SME interviewed the current Property owner by telephone and asked the following questions regarding the Property:

- If environmental reports and permits; UST, AST, and underground injection system registrations; material safety data sheets; community right-to-know plans; safety and spill prevention plans; hydrogeologic reports; notices of past or current violations of environmental laws; hazardous waste generator notices or reports; geotechnical studies; risk assessments; and, recorded activity and use limitations exist.
- What knowledge regarding historical use, occupants, and operations the owner had.
- Whether the owner knew of any pending, threatened, or past litigation and/or administrative proceedings; or governmental notices regarding any possible violation of environmental laws or possible liability related to hazardous substances or petroleum products in, on, or from the Property.

Mr. Simon indicated his knowledge of reports and permits for the Property was limited to the documents provided to SME, previously discussed in Sections 5.2.4 and 5.4.9.

A copy of SME's Property Owner/Occupant Questionnaire completed by Mr. Simon is included in Appendix E. SME identified the following suspect RECs based on review of the Owner/Occupant Questionnaire:



- Mr. Simon indicated the Property structure was reported to be a closed gas station.
- Mr. Simon indicated USTs, monitoring wells and “test holes” were present at the Property.
- Mr. Simon reported the west adjoining site was a dry cleaner.
- Mr. Simon reported a BEA had been prepared for the Property.

The above listed suspect RECs are discussed in Section 8.

### **7.2 Interviews with Local Government Officials**

Assistant Fire Chief/Fire Marshall Monti indicated that the Property address was previously 905 North Hunter Boulevard. Mr. Monti indicated his personal knowledge of historical operations and environmental assessments at the Property were limited to the information contained in the Birmingham Fire Department records.

### **7.3 Interviews with Others**

No other interviews were performed as part of this Phase I ESA.

## **8. FINDINGS AND OPINIONS**

SME has completed a Phase I ESA of the Property located at 35975 Woodward Avenue, in the city of Birmingham, Oakland County, Michigan. At the time of SME’s reconnaissance, the Property was developed with a one-story automotive repair station, former fuel dispenser islands and canopies, paved parking, and landscaped areas. Data failures, data gaps, and limitations identified during this Phase I ESA are discussed below.

Based on the results of the Phase I ESA, in SME’s opinion, the following suspect RECs were identified in connection with the Property:

- The Property was listed as an Open LUST site and a BEA site based on the reported presence of soil and groundwater contamination (Sections 5.1, 5.2.1, 5.2.2, 5.2.4, 5.4.9, 5.4.10, and 7.1). This is a REC in connection with the Property because a release of hazardous substances has occurred at the Property.
- Existing USTs and hydraulic vehicle hoists at the Property (Sections 5.2.2, 5.2.4, 5.4.3, 5.4.9, 5.4.10, and 6.3.2). The USTs and hydraulic vehicle hoists are a REC in connection with the Property because of the confirmed release from the USTs and the potential for release from the hoists.

- Historical use of the Property for gasoline retail and automotive repair operations (Sections 5.4.9, 5.4.10, and 7.1). The historical operations are a REC in connection with the Property based on the use of regulated hazardous substances, the duration of the historical operations, the storage of hazardous substances (gasoline fuel and used oil), and reported subsurface impact resulting from the operations.
- Potential existence of abandoned USTs at the Property (Sections 5.2.4 and 5.4.10). This is a REC because of the potential storage of hazardous or regulated substances at the Property and a potential release of the material to the subsurface.
- Surface staining documented and/or observed near stored chemicals, a dumpster, and near floor drains in the service area (Sections 5.4.9, 6.3.5, 6.4.1, 6.4.4, and 6.4.6). The surface staining is a REC in connection with the Property because it indicates a potential release of petroleum products to the subsurface.
- Unknown contents and historical use of a manhole in the storage area of the building interior (Section 6.4.4). This is a REC because the contents of the structure below the manhole are unknown and the Property has known hazardous chemical use.
- Northwest adjoining Mobil gasoline station LUST site, located at 36101 Woodward Avenue (Sections 5.1, 5.2.4, 5.4.9, and 6.5). This site is a REC in connection with the Property because of the close proximity of the LUST site to the Property and reported migration of petroleum contamination from the LUST site towards the Property.
- West adjoining Douglas Cleaners, located at 900 North Old Woodward (Sections 5.1, 5.2.4, 5.4.9, 6.5, and 7.1). This site is a REC in connection with the Property because of the close proximity of the site to the Property, reported solvent contamination at the site, and multiple RCRA violations reported at the site.

SME identified no data gaps in connection with this Phase I ESA.

SME identified the following limitations in connection with this Phase I ESA.

- Parked vehicles, which limited SME ability to view portions of the ground surface at the Property (Section 2.4). Based on the review of historical information for the Property, in SME's opinion, this limitation did not impair SME's ability to identify RECs in connection with the Property.

## 9. CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of 35975 Woodward Avenue, Birmingham, Michigan, the Property. Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. SME identified the following recognized environmental conditions in connection with the Property:

- The reported presence of soil and groundwater contamination.
- The existing hydraulic hoists and empty USTs.
- Potential abandoned USTs.
- Historical use of the Property for gasoline retail and automotive repair.
- Surface staining on various portions of the Property.
- Unknown contents of the structure below the manhole in the storage area of the building interior.
- Northwest adjoining Mobil gasoline station LUST site.
- West adjoining Douglas Cleaners.

In SME's opinion no data gaps or limitations were identified in the course of this Phase I ESA that would impair the identification of RECs in connection with the property.

## 10. DEVIATIONS

No deviations occurred as part of this Phase I ESA.

## 11. ADDITIONAL SERVICES

No additional services were provided in conjunction with this Phase I ESA.

## 12. REFERENCES

American Society for Testing and Materials (ASTM), **Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process**, November 1, 2005.

## 13. GENERAL COMMENTS

SME conducted this Phase I ESA to identify RECs in connection with the Property and to assess the relative significance of the identified RECs. The findings, opinions, conclusions, and recommendations presented in this report are based upon observations noted during the site visit, and information obtained during the performance of the scope of services on the dates indicated. In the process of obtaining the field and historical information in preparation of this report, procedures were followed that represent reasonable and accepted environmental practices and principles, in a manner consistent with that level of care and skill ordinarily exercised by members of these professions currently practicing under similar conditions. Records reviewed at various locations as identified within the text of this report, include only those records that were provided to SME by the referenced department on the date indicated. As such, the records provided to SME may not represent all records available at a given source. Appropriate inquiry was made into the past uses of the Property consistent with good commercial or customary practice. As is typical with Phase I ESAs, SME conducted no testing or subsurface evaluation for this assessment.

Due to unknown or latent conditions on the Property, or on adjacent or nearby properties, which may become evident in the future, SME does not represent the Property is free of contamination or hazardous waste material. It should also be noted the Property conditions may change over time. Should additional surface, subsurface, chemical, or other data become available after the date of issue of this report, the findings, conclusions and recommendations contained in this report may have to be modified. SME should be retained to review the new information and adjust our opinion and recommendations accordingly.

All reports, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by SME as instruments of service are the property of SME. No parties other than those specifically identified in this report may rely upon SME's opinions, conclusions or reports unless SME has agreed to such reliance in writing. In any event, any reliance will be subject to the terms and conditions set forth in SME's General Conditions (01/04).

Phase I Environmental Site Assessment  
35975 Woodward Avenue  
Birmingham, Michigan 48009

SME Project Number: PE56173  
September 17, 2007

**SIGNATURE(S) OF ENVIRONMENTAL PROFESSIONAL(S)**

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



---

Daniel R. Cassidy, CPG  
Project Geologist

**APPENDIX A**  
**FIGURES**





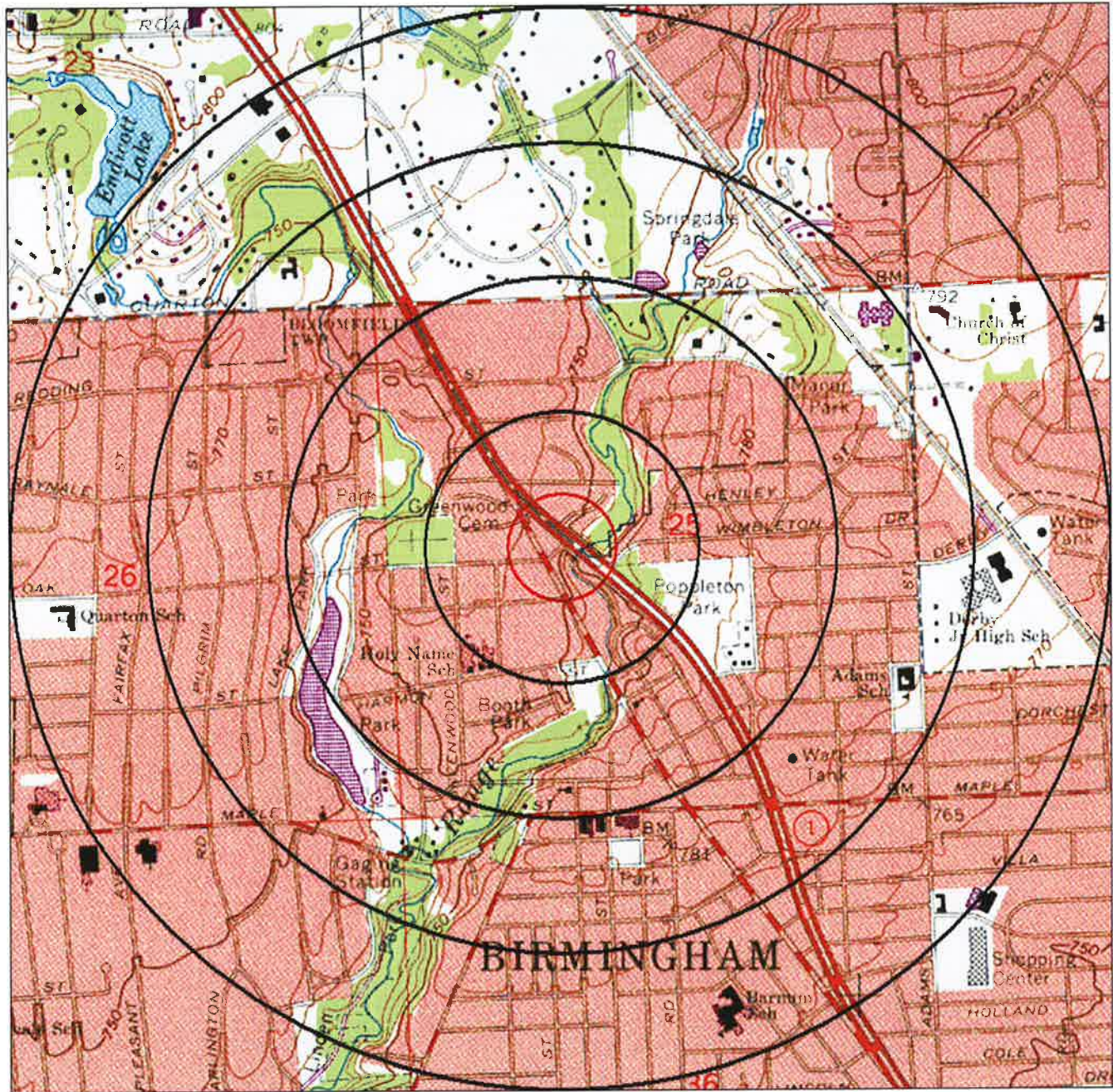
# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map



## 35975 WOODWARD AVE, BIRMINGHAM MI 48009



### Source:

Target Site (Latitude: 42.553677 Longitude: -83.218798) .....



Identified Site, Multiple Sites, Receptor .....



NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste .....



Tribal Land .....



Map Name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--

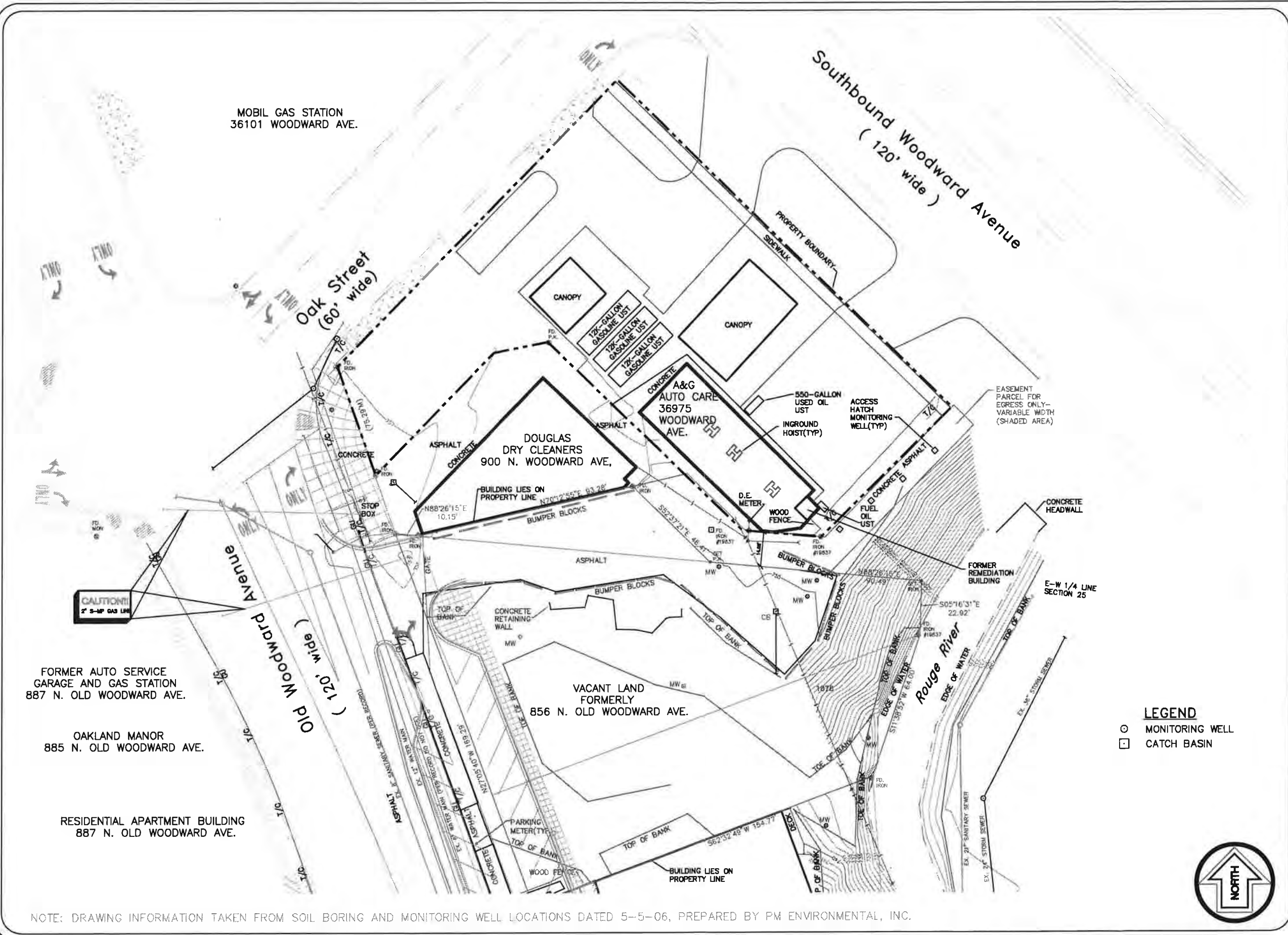
Map Reference Code: 42083-E2-TF-024

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius



**PROPERTY FEATURES DIAGRAM**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**

DATE: 2-19-07  
 SCALE: 1" = 40'  
 DRAFTER: JAB  
 JOB: PE54494B



NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

Figure No. 2

**APPENDIX B**  
**PHOTOGRAPHS**



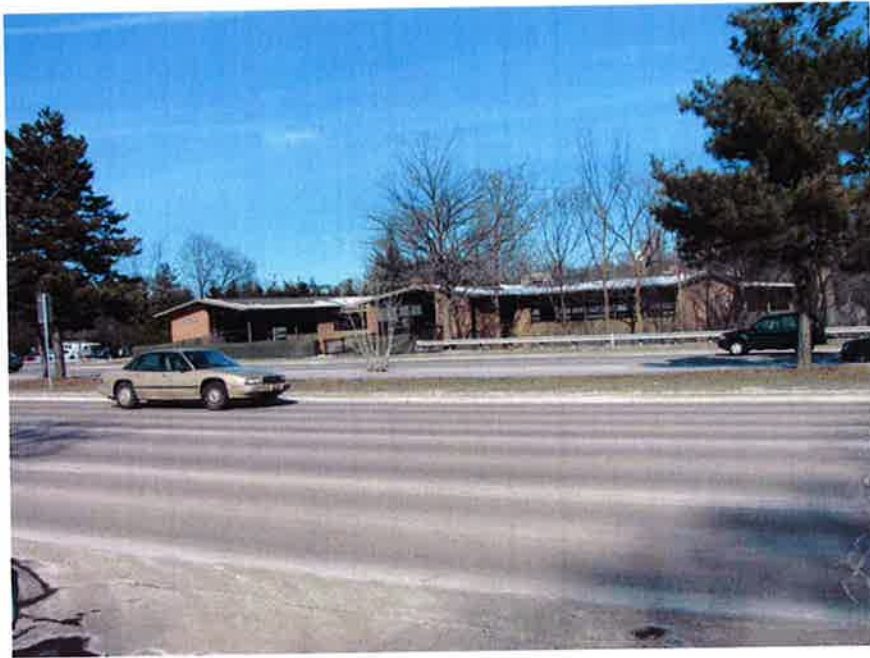
**PHOTO NO. 1:** 35975 Woodward Avenue building and east portion of Property.  
(View from southeast to northwest.)



**PHOTO NO. 2:** Northwest adjoining Mobile gas station, located across Oak Boulevard at 36101 Woodward Avenue. (View from southeast to northwest.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>





**PHOTO NO. 3:** East adjoining commercial offices, located across Woodward Avenue at 35980 and 35990 Woodward Avenue. (View from west to east.)



**PHOTO NO. 4:** South adjoining vacant wooded land, including a branch of the Rouge River. (View northwest to southeast.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>



**PHOTO NO. 5:** Southwest adjoining vacant land, located at 856 Old North Woodward. (View from north to south.)



**PHOTO NO. 6:** West adjoining Douglas Cleaners, located at 900 Old North Woodward. (View from west to east.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>





**PHOTO NO. 7:** Three 12,000-gallon gasoline USTs, located on the north portion of the Property. (View from north to south.)



**PHOTO NO. 8:** 550-gallon used oil UST located east of the Property building. (View from northwest to southeast.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>





**PHOTO NO. 9:** Monitoring wells located on the east paved lot of the Property.



**PHOTO NO. 10:** Surface staining on the unpaved ground surface near drum and used parts storage, located south of the Property building. (View from east to west.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>



**PHOTO NO. 11:** A commercial dumpster containing used oil containers, parts, and refuse, located northwest of the Property building. Staining was observed on the concrete paved surface around the dumpster. (View from northwest to southeast.)



**PHOTO NO. 12:** Vehicle storage on the south portion of the Property. (View from east to west.)

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>





**PHOTO NO. 13:** Surface staining near an open floor drain and hydraulic hoist within the Property building.



**PHOTO NO. 14:** Surface staining on the concrete floor surface near used parts storage, located within the Property building.

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>

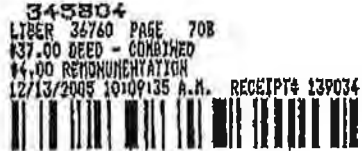
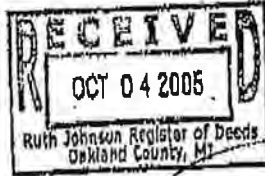


**PHOTO NO. 15:** Chemical residue on the concrete floor surface near a manhole, located within the Property building.

<b>SME Project Number:</b>	<b>PE54494B</b>
<b>Photograph by:</b>	<b>Jason Lafayette</b>
<b>Date:</b>	<b>2/9/2007</b>
<b>Project:</b>	<b>35975 Woodward Avenue</b>
<b>Location:</b>	<b>Birmingham, Michigan</b>

**APPENDIX C**  
**HISTORICAL RESEARCH DOCUMENTATION**

LIBER36760 .PB708



PAYD RECORDED - OAKLAND COUNTY  
RUTH JOHNSON, CLERK/REGISTER OF DEEDS



Sch B II  
# 15  
QUIT CLAIM DEED

THE GRANTOR, **BP PRODUCTS NORTH AMERICA INC.**, a Maryland corporation ("Grantor"), with its principal office address at c/o BP America Inc., 4101 Winfield Road, Warrenville, Illinois 60555, for the consideration of One Dollar and No/100ths (\$1.00) and other good and valuable consideration in hand paid, and pursuant to authority given by the Board of Directors of said corporation, by these presents does hereby **REMITSE, RELEASE, CONVEY AND QUIT CLAIM** (without any covenant, representation or warranty of any kind), **TO: ARMADA OIL & GAS CO.**, a Michigan corporation ("Grantee"), with an office address at 13530 Michigan Avenue, Suite 400, Dearborn, Michigan 48216, as of May 24, 2005 (the "Transfer Date"), the following described real estate (the "Property"), situated in the City of Birmingham, County of Oakland, State of Michigan, more particularly described as follows, to wit:

See legal description set forth on Exhibit A attached hereto and incorporated herein.

Address of Real Estate: 35975 Woodward, Birmingham, MI  
Tax Identification Number(s): 19-25-179-001

Together with all and singular the hereditaments and appurtenances thereunto belonging, or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, claim or demand whatsoever, of Grantor, either in law or equity, of, in and to the Property, with the hereditaments and appurtenances; **TO HAVE AND TO HOLD** the Property as above described, with the appurtenances, unto Grantee, its successors and assigns forever.



O.K. - KB

Site #05791

CHK 21991371

LIBER36760 PG709

1. Use and Operating Restrictions.

This conveyance is made by Grantor and accepted by Grantee upon the express condition and subject to the use and operating restrictions, notices, acknowledgments, and covenants described on Exhibit B attached hereto (collectively, the "Use and Operating Restrictions"). Grantor may, in Grantor's sole and absolute discretion (but shall in no event be obligated to), release and/or waive any or all of the Use and Operating Restrictions at any time, by written instrument duly executed and delivered by Grantor.

*Grantor may release*

2. Grantee's Indemnification of Grantor.

Grantee, for and on behalf of itself and its successors and assigns (including, without limitation, all successors in title to the Property or any portion thereof (collectively, the "Grantee Parties")), by acceptance of this Quit Claim Deed ("Deed"), hereby agrees, except as may otherwise be provided in the Agreement (as hereinafter defined), to assume responsibility for, and shall defend (with counsel reasonably acceptable to the Grantor Parties (as hereinafter defined)), indemnify and hold harmless, and does hereby waive, release and discharge, Grantor, its parents, affiliates and subsidiaries, and their respective directors, officers, partners, members, shareholders, employees, contractors, agents, representatives, successors and assigns (collectively, the "Grantor Parties"), from and against any and all actions or causes of action at law or in equity, claims, demands, obligations, losses, damages, liabilities, suits, judgments, fines, penalties, payments, costs and expenses (including reasonable attorneys' fees) arising out of or resulting from the use or operation of the Property on or after the Transfer Date, and any use which is in violation of or inconsistent with the Use and Operating Restrictions (collectively, the "Indemnity"). Notwithstanding the foregoing, the Grantor Parties agree that (i) with respect to each Grantee Party, the Indemnity shall only apply to matters occurring during the period of time that such Grantee Party owns, operates, or occupies the Property, and (ii) with respect to any Institutional Lender (as hereinafter defined) which acquires title to and possession of the Property by foreclosure, acceptance of a deed in lieu of foreclosure or otherwise, the Indemnity shall only apply to matters occurring during the period of time that any such Institutional Lender owns the Property and the Property is operated by such Institutional Lender, directly or indirectly, for an automobile service station, petroleum station, gasoline station, automobile repair shop, or car wash, or for the business of selling, offering for sale, storage, handling, distributing or dealing in, petroleum, gasoline, motor vehicle fuel, diesel fuel, kerosene, benzol, naphtha, greases, lubricating oils, any fuel used for internal combustion engines, lubricants in any form, automobile parts or accessories, tires, batteries, or other petroleum or petroleum-related products. In no event shall any holder of a mortgage encumbering the Property have any obligation or liability under this Section unless and until such mortgagee acquires title to and possession of the Property, whether by foreclosure, deed-in-lieu of foreclosure or otherwise, and then only to the extent expressly required by this Section. As used herein, the term "Institutional Lender" shall mean (a) any national or state chartered bank, (b) any savings and loan association, credit union, investment bank, or other financial institution that is regularly engaged in the business of making or owning commercial real estate loans, or (c) any nominee or other entity formed, owned and controlled by any of the entities described in clauses (a) or (b) above for the purpose of acquiring foreclosed property.

*Subsequent to the holder's responsibility for their part of ownership*

3. Condition of Property.

Grantee has accepted the Property, including without limitation its environmental condition, in its "AS-IS, WHERE-IS, AND WITH ALL FAULTS" condition, subject only to any covenants and obligations of Grantor to Grantee which are expressly set forth in the Agreement or any other documents or instruments executed and delivered by Grantor and Grantee pursuant to the Agreement (collectively, the "Contractual Obligations"). Grantee acknowledges that the purchase price which it has paid for the Property reflects: (a) the fact that all of the Use and Operating Restrictions shall be recorded against the

Site #05791

CH: 2105181v1



LIBER36760 P8710

Property and shall be binding on Grantee and the other Grantee Parties, (b) the fact that Grantee has agreed to acquire the Property, including without limitation its environmental condition, in its "AS-IS, WHERE-IS, AND WITH ALL FAULTS" condition (subject only to Grantor's Contractual Obligations to Grantee), and (c) the fact that Grantee has agreed to acquire the Property subject to the presence, whether known or unknown, of any environmental contamination which may have occurred during or prior to the period of Grantor's ownership, use and/or operation of the Property (subject only to Grantor's Contractual Obligations to Grantee). Grantee does, by its acceptance of this Deed, represent and warrant that it is familiar with the condition of the Property and that GRANTOR HAS NOT MADE AND MAKES NO WARRANTIES OR REPRESENTATIONS REGARDING THE PROPERTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ITS HABITABILITY, CONDITION OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE. GRANTEE AGREES THAT THE PROPERTY IS HEREBY CONVEYED BY GRANTOR AND ACCEPTED BY GRANTEE IN ITS "AS-IS, WHERE-IS, AND WITH ALL FAULTS" CONDITION EXISTING ON THE EFFECTIVE DATE, SUBJECT ONLY TO THE CONTRACTUAL OBLIGATIONS.

4. Grantor's Right of Access and Entry Upon the Property: Cooperation.

Grantor hereby reserves for itself and the other Grantor Parties the right to enter upon and access the Property (free from any charge or fee) from time to time to remove certain personal property and conduct certain inspections, remediation and other activities, all as more particularly described in Sections 8 and 26 of the Agreement. Such access shall not be interrupted by any transfer, assignment, conveyance, mortgage, lease, hypothecation or pledge by Grantee of the Property or any of Grantee's interests therein. In the event Grantor is involved in any remediation efforts or in obtaining environmental site closure with respect to the Property for any reason whatsoever, Grantee and each of the other Grantee Parties agrees to cooperate with Grantor and with all local, state, and federal environmental agencies having jurisdiction over the Property (the "Government") in obtaining environmental site closure for any environmental contamination relating to or arising out of Grantor's prior use of the Property.

5. Entire Understanding.

All of the provisions of this Deed, including without limitation, the Use and Operating Restrictions, shall run with the land and each portion thereof, shall bind and restrict the Property and each portion thereof, and shall be binding upon and inure to the benefit of the parties, including without limitation, Grantor, the other Grantor Parties, Grantee, and the other Grantee Parties, as the case may be, and their respective heirs, devisees, representatives, successors and assigns, and any other person or entity expressly noted herein. This Deed, the exhibits annexed hereto and that certain Purchase and Sale Agreement dated as of February 22, 2005 (and any attachments and exhibits thereto) between Grantor, Grantee, and Armada Real Estate, LLC, a Michigan limited liability company (the "Agreement") contain the entire understanding and agreement between the parties hereto relative to the subject matter hereof. No representations or statements, other than those expressly set forth herein, were relied upon by the parties in entering into this Deed. No modification, waiver of, addition to, or deletion from the terms of this Deed shall be effective unless reduced to writing and signed by Grantor and Grantee or their respective successors and assigns, each of whom expressly waives, releases and forever forswears any right under the law in the State in which the Property is located which permits a contract, by its terms amendable only in writing, to be orally amended.

[The remainder of this page is intentionally left blank.]

Site #05791

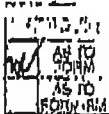
CHI 01931010.1

LIBER36760 PG 11

IN WITNESS WHEREOF, said Grantor has caused this Deed to be executed by an authorized representative of Grantor and attested to by its Assistant Secretary this 24th day of May, 2005.

BP PRODUCTS NORTH AMERICA INC.,  
a Maryland corporation

By: M. E. McDermid  
Name: M.E. McDermid  
Title: Vice President



ATTEST:

By: L.A. David  
Name: L.A. David  
Title: Assistant Secretary

STATE OF Illinois )  
COUNTY OF DuPage )SS

I, M. Azalia O'Brien, a Notary Public acting in the County and State aforesaid, DO HEREBY CERTIFY that M.E. McDermid and L.A. David personally known to me to be the Vice President and Assistant Secretary, respectively, of BP Products North America Inc., a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that as such Vice President and Assistant Secretary, respectively, they signed and delivered such instrument pursuant to authority given by the Board of Directors of such corporation, as their free and voluntary act and deed, and as the free and voluntary act and deed of such corporation, for the uses and purposes therein set forth.

Given under my hand and official seal this 19<sup>th</sup> day of May, 2005.

M. Azalia O'Brien  
Notary Public, DuPage County

My Commission Expires:



Prepared by:

Sidley Austin Brown & Wood LLP  
10 South Dearborn Street  
Chicago, Illinois 60603  
Attn: Jeffery Daak, Esq.

Site #05791

CHI 2/95/REV.1

LIBER36760 PG712

~~When recorded, return to and send subsequent tax bills to~~  
Amrad Oil & Gas Co.  
Attention: Mr. Allie Berry  
13530 Michigan Ave., Suite 400  
Dearborn, Michigan 48126

PLEASE RETURN TO  
FIRST MICHIGAN TITLE, INC.  
38777 W. SIX MILE SUITE 100  
LIVONIA, MI 48152  
ATTN: RECORDING DEPARTMENT

Site #03791

CHI 319518(v.1)

**LIBER 36760 PG 713**

**EXHIBIT A  
TO  
QUIT CLAIM DEED**

**Legal Description**

Land located in the City of Birmingham, Oakland County, State of Michigan, and described as follows:

Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as beginning at a point in the Westerly line of 200 Foot Hunter Boulevard, said point located North 88 degrees 16 minutes West 659.12 feet and North 49 degrees 21 minutes West 120.93 feet from the center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West along the Westerly line of 200 foot Hunter Boulevard 200 feet to the Southerly line of 60 foot Oak Street; thence South 40 degrees 39 minutes West along said Southerly line 171.16 feet; thence South 22 degrees 50 minutes East 49.17 feet, thence North 40 degrees 39 minutes East 77.11 feet, thence North 85 degrees 39 minutes East 22.63 feet, thence South 49 degrees 21 minutes East 113.19 feet; thence South 88 degrees 16 minutes East 34.43 feet, thence North 40 degrees 39 minutes East 78.36 feet to beginning.

19-25-179-001

Site #05791

CHI 3199181v1

LIBER36760 P0714

EXHIBIT B  
TO  
QUIT CLAIM DEED

Use and Operating Restrictions, Notices, Acknowledgments, and Covenants

Grantee covenants and agrees, for and on behalf of itself and the other Grantee Parties, that the following use and operating restrictions, notices, acknowledgments, and covenants shall run with the land and each portion thereof, shall bind and restrict the Property and each portion thereof, and shall be binding upon and inure to the benefit of the parties, including without limitation, Grantor, the other Grantor Parties, Grantee and the other Grantee Parties, as the case may be, and their respective heirs, devisees, representatives, successors and assigns, and any other person or entity expressly noted herein, and shall bind and restrict the Property for the time periods noted herein:

Run with Land.

I. Petroleum Restriction: No part of the Property shall be used by Grantee or any other Grantee Party, directly or indirectly, for an automobile service station, petroleum station, gasoline station, automobile repair shop, or car wash, or for the purpose of conducting or carrying on the business of selling, offering for sale, storage, handling, distributing or dealing in petroleum, gasoline, motor vehicle fuel, diesel fuel, kerosene, benzol, naphtha, greases, lubricating oils, any fuel used for internal combustion engines, lubricants in any form, automobile parts or accessories, tires, batteries, or other petroleum or petroleum-related products, except for the personal use or consumption of such products by Grantee or its lessees of the Property, unless any such use is in connection with the operation of the Property as a Grantor branded service station. For purposes hereof, "Grantor branded service station" shall mean a service station under the brand BP, Amoco, Arco or any other brand of Grantor or any of its affiliates or their respective successors and assigns.

The above covenants and use restrictions bind and restrict the Property as covenants and restrictions running with the land and each portion thereof, and are deemed to benefit Grantor as a user of, operator of, or supplier of Grantor branded fuels to lands or retail operations in the County in which the Property is located. These restrictive covenants will remain in full force and effect for a term of fifteen (15) years from the date of this conveyance whereupon these restrictive covenants will automatically lapse and terminate and be of no further force or effect.

II. Environmental Matters:

A. Environmental Restrictions. Grantee acknowledges that certain environmental restrictions, notices, acknowledgments and covenants have been recorded against the Property at Liber 18211, Page 238 of the public records of Oakland county, Michigan, and are incorporated herein by reference (the "Existing Restrictions"). In the event of a conflict between the terms and provisions of the Existing Restrictions and the terms and provisions set forth in this Exhibit B, the terms and provisions of the Existing Restrictions shall prevail and control. To reduce risks to human health and/or the environment and to permit application of corrective action standards that are consistent with applicable law, this conveyance is made by Grantor and accepted by Grantee on the express condition and subject to the following restrictions, notices, acknowledgments and covenants:

Liber 18211, Page 238

1. Groundwater Exposure Restriction. No water supply wells of any kind (including, without limitation, water wells used for drinking, bathing or other human consumption purposes and water wells used for livestock, farming or irrigation) shall be installed or used on the Property (collectively, the "Groundwater Exposure Restriction"); provided, however, that the Groundwater Exposure Restriction does not prohibit the installation or use of any compliance wells or any groundwater monitoring, recovery or extraction wells or similar devices used for or related to the

Site #05791

CHI 3193181 v 1

LIBER36760 .PG715

performance of any remediation or environmental corrective action work on the Property now or in the future.

2. Residential Use Restriction. The Property shall not be used or occupied (if used or occupied at all) for residential purposes, and additionally, no part of the Property shall be used for the purpose of operating a child care or elder care facility, a nursing home facility or hospice, a medical or dental facility, a school, a church or other place of worship, a park or a hospital (collectively, the "Residential Use Restriction"). If applicable state environmental laws and regulations define residential use, any use that is deemed to be a residential use by such laws and regulations will also be a residential use as the terms are used herein.

*No child care, medical or dental facility.*

*check current definitions.*

3. Construction and Excavation Restrictions.

3.1 Below-grade Restriction. Any building or other improvements constructed on the Property shall have a slab-on-grade foundation, with the top of the slab at or above surface level, except for any building footings and/or underground utilities (the "Below-grade Restriction").

3.2 Construction Workers' Caution Statement. Prior to conducting any intrusive activities with respect to the Property, Grantee and the other Grantee Parties shall cause all construction workers performing or assisting with such activities to be notified of possible petroleum hydrocarbon encounters and appropriately trained and certified in accordance with all environmental, health and safety laws, rules, regulations and ordinances, including, without limitation, any and all Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements (including, without limitation, those set forth in 29 CFR 1910.120) (collectively, the "Construction Workers' Caution Restriction"). Such training shall at a minimum include both an initial 40-hour and future 8 hour refresher training and certifications in compliance with OSHA HAZWOPER requirements and any similar applicable requirements (whether existing as of the date of this conveyance or enacted or promulgated in the future).

3.3 Removal and Disposal of Soil and Groundwater. No soils shall be excavated at or removed from any portion of the Property, unless and until representative soil samples from such portion of the Property are first tested to determine whether any actionable levels of petroleum-related or other regulated chemicals are present, and if such levels are present, then (a) the excavation, management, disposal and/or removal of any such soils at or from such portion of the Property shall be governed by a written soil management plan ("Soil Management Plan") to be developed by Grantee or any other Grantee Party, as applicable, which shall comply with all applicable regulatory requirements, and (b) Grantee, or any other Grantee Party, as applicable, obtains any required Government approval of the Soil Management Plan. Grantee and the other Grantee Parties shall be solely responsible for the proper and lawful performance and payment of (a) any and all soil excavation, hauling, transportation and disposal, and (b) any extraction, dewatering and disposal of any groundwater to be extracted or removed from the Property arising out of or resulting from any development or other construction activities at the Property, including any required testing and treatment of such water (collectively, the "Soil and Groundwater Removal Restriction"). Except as may be otherwise expressly provided in the Agreement, Grantor shall not be obligated to pay any costs related to such soil excavation or groundwater extraction or any soil or groundwater removal or disposal, and/or any development of the Property.

B. Duration. The Groundwater Exposure Restriction, the Residential Use Restriction, the Below-grade Restriction, the Construction Workers' Caution Restriction, and the Soil and Groundwater Removal Restriction, including their related restrictions, notices, acknowledgments and covenants (collectively, the "Environmental Restrictions"), shall run with land and each portion thereof and shall be

Site #05791

CHI 2193181Y1



LIBER 36760 PG 16

binding upon and inure to the benefit of Grantor, the other Grantor Parties, Grantee and the other Grantee Parties, and shall remain in full force and effect and bind and restrict the Property, unless and until the Environmental Restrictions (or any portion thereof) are either: (1) waived in writing by Grantor under conditions which, in Grantor's sole discretion, demonstrate that specific risks to human health and the environment are, have been, and/or will be appropriately reduced; or (2) released in writing by Grantor. Grantor may, at Grantee's request, release a portion or portions of the Environmental Restrictions from the Property upon Grantor's receipt from Grantee of an acknowledgment from the Government, obtained by Grantee at its sole cost and expense, that test results demonstrate that the Property meets the then-current soil and groundwater standards for the Property without that portion or portions of the Environmental Restrictions and that the Government approves the releasing of that portion or portions of the Environmental Restrictions.

III. Certain Environmental Acknowledgments, Covenants and Notices.

A. Prior Use. Grantee acknowledges that the Property has been used as a service station or for related purposes for the storage, sale, transfer and distribution of motor vehicle fuels, petroleum products or derivatives containing hydrocarbons.

B. USTs. Grantee acknowledges that underground storage tanks and associated product piping systems ("USTs") included in, on or under the Property may contain explosive gases and may have been used for the storage of motor fuels containing tetraethyl lead or other "antiknock" compounds which have made such USTs unfit for the storage of water or any other article or commodity intended for human or animal contact or consumption. Grantee expressly agrees not to use or permit the use of any such USTs for such purposes:

C. Notice of Environmental Restrictions upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a recital acknowledging the Environmental Restrictions and providing the recording location of this Deed upon such conveyance substantially in the following form: "The real property described herein is subject to the Environmental Restrictions made by BP Products North America Inc., as Grantor, for its benefit and for the benefit of other parties and persons as set forth therein, and recorded with the Office of the Recorder of \_\_\_\_\_ County on the \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_, in \_\_\_\_\_ County Deed Records at Volume \_\_\_\_\_, Page \_\_\_\_\_ and having Document No. \_\_\_\_\_ as if the same were fully set forth herein." Notwithstanding the foregoing, any failure to include such notice shall not, in and of itself, create any right or claim that any of the Environmental Restrictions or this Deed are void, voidable or otherwise unenforceable in accordance with their terms.

IV. Defined Terms; Successors; Other.

Unless otherwise expressly noted herein, all initially capitalized terms used in this Exhibit B shall have the meanings ascribed to such terms as set forth in the Deed to which this Exhibit B is attached. By taking title to the Property (or otherwise succeeding, directly or indirectly, to any of Grantee's right, title or interest in or to the Property), each Grantee Party shall be conclusively deemed to have agreed to and accepted each and all of the terms, provisions and conditions of this Exhibit B, and to have agreed to be bound thereby. It is the intention of Grantor and Grantee that the terms, provisions, covenants and restrictions set forth in this Exhibit B shall be deemed to have vested upon the execution and delivery of this Deed by Grantor. If any of the covenants or restrictions contained herein shall be unlawful, void or voidable for violation of the rule against perpetuities, then any such covenants and restrictions shall continue only until twenty-one (21) years after the death of the survivor of the now living descendants of President George W. Bush. If any of the covenants or restrictions contained herein shall be unlawful, void or voidable for violation of any other statutory or common law rule(s) or

Site #05791

CHI 3196131 v.1



LIBER36760 IP0717

regulation(s) imposing time limits, then any such covenants and restrictions shall continue only for the longest period permitted under such statutory or common law rule(s) or regulation(s). If any term, provision, condition, covenant or restriction in this Exhibit B shall, to any extent, be invalid or unenforceable, the remainder of this Exhibit B (or the application of such term, provision, condition, covenant or restriction to persons or circumstances other than in respect of which it is invalid or unenforceable) shall not be affected thereby, and each term, provision, condition, covenant and restriction set forth in this Exhibit B shall be valid and enforceable to the fullest extent permitted by law. Grantee acknowledges, for itself and the other Grantee Parties, that the breach of any of the covenants or restrictions contained in this Exhibit B on the part of Grantor or any other Grantee Party will result in irreparable harm and continuing damages to Grantor and Grantor's business, and that Grantor's remedy at law for any such breach or threatened breach would be inadequate. Accordingly, in addition to such remedies as may be available to Grantor at law or in equity in the event of any such breach, any court of competent jurisdiction may issue an injunction (both preliminary and permanent), without bond, enjoining and restricting the breach or threatened breach of any such covenant or restriction by Grantee or any other Grantee Party. In the event that Grantee or any other Grantee Party shall breach any of the covenants or restrictions set forth in this Exhibit B, then Grantee or such other Grantee Party (as applicable) shall pay all of Grantor's costs and expenses (including reasonable attorneys' fees) incurred in enforcing such covenants and restrictions.

0113 31M31316.1

Site #05791

18211 238

\$ 17.00 MISCELLANEOUS FEES/CHRG  
\$ 2.00 REDEMPTION  
16 MAR 20 02:36 A.M. RECEIVED 1074  
PAID REGISTERED - OAKLAND COUNTY  
LINDA D. ALLEN, CLERK/REGISTER OF DEEDS

**RESTRICTIVE COVENANT**

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - UNDERGROUND STORAGE TANK DIVISION

*This information and form is required under Sections 21310a(2) and 21316 of Part 213, Leaking Underground Storage Tanks (LUST), of the Natural Resources and Environmental Protection Act, 1994 PA 431, as amended. Failure to comply with the provisions of this Act may result in civil fines not to exceed \$10,000 for each day the violation continues or failure to comply continues.*

**INSTRUCTIONS:** Use this form for filing the restrictive covenant with the register of deeds. This form is needed when the corrective action is based on a restrictive covenant for institutional controls. This form is not needed if an alternate mechanism is approved by the Department of Environmental Quality (Department) pursuant to Section 21310a(3) and 21310a(4) of Part 213. If corrective action is based on the use of institutional controls regarding off-site migration of regulated substances, wait for UST/D approval before recording the Restrictive Covenant with the register of deeds for contamination that has migrated or will migrate off-site. If the institutional controls are for on-site contamination, the owner/operator may proceed with recording the Restrictive Covenant with the register of deeds. In all cases, submit a copy of the Restrictive Covenant and proof of recording with the Closure Report (RQP 3803) to the appropriate UST/D District Office listed on the back of the Closure Report Cover Sheet. This form must be completed in its entirety.

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs).

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following, and more fully described in Attachment A, attached. (Attach a legal property description as Attachment A for the land where the restrictive covenant would apply, and a survey map of the areas addressed by this restrictive covenant.) The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resources limitations. The survey defining the areas addressed by the corrective action plan is attached. (Describe the scope of any land use or resource use limitations.)

Please Refer to Attachment B

---

The restrictive covenant is being filed by the below listed legal titleholder or with the express written permission of the legal titleholder. (Attach permission statement from the legal titleholder if he/she is not signing this document.)

Owner/Operator implementing the corrective action plan: Amoco

Release Date(s): January 13, 1989

County where deed is registered: Oakland County

Common description of land, township/city, County: 905 North Hunter Boulevard, Birmingham, Oakland County, Michigan

O.R. - ML

Sch BTL  
# 13

*Closure report*

*Work USTs removed*

*LUST*

*Corrective Action Institutional Controls*

*17.00  
2.00*

*?*

New Therefore (Legal Titleholder Name and Address) 18211 239  
Amoco Oil Company, 30705 Seven Mile Road  
Suite 550, Livonia, Michigan 48152-1056

(hereinafter referred to as the "Titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.
2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.
3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.
4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.
5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.
6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

*Restrict activities that interfere with corrective action.*

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any Federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant. I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

M. E. McDermett  
Legal Titleholder or Authorized Representative's Signature

Feb. 23, 1998  
Date

M. E. McDermett - Amoco  
Print Legal Titleholder or Authorized Representative's Name

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 23 day of February, 1998.

18211 240

Signed in the presence of  
 \_\_\_\_\_  
 Witness  
 \_\_\_\_\_  
 Print Witness' Name  
 \_\_\_\_\_  
 Print Witness' Name  
 \_\_\_\_\_  
 Subscribed and sworn to me before this 25<sup>th</sup> day of February, 1998 M. Azalia Abney  
 \_\_\_\_\_  
 Notary Public  
Washtenaw County, Michigan  
 (Insert County)

My Commission Expires \_\_\_\_\_

Drafted by:



Amgen Marketing Environmental Services  
 Company Name  
Maribh A. Dolvin  
 Print Name of Drafter  
38705 Seven Hills Road, Suite 260, Livonia, Michigan 48152  
 Company Address

BQP3834 (rev. 3/97)

18211 211

Attachment A

0.452 Acres parcel in part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as beginning at a point in the Westerly line of 200 foot Hunter Boulevard, said point located North 88 degrees 16 minutes West 659.12 feet and North 49 degrees 21 minutes West 120.93 feet from Center of said Section 25; thence North 49 degrees 21 minutes West along Westerly line of 200 foot Hunter Boulevard 200 feet to Southerly line of 60 foot Oak Street; thence South 40 degrees 39 minutes West along said Southerly line 100 feet; thence South 49 degrees 21 minutes East 173.19 feet; thence South 80 degrees 16 minutes East along a line parallel to and 15 feet Northerly of the East and West 1/4 Section line and the north line of Assessors Plat No. 29, a distance of 34.45 feet; thence North 40 degrees 39 minutes East 78.36 feet to the point of beginning. Containing 0.452 acres more or less.

pl 19-25-179-001

h:\projects\095791\18211a.doc

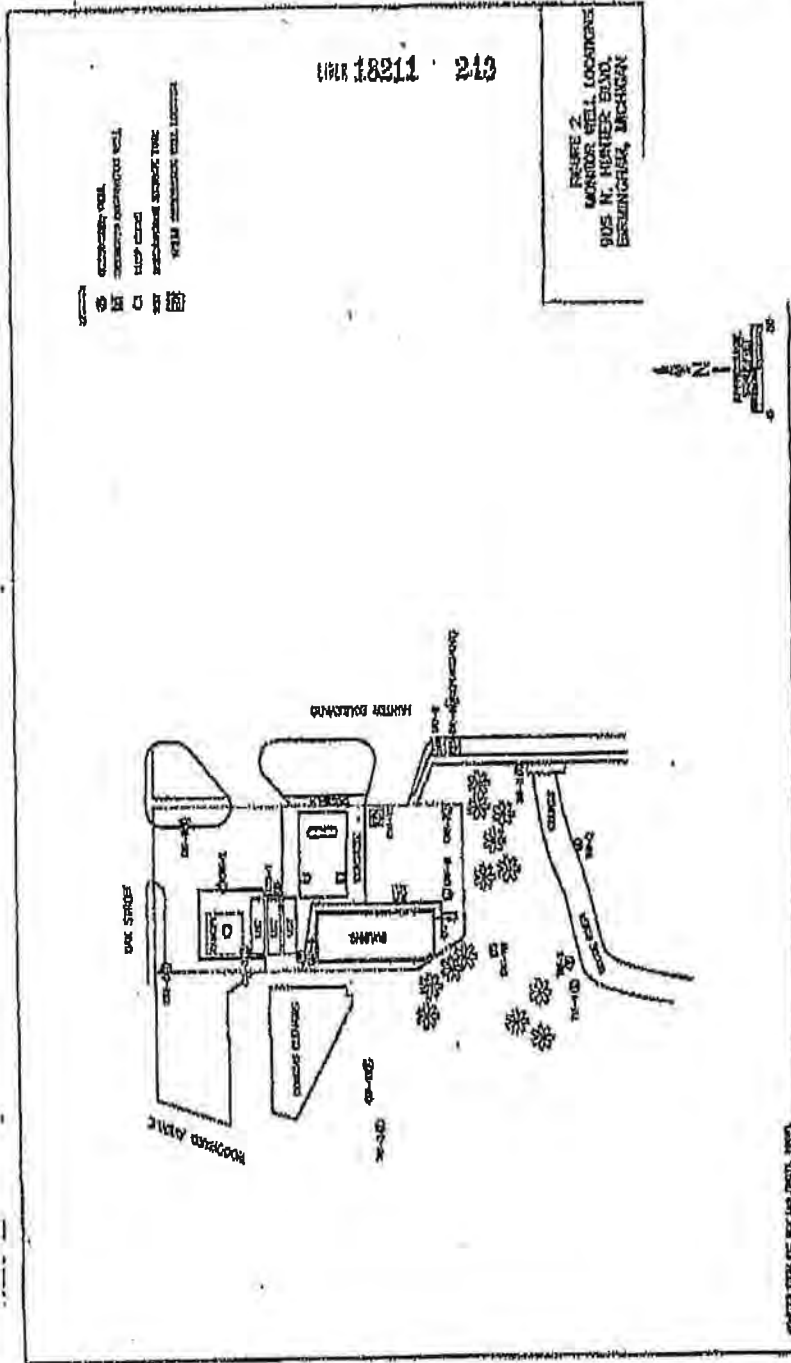
UNA 18211 212

Attachment B

- NO WATER WELLS MAY BE CONSTRUCTED AT THE PROPERTY FOR EITHER POTABLE OR OTHER USE (EXCLUDING WELLS RELATED TO ACTIVITIES OUTLINED IN THE RESTRICTIVE COVENANT).
- THE PROPERTY MUST REMAIN COVERED AND IN GOOD CONDITION WITH AN IMPERMEABLE MATERIAL (ASPHALT, CONCRETE OR OTHER COMPARABLE SURFACE).
- THE PROPERTY USE MUST REMAIN A MINIMUM OF COMMERCIAL SUBCATEGORY III PER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL RESPONSE DIVISION OPERATIONAL MEMORANDUM #14 (REV. 2), DATED JUNE 6, 1995).
- NO ACTIVITIES PROHIBITED BY OR HINDERING IMPLEMENTATION OR MAINTENANCE OF ACTIONS PROPOSED IN THIS RESTRICTIVE COVENANT SHALL BE PERFORMED. ADDITIONAL ASSESSMENT CAN BE CONDUCTED TO DETERMINE IMPACT OF PROPOSED ACTIVITIES AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ACTIVITIES.
- ANY ADDITIONS OR ALTERATIONS TO CURRENT BUILDINGS OR STRUCTURES MUST FIRST BE ASSESSED FOR ENVIRONMENTAL IMPACT AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ADDITIONS OR ALTERATIONS.
- COSTS INCURRED FROM EXCAVATION, CHARACTERIZATION, AND DISPOSAL OF SOILS OR GROUND WATER REMOVED FROM THE PROPERTY AS A RESULT OF ADDITIONAL SITE CONSTRUCTION ACTIVITIES OR IMPROVEMENTS WILL BE AT THE EXPENSE OF THE OWNER AT THE TIME OF SOILS EXCAVATION OR GROUND WATER REMOVAL.
- AMOCO AND IT'S REPRESENTATIVES RETAIN RIGHT OF ACCESS TO THE PROPERTY TO CONDUCT ACTIVITIES RELATED TO THOSE DESCRIBED IN THIS RESTRICTIVE COVENANT.

bc:\proj\csta\950579\w\wcrath.doc







**APPENDIX D**  
**REGULATORY RECORDS DOCUMENTATION**



DISCLAIMER: The information provided on this site is for convenience only and is compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. Much of the data was not compiled or created by the City of Birmingham. In the preparation of this report, extensive efforts have been made to offer the most current, correct, and clearly expressed information possible. However, inadvertent errors, inaccuracies, and omissions can occur. Official versions should be used as a primary information source for verification of the information provided on these pages. Users are advised that their use of any of this information is at their own risk. The City of Birmingham, its consultants and data providers, do not assume, and hereby disclaim, legal responsibility for the information contained herein which is provided "as is" with no warranties of any kind whether such errors, inaccuracies or omissions result from negligence, accident or any other cause.

**Taxpayer Name** SIMON LAND  
**Property Address** 35975 WOODWARD  
BIRMINGHAM, MI 48009

**Property Number** 1925179001  
**Parcel Number** 1925179001

### 2006 Tax Information

**Tax Code** CITY OF BIRMINGHAM  
**Neighborhood** CG1  
**School** BIRMINGHAM CITY SCH  
**Property Class** 201  
**Assessed Value** \$1,309,980.00  
**Taxable Value** \$1,309,980.00

### Assessor Property Sales Records

**Sale Date** May-25-2005  
**Seller Name** ARMADA OIL & GAS  
**Buyer Name**  
**Sale Price** 300,000.00  
**Terms of Sale** 2-\$1orNoConsideratr  
**Sale Document** PTA

### Assessor Building Records

**Building Class**  
**Living Area (Sq.Ft.)** 0.00  
**Bedrooms** 0  
**Garage #1** 0  
**Garage #2** 0  
**Garage #3** 0  
**Type of Structure**  
**Year Built** 0  
**Full Baths** 0  
**Half Baths** 0  
**Heating and Cooling**  
**Fireplaces** 0

### Assessor Parcel Records

**Appraised Land Value** \$0.00  
**Square Footage (Land)** 23,435.28  
**Acreage** 0.538

**Legal Description** T2N, R10E, SEC 25 PART OF NW 1/4 BEG AT PT DIST N 88-16-00 W 659.12 FT & N 49-21-00 W 120.93 FT FROM CEN OF SEC. TH N 49-21-00 W 200 FT, TH S 40-39-00 W 171.16 FT. TH S 22-50-00 E 49.17 FT, TH N 40-39-00 E 77.11 FT. TH N 85-39-00 E 22.63 FT, TH S 49-21-00 E 113.19 FT. TH S 88-16-00 E 34.45 FT, TH N 40-39-00 E 78.36 FT TO BEG 0.54 A

Taxpayer Name SIMON LAND  
Property Address 35975 WOODWARD  
BIRMINGHAM, MI 48009

Property Number 1925179001  
Parcel Number 1925179001

---

**2006 Tax Information**

Tax Code	CITY OF BIRMINGHAM	Assessed Value	\$1,309,980.00
Neighborhood	CG1	Taxable Value	\$1,309,980.00
School	BIRMINGHAM CITY SCH		
Property Class	201		

**Assessor Property Sales Records**

Sale Date	Mar-10-2006	Sale Price	350,000.00
Seller Name	ARMADA OIL GAS CO	Terms of Sale	1-ValidSale
Buyer Name	SIMON LAND DEV GROUP	Sale Document	WD

**Assessor Building Records**

Building Class		Type of Structure	
Living Area (Sq.Ft.)	0.00	Year Built	0
Bedrooms	0	Full Baths	0
Garage #1	0	Half Baths	0
Garage #2	0	Heating and Cooling	
Garage #3	0	Fireplaces	0

**Assessor Parcel Records**

Appraised Land Value \$0.00  
Square Footage (Land) 23,435.28  
Acreage 0.538

Legal Description T2N, R10E, SEC 25 PART OF NW 1/4 BEG AT PT DIST N 88-16-00 W 659.12 FT & N 49-21-00 W 120.93 FT FROM CEN OF SEC. TH N 49-21-00 W 200 FT, TH S 40-39-00 W 171.16 FT. TH S 22-50-00 E 49.17 FT, TH N 40-39-00 E 77.11 FT, TH N 85-39-00 E 22.63 FT, TH S 49-21-00 E 113.19 FT, TH S 88-16-00 E 34.45 FT, TH N 40-39-00 E 78.36 FT TO BEG 0.54 A



# *FirstSearch Technology Corporation*

## **Environmental FirstSearch™ Report**

Target Property:

**35975 WOODWARD AVE**

**BIRMINGHAM MI 48009**

Job Number: PE54494B

### **PREPARED FOR:**

Soils and Materials Engineers, Inc.

13019 Pauline Drive

Shelby Township, MI 48315

02-06-07



*Tel: (317) 823-3500*

*Fax: (317) 823-3535*

## *Environmental FirstSearch Search Summary Report*

**Target Site: 35975 WOODWARD AVE  
BIRMINGHAM MI 48009**

### FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	12-08-06	1.00	0	0	0	0	0	0	0
NPL Delisted	Y	12-08-06	0.50	0	0	0	0	-	0	0
CERCLIS	Y	12-08-06	0.50	0	0	0	0	-	0	0
NFRAP	Y	12-08-06	0.50	0	0	0	0	-	0	0
RCRA COR ACT	Y	06-06-06	1.00	0	0	0	0	0	0	0
RCRA TSD	Y	06-06-06	0.50	0	0	0	0	-	0	0
RCRA GEN	Y	06-06-06	0.25	1	2	0	-	-	6	9
Federal IC / EC	Y	11-14-06	0.50	0	0	0	0	-	0	0
ERNS	Y	12-31-06	0.25	0	0	0	-	-	1	1
Tribal Lands	Y	12-01-05	1.00	0	0	0	0	0	0	0
State/Tribal Sites	Y	12-27-06	1.00	0	0	0	0	0	0	0
State Spills 90	Y	NA	0.25	0	0	0	-	-	0	0
State/Tribal SWL	Y	08-06-03	0.50	0	0	0	0	-	0	0
State/Tribal LUST	Y	12-01-06	0.50	0	3	3	1	-	3	10
State/Tribal UST/AST	Y	12-01-06	0.25	0	1	1	-	-	2	4
State/Tribal EC	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal IC	Y	NA	0.25	0	0	0	-	-	0	0
State/Tribal VCP	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal Brownfields	Y	10-18-05	0.50	0	0	0	0	-	0	0
State Other	Y	11-30-06	0.25	0	2	0	-	-	3	5
- TOTALS -				1	8	4	1	0	15	29

#### Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to FirstSearch Technology Corp., certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in FirstSearch Technology Corp.'s databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

#### Waiver of Liability

Although FirstSearch Technology Corp. uses its best efforts to research the actual location of each site, FirstSearch Technology Corp. does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of FirstSearch Technology Corp.'s services proceeding are signifying an understanding of FirstSearch Technology Corp.'s searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

**Environmental FirstSearch  
Site Information Report**

**Request Date:** 02-06-07  
**Requestor Name:** Jason Lafayette  
**Standard:** AAI

**Search Type:** COORD  
**Job Number:** PE54494B

**Target Site:** 35975 WOODWARD AVE  
 BIRMINGHAM MI 48009

*Demographics*

<b>Sites:</b> 29	<b>Non-Geocoded:</b> 15	<b>Population:</b> NA
<b>Radon:</b> 0.6 - 2.9 PCI/L		

*Site Location*

	<u>Degrees (Decimal)</u>	<u>Degrees (Min/Sec)</u>	<u>UTMs</u>
<b>Longitude:</b>	-83.218798	-83:13:8	<b>Easting:</b> 317836.914
<b>Latitude:</b>	42.553677	42:33:13	<b>Northing:</b> 4713424.937
			<b>Zone:</b> 17

*Comment*

**Comment:**

*Additional Requests/Services*

<b>Adjacent ZIP Codes: 1 Mile(s)</b>					<b>Services:</b>	
<u>ZIP Code</u>	<u>City Name</u>	<u>ST</u>	<u>Dist/Dir</u>	<u>Sel</u>	<u>Requested?</u>	<u>Date</u>
48084	TROY	MI	0.68 NE	Y	Sanborns	No
48304	BLOOMFIELD HILLS	MI	0.03 NE	Y	Aerial Photographs	No
48301	BLOOMFIELD HILLS	MI	0.93 NW	N	Historical Topos	No
					City Directories	No
					Title Search/Env Liens	No
					Municipal Reports	No
					Online Topos	Yes 02-06-07



# Environmental FirstSearch

1 Mile Radius  
AAI: NPL, RCRACOR, STATE



35975 WOODWARD AVE, BIRMINGHAM MI 48009



Source: 2002 U.S. Census TIGER Files

- Target Site (Latitude: 42.553677 Longitude: -83.218798)
  - Identified Site, Multiple Sites, Receptor
  - NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste
  - Triballand
  - Railroads
- Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft Radius

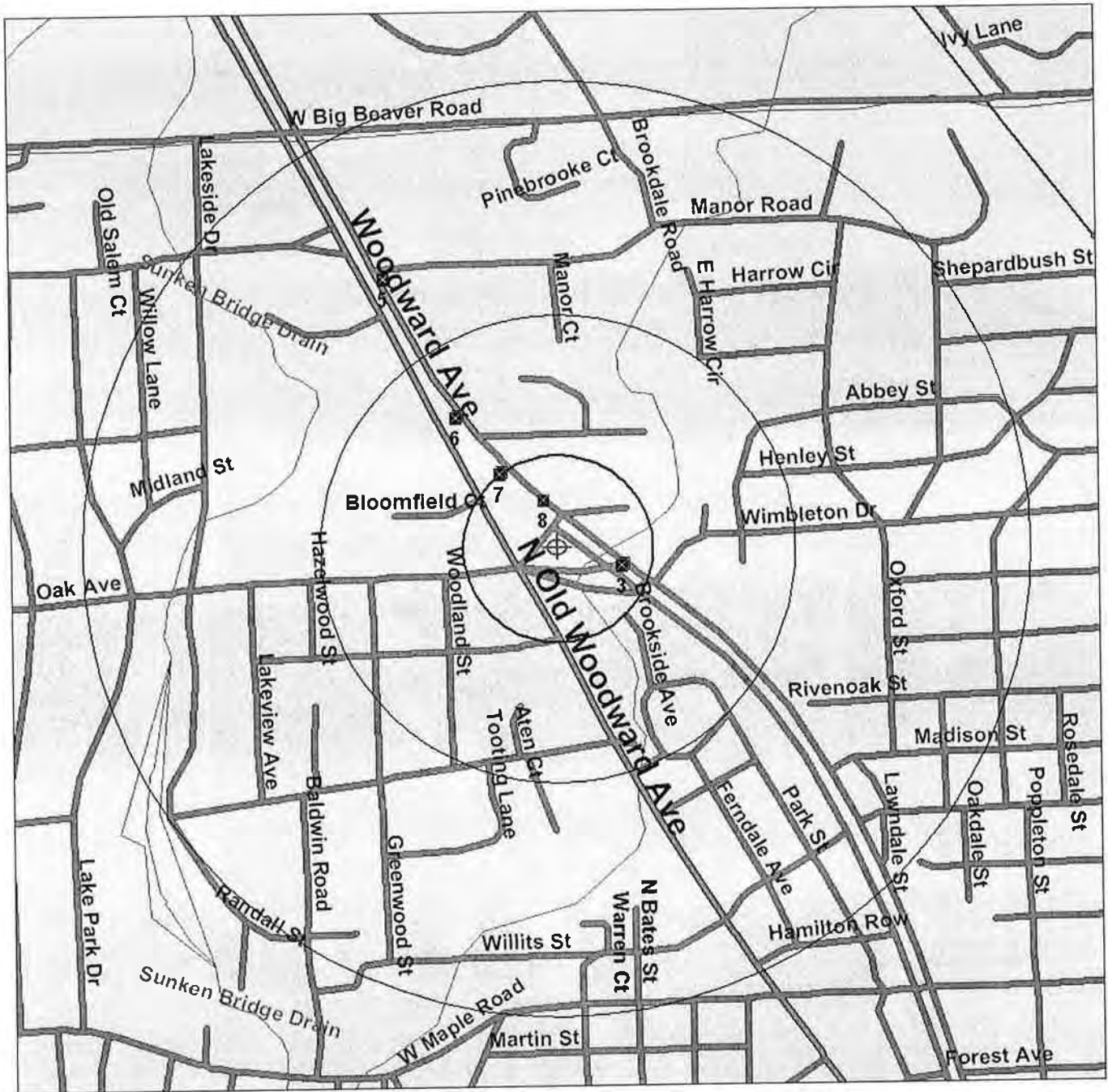


# Environmental FirstSearch

.5 Mile Radius  
AAI: Multiple Databases

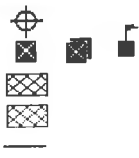


## 35975 WOODWARD AVE, BIRMINGHAM MI 48009



Source: 2002 U.S. Census TIGER Files

- Target Site (Latitude: 42.553677 Longitude: -83.218798) .....
- Identified Site, Multiple Sites, Receptor .....
- NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste .....
- Triballand .....
- Railroads .....
- Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius



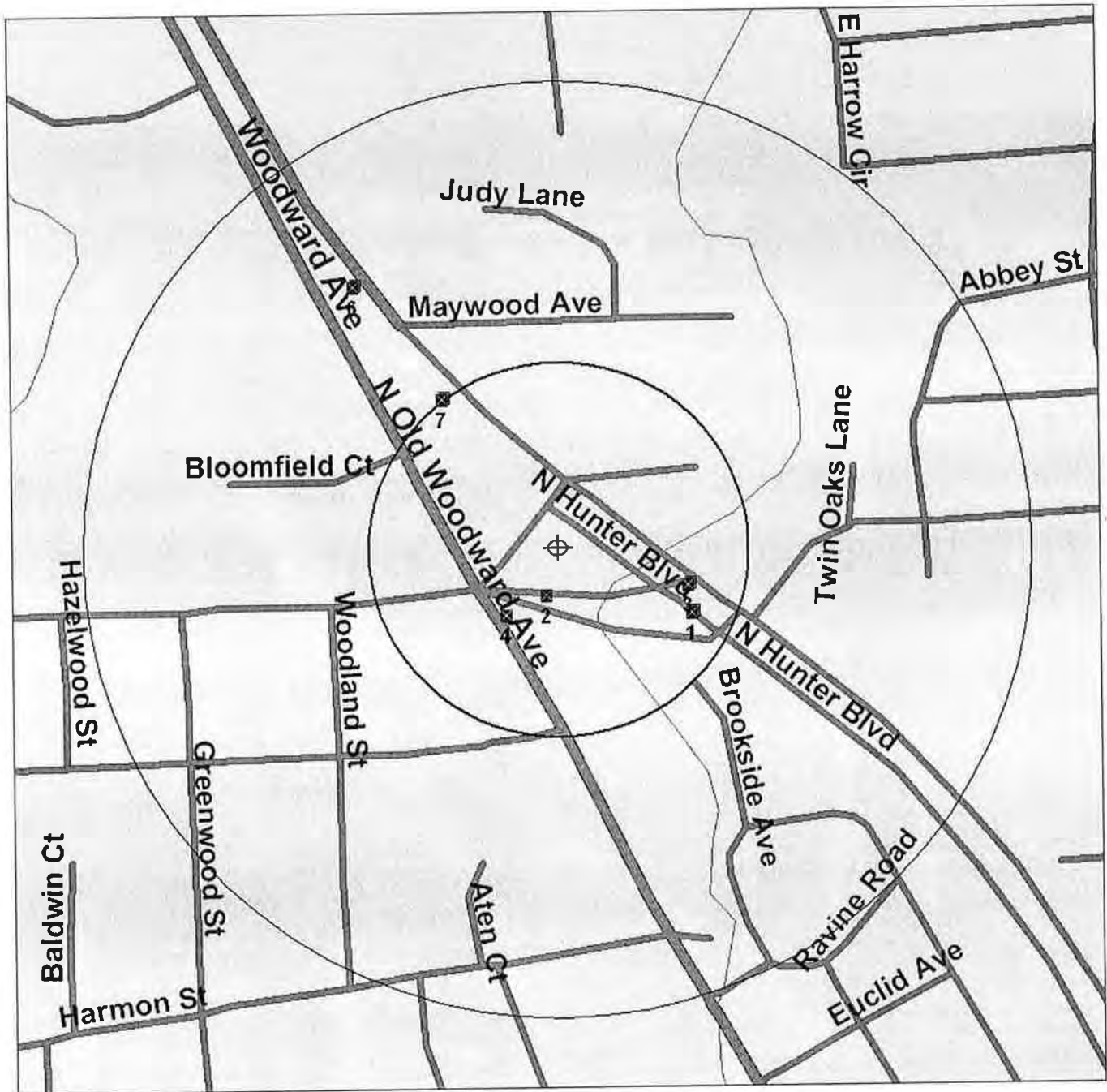
# Environmental FirstSearch

.25 Mile Radius

AAI: SPILLS90, RCRAGEN, ERNS, UST, OTHER

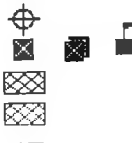


35975 WOODWARD AVE, BIRMINGHAM MI 48009



Source: 2002 U.S. Census TIGER Files

- Target Site (Latitude: 42.553677 Longitude: -83.218798) .....
  - Identified Site, Multiple Sites, Receptor .....
  - NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste .....
  - Triballand .....
  - Railroads .....
- Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft Radius



## *Environmental FirstSearch Sites Summary Report*

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**TOTAL:** 29      **GEOCODED:** 14      **NON GEOCODED:** 15      **SELECTED:** 0

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID
1	RCRAGN	DOUGLAS CLEANERS INC MID049263031/VGN	900 N OLD WOODWARD AVE BIRMINGHAM MI 48009	0.03 SW	2
3	OTHER	CHINESE RESTAURANT BEA-1106-3364/BEA	856 NORTH OLD WOODWARD AVEN BIRMINGHAM MI 48009	0.04 SW	4
4	LUST	MICHIGAN NATIONAL BANK C-1171-89/CLOSED	980 N HUNTER BLVD BLOOMFIELD MI 48009	0.05 NW	8
5	LUST	CARMAN TILLARD C-0309-90/CLOSED	910 N HUNTER BLVD BIRMINGHAM MI 48009	0.07 SE	3
6	RCRAGN	MOBIL OIL CORP SS KXN MID985615293/VGN	910 HUNTER AND OAK BIRMINGHAM MI 48009	0.07 SE	3
7	OTHER	AMOCO STATION 5791 (FORMER) BEA-0806-3161/BEA	35975 WOODWARD AVENUE BIRMINGHAM MI 48009	0.08 SE	1
8	RCRAGN	A and G AUTO CARE MID985606458/VGN	35975 WOODWARD AVE BIRMINGHAM MI 48009	0.08 SE	1
10	LUST	SIMON LAND DEVELOPMENT GROUP LLC C-0008-89/OPEN	35975 WOODWARD BIRMINGHAM MI 48009	0.10 NW	7
11	UST	SIMON LAND DEVELOPMENT GROUP LLC 0005681/ACTIVE	35975 WOODWARD BIRMINGHAM MI 48009	0.10 NW	7
14	LUST	GHAFARI PROPERTIES INC C-0276-89/OPEN	36101 WOODWARD AVE BIRMINGHAM MI 48009	0.18 NW	6
15	LUST	GHAFARI PROPERTIES INC C-0301-90/OPEN	36101 WOODWARD AVE BIRMINGHAM MI 48009	0.18 NW	6
16	LUST	GHAFARI PROPERTIES INC C-0323-04/OPEN	36101 WOODWARD AVE BIRMINGHAM MI 48009	0.18 NW	6
17	UST	GHAFARI PROPERTIES INC 0034940/ACTIVE	36101 WOODWARD AVE BIRMINGHAM MI 48009	0.18 NW	6
20	LUST	CRISSMAN CADILLAC, INC C-1507-90/OPEN	1350 N WOODWARD BIRMINGHAM MI 48009	0.34 NW	5

## *Environmental FirstSearch Sites Summary Report*

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**TOTAL:** 29      **GEOCODED:** 14      **NON GEOCODED:** 15      **SELECTED:** 0

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID
N/A	ERNS	NRC-639580/RAILROAD NON-RELEASE	EATON AND MAPLE RD BIRMINGHAM MI	NON GC	
N/A	LUST	HITCHINGHAM DEVELOPMENT CO C-0301-03/CLOSED	2006 HAZEL ST BIRMINGHAM MI	NON GC	
N/A	LUST	CRISSMAN CADILLAC, INC C-1410-90/OPEN	1350 N WOODWARD BIRMINGHAM MI 48009	NON GC	
N/A	LUST	BRIAN JENNINGS C-0435-03/OPEN	8829 NORTHEAST AVE ROYAL OAK MI 48304	NON GC	
N/A	OTHER	JIMMIES RUSTICS BEA-0306-3058/BEA	690 SOUTH OLD WOODWARD BIRMINGHAM MI 48009	NON GC	
N/A	OTHER	GRAND TRUNK WESTERN RAILROAD YARDN, OF LINCOLN ST., S OF MAP BEA-4582/BEA	BIRMINGHAM MI	NON GC	
N/A	OTHER	CLOVER HILL PARK CEMETERY OF BEA-0102-176/BEA	CONGREGATION SHAAREY ZEDEK BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	MOSHER DOLAN and CATALDO MIK961764248/VGN	746 PURITAN BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	HOLIDAY INNS MIK541799672/VGN	34952 WOODWARD BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	COLE STREET PROPERTIES MIK258224476/VGN	2388 COLE BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	BURTON KATZMAN MIK851343467/SGN	336 MAPLE RD BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	BIRMINGHAM PUBLIC SCHOOLS MIK924414469/VGN	1525 COVINGTON RD BIRMINGHAM MI 48009	NON GC	
N/A	RCRAGN	BIRMINGHAM BLOOMFIELD CREDIT UNION MIK773743257/VGN	500 E LINCOLN BIRMINGHAM MI 48009	NON GC	
N/A	UST	HITCHINGHAM DEVELOPMENT CO 0041400/CLOSED	2006 HAZEL ST BIRMINGHAM MI	NON GC	
N/A	UST	JAMES P KELLY FAMILY TRUST 0041796/CLOSED	600 S WASHINGTON AVE ROYAL OAK MI 48304	NON GC	



**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**RCRA GENERATOR SITE**

**SEARCH ID:** 2

**DIST/DIR:** 0.03 SW

**MAP ID:** 2

**NAME:** DOUGLAS CLEANERS INC  
**ADDRESS:** 900 N OLD WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** DAVID UNDERDOWN

**REV:** 6/6/06  
**ID1:** MID049263031  
**ID2:**  
**STATUS:** VGN  
**PHONE:** 2486426231

**VIOLATION INFORMATION:**

<b>VIOLATION NUMBER:</b>	0001	<b>RESPONSIBLE:</b>	S - STATE
<b>DETERMINED:</b>	11/22/2002	<b>DETERMINED BY:</b>	S - STATE
<b>CITATION:</b>			
<b>RESOLVED:</b>	3/14/2003		
<b>TYPE:</b>	GENERATOR-GENERAL REQUIREMENTS		

<b>VIOLATION NUMBER:</b>	0002	<b>RESPONSIBLE:</b>	S - STATE
<b>DETERMINED:</b>	11/22/2002	<b>DETERMINED BY:</b>	S - STATE
<b>CITATION:</b>			
<b>RESOLVED:</b>	4/28/2003		
<b>TYPE:</b>	GENERATOR-MANIFEST REQUIREMENTS		

<b>VIOLATION NUMBER:</b>	0003	<b>RESPONSIBLE:</b>	S - STATE
<b>DETERMINED:</b>	11/22/2002	<b>DETERMINED BY:</b>	S - STATE
<b>CITATION:</b>			
<b>RESOLVED:</b>	7/11/2003		
<b>TYPE:</b>	GENRATOR-SQG REQUIREMENTS		

<b>VIOLATION NUMBER:</b>	0004	<b>RESPONSIBLE:</b>	S - STATE
<b>DETERMINED:</b>	11/22/2002	<b>DETERMINED BY:</b>	S - STATE
<b>CITATION:</b>			
<b>RESOLVED:</b>	7/11/2003		
<b>TYPE:</b>	GENERATOR-PRE-TRANSPORT REQUIREMENTS		



**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

OTHER SITE

**SEARCH ID:** 5

**DIST/DIR:** 0.04 SW

**MAP ID:** 4

**NAME:** CHINESE RESTAURANT  
**ADDRESS:** 856 NORTH OLD WOODWARD AVENUE  
BIRMINGHAM MI 48009  
OAKLAND

**REV:** 11/30/06  
**ID1:** BEA-1106-3364  
**ID2:** 3364  
**STATUS:** BEA  
**PHONE:**

**CONTACT:**

**SITE INFORMATION**

**BEA NUMBER:** 3364  
**DISTRICT:** SOUTHEAST MI  
**DATE RECEIVED:** 11/17/2006 12:59:00 AM  
**SUBMITTER NAME:** GRANT PERRY DEVELOPMENT COMPANY  
**PETITION DISCLOSURE:** 0 - DISCLOSURE  
**PETITION DETERMINATION:** NO REQUEST  
**CATEGORY:** N - NO CHEMICAL  
**DETERMINATION 20107a:** NO REQUEST  
**REVIEWER:** MITCHELF  
**DIVISION ASSIGNED:** STD - STORAGE TANK DIVISION

**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 13

**DIST/DIR:** 0.05 NW

**MAP ID:** 8

**NAME:** MICHIGAN NATIONAL BANK  
**ADDRESS:** 980 N HUNTER BLVD  
BLOOMFIELD HILLS MI 48304  
OAKLAND  
**CONTACT:**

**REV:** 12/01/06  
**ID1:** C-1171-89  
**ID2:** 5-000610  
**STATUS:** CLOSED  
**PHONE:**

**SITE INFORMATION**

**OWNER INFORMATION**

NRT OWNER  
UNKNOWN  
UNKNOWN MI 99999

**OWNER COUNTRY:** USA  
**CONTACT PERSON:**

**FACILITY ID:** 50000610  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:** C-1171-89  
**DISTRICT:** SE MICHIGAN DISTRICT OFFICE  
**RELEASE DATE:** DEC 19 1989  
**RELEASE STATUS:** CLOSED  
**RELEASE CLOSED DATE:** OCT 9 1991

*Environmental FirstSearch  
Site Detail Report*

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 8

**DIST/DIR:** 0.07 SE

**MAP ID:** 3

**NAME:** CARMAN TILLARD  
**ADDRESS:** 910 N HUNTER BLVD  
BIRMINGHAM MI 48009  
OAKLAND

**REV:** 12/01/06  
**ID1:** C-0309-90  
**ID2:** 5-001216  
**STATUS:** CLOSED  
**PHONE:**

**CONTACT:**

**SITE INFORMATION**

**OWNER INFORMATION**

NRT OWNER  
UNKNOWN  
UNKNOWN MI 99999

**OWNER COUNTRY**  
**CONTACT PERSON:**

USA

**FACILITY ID:** 50001216  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:** C-0309-90  
**DISTRICT:** SE MICHIGAN DISTRICT OFFICE  
**RELEASE DATE:** FEB 20 1990  
**RELEASE STATUS:** CLOSED  
**RELEASE CLOSED DATE:** APR 4 1996

**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**RCRA GENERATOR SITE**

**SEARCH ID:** 3

**DIST/DIR:** 0.07 SE

**MAP ID:** 3

**NAME:** MOBIL OIL CORP SS KXN  
**ADDRESS:** 910 HUNTER AND OAK  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** JOHN HOOVER

**REV:** 6/6/06  
**ID1:** MID985615293  
**ID2:**  
**STATUS:** VGN  
**PHONE:** 3039868011

**SITE INFORMATION**

**CONTACT INFORMATION:** JOHN HOOVER  
910 HUNTER AND OAK  
BIRMINGHAM MI 48009

**PHONE:** 3039868011

**UNIVERSE INFORMATION:**

**GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA)**

**GPRA PERMIT:** N - NO  
**GPRA POST CLOSURE:** N - NO  
**GPRA CA:** N - NO  
**GPRA COMPLIANCE MONITORING and ENFORCEMENT:** N - NO

**SUBJECT TO CORRECTIVE ACTION (SUBJCA)**

**SUBJCA:** N - NO  
**SUBJCA TSD 3004:** N - NO  
**SUBJCA NON TSD:** N - NO

**SIGNIFICANT NON-COMPLIANCE(SNC):** N - NO  
**BEGINNING OF THE YEAR SNC:** N - NO  
**PERMIT WORKLOAD:** ----  
**CLOSURE WORKLOAD:** ----  
**POST CLOSURE WORKLOAD:** ----  
**PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:** ----

**CORRECTIVE ACTION WORKLOAD:** N - NO  
**GENERATOR STATUS:** CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS; GENERATES LESS THAN  
100 KG/MONTH OF HAZA

**NAIC INFORMATION**

44711 - GASOLINE STATIONS WITH CONVENIENCE STORES

**ENFORCEMENT INFORMATION:**

**VIOLATION INFORMATION:**





**Environmental FirstSearch**  
**Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**RCRA GENERATOR SITE**

**SEARCH ID:** 1

**DIST/DIR:** 0.08 SE

**MAP ID:** 1

**NAME:** A and G AUTO CARE  
**ADDRESS:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** ASLAM GARBOWAI

**REV:** 6/6/06  
**ID1:** MID985606458  
**ID2:**  
**STATUS:** VGN  
**PHONE:** 2482037866

**TYPE:** GENERATOR-GENERAL REQUIREMENTS



**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 14

**DIST/DIR:** 0.10 NW

**MAP ID:** 7

**NAME:** SIMON LAND DEVELOPMENT GROUP LLC  
**ADDRESS:** 35975 WOODWARD  
BIRMINGHAM MI 48180  
OAKLAND  
**CONTACT:** FAWZI SIMON

**REV:** 12/01/06  
**ID1:** C-0008-89  
**ID2:** 0-005681  
**STATUS:** OPEN  
**PHONE:** (248) 388-8759

**SITE INFORMATION**

**OWNER INFORMATION**

SIMON LAND DEVELOPMENT GROUP LLC  
24501 ECORSE RD  
TAYLOR MI 48180

**OWNER COUNTRY:** USA  
**CONTACT PERSON:** FAWZI SIMON  
(248) 388-8759

**FACILITY ID:** 00005681  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:** C-0008-89  
**DISTRICT:** SE MICHIGAN DISTRICT OFFICE  
**RELEASE DATE:** JAN 13 1989  
**RELEASE STATUS:** OPEN  
**RELEASE CLOSED DATE:**







**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**LEAKING UNDERGROUND STORAGE TANKS**

**SEARCH ID:** 10

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND

**REV:** 12/01/06  
**ID1:** C-0276-89  
**ID2:** 0-034940  
**STATUS:** OPEN  
**PHONE:** (248) 362-1990

**CONTACT:**

**SITE INFORMATION**

**OWNER INFORMATION**

GHAFARI PROPERTIES LLC  
36101 WOODWARD AVE  
BIRMINGHAM MI 48009

**OWNER COUNTRY**  
**CONTACT PERSON:**

USA  
(248) 362-1990

**FACILITY ID:**  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:**  
**DISTRICT:**  
**RELEASE DATE:**  
**RELEASE STATUS:**  
**RELEASE CLOSED DATE:**

00034940  
C-0276-89  
SE MICHIGAN DISTRICT OFFICE  
JUN 29 1989  
CLOSED  
JUN 12 1996

**Environmental FirstSearch**  
**Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 11

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND

**REV:** 12/01/06  
**IDI:** C-0301-90  
**ID2:** 0-034940  
**STATUS:** OPEN  
**PHONE:** (248) 362-1990

**CONTACT:**

**SITE INFORMATION**

**OWNER INFORMATION**

GHAFARI PROPERTIES LLC  
36101 WOODWARD AVE  
BIRMINGHAM MI 48009

**OWNER COUNTRY**  
**CONTACT PERSON:**

USA

(248) 362-1990

**FACILITY ID:**  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:**  
**DISTRICT:**  
**RELEASE DATE:**  
**RELEASE STATUS:**  
**RELEASE CLOSED DATE:**

00034940  
C-0301-90  
SE MICHIGAN DISTRICT OFFICE  
FEB 21 1990  
CLOSED  
APR 4 1996

**Environmental FirstSearch**  
**Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 12

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND

**REV:** 12/01/06  
**ID1:** C-0323-04  
**ID2:** 0-034940  
**STATUS:** OPEN  
**PHONE:** (248) 362-1990

**CONTACT:**

**SITE INFORMATION**

**OWNER INFORMATION**

GHAFARI PROPERTIES LLC  
36101 WOODWARD AVE  
BIRMINGHAM MI 48009

**OWNER COUNTRY:**  
**CONTACT PERSON:**

USA  
(248) 362-1990

**FACILITY ID:** 00034940  
**RELEASE SUBSTANCE:** GASOLINE,GASOLINE,GASOLINE,GASOLINE  
**RELEASE NUMBER:** C-0323-04  
**DISTRICT:** SE MICHIGAN DISTRICT OFFICE  
**RELEASE DATE:** JUL 15 2004  
**RELEASE STATUS:** OPEN  
**RELEASE CLOSED DATE:**



## Environmental FirstSearch Site Detail Report

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

### REGISTERED UNDERGROUND STORAGE TANKS

**SEARCH ID:** 6

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** EMILY MILLER

**REV:** 12/01/06  
**ID1:** 0034940  
**ID2:**  
**STATUS:** ACTIVE  
**PHONE:** (800) 327-8431

**SITE INFORMATION:**

**TOTAL NUMBER OF TANKS:** 7  
**OWNER:** GHAFARI PROPERTIES LLC  
36101 WOODWARD AVE  
BIRMINGHAM MI48009  
**PHONE:** (248) 362-1990

**TANK INFORMATION:**

**TANK ID:** 1  
**TANK STATUS:** REMOVED FROM GROUND  
**TANK CAPACITY:** 12000  
**INSTALLATION DATE:**  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:** SEP 13 1990  
**TANK RELEASE DETECTION:**  
**PIPE RELEASE DETECTION:**  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**PIPE TYPE:**  
**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 2  
**TANK STATUS:** REMOVED FROM GROUND  
**TANK CAPACITY:** 10000  
**INSTALLATION DATE:**  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:** SEP 13 1990  
**TANK RELEASE DETECTION:**  
**PIPE RELEASE DETECTION:**  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**PIPE TYPE:**  
**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 3  
**TANK STATUS:** REMOVED FROM GROUND  
**TANK CAPACITY:** 6000  
**INSTALLATION DATE:**  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:** SEP 13 1990  
**TANK RELEASE DETECTION:**  
**PIPE RELEASE DETECTION:**  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC

- Continued on next page -

**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

**REGISTERED UNDERGROUND STORAGE TANKS**

**SEARCH ID:** 6

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** EMILY MILLER

**REV:** 12/01/06  
**ID1:** 0034940  
**ID2:**  
**STATUS:** ACTIVE  
**PHONE:** (800) 327-8431

**PIPE TYPE:**

**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 4  
**TANK STATUS:** CURRENTLY IN USE  
**TANK CAPACITY:** 10000  
**INSTALLATION DATE:** SEP 13 1990  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:**  
**TANK RELEASE DETECTION:** AUTOMATIC TANK GAUGING  
**PIPE RELEASE DETECTION:** AUTOMATIC LINE LEAK DETECTORS,LINE TIGHTNESS TESTING  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**PIPE TYPE:** GRAVITY FED?,PRESSURE  
**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 5  
**TANK STATUS:** CURRENTLY IN USE  
**TANK CAPACITY:** 10000  
**INSTALLATION DATE:** SEP 13 1990  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:**  
**TANK RELEASE DETECTION:** AUTOMATIC TANK GAUGING  
**PIPE RELEASE DETECTION:** AUTOMATIC LINE LEAK DETECTORS,LINE TIGHTNESS TESTING  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**PIPE TYPE:** GRAVITY FED?,PRESSURE  
**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 6  
**TANK STATUS:** CURRENTLY IN USE  
**TANK CAPACITY:** 10000  
**INSTALLATION DATE:** SEP 13 1990  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:**  
**TANK RELEASE DETECTION:** AUTOMATIC TANK GAUGING  
**PIPE RELEASE DETECTION:** AUTOMATIC LINE LEAK DETECTORS,LINE TIGHTNESS TESTING  
**PIPE MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**PIPE TYPE:** GRAVITY FED?,PRESSURE  
**CONSTRUCTION MATERIAL:** FIBERGLASS REINFORCED PLASTIC  
**IMPRESSED DEVICE:** NO

**TANK ID:** 7  
**TANK STATUS:** CURRENTLY IN USE  
**TANK CAPACITY:** 10000  
**INSTALLATION DATE:** SEP 13 1990  
**PRODUCT:** GASOLINE  
**REMOVED/CLOSED:**

- Continued on next page -

**Environmental FirstSearch  
Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

REGISTERED UNDERGROUND STORAGE TANKS

**SEARCH ID:** 6

**DIST/DIR:** 0.18 NW

**MAP ID:** 6

**NAME:** GHAFARI PROPERTIES INC  
**ADDRESS:** 36101 WOODWARD AVE  
BIRMINGHAM MI 48009  
OAKLAND  
**CONTACT:** EMILY MILLER

**REV:** 12/01/06  
**ID1:** 0034940  
**ID2:**  
**STATUS:** ACTIVE  
**PHONE:** (800) 327-8431

<b>TANK RELEASE DETECTION:</b>	AUTOMATIC TANK GAUGING
<b>PIPE RELEASE DETECTION:</b>	AUTOMATIC LINE LEAK DETECTORS,LINE TIGHTNESS TESTING
<b>PIPE MATERIAL:</b>	FIBERGLASS REINFORCED PLASTIC
<b>PIPE TYPE:</b>	GRAVITY FED?,PRESSURE
<b>CONSTRUCTION MATERIAL:</b>	FIBERGLASS REINFORCED PLASTIC
<b>IMPRESSED DEVICE:</b>	NO

**Environmental FirstSearch**  
**Site Detail Report**

**Target Property:** 35975 WOODWARD AVE  
BIRMINGHAM MI 48009

**JOB:** PE54494B

LEAKING UNDERGROUND STORAGE TANKS

**SEARCH ID:** 9

**DIST/DIR:** 0.34 NW

**MAP ID:** 5

**NAME:** CRISSMAN CADILLAC, INC  
**ADDRESS:** 1350 N WOODWARD  
BIRMINGHAM MI 48307  
OAKLAND

**CONTACT:**

**REV:** 12/01/06  
**ID1:** C-1507-90  
**ID2:** 0-008362  
**STATUS:** OPEN  
**PHONE:** (248) 651-0440

**SITE INFORMATION**

**OWNER INFORMATION**

CHARLES and PENNY CRISSMAN  
210 CHARLES RD  
ROCHESTER MI 48307-1602

**OWNER COUNTRY:**  
**CONTACT PERSON:**

USA

(248) 651-0440

**FACILITY ID:**  
**RELEASE SUBSTANCE:**  
**RELEASE NUMBER:**  
**DISTRICT:**  
**RELEASE DATE:**  
**RELEASE STATUS:**  
**RELEASE CLOSED DATE:**

00008362  
C-1507-90  
SE MICHIGAN DISTRICT OFFICE  
AUG 14 1990  
OPEN

## Environmental FirstSearch Descriptions

**NPL:** *EPA* NATIONAL PRIORITY LIST - Database of confirmed and proposed Superfund sites.

**NPL Delisted:** *EPA* NATIONAL PRIORITY LIST Subset - Database of delisted Superfund sites.

**CERCLIS:** *EPA* COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM - Database of current and potential Superfund sites currently or previously under investigation.

**NFRAP:** *EPA* COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

**RCRA COR ACT:** *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of RCRA facilities with reported violations and subject to corrective actions.

**RCRA TSD:** *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of facilities licensed to store, treat and dispose of hazardous waste materials.

**RCRA GEN:** *EPA* RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of facilities that generate or transport hazardous waste or meet other RCRA requirements.

LGN - Large Quantity Generators

SGN - Small Quantity Generators

VGN - Conditionally Exempt Generator.

Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.

**Federal IC / EC:** *EPA* BROWNFIELD MANAGEMENT SYSTEM (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.

FEDERAL ENGINEERING AND INSTITUTIONAL CONTROLS- Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.

**ERNS:** *EPA/NRC* EMERGENCY RESPONSE NOTIFICATION SYSTEM - Database of emergency response actions. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

**Tribal Lands:** *DOI/BIA* INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation.

**State/Tribal Sites:** *MI DEQ* LIST OF CONTAMINATED SITES - database of Part 201 Sites. The data includes sic\_classification, contaminant, total score and score date.

**State/Tribal SWL:** *MI DEQ* SOLID WASTE LANDFILLS AND DISPOSAL SITES - database of solid waste landfills, disposal sites and transfers stations

**State/Tribal LUST:** *MI DEQ* LEAKING UNDERGROUND STORAGE TANK SITES LIST - database of sites that are open and corrective actions have not been completed as well as closed where corrective actions have been completed.

**State/Tribal UST/AST:** *MI DEQ* UNDERGROUND STORAGE TANK FACILITIES LIST - database of

active and closed facilities that are regulated under Part 211, Underground Storage Tank Regulations, of the Natural Resources and Environment Protection Act, 1994 PA 451 as amended (Act 451).

**State/Tribal Brownfields:** *MI DEQ* AVAILABLE BROWNFIELD PROPERTIES LISTING - database of specific brownfields sites that the Department of Environmental Quality has funded or assisted with cleanup at (including Part 201 and Part 213 sites).

**RADON:** *NTIS* NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

**State Other:** *MI DEQ* BASELINE ENVIRONMENTAL ASSESSMENT(BEA) SITES - database of sites in which Baseline Environmental Assessments were performed. Under Part 211, Underground Storage Tank Regulations, of the Natural Resources and Environment Protection Act, 1994 PA 451 as amended (Act 451), Baseline Environmental Assessments are defined as an evaluation of environmental conditions which exist at a facility at the time of purchase, occupancy, or foreclosure that reasonably defines the existing conditions and circumstances at the facility so that in the event of a subsequent release, there is a means of distinguishing the new release from existing contamination.

**Environmental FirstSearch**  
**Street Name Report for Streets within .5 Mile(s) of Target Property**

**Target Property:** 35975 WOODWARD AVE  
 BIRMINGHAM MI 48009

**JOB:** PE54494B

Street Name	Dist/Dir	Street Name	Dist/Dir
Abbey Rd	0.20 NE	NORTH Woodward Ave	0.02 SW
Aten Ct	0.16 SW	Oak Ave	0.03 SE
Baldwin Ave	0.37 SW	Oakdale St	0.45 SE
Baldwin Ct	0.30 SW	Oakland Ave	0.42 SE
Bloomfield Ct	0.14 NW	Oxford Dr	0.31 NE
Bonnie Brier St	0.23 SW	Oxford Rd	0.32 NE
Brookdale Rd	0.35 NE	Oxford St	0.35 NE
Brookside Dr	0.10 SE	Park St	0.19 SE
Chester St	0.49 SE	Pinebrooke Ct	0.41 NW
Colonial Ct	0.30 NW	Poppleton Ave	0.47 SE
Dewey St	0.28 SW	Randall Ct	0.47 SW
E Harrow Cir	0.26 NE	Randall St	0.49 SW
EAST Harrow Cir	0.26 NE	Ravine Rd	0.26 SE
Euclid Ave	0.30 SE	Raynale Rd	0.39 NW
Ferndale St	0.27 SE	Redding Rd	0.36 NW
Greenwood Ave	0.19 SW	Ridgedale Ave	0.49 SE
Hamilton Row	0.50 SE	Rivenoak Ave	0.40 SE
Harmon Ave	0.22 SE	S Bates St	0.50 SE
Harrow Cir	0.31 NE	S Harrow Cir	0.26 NE
Hazelwood St	0.25 SW	Shepardbush Rd	0.50 NE
Henley Dr	0.22 NE	SOUTH Bates St	0.50 SE
Judy Ln	0.13 NE	SOUTH Harrow Cir	0.26 NE
Kennesaw Ave	0.37 SE	Stony Brook Ln	0.31 NE
Lake Park Dr	0.44 SW	Tooting Ln	0.24 SW
Lakeside Rd	0.37 NW	Tottenham Rd	0.47 NE
Lakeview Ave	0.30 SW	Twin Oaks Ln	0.16 NE
Lawndale	0.40 SE	Vinewood Ave	0.10 SE
Madison Ave	0.38 SE	W Big Beaver Rd	0.46 NE
Manor Ct	0.24 NW	W Maple Rd	0.49 SE
Manor Rd	0.31 NE	Warren Ct	0.39 SE
Maywood Rd	0.12 NW	Warwick Dr	0.39 NE
Midland Dr	0.37 NW	WEST Big Beaver Rd	0.46 NE
Mohegan Ave	0.36 SE	WEST Maple Rd	0.49 SE
N Bates St	0.39 SE	Willits St	0.43 S-
N Chester St	0.43 SE	Willow Ln	0.42 NW
N Hunter Blvd	0.02 NE	Wimbleton Dr	0.12 SE
N Woodward Ave	0.02 SW	Woodland St	0.12 SW
NORTH Bates St	0.39 SE	Woodward Ave	0.14 NW
NORTH Chester St	0.43 SE		
NORTH Hunter Blvd	0.02 NE		



**APPENDIX E**

**INTERVIEW DOCUMENTATION**  
**USER QUESTIONNAIRE**  
**OWNER/OCCUPANT QUESTIONNAIRE**

## PHASE I ENVIRONMENTAL ASSESSMENT – ALL APPROPRIATE INQUIRY USER QUESTIONNAIRE

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the Brownfields Amendments to CERCLA), the User of a Phase I Environmental Site Assessment (ESA) must consider the issues discussed below as part of the User's All Appropriate Inquiry (AAI) to identify Recognized Environmental Conditions (RECs) associated with the Property. This information should be provided to the Environmental Professional conducting the Phase I ESA so that a complete report can be issued.

The User may decide not to provide this information to the Environmental Professional; however, the absence of the information will be noted in the Phase I ESA report and may affect assessment conclusions. Under these circumstances, it will be the User's responsibility to determine if the Phase I ESA results, combined with results from the tasks described below, is sufficient to satisfy the requirements of All Appropriate Inquiry as defined by federal statute and regulation.

**Instructions:**

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: Former BP Gas Station, Birmingham, Michigan

Property Location: 35975 Woodward, Birmingham, Michigan

County: Oakland State: Michigan

Questionnaire Completed By/Title: Robert Mardigian

Company/ Phone Number: MCM Management Corp./248.932.4135

On Behalf Of (if applicable): \_\_\_\_\_

Planned Date of Purchase/Lease (circle one): October 2007

Time Period of Site Knowledge: One month

**1. Reason for Phase I ESA**

The User of the requested Phase I ESA must make the reason for the Phase I ESA known to the Environmental Professional. Otherwise, it must be assumed that the reason is to qualify for an LLP to CERCLA liability. Please indicate the reason for this Phase I ESA of the Property.

- Due diligence/liability protection for purchase of the Property
- Due diligence/liability protection for lease of the Property
- Mortgage loan or refinance
- Foreclosure
- Other; explain \_\_\_\_\_

**2. Recorded Environmental Cleanup Liens and Activity/Use Limitations**

The User is responsible to ascertain, through personal knowledge and/or a review of reasonably ascertainable recorded land and judicial records, if any environmental liens have been filed on the Property and if any activity or use limitations (AULs) have been placed on the Property because of environmental impact. You may engage a title company or other capable professional to undertake the review of reasonably ascertainable records on your behalf.

Have you conducted, or arranged to have conducted, a review of land title records in which recorded liens and activity/use restrictions would be revealed?

- Yes                       No

If yes, please specify who conducted the review: Giarmarco, Mullins & Horton, P.C.  
attorneys for respondent

If yes, please specify the types and locations of records reviewed: \_\_\_\_\_  
\_\_\_\_\_

Based on your personal knowledge and reviews of title records, are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?

- Yes                       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

Based on your personal knowledge and reviews of title records, are you aware of any activity and/or use limitations, such as engineering controls, land use restrictions, or institutional controls, that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes                       No

If yes, identify the land use limitations/restrictions: There currently exists a limitation on subsurface construction activity, water use, and future use limitation to commercial use in the form of a restrictive covenant.

**3. Specialized Knowledge and Experience**

Any specialized knowledge or experience of the User that could indicate, or create suspicion of, the presence environmental contamination on the Property must be considered as part of the AAI process. Specialized knowledge or experience includes familiarity with historic activities on the Property that could result in environmental impact, personal knowledge or experience that would indicate a risk of environmental impact associated with past Property uses, knowledge of the environmental history of the Property, and any other information that could indicate environmental impact or threat of environmental impact on the Property.

As the User of this environmental site assessment, do you have any specialized knowledge or experience related to the Property or adjoining properties?

Yes                       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. Relationship of Purchase Price to Value**

Historically, environmentally contaminated properties often have been sold at prices below market value to entice buyers to acquire the property, contamination, and resultant liabilities; therefore, if a property's sale price is significantly below market value without any obvious impairments or reasons for the reduced price, the potential for environmental impact as a cause of the reduced price must be evaluated.

Does the purchase price being paid for this Property reasonably reflect the fair market value of the property?

Yes                       No

If there is a significant negative difference, can you identify the reason for the reduced price versus value? If "No" the Property may be assumed to be contaminated.

Yes                       No

If yes, explain briefly: \_\_\_\_\_

**5. Commonly Known or Reasonably Ascertainable Information**

Have you become aware, through conversations, rumor, etc., of any commonly known or reasonably ascertainable information within the local community that would indicate the Property could be contaminated (e.g. types of past uses, presence of storage tanks, use of chemicals, environmental cleanups, etc.) or that any past event (e.g. fire, chemical spill, accident, etc.) could have resulted in environmental impact of the Property or adjoining properties.

Yes                       No

If yes, explain briefly: The site is the location of a former gasoline service station with a reported release.

**6. Proceedings Involving the Property**

Do you, the User of this environmental site assessment, based on your knowledge and experience related to the property, have any knowledge of any of the following:

- Pending, threatened, or past litigation related to hazardous substances or petroleum products in, on or arising from the Property?

Yes                       No

If yes, explain briefly: \_\_\_\_\_

- Pending, threatened, or past administrative proceedings related to hazardous substances or petroleum products in, on or arising from the Property?

Yes                       No

If yes, explain briefly: There is a previously reported release from the on-site underground storage tanks.

- Notices from any governmental entity regarding any possible violation of environmental laws or regulations or possible liability relating to hazardous substances or petroleum products in, on or arising from the Property?

Yes                       No

If yes, explain briefly: The City of Birmingham has indicated that the underground storage tanks at the site need to be removed.

SME Project No. \_\_\_\_\_

R. Mardjian  
Printed Name  
09/14/07  
Date

  
Signature





SME Project No. PE54494B

**PHASE I ENVIRONMENTAL ASSESSMENT (ESA)  
PROPERTY OWNER/OCCUPANT QUESTIONNAIRE**

This questionnaire concerns the current and historical uses and conditions of the referenced property and will be included within the Phase I ESA report. Questionnaire answers should be based upon the owner/occupant's reasonable knowledge of current and historical use and activities at the property.

**Instructions:**

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: Woodward & Oak B/P

Property Location: 35975 Woodward Avenue

County: Oakland State: Michigan

Questionnaire Completed By/Title: Faiz Simon/owner

Company/ Phone Number: Simon Land Development / 248-388-8753

On Behalf Of (if applicable): \_\_\_\_\_

Year of Purchase/Lease (circle one): 3-10-2006

Time Period of Site Knowledge: 4 years

**Names/Phone Numbers of Former Owners/Occupants:**

Owners: ARMADA o/c

Occupants: \_\_\_\_\_

Names/Phone Numbers of other persons who have knowledge of property history: 313-582-1777  
ALF BEVY

**Property Description and Use**

1. Provide a general description of the property:

- Undeveloped  Vacant  Wooded  Buildings  Other

2. Describe the structures present on the property (number, size, and construction date): \_\_\_\_\_

Closed Gas Station  
\_\_\_\_\_  
\_\_\_\_\_

SME Project No. PE54494B

3. Identify utilities available to the property (check box and indicate provider):

- Electric: \_\_\_\_\_
- Gas: \_\_\_\_\_
- Sanitary Sewer: \_\_\_\_\_
- Storm Sewer: \_\_\_\_\_
- Municipal Water: \_\_\_\_\_

4. Are there any easements at the property?:

Yes  No

If yes, where are the easements located?: Email us to request survey

5. To the best of your knowledge, identify if the following were formerly (F) or are currently (C) present on the property. Select NA if not applicable to the property.

- |   |                                       |                             |  |
|---|---------------------------------------|-----------------------------|--|
| F | C                                     | <input type="checkbox"/> NA | On-site water supply wells                     |
| F | C                                     | <input type="checkbox"/> NA | Septic fields, drain fields, or dry wells      |
| F | C                                     | <input type="checkbox"/> NA | Abandoned wells                                |
| F | C                                     | <input type="checkbox"/> NA | Lagoons, settling ponds                        |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Monitoring wells                               |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Underground sumps, lines, basins, or tanks     |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Aboveground storage tanks (ASTs)               |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Transformers or capacitors                     |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Other PCB containing equipment                 |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Mines or pits                                  |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Hidden chemical materials or wastes            |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Dumps or landfills                             |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Oil or gas wells or test holes                 |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Unusual fill areas, such as foundry sand, etc. |
| F | <input checked="" type="checkbox"/> C | <input type="checkbox"/> NA | Barrel or drum storage areas                   |

6. What is the general use of property:

Industrial  Commercial  Residential  Other was

7. What products/services are produced/provided at the property?: GAS

8. What type of on-site processes are used at the property?: N/A

9. What types of equipment are used at the property?: GAS PUMPS

10. What raw materials are used at the property?: N/A was GAS only

SME Project No. PE54494B

11. Are there any environmental permits (e.g. solid waste disposal, hazardous waste disposal, wastewater, NPDES, etc.) associated with the property?

- Yes  No

If yes, list the applicable permit(s): \_\_\_\_\_

**Property and Adjoining Properties - Current and Historical Use**

12. Are there any liquid or solid wastes generated at the property?

- Yes  No  Unknown

If yes, please list the monthly volume generated and explain disposal method: \_\_\_\_\_

13. Is the property or any adjoining property currently used for an industrial use?

- Yes  No  Unknown

- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_

14. Is the property or any adjoining property currently used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes  No  Unknown

- Property  Adjoining

If yes, explain briefly: dry cleaner next door

Please complete the current land use table below:

	Name/Owner	Land Use
Property		
North adjoining properties		
South adjoining properties		
East adjoining properties		
West adjoining properties	<u>Douglas Clamer</u>	<u>dry cleaning</u>

15. Has the property or any adjoining property been used for an industrial use in the past?

- Yes  No  Unknown

- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_

SME Project No. **PE54494B**

16. Has the property or any adjoining property historically been used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

Yes       No       Unknown

Property  Adjoining

If yes, explain briefly: \_\_\_\_\_

Please complete the historical land use table below:

	Owner	Use	Dates
Previous use of Property			
Previous use of properties to north			
Previous use of properties to south			
Previous use of properties to east			
Previous use of properties to west			

**Current and Historical Property Conditions**

17. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals (individual containers greater than 5 gallons or greater than 50 gallons total) stored on or used at the property or at the facility?

Yes       No       Unknown

If yes, explain briefly: \_\_\_\_\_

18. Are there currently, or have there been previously, any industrial drums (typically 55-gal lon) or sacks of chemicals stored on the property or at the facility?

Yes       No       Unknown

If yes, describe the chemicals stored on the property (volume, contents and dates of storage): \_\_\_\_\_

19. Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned/incinerated on the property?

Yes       No       Unknown

If yes, identify the location and date(s): \_\_\_\_\_

20. Are there currently, or have there been previously, any registered or unregistered storage tanks (aboveground or underground) located on the property?

Yes       No       Unknown

If yes, identify the location, date(s) of use, and date(s) of removal (if applicable): \_\_\_\_\_

SME Project No. PE54494B

21. Are there currently, or have there been previously, any vent pipes, fill pipes protruding from the ground, areas of patched concrete or asphalt, or access ways indicating an underground storage tank on the property?

Yes  No  Unknown

If yes, identify the location: \_\_\_\_\_  
\_\_\_\_\_

22. Are there transformers, capacitors, or hydraulic equipment on the property?

Yes  No  Unknown

If yes, are there any records indicating the presence of PCBs? \_\_\_\_\_  
\_\_\_\_\_

23. Is there currently, or has there been previously, any stained soil on the property?

Yes  No  Unknown

If yes, identify the location of the stained soil and date(s) it was present on the property: \_\_\_\_\_  
\_\_\_\_\_

24. Has fill dirt been brought onto the property that is of unknown origin? Has fill dirt been brought onto the property that originated from a contaminated site?

Yes  No  Unknown

If yes, identify the date and location of fill placement: \_\_\_\_\_  
\_\_\_\_\_

25. Are there currently, or have there been previously, any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?

Yes  No  Unknown

If yes, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

26. Are there currently, or have there been previously, any pits, ponds, or lagoons associated with waste treatment or disposal located on the property?

Yes  No  Unknown

If yes, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

27. Excluding storm water and sanitary waste discharge into an existing storm/sanitary sewer, does the property discharge wastewater on or adjacent to the property?

Yes  No  Unknown

If yes, describe the type of wastewater and identify discharge location: \_\_\_\_\_  
\_\_\_\_\_

SME Project No. PE54494B

28. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed applicable guidelines? Has the well been designated as contaminated by any government environmental/health agency?

Yes  No  Unknown

If yes, identify the contaminants and dates of exceedances: \_\_\_\_\_

**Previously Identified Environmental Conditions**

29. Have you been informed of the current or past existence of hazardous substances, petroleum products, or environmental violations with respect to the property or any facility located on the property?

Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

30. Do you have any knowledge of any environmental site assessment of the property that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property?

Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

31. If the property is in Michigan, has a Baseline Environmental Assessment (BEA) been prepared for the property?

Yes  No  Unknown

If yes, briefly explain: we did BEA on the site

32. Do you know of any pending, threatened, or past lawsuits or administrative proceedings concerning the release of any hazardous substances or petroleum products involving the property or any facility located on the property?

Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

33. Do you have any knowledge of environmental liens or government notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?

Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

SME Project No. PE54494B

34. Are you aware of any activity and land use limitations (engineering controls or institutional controls/land use restrictions) that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes       No       Unknown

If yes, identify limitation/restriction: \_\_\_\_\_  
\_\_\_\_\_

Faiz R. Simon  
Printed Name  
Simon Land Development Group  
Company  
2-7-07  
Date

  
Signature  
manager  
Title



**APPENDIX F**

**QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(s)**

**Project Geologist**

Manages investigations and assessments for a variety of urban redevelopment projects. Professional services include brownfield management, management of Environmental Site Assessments (ESAs), Baseline Environmental Assessments (BEAs), Due Care Assessments, remediation monitoring, hydrogeologic assessments, underground storage tank (UST) closures, project specifications and bid packages, and asbestos surveys.

**❖ Professional Qualifications:**

- Experienced in managing contamination investigations and development of remediation alternatives at commercial and industrial facilities, and UST sites.
- Knowledgeable in Michigan Public Act 451, Part 201, Part 213, Part 211, Act 381, and EPA Brownfields Economic Redevelopment Initiative documents.

**❖ Project Experience:**

- Project manager for a USEPA Brownfields Cleanup Revolving Loan Fund (BCRLF) grant of \$1 million for the City of Wyandotte, Michigan. Provided financial planning and cost-tracking services for all sources of project funding including, but not limited to the USEPA BCRLF program. Prepared project's Community Involvement Plan (CIP), Record of Decision for Environmental Response Actions, and assisted in development of the work plans for environmental response activities and non-environmental (infrastructure) activities.
- Project manager for a \$500,000 USEPA BCRLF grant for the City of Trenton, Michigan. Prepared project documents including Community Response Plan (CRP), Action Memorandum for Environmental Response Actions and provided financial planning and cost-tracking services for all sources of project funding.
- Project manager for a \$120 million brownfield redevelopment project in Allen Park, Michigan. Providing technical consulting to the Allen Park Brownfield Redevelopment Authority (BRA) during redevelopment of the clay mine landfill. Project involves commercial and retail space, and 34-acres of recreation.
- Performed investigation and site assessment on brownfield project in which over \$4 million in single business and tax increment financing (TIF) credits were obtained, including approximately \$2 million in TIF credits to address soils unsuitable from a construction perspective.
- Performed and managed aspects of a commercial brownfield redevelopment in Jackson, Michigan. Experience includes peer review of brownfield documents, preparation of ESAs, BEAs, and Due Care Compliance Analysis, soil and groundwater investigation, including evaluation of mercury impact.
- Senior geologist for Manufactured Gas Plant (MGP) sites. Experience includes soil and groundwater investigations, contractor coordination, pathway evaluations, preparation of remedial action work plans and remedial investigation reports.
- Project manager for numerous real estate transfers. Experience includes soil and groundwater investigations, evaluation of extent of impact, contractor coordination, pathway evaluations, and preparation of assessment reports.

**❖ Career History:** SME since 1997 - Other firms from 1996

**❖ Education:** B.S., Environmental Geoscience/Geology, Michigan State University  
Candidate for Juris Doctor, Wayne State University Law School  
Candidate for Masters of Business Administration, Wayne State University

**❖ Certifications:** Certified Professional Geologist – AIPG  
8-Hour HAZWOPER Refresher Training – Health & Safety  
40-Hour HAZWOPER Course

**❖ Affiliations:** American Institute of Professional Geologists (AIPG)  
Michigan Association of Environmental Professionals  
Royal Oak Downtown Development Authority  
Woodward Avenue Action Association – Economic Revitalization  
Committee



**Project Consultant**

Identifies possible environmental concerns for Phase I Environmental Site Assessments (ESAs), assists with compliance projects, and performs a broad range of tasks related to Toxic Release Inventory (TRI) reporting.

**❖ Professional Qualifications:**

- Over 13 years of experience in conducting ESAs including report research, site walkover, and report preparation.
- Over 17 years of experience in Toxic Release Inventory (TRI) reporting, including database management, training, conducting site visits, calculating releases, preparing documentation reports, submitting Form Rs, and analyzing data.

**❖ Representative Project Experience:**

- Managed/conducted over 200 Phase I ESAs throughout the country for individuals, corporations and lending institutions to identify potential environmental liabilities. Assignments have included vacant land, vacant/active manufacturing sites, medical facilities, restaurants, and other commercial facilities.
- Managed a series of Phase I ESAs for the redevelopment of urban residential properties throughout Michigan by non-profit organizations. The ESA scope included requirements to qualify the projects for Michigan State Housing Development Authority (MSHDA) competitive funding to develop new residential units.
- Managed water quality projects for development and commercial clients. Collected water samples and compared analytical results, as well as selected chemical constituents to National Drinking Water Standards.
- Managed and maintained database for TRI release reporting for a major automobile manufacturer for the past 16 reporting years. Modified database to account for correct usage, exemptions, unit of measure conversions, and process descriptions. Included generation of over 250 Form Rs annually for over 40 facilities. Since 1993, the project also included Environment Canada National Pollutant Release Inventory (NPRI) reporting.
- Assisted in management of database for five-year capital spending plan for environmental staff of a major automobile manufacturer. Coordinated with air, water, hazardous waste, pollution prevention, and toxic substance staff specialists to revise projects and track planned expenditures versus actual costs.

**❖ Career History:** SME since 1997 - Other firms from 1981

**❖ Education:** B.S., Urban and Regional Planning, Eastern Michigan University  
ISO 14001 Environmental Management Systems Implementation Training  
ISO 14001 Environmental Management Systems Internal Auditing Training

**❖ Certifications:** 8-Hour HAZWOPER Refresher Training - Health & Safety

**❖ Affiliations:** American Association of University Women (AAUW) - Plymouth/Canton Chapter – Director of Communications  
Inforum (Women’s Economic Club of Detroit)





Performs Phase I and Phase II Environmental Site Assessments (ESAs), UST removal assessments, subsurface characterization investigations including soil classification, and soil and groundwater sampling. Also prepares site assessment reports.

**❖ Professional Qualifications:**

- Skilled in leaking underground storage tank (UST) subsurface assessments. These activities include monitoring excavation and UST removal activities, conducting Verification of Soil Remediation (VSR) sampling, coordinating soil and/or groundwater disposal activities, and preparation of required documentation and/or reports.
- Skilled in conducting Phase II ESAs, BEAs and other subsurface investigations, including assessing site conditions and history for soil probe, test pit, and/or monitoring well placement, delineation of subsurface impact, and assessment of potential exposure pathways. Knowledgeable in monitor well installation, soil and groundwater sampling, sample preservation, and quality control protocols. Experienced in data interpretation and reporting for a variety of subsurface applications.
- Knowledgeable in testing of concrete, foundation load, and soil compaction.
- Skilled in conducting Phase I ESAs, including property history research, site walkover observation, and Phase I ESA report preparation.
- Skilled in USGS Soil Classification System.

**❖ Representative Project Experience:**

- Performed over 200 Phase I and Phase II ESAs in southeast Michigan, for individuals, corporations and lending institutions.
- Performed quarterly groundwater monitoring on a variety sites. Related activities included using “low-flow” sampling techniques, field observation and interpretation of natural attenuation parameters, and assisting with assessment of groundwater evaluations of both DNAPL and LNAPL constituents.
- Performed free product recovery for a variety of project sites, including DTE Energy. Activities included free product monitoring and evaluation, manual recovery, waste management, recovery system planning and installation, system monitoring, and reporting.
- Performed numerous Phase II ESAs and leaking underground storage tank (LUST) compliance work for commercial and industrial sites. These sites included light and heavy industrial manufacturing facilities, gasoline filling stations, automobile repair shops, and vacant urban lots. Activities included evaluating environmental issues and providing recommendations for response activities/corrective action, and/or evaluating exposure concerns.
- Experienced in collecting soil and groundwater samples in accordance with MDEQ criteria.

❖ **Career History:** SME since August 2005 - Other firms from May 2002

❖ **Education:** B.S. Earth Science, Western Michigan University

❖ **Certifications:** 8-Hour HAZWOPER Refresher Training - Health & Safety

40-Hour HAZWOPER Course

Certified Nuclear Density Meter - Troxler



**Environmental Specialist**

- Provided assistance for various leaking UST projects throughout Southeast Michigan. Activities included recommendations for confirmed release reporting, managing initial assessment activities, final assessment activities, compliance monitoring and leaking UST Closure activities. Responsible for developing work plans and corrective action plans. Successfully brought sites into compliance with Part 213 and achieved MDEQ approval of Initial Assessment, Final Assessment, and LUST Closure Reports.
- Provided assistance for various Part 201 site assessment projects in southeast Michigan. Activities included developing delineation and remedial action plans, evaluating environmental issues and evaluating exposure concerns.



**ATTACHMENT C**  
**PME'S SOIL AND GROUNDWATER ANALYTICAL TABLES**

**TABLE 1**  
**PME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54494B  
 1 of 3

Constituent	CAS Number	Part 201 Generic Residential/Industrial CC/SL										Sample Location	SB-1	SB-2	SB-2R	SB-2R	SB-3	SB-3	SB-3R	SB-3R	SB-4
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Sample ID	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Protection Criteria	Protection Criteria	Protection Criteria	Inhalation Criteria	Inhalation Criteria	Inhalation Criteria	Inhalation Criteria	Depth (feet)	7'-8'	9'-10'	9'-10'	19'-20'	19'-20'	24'-25'	19'-20'	24'-25'	19'-20'	24'-25'	7'-8'	
<b>VOCs</b>																					
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<RL	1,100	9,700	56	3,800	91	7,900	<RL	<RL	330		
Ethylene dibromide	106-93-4	20	20	500	670	1,700	14,000,000	92	890,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
1,2-Dichloroethane	104-51-8	100	7,200	380,000	2,100	6,200	120,000,000	91,000	10,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	<RL	140	3,000	<RL	5,300	<RL	6,600	<RL	<RL	420		
trans-1,2-Dichloroethene	156-60-5	2,000	30,000	1,400,000	23,000	280,000	4,700,000,000	1,400,000	1,400,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<RL	<RL	280	<RL	680	<RL	1,100	<RL	<RL	78		
MTBE	1634-04-4	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<RL	200	<RL	980	250	650	<RL	<RL	<RL	<RL		
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	16,000,000	<RL	<RL	<RL	NA	<RL	<RL	<RL	<RL	<RL	1,000		
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	NR	<RL	59	<RL	600	<RL	<RL	<RL	<RL	410		
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<RL	<RL	410	<RL	1,800	<RL	2,100	<RL	<RL	260		
Isopropyl Toluene (p-Cym)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NR	<RL	66	<RL	130	<RL	<RL	<RL	<RL	<RL		
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	NR	<RL	68	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Tetrahydrofuran	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Tetrahydrofuran	109-99-9	1,900	220,000	32,000,000	1,300,000	13,000,000	390,000,000,000	2,900,000	120,000,000	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	<RL	220	2,200	<RL	880	<RL	1,800	<RL	<RL	1,600		
1,2,3-Trimethylbenzene	NA	1,800	94,000	94,000	94,000	16,000,000	82,000,000,000	94,000	NA	<RL	<RL	290	<RL	2,300	<RL	2,400	<RL	<RL	850		
1,2,4-Trimethylbenzene	95-63-6	2,100	570	94,000	110,000	110,000	21,000,000	110,000	110,000	<RL	86	1,000	<RL	7,600	74	6,700	<RL	<RL	2,900		
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<RL	58	1,100	<RL	3,700	<RL	4,200	<RL	<RL	760		
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	<RL	290	6,800	<RL	10,000	<RL	14,000	<RL	<RL	2,700		
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
<b>PAHs</b>																					
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<RL	<RL	<RL	<RL	330	<RL	<RL	<RL	<RL	700		
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	390	<RL	<RL	1,500		
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	530	<RL	<RL	780		
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	420	<RL	<RL	800		
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	460	<RL	<RL	560		
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	510	<RL	<RL	640		
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<RL	<RL	<RL	<RL	530	<RL	<RL	<RL	<RL	1,400		
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	680	<RL	<RL	<RL		
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<RL	<RL	<RL	<RL	620	<RL	680	<RL	<RL	2,200		
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	620		
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<RL	<RL	<RL	<RL	430	<RL	630	<RL	<RL	16,000		
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<RL	<RL	<RL	<RL	670	<RL	710	<RL	<RL	2,100		
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<RL	<RL	<RL	<RL	650	<RL	550	<RL	<RL	2,200		
<b>Inorganics</b>																					
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	NR	180	430	310	580	200	310	240	200	200		
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	NR	10,000	10,000	27,000	7,100	8,300	8,300	22,000	7,100	7,100		
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	8.400	27,000	97,000	14,000	2,100,000	24,000	52,000	10,000	44,000	44,000		
Lead (total calculated)	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	11.500	47,000	NR	NR	76,700	87,300	NR	NR	NR	40,700		
Lead (fine fraction)	7439-92-1	NA	NA	NA	NA	NA	10,000,000	400,000	NA	6.330	73,200	NR	NR	438,000	38,100	NR	NR	NR	58,500		
Lead (coarse fraction)	7439-92-1	NA	NA	NA	NA	NA	NA	400,000	NA	14.400	34,000	NR	NR	72,400	101,000	NR	NR	NR	37,100		
<b>PCBs</b>																					
PCBs	1336-36-3	NLL	NLL	NLL	3,000,000	240,000	5,200,000	4,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		

NOTES ON LAST PAGE



**TABLE 1**  
**PME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54494B  
 2 of 3

Constituent	CAS Number	Part 201 Generic Residential/Industrial CC/SL										SB-4	SB-4R	SB-4R	SB-5	SB-5R	SB-6	SB-7	SB-7R	SB-7R
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Sample Location Sample ID Depth (feet) Date Collected	SOIL 24'-25' 2/14/2006	SOIL 9'-10' 4/13/2006	SOIL 24'-25' 4/13/2006	SOIL 24'-25' 2/14/2006	SOIL 9'-10' 4/13/2006	SOIL 2'-3' 2/14/2006	SOIL 19'-20' 2/14/2006	SOIL 8'-9' 4/13/2006	SOIL 19'-20' 4/13/2006	
<b>VOCs</b>																				
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<RL	17,000	580	<RL	72	<RL	<RL	<RL	6,800	<RL	
Ethylene dibromide	106-93-4	20	20	500	670	1,700	14,000,000	92	890,000	<RL	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
1,2-Dichloroethane	104-51-8	100	7,200	380,000	2,100	6,200	120,000,000	91,000	10,000,000	<RL	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	<RL	12,000	79	<RL	260	<RL	<RL	<RL	2,000	<RL	
trans-1,2-Dichloroethene	156-60-5	2,000	30,000	1,400,000	23,000	280,000	4,700,000,000	1,400,000	1,400,000	<RL	NR	NR	<RL	NR	<RL	<RL	<RL	NR	<RL	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<RL	1,100	90	<RL	<RL	<RL	<RL	<RL	100	<RL	
MTBE	1634-04-4	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<RL	<RL	<RL	330	<RL	<RL	<RL	<RL	470	<RL	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<RL	7,600	<RL	<RL	340	<RL	<RL	<RL	470	<RL	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	<RL	NR	NR	<RL	NR	<RL	<RL	<RL	NR	<RL	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<RL	3,100	200	<RL	NR	<RL	<RL	<RL	96	<RL	
Isopropyl Toluene (p-Cym sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<RL	NR	NR	<RL	NR	<RL	<RL	<RL	NR	<RL	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<RL	NR	NR	<RL	NR	<RL	<RL	<RL	NR	<RL	
Tetrahydrofuran	109-99-9	1,900	220,000	32,000,000	1,300,000	13,000,000	390,000,000,000	2,900,000	120,000,000	<RL	NR	NR	<RL	NR	<RL	<RL	<RL	NR	<RL	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	<RL	4,800	<RL	<RL	2,200	<RL	<RL	<RL	4,600	<RL	
1,2,3-Trimethylbenzene	NA	1,800	94,000	94,000	94,000	16,000,000	82,000,000,000	94,000	NA	<RL	9,500	110	<RL	1,500	<RL	<RL	<RL	81	<RL	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	<RL	21,000	97	<RL	550	<RL	<RL	<RL	180	<RL	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<RL	7,200	55	<RL	<RL	<RL	<RL	<RL	110	<RL	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	<RL	41,000	270	<RL	1,400	<RL	<RL	<RL	5,200	<RL	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	NR	NR	NR	NR	NR	NR	NR	NR	
<b>PAHs</b>																				
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	450	<RL	
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,000	<RL	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,200	<RL	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	790	<RL	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	570	<RL	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,400	<RL	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,200	<RL	
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<RL	<RL	<RL	<RL	380	<RL	<RL	<RL	2,200	<RL	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	450	<RL	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<RL	12,000	<RL	<RL	250	<RL	<RL	<RL	<RL	<RL	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,500	<RL	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,600	<RL	
<b>Inorganics</b>																				
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	160	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	22,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	11,000	110,000	10,000	12,000	1,700,000	55,000	11,000	110,000	110,000	12,000	
Lead (total calculated)	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	12,900	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead (fine fraction)	7439-92-1	NA	NA	NA	NA	NA	10,000,000	400,000	NA	12,000	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead (coarse fraction)	7439-92-1	NA	NA	NA	NA	NA	NA	400,000	NA	13,200	NR	NR	NR	NR	NR	NR	NR	NR	NR	
<b>PCBs</b>																				
PCBs	1336-36-3	NLL	NLL	NLL	3,000,000	240,000	5,200,000	4,000	NA	<RL	NR	NR	NR	<RL	NR	NR	NR	NR	NR	

NOTES ON LAST PAGE

TABLE 1  
PME SOIL ANALYTICAL RESULTS  
35975 WOODWARD AVENUE  
Birmingham, Michigan  
SME Project No. PE54494B  
3 of 3

Constituent	CAS Number	Part 201 Generic Residential/Industrial CC/SL								Sample Location	SB-8 SOIL	SB-8 SOIL	SB-8R SOIL	SB-9 SOIL	SB-8R SOIL	SB-9 SOIL	SB-10 SOIL	SB-10R SOIL	SB-10R SOIL
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Depth (feet)	10'-11'	17'-18'	10'-11'	3'-4'	24'-25'	3'-4'	5'-6'	4'-5'	24'-25'
		Residential	Residential	Residential	Residential	Residential	Residential	Residential		2/14/2006	2/14/2006	4/13/2006	2/14/2006	4/13/2006	2/14/2006	2/14/2006	4/13/2006	4/13/2006	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	1.100	<RL	1,900	<RL	<RL	<RL	<RL	10,000	10,000	<RL
Ethylene dibromide	106-93-4	20	20	500	670	1,700	14,000,000	92	890,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
1,2-Dichloroethane	104-51-8	100	7,200	380,000	2,100	6,200	120,000,000	91,000	10,000,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	88,000	50,000	64
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	2,600	<RL	1,700	<RL	<RL	<RL	NA	NR	<RL	NR
trans-1,2-Dichloroethene	156-60-5	2,000	30,000	1,400,000	23,000	280,000	4,700,000,000	1,400,000	1,400,000	<RL	<RL	<RL	<RL	<RL	<RL	NA	NR	<RL	NR
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	950	<RL	410	<RL	<RL	<RL	<RL	7,200	4,300	<RL
MTBE	1634-04-4	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	23,000	10,000	<RL
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	16,000,000	5,200	<RL	1,100	<RL	<RL	<RL	<RL	23,000	10,000	<RL
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	1,200	<RL	320	<RL	<RL	<RL	NA	NR	9,500	NR
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	3,900	<RL	1,400	<RL	<RL	<RL	<RL	30,000	17,000	<RL
Isopropyl Toluene (p-Cym)	NA	NA	NA	NA	NA	NA	NA	NA	NA	190	<RL	<RL	<RL	<RL	<RL	NA	NR	<RL	NR
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	400	<RL	<RL	<RL	<RL	<RL	NA	NR	2,200	NR
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<RL	<RL	<RL	<RL	<RL	<RL	NA	NR	<RL	NR
Tetrahydrofuran	109-99-9	1,900	220,000	32,000,000	1,300,000	13,000,000	390,000,000,000	2,900,000	120,000,000	<RL	<RL	<RL	<RL	<RL	<RL	NA	NR	150,000	NR
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	150	<RL	240	<RL	<RL	<RL	<RL	23,000	34,000	<RL
1,2,3-Trimethylbenzene	NA	1,800	94,000	94,000	94,000	16,000,000	82,000,000,000	94,000	NA	11,000	<RL	4,100	<RL	<RL	<RL	<RL	54,000	33,000	70
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	14,000	<RL	6,900	<RL	<RL	<RL	<RL	160,000	100,000	180
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	930	<RL	630	<RL	<RL	<RL	<RL	53,000	32,000	57
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	5,600	<RL	5,200	<RL	<RL	<RL	<RL	300,000	220,000	310
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	NA	NR	<RL	NR
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	ID	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	2,300	<RL	430	<RL	<RL	<RL	<RL	14,000	11,000	<RL
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>Inorganics</b>																			
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	NR	NR	NR	<RL	NR	NR	NR	NR	NR	NR
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	NR	NR	NR	<RL	NR	NR	NR	NR	NR	NR
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	120,000	9,700	34,000	<RL	9,500	4,200	88,000	60,000	11,000	NR
Lead (total calculated)	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	NR	10,200	NR	<RL	NR	NR	NR	NR	NR	NR
Lead (fine fraction)	7439-92-1	NA	NA	NA	NA	NA	10,000,000	400,000	NA	NR	10,100	NR	<RL	NR	NR	NR	NR	NR	NR
Lead (coarse fraction)	7439-92-1	NA	NA	NA	NA	NA	NA	400,000	NA	NR	10,200	NR	<RL	NR	NR	NR	NR	NR	NR
<b>PCBs</b>																			
PCBs	1336-36-3	NLL	NLL	NLL	3,000,000	240,000	5,200,000	4,000	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

NOTES:

- Concentrations reported in µg/kg (parts per billion or ppb) unless otherwise noted
- Analytical results were compared to the MDEQ Part 201 Generic Residential Cleanup Criteria and Screening Levels, dated January 23, 2006 (CC/SL)
- <RL = Analytical result was less than the reporting limit
- CS = Constituent Specific
- ID = Insufficient data to develop criteria
- NA = Criterion or value is not available
- NR = Laboratory analysis was not requested
- NLV = Chemical is not likely to volatilize under most conditions
- NLL = Hazardous substance is not likely to leach under most soil conditions
- \* = Total chromium concentration is assumed to be chromium (III) based on historic site use and one soil sample which did not detect chromium (VI) above reporting limits
- Italicized GSI Criterion were calculated using a water hardness of 150 mg/L CaCO<sub>3</sub> and the MDEQ spreadsheet (G)
- Highlighted and bolded results exceed corresponding MDEQ Part 201 Cleanup Criteria.



**TABLE 2**  
**PME GROUNDWATER ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE :**  
 Birmingham, Michigan  
 SME Project No. PE54494B  
 1 of 1

Constituent	CAS Number	Part 201 Generic Residential CC/SL				Water Solubility Criteria	Sample Location	OW-1	OW-4	OW-7	OW-11	OW-12R	MP-A	TW-1	TW-4	TMW-5	TMW-5R	TMW-7	TMW-11
		Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria		Sample ID	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
						Screen Depth (feet)	5'-15'	5'-15'	18.5'-28.5'	14.5'-19.5'	4'-9'	unknown	unknown	unknown	8.5'-13.5'	8'-13'	10'-15'	11'-16'	
						Date Collected	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	2/14/2006	4/13/2006	2/14/2006	2/14/2006	
<b>VOCs</b>																			
Benzene	71-43-2	5.0	200	5,600	11,000	1,750,000	2,100	530	190	<RL	610	460	66	62	20,000	21,000	3,700	410	
n-Butylbenzene	104-51-8	80	ID	ID	5,900	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	NR	
sec-Butylbenzene	135-98-8	80	ID	ID	4,400	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	NR	
Chloromethane	74-87-3	260	ID	8,600	490,000	6,340,000	<RL	9.0	<RL	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	NR	
cis-1,2-Dichloroethene	156-59-2	70	620	93,000	20,000	35,000,000	<RL	<RL	<RL	<RL	<RL	<RL	1.0	11	NR	NR	NR	NR	
Ethylbenzene	100-41-4	74	18	110,000	170,000	169,000	1,600	20	<RL	<RL	89	53	2.0	<RL	4,400	3,600	3,300	94	
trans-1,2-Dichloroethene	156-60-5	100	1,500	85,000	220,000	6,300,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	4.0	NR	NR	NR	NR	
Isopropylbenzene	98-82-8	800	ID	56,000	56,000	56,000	87	12	<RL	<RL	3.0	16	22	<RL	<RL	<RL	110	35	
MTBE	1634-04-4	40 (E) / 240	730	47,000,000	610,000	46,800,000	<RL	<RL	820	<RL	<RL	150	50	35	<RL	<RL	<RL	190	
Naphthalene	91-20-3	520	13	31,000	31,000	31,000	45	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	190	
n-Propylbenzene	103-65-1	80	ID	ID	15,000	NA	220	36	<RL	<RL	6.0	28	44	<RL	340	260	380	91	
Tetrachloroethene	127-18-4	5.0	45	25,000	12,000	200,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NR	NR	NR	NR	
Toluene	108-88-3	790	140	530,000	530,000	526,000	120	6.0	<RL	<RL	14	3.0	2.0	<RL	33,000	28,000	1,400	9.0	
1,2,3-Trimethylbenzene	NA	63	17	56,000	56,000	55,890	610	46	4.0	<RL	27	<RL	<RL	<RL	990	740	1,100	53	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	56,000	55,890	360	17	<RL	<RL	74	<RL	1.0	<RL	3,200	1,900	3,500	6.0	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	61,000	61,150	170	6.0	<RL	<RL	15	<RL	<RL	<RL	820	510	890	18	
Vinyl Chloride	75-01-4	2.0	15	1,100	1,000	2,760,000	<RL	<RL	<RL	<RL	<RL	<RL	2.0	29	NR	NR	NR	NR	
Xylenes	1330-20-7	280	35	190,000	190,000	186,000	1,000	33	<RL	<RL	260	<RL	3.0	<RL	24,000	16,000	11,000	47	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	1,300	19	4,200	4,200	4,240	NR	NR	NR	NR	NR	NR	NR	NR	45	<RL	<RL	<RL	
Acenaphthylene	208-96-8	52	ID	3,900	3,900	3,930	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	<RL	<RL	
Anthracene	120-12-7	43	ID	43	43	43	NR	NR	NR	NR	NR	NR	NR	NR	37	<RL	<RL	<RL	
Benzo(a)anthracene	56-55-3	2.1	ID	NLV	9.4	9.4	NR	NR	NR	NR	NR	NR	NR	NR	33	<RL	<RL	<RL	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	1.0 (M)	1.62	NR	NR	NR	NR	NR	NR	NR	NR	22	<RL	<RL	<RL	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	1.5	1.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	<RL	<RL	
Benzo(g,h,i)perylene	191-24-2	1.0 (M)	NA	NLV	1.0 (M)	0.26	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	<RL	<RL	
Benzo(k)fluoranthene	207-08-9	1.0 (M)	NA	NLV	1.0 (M)	0.8	NR	NR	NR	NR	NR	NR	NR	NR	23	<RL	<RL	<RL	
Chrysene	218-01-9	1.6	ID	ID	1.6	1.6	NR	NR	NR	NR	NR	NR	NR	NR	41	<RL	<RL	<RL	
Dibenzo(a,h)anthracene	53-70-3	2.0 (M)	ID	NLV	2.0 (M)	2.49	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	<RL	<RL	
Fluoranthene	206-44-0	210	1.6	210	210	206	NR	NR	NR	NR	NR	NR	NR	NR	110	<RL	<RL	<RL	
Fluorene	86-73-7	880	12	2,000	2,000	1,980	NR	NR	NR	NR	NR	NR	NR	NR	48	<RL	<RL	<RL	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0 (M)	ID	NLV	2.0 (M)	2.0 (M)	NR	NR	NR	NR	NR	NR	NR	NR	NR	<RL	<RL	<RL	
2-Methylnaphthalene	91-57-6	260	ID	ID	25,000	24,600	NR	NR	NR	NR	NR	NR	NR	NR	2,300	130	61	7.0	
Phenanthrene	85-01-8	52	2.4	1,000	1,000	1,000	NR	NR	NR	NR	NR	NR	NR	NR	140	7.0	<RL	<RL	
Pyrene	129-00-0	140	ID	140	140	135	NR	NR	NR	NR	NR	NR	NR	NR	110	<RL	<RL	<RL	
<b>Inorganics</b>																			
Cadmium	7440-43-9	5.0	3.0	NLV	190,000	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Chromium (III)*	16065-83-1	100	100	NLV	290,000,000	NA	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	
Lead	7439-92-1	4.0	16	NLV	ID	NA	8.0	NR	5.0	NR	NR	NR	NR	7.0	1,100	6.3	1,100	45	
<b>PCBs</b>																			
PCBs	1336-36-3	0.5	0.2 (M)	45	3.3	44.7	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	

- NOTES:**
- (1) Concentrations reported in µg/L (parts per billion or ppb) unless otherwise noted
  - (2) Analytical results were compared to the MDEQ Part 201 Generic Residential Cleanup Criteria and Screening Levels, dated January 23, 2006 (CC/SL)
  - (3) <RL = Analytical result was less than the reporting limit
  - (4) CS = Constituent Specific
  - (5) ID = Insufficient data to develop criteria
  - (6) NA = Criterion or value is not available
  - (7) NR = Laboratory analysis was not requested
  - (8) NLV = Chemical is not likely to volatilize under most conditions
  - (9) E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the NREPA. Second criterion is the residential health-based drinking water value
  - (10) M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit
  - (11) \* = Total chromium concentration is assumed to be chromium (III) based on historic site use and chromium (VI) was not measured in one soil sample above the reporting limit
  - (12) Italicized GSI Criterion were calculated using a water hardness of 150 mg/L CaCO<sub>3</sub> and the MDEQ spreadsheet (G)
  - (13) Highlighted and bolded results exceed corresponding MDEQ Part 201 Cleanup Criteria.

## **ATTACHMENT D**

### **SME'S NOVEMBER 1, 2007, TECHNICAL MEMORANDUM**

- FIGURES
- SOIL LOGS
- ANALYTICAL TABLE
- LABORATORY ANALYTICAL REPORT/CHAIN OF CUSTODIES

above ground storage tank  
    air quality  
asbestos/lead-based paint  
baseline environmental assessment  
    brownfield redevelopment  
building/infrastructure restoration  
    caisson/piles  
    coatings  
    concrete  
construction materials services  
    corrosion  
    dewatering  
    drilling  
    due care analysis  
    earth retention system  
environmental compliance  
environmental site assessment  
facility asset management  
    failure analyses  
    forensic engineering  
    foundation engineering  
    geodynamic/vibration  
    geophysical survey  
    geosynthetic  
greyfield redevelopment  
    ground modification  
hydrogeologic evaluation  
    industrial hygiene  
    indoor air quality/mold  
    instrumentation  
    masonry/stone  
    metals  
    nondestructive testing  
pavement evaluation/design  
property condition assessment  
    regulatory compliance  
    remediation  
    risk assessment  
roof system management  
    sealants/waterproofing  
    settlement analysis  
    slope stability  
storm water management  
    structural steel/welding  
underground storage tank

**TECHNICAL MEMORANDUM  
MARCH 2007  
ENVIRONMENTAL ASSESSMENT**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

**SME PROJECT NUMBER: PE54816**

**November 1, 2007**



© 2007 Soil and Materials Engineers, Inc.

**Soil and Materials Engineers, Inc.**

## TABLE OF CONTENTS

1.	INTRODUCTION .....	1
2.	PROCEDURES.....	1
3.	EXPOSURE PATHWAY CHARACTERIZATION.....	7
4.	RESULTS AND FINDINGS.....	8

### APPENDICES:

**Appendix A: Figures**

Figure 1 - Property Location Map

Figure 2 –Boring Location Diagram

**Appendix B: Soil Probe and Well Construction Logs**

**Appendix C: Analytical Results Tables**

Table 1- SME Soil Analytical Results

Table 2- SME Groundwater Analytical Results

Table 3- SME UST Assessment Soil Analytical Results

**Appendix D: Laboratory Data Reports**

## 1.0 INTRODUCTION

Soil and Materials Engineers (SME) of Plymouth, Michigan prepared this Technical Memorandum to document environmental assessment activities conducted in March 2007, at 35975 Woodward Avenue in Birmingham, Michigan (Figure 1, Appendix A). SME conducted the assessment in accordance with our Sampling and Analysis Plan (SAP) dated February 27, 2007. The SAP was approved by USEPA Region 5 prior to implementation.

SME designed the scope of services for this assessment to evaluate current conditions at the property for the purpose of designing environmental response activities necessary to facilitate redevelopment of the property. The property is currently listed as an open Leaking Underground Storage Tank (LUST) site and the property meets the definition of the “facility” as defined by Part 201 of the Natural Resources Environmental Protection Act (NREPA), as amended.

SME prepared this Technical Memorandum to document sampling procedures, discuss exposure pathways at the property, and present assessment findings and results. Assessment procedures, findings, and conclusions are presented in the following sections.

## 2.0 PROCEDURES

Procedures for soil probe sampling, groundwater monitoring well installation, monitoring well sampling, UST assessment sampling, equipment decontamination, and chemical analyses are discussed below. Soil probe and groundwater monitoring well locations are shown on Figure 2, Appendix A. Soil probe and monitoring well construction logs are provided in Appendix B. SME advanced 15 soil probes at the property from March 7 through 9, 2007, and March 12, 2007, for collection of soil and groundwater samples. SME installed nine monitoring wells at the property on March 7, 8 and 9, 2007, and sampled the new monitoring wells and existing monitoring wells on March 13, 14 and 15, 2007. SME collected soil samples following removal of three 12,000-gallon gasoline USTs at the site on October 12, 2007.

### Soil Probing Activities

SME advanced 15 soil probes, labeled SP1 through SP15, to evaluate soil and groundwater impact on the property. SME advanced soil probes at the following locations:



- SP1, SP3, and SP15 in the vicinity of the UST basin and the areas of the fuel dispensers to evaluate soil and groundwater conditions and the potential presence of free product;
- SP2, SP4, and SP5 on the northwest portion of the property between the northwest property boundary and the former fuel dispensers to evaluate soil conditions in areas with insufficient previous data coverage;
- SP6, SP10, and SP11 along the northwest property boundary to evaluate the potential presence of a petroleum plume migrating onto the property from the northwest adjoining LUST property;
- SP7 and SP8 along the southwest property boundary to evaluate the potential presence of a petroleum plume migrating off the property or a plume migrating onto the property from the southwest adjoining dry cleaning property;
- SP9 along the southeast property boundary in an area that contained the highest levels of groundwater contamination according to previous assessment reports;
- SP12 and SP13 adjacent to the northeast property boundary to evaluate the potential off-property migration of a petroleum plume and/or the presence of contamination migrating on to the property from off-property sources; and
- SP14 adjacent to the 550-gallon used oil UST to evaluate the existing soil and groundwater conditions.

Soil probes were advanced using a truck-mounted, hydraulically driven, direct-push sampling unit. The depths of the soil probes ranged from approximately 10 feet to 30 feet below ground surface. Soil samples from the direct-push coring device were collected using a 48-inch long, two-inch outside diameter (OD), Geoprobe® Macro Sampler fitted with a single-use, disposable, acetate liner. Soil samples were collected continuously from ground surface to the explored depth of each soil probe and were visually classified in the field by the SME field representative. SME collected soil samples from the Macro Sampler by cutting open the acetate liner with a utility knife and transferring the soil to pre-cleaned sample containers. The soil samples were visually classified in general accordance with the Unified Soil Classification System (USCS). A portion of each soil sample collected was used for field screening of volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) with a 10.2 eV lamp. Field screening consisted of placing a portion of the sample in a glass jar and allowing the sample to warm. The results of the field screening were recorded on the soil probe logs.

Based on the current and historical property use and the available soil and groundwater data for the property, the soil samples were analyzed for gasoline and used oil indicator

parameters including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals (cadmium, chromium, and lead). In addition, four of the soil samples were also analyzed for arsenic, barium, mercury, selenium, and silver to help facilitate excavation and soil disposal planning.

The amount of soil collected from the acetate liner was dependent on chemical analyses requirements. Samples for VOCs were removed from the acetate liner and preserved in the field according to USEPA Method 5035A, High Concentration Method (MDEQ-RRD *Operational Memorandum No. 2, Attachment 6*). Soil sufficient for analyses of other parameters were removed from the acetate liner and homogenized prior to transfer to the sample jar. Sample containers were provided by the analytical laboratory. Samples were preserved as specified in MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

A groundwater sample was collected from soil probe SP15 on March 12, 2007, using a five-foot long PVC temporary slotted screen and peristaltic pump. The screen was set to straddle the water table. Approximately three casing volumes of groundwater were purged from the temporary well until the development water was judged to be sufficiently clear prior to sampling. After sampling, the purge water was returned to the soil probe location. The groundwater sample was placed in pre-preserved, laboratory-supplied jars in accordance with MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

Containers of soil and groundwater samples for analyses of organic constituents were maintained at less than or equal to 6°C, and above freezing during storage and transport to the laboratory prior to analyses.

### **Monitoring Well Installation**

SME installed nine groundwater monitoring wells, labeled MW101 through MW109, at the property between March 7, 2007 and March 9, 2007. The following paragraphs describe procedures followed during well installation.

The monitoring wells were constructed of 0.75-inch outside diameter (OD), Schedule 40 PVC riser, with factory-installed 0.010-inch slot PVC screen and 20/40 mesh silica sand pack. The length of riser at each well varied; the well screens were five feet in length. The monitoring wells were installed using a truck-mounted, hydraulic, direct push coring device, equipped with a three-inch diameter Macro Sampler to accommodate the diameter of the well and sand pack. The wells, equipped with driving tip, were inserted into the Macro Sampler and driven to the desired depth in the probe hole created during the previous soil boring. The driving tip of the well,

tapered to slightly larger than the sampler, separated from the sampler during extraction of the sampler unit, setting the well in place.

Monitoring wells were installed such that the well screen straddled the uppermost saturated zone encountered. Annular space, beyond the factory sand pack, was filled with washed silica sand to a level of approximately one foot above the top of the screen. A hydrated bentonite pellet seal was installed above the sand pack to approximately one foot below ground surface. The well casings were sealed with a locking, watertight, riser plug supplied with the well from the factory. The wells were completed with a 12-inch diameter, flush to grade, steel, protective cover.

The monitoring wells were developed by pumping with a peristaltic pump. The monitoring wells were allowed to recharge, and the pumping was continued until approximately six casing volumes of water were removed and/or the clarity of the purged groundwater visually stabilized. Monitoring well construction and final completion depths were verified and documented by the SME field staff.

### **Monitoring Well Sampling**

Groundwater sampling activities were conducted at the property on March 13, 14 and 15, 2007. The following paragraphs describe procedures followed during well sampling activities.

SME purged and sampled the newly installed monitoring wells, MW102 through MW104, MW106 through MW109, and existing monitoring wells, OW1, OW4, and OW7, and MW201. SME was unable to locate existing monitoring wells OW-3, OW-5, OW-8, OW-9, OW-10, and MW101, MW105, OW-11 and OW-2 were dry. Prior to conducting monitoring well purging and sampling, well caps at the monitoring wells were removed to allow the water level within the well casing to equilibrate with respect to atmospheric pressure for a minimum of 15 minutes prior to any measurement or sampling. Each well also was evaluated for the presence of non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) prior to purging and sampling. This evaluation of potential free product was conducted at the water table and screen bottom with an electronic interface probe. No free product was encountered in any of the wells sampled. The depth to water and total well depth was gauged referenced to the top-of-casing using an electronic water level meter incremented to 0.01 feet.

After gauging the depth to water and total well depth, each monitoring well was purged using a variable flow rate, portable peristaltic pump fitted with 3/8-inch ID silicone tubing at a low flow pumping rate between approximately 90 milliliters (ml)/minute and 120 ml/minute. During purging and groundwater sampling activities, groundwater at each well was monitored for the following field parameters: temperature, pH, oxygen reducing potential (ORP), specific conductivity, dissolved oxygen (DO) and turbidity, with an in-line flow cell. Purging continued until measured field parameters indicated the stability criteria presented below:

- Temperature: +/- 0.2 ° Celsius
- pH: +/- 0.1 pH units
- ORP: +/- 10 millivolts (mV)
- Specific Conductivity: +/- 3%
- Dissolved Oxygen: +/- 10%
- Turbidity: +/- 10%,

The depth to groundwater also was periodically gauged during purging activities to verify water column drawdown. The use of the field instruments for temperature, pH, ORP, specific conductivity, DO and turbidity were in general accordance with the manufacturer's recommendations.

After purging was completed, groundwater samples were collected from each well at the same flow rate. Groundwater samples were collected from the pump discharge into the appropriate pre-cleaned, laboratory-supplied containers. Each sample container was selected and preserved in accordance with the SAP. Groundwater samples were not collected from monitoring wells MW101 and MW105 due to insufficient groundwater recharge in the wells.

### **UST Assessment Samples**

SME collected 6 soil assessment samples from the floor of the excavation following removal of three 12,000-gallon gasoline USTs at the site on October 12, 2007. The samples were collected at approximately 12 feet below grade, from locations beneath the north and south ends of each former UST. The samples were collected directly into sample containers supplied by the analytical laboratory. Samples were preserved as specified in MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

### **QA/QC**

Collection of quality assurance/quality control (QA/QC) samples conformed with the requirements and specifications of the SAP.

### **Decontamination**

Drilling equipment used during this assessment was decontaminated using a high pressure, high temperature water wash before each use. Sample collection equipment was cleaned before each use with a laboratory grade detergent and rinsed with distilled water prior to each use. A new pair of disposable nitrile sampling gloves was used for collection of each sample.

### **Chemical Analyses**

Soil and groundwater samples collected during soil probe, and monitoring well sampling activities were submitted to Fibertec Environmental Services in Holt, Michigan (Fibertec) for laboratory analyses of parameters specified in the SAP. SME submitted 36 soil samples (including 3 QA/QC samples) and 25 groundwater samples (including 11 QA/QC samples) for chemical analyses. Soil and groundwater samples were analyzed for constituents of concern selected on the basis of historical use of the property. Soil and groundwater samples were analyzed for VOCs, PAHs, cadmium, chromium (total), and lead. SME also analyzed four of the soil samples for arsenic, barium, mercury, selenium, and silver. Fibertec analyzed the samples using the following referenced methods:

- VOCs – Method 5035/8260B (soil); SW846 Method 5030B/8260B (GW)
- PAHs – Method 3550/8270C (soil); SW846 Method 3510/8270C (GW)
- Metals – Method 3050B/6010B/6020/7471A, Method 3060A/7196A (soil); SW846 Method 3005A/6010B/6020/7470A, Method 3060A/7196A (GW)

The analysis method reporting limits (MRLs), QA/QC procedures and reporting protocols used by Fibertec conformed with requirements and specifications of the SAP.

Soil assessment samples collected following UST excavation activities were submitted to Quantum Laboratories, Inc. in Wixom, Michigan (Quantum) for laboratory analyses of benzene, ethylbenzene, toluene, and xylenes (total). SME submitted 6 soil samples for chemical analyses. Quantum analyzed the samples using the following referenced methods:

- VOCs – Method 8260B (soil)

### 3.0 EXPOSURE PATHWAY CHARACTERIZATION

SME evaluated the relevancy and applicability of potential exposure pathways and receptors susceptible to a release from the property. Pathways are relevant if exposures to contaminated media could occur under current or reasonably foreseeable property conditions and uses. The pathways are relevant when hazardous substances, which may pose a risk via the respective pathway, are known or suspected to have been present or released on the property, and no barriers to exposure are known. Exposure pathways to be considered for protection of human health and the environment, and relevant property-specific conditions judged to be applicable to each, are summarized below:

Consumption/use of groundwater – Groundwater is present beneath the property in perched conditions located in the fill materials overlying native clay soils. Although no potential human receptors are reasonably expected to be impacted, current MDEQ policy requires that the drinking water pathway be considered relevant at the property under Part 201 of the Natural Resources and environmental Protection Act, 1994 PA 451, as amended.

Groundwater to surface water interface (GSI) pathway – The nearest surface water body to the property is the Rouge River adjoining the southeast boundary of the property. Therefore, the GSI pathway is a relevant at the property.

Direct contact with groundwater – Perched groundwater has been observed on the property at depths of 7 feet to 28 feet below the ground surface. Human contact with groundwater at the property is not likely to occur during future use of the property, but is likely to occur during redevelopment of the property; therefore, the groundwater direct contact pathway is relevant at the property.

Direct contact with soil – Human occupation of the property is anticipated to be consistent with commercial use. Because human exposure to impacted soil is possible during construction, the soil direct contact pathway is relevant for areas of the property not covered by impervious materials (e.g. concrete foundations, pavement, etc.).

Inhalation of contamination released from soil or groundwater – Use of the property involves human occupation consistent with commercial operations. Exposure to volatile compounds released from soil or groundwater on the property or contaminated particulate matter released from soils on the property is possible. Therefore, this pathway is relevant.

Aesthetic impacts – Petroleum chemicals whose presence or release could cause aesthetic impacts are known or suspected to have been present on the property. Therefore, aesthetic impact issues on the property are relevant.

Based on current information, no other risk issues, such as acute toxic, or ecological risks, are believed to be applicable to soil or groundwater on the property, now or in the future.

#### 4.0 RESULTS AND FINDINGS

Results of the property assessment activities, including subsurface conditions, and chemical analyses of samples collected at the property are described below.

##### Subsurface Conditions

The following paragraphs describe subsurface conditions encountered at the soil probe and monitoring well locations. The soil probe and monitoring well locations are shown in Figure 2, Appendix A. Soil probe and monitoring well construction logs are provided in Appendix B. SME encountered the following subsurface conditions during soil probe and monitoring well installation activities.

The surface materials encountered at the property consisted of approximately 4 to 8 inches of concrete, 3 to 6 inches of asphalt, 1 inch of mulch and crushed brick, and/or 12 to 18 inches of sand fill. Beneath surface materials, SME generally encountered sand and clay fill extending to depths ranging from approximately 2.5 feet at SP6 on the north end of the property to 29 feet below ground surface at SP9 on the south end of the property. In general, the depth of the fill increased from north to south, toward the Rouge River. The fill contained trace to some amounts of slag, crushed brick, gravel, coal, glass, metal fragments, and wood fragments. SME encountered native clays beneath the fill material at 10 of 15 locations. The native clay was encountered to depths between 10 feet and 30 feet below ground surface, the termination depths of the soil probes. SME terminated soil probes SP1, SP4, SP8, SP12, SP15 in fill. SME encountered native silt at SP7 below the native clay at a depth of 23 feet below grade, extending to the completion depth of the soil probe at 24 feet.

Groundwater was encountered at 10 of the 15 soil probe locations. The depth to groundwater ranged from 7 feet to 28 feet below ground surface. Groundwater was generally encountered in perched conditions in the fill overlying the native clay.



Staining and/or odors were encountered 10 of the 15 soil probes at a variety of depths. No staining or odors were encountered at SP1, SP4, SP5, SP6, SP10, all advanced on the west end of the site. SME measured PID readings greater than 1 mg/kg in 12 of 15 soil probes. PID readings in the soil probe samples ranged from 3 mg/kg to 2,858 mg/kg. PID readings at SP4, SP5, and SP10 were measured below 1 mg/kg.

### **Analytical Results**

Results of the property assessment and chemical testing of samples collected at the property are described in this section. Analytical results were compared to Part 201 Generic Cleanup Criteria judged by SME to be relevant at the property. Based on the results, the property meets the definition of the “facility” as defined by Part 201 of the Natural Resources Environmental Protection Act (NREPA), as amended. Results of chemical analyses performed on soil and groundwater samples are summarized below. Tabulated analytical results for soil probe soil sample analysis (Table 1) and groundwater sample analysis (Table 2) are provided in Appendix C. Tabulated analytical results for UST assessment soil sample analysis (Table 3) are also provided in Appendix C. Copies of the laboratory analytical results are included in Appendix D.

### **Results of Soil Sample Analyses**

#### **VOCs**

The following VOCs were measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Groundwater Contact Protection Criterion, Direct Contact Criterion, and Soil Saturation Concentration Screening Levels:

- 1,2,4-trimethylbenzene
- toluene
- xylenes

The following VOCs were also measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Volatilization to Indoor Air Inhalation Criterion:

- benzene\*
- 1,2,4-trimethylbenzene
- toluene
- xylenes

\*Benzene was also measured in SP15 (10-11 feet) at a concentration above MDEQ Part 201 Generic Residential and Industrial Ambient Air Volatile Soil Inhalation Criteria.

The following VOC constituents were also measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Drinking Water Protection Criteria and/or Groundwater Surface Water Interface (GSI) Protection Criteria:

- benzene
- ethylbenzene
- naphthalene
- n-butylbenzene
- n-propylbenzene
- sec-butylbenzene
- tetrachloroethene
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- xylenes

No other analyzed VOCs were measured in soil samples at a concentration above applicable generic residential use criteria.

### PAHs

Fluoranthene was measured at SP8-S1 (0.5 to 1.5 feet) at a concentration above Part 201 GSI Protection Criterion. No other analyzed PAHs were measured in soil samples at a concentration above applicable generic residential use criteria.

### Metals

Arsenic was measured in soil samples at SP9-S5 (9-10') at a concentration above MDEQ Part 201 Generic Residential Direct Contact and Drinking Water Protection Criteria. Lead was measured in soil sample SP9-S5 (9-10') at a concentration above Part 201 Generic Residential and Industrial Drinking Water Protection Criteria and Direct Contact Criteria. Selenium was measured in soil sample SP2-S2 (3-4') at a concentration exceeding the Part 201 GSI Protection Criterion. Mercury and selenium were measured in soil sample SP9-S5 (9-10') at concentrations above the Part 201 GSI Protection Criteria. No other analyzed metal constituents were measured in soil samples at a concentration above applicable generic residential use criteria.

## Results of Groundwater Sample Analyses

### VOCs

Benzene was measured in the groundwater samples collected from SP15 and MW109 at concentrations above MDEQ Part 201 Generic Residential Groundwater Volatilization to Indoor Air Inhalation Criteria.

The following VOCs were measured in groundwater samples collected from each monitoring well at concentrations exceeding Part 201 Drinking Water Criteria and/or GSI Criteria with the exception of the groundwater samples collected from MW201 and OW4:

- benzene
- ethylbenzene
- MTBE
- naphthalene
- n-propylbenzene
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- xylenes

No other analyzed VOCs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### PAHs

Fluoranthene was measured in the groundwater sample collected from MW104 at a concentration above Part 201 GSI Criterion. No other analyzed PAHs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### Metals

Lead was measured in groundwater samples collected from MW102, MW106 (duplicate), MW107, and MW108 at concentrations above the Part 201 Generic Residential Drinking Water Criterion. No other analyzed metals were measured in groundwater samples at a concentration above applicable generic residential use criteria.

**Quality Assurance/Quality Control**

Results for analyses of quality control samples indicated that sample reproducibility and the sampling and laboratory analysis functions were in control.

## **Results of Groundwater Sample Analyses**

### **VOCs**

Benzene was measured in the groundwater samples collected from SP15 and MW109 at concentrations above MDEQ Part 201 Generic Residential Groundwater Volatilization to Indoor Air Inhalation Criteria.

The following VOCs were measured in groundwater samples collected from each monitoring well at concentrations exceeding Part 201 Drinking Water Criteria and/or GSI Criteria with the exception of the groundwater samples collected from MW201 and OW4:

- benzene
- ethylbenzene
- MTBE
- naphthalene
- n-propylbenzene
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- xylenes

No other analyzed VOCs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **PAHs**

Fluoranthene was measured in the groundwater sample collected from MW104 at a concentration above Part 201 GSI Criterion. No other analyzed PAHs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **Metals**

Lead was measured in groundwater samples collected from MW102, MW106 (duplicate), MW107, and MW108 at concentrations above the Part 201 Generic Residential Drinking Water Criterion. No other analyzed metals were measured in groundwater samples at a concentration above applicable generic residential use criteria.

**Quality Assurance/Quality Control**

Results for analyses of quality control samples indicated that sample reproducibility and the sampling and laboratory analysis functions were in control.

**APPENDIX A**

**FIGURES**

**Figure 1-Property Location Map**  
**Figure 2- Boring Location Diagram**

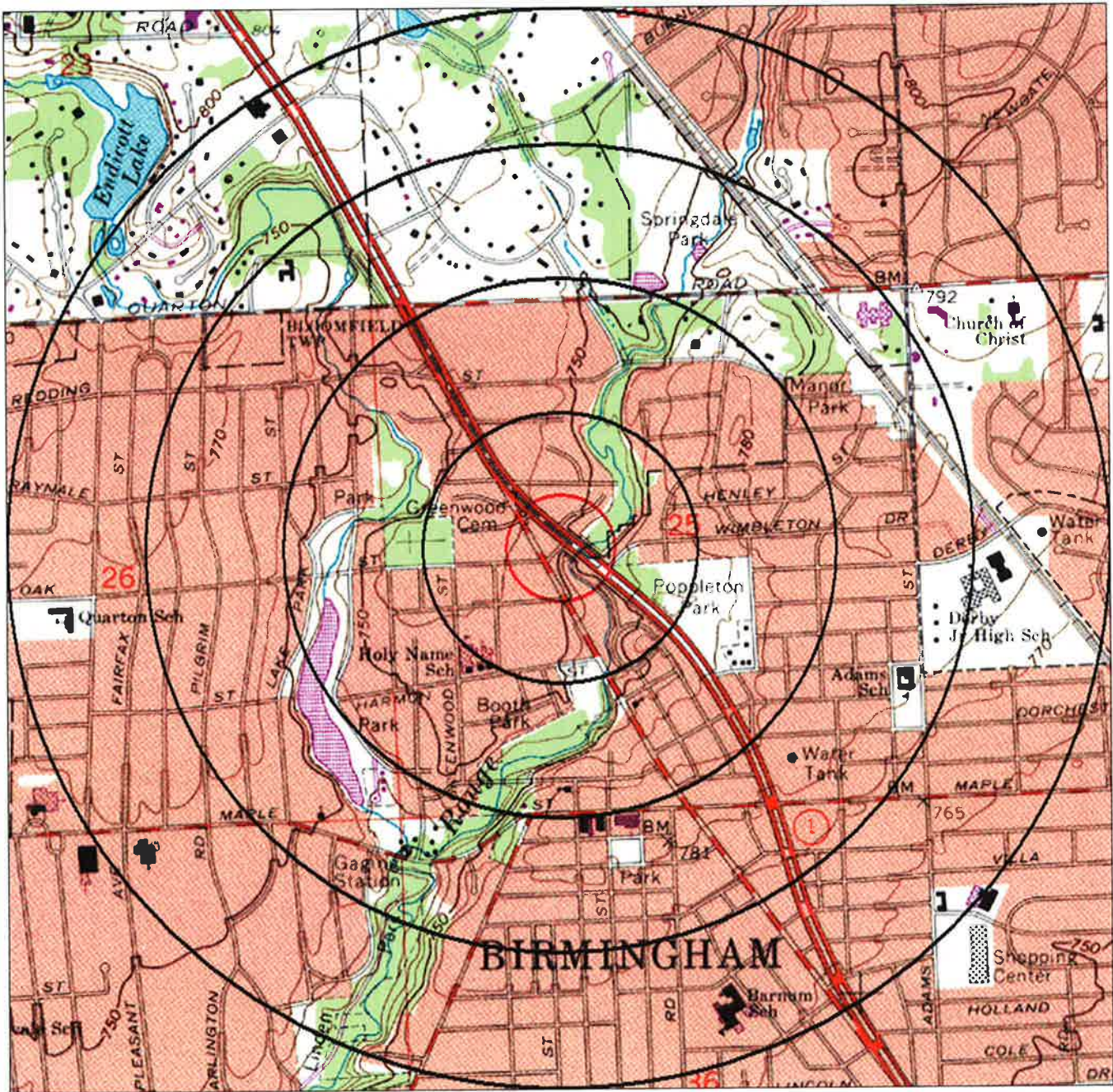









# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map

**35975 WOODWARD AVE, BIRMINGHAM MI 48009**



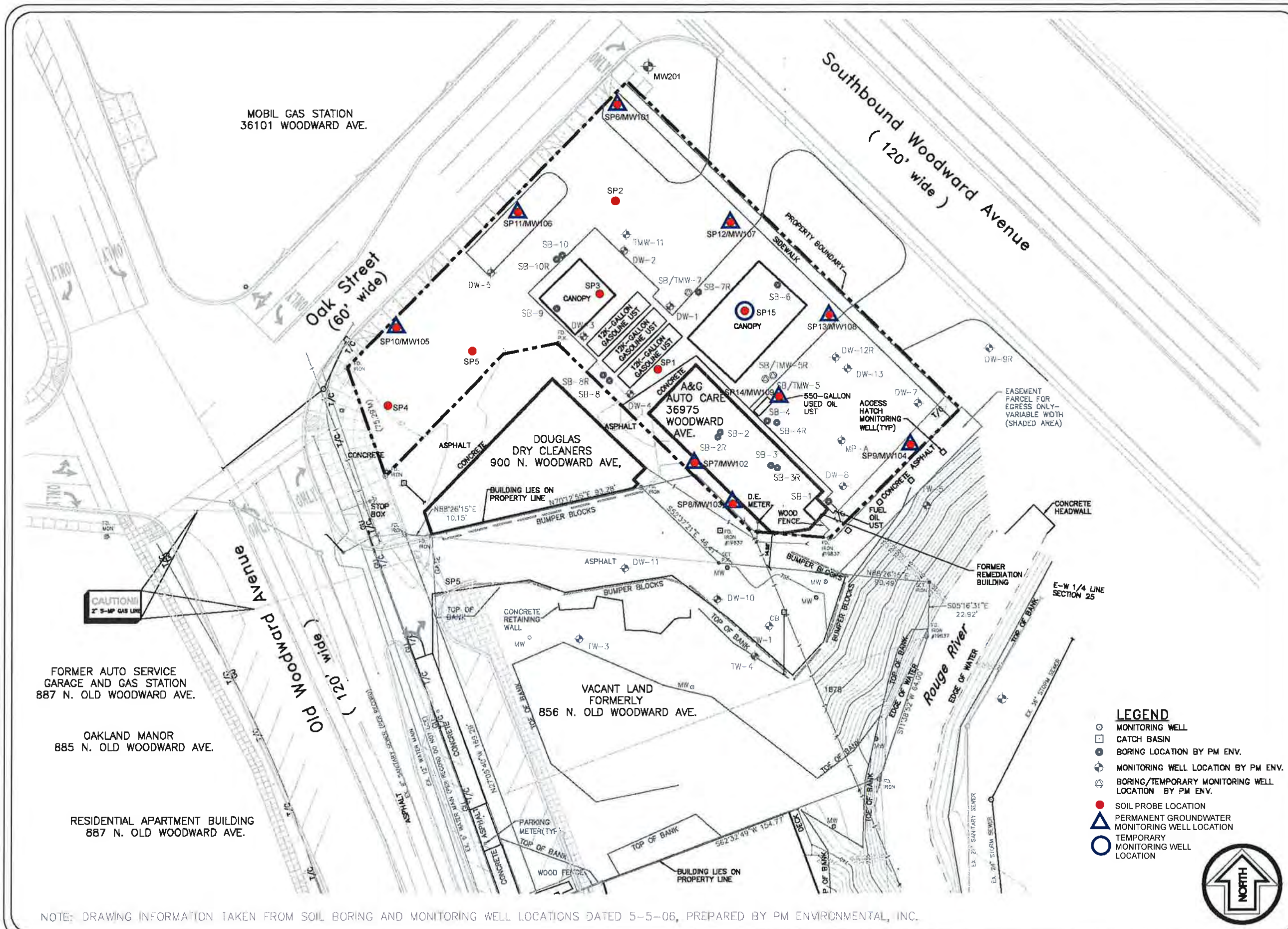
- Source:**  
 Target Site (Latitude: 42.553677 Longitude: -83.218798) .....   
 Identified Site, Multiple Sites, Receptor .....     
 NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste .....    
 Tribal Land..... 

Map Name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--

Map Reference Code: 42083-E2-TF-024

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

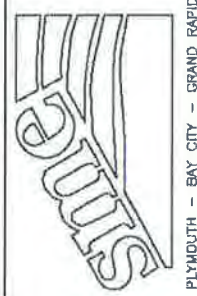




SOIL BORING, SOIL PROBE AND  
 MONITORING WELL LOCATION DIAGRAM  
 35975 WOODWARD AVENUE  
 BIRMINGHAM, MICHIGAN

DATE: 2-21-07  
 SCALE: 1" = 40'  
 DRAFTER: JAB  
 JOB: PE54494C

- LEGEND**
- MONITORING WELL
  - CATCH BASIN
  - BORING LOCATION BY PM ENV.
  - ⊕ MONITORING WELL LOCATION BY PM ENV.
  - ⊙ BORING/TEMPORARY MONITORING WELL LOCATION BY PM ENV.
  - SOIL PROBE LOCATION
  - △ PERMANENT GROUNDWATER MONITORING WELL LOCATION
  - TEMPORARY MONITORING WELL LOCATION



PLYMOUTH - BAY CITY - GRAND RAPIDS  
 KALAMAZOO - LANSING - SHELBY TWP.  
 TOLEDO - TRVERSE CITY

Feb 21, 2007 - 12:45PM - jblake  
 R:\Plymouth\_dwg\PE54494C\54494C.dwg

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

DUE TO ELECTRONIC DATA TRANSFER QUALITY, SITE "OW" MONITORING WELLS APPEAR AS "DW" (DW=OW).  
 MONITORING WELLS ARE REFERRED TO AS OW IN REPORT TEXTS.

Figure No. 2

**APPENDIX B**  
**SOIL PROBE AND WELL CONSTRUCTION LOGS**





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 8 Inches of Concrete																
0		Fine to Medium Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	18		<1												
5		Clayey Sand- Some Silt- Trace Gravel and Root Fibers- Occasional Sand Seams- Black- Moist (SC/Fill)	S2	24		<1												
5			S3	24		<1												
5			S4	24		204												
10		Silty Clay- Trace to Some Sand- Trace Gravel- Dark Gray (CL/Fill)	S5	0		1,509												
10			S6	12		1,626												
15		Fine to Coarse Sand- Trace to Some Silt- Trace Gravel and concrete Fragments- Black- Wet (SP/Fill)	S7	12		1,049												
15			S8	12		1,970												
15		END OF SOIL PROBE AT 16 FEET (REFUSAL AT 16 FEET)																
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2 NO STAINING OR ODOR WERE ENCOUNTERED



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

SOIL PROBE SP2

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Asphalt																
		Fine to Medium Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	24		<1	X											
		Clayey Fine to Medium Sand- Some Silt- Trace Gravel- Black- Moist (SP/Fill))	S2	24		23.2	X											
5		Silt- Trace Sand- Gray- Moist (SM/Fill)	S3	12		22.1												
		Sandy Clay- Trace to Some Silt- Trace Gravel- Brown (SL/Fill)	S4	24		6.3												
		Silty Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Wet (SM/Fill)	S5	24		<1												
10		Silty Clay- Trace Sand and Gravel- Brown (CL)	S6	24		<1												
		END OF SOIL PROBE AT 12 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 6 FEET

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: 8 FEET  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 6 Inches of Concrete																
0			S1	12		<1												
0			S2	24		<1												
5		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist to Wet (SP/Fill)	S3	12		<1												
5			S4	24		<1												
5			S5	24		<1												
10			S6	24		<1												
10		Sandy Clay- Trace to Some Silt- Trace Gravel- Black (CL)	S7	24		95.2												
10			S8	12														
15		Silty Clay- Trace Sand and Gravel- Brown (CL)																
15		END OF SOIL PROBE AT 15 FEET																
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**

- ☞ GROUNDWATER ENCOUNTERED DURING DRILLING
- ☞ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 12 TO 14 FEET

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: 7 FEET

RIG NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 3 Inches of Asphalt																
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1												
0		Silty Clay- Trace to Some Sand- Trace Gravel- Dark Brown- Moist (CL/Fill)																
5		Silty Clay- Trace to Some Sand- Trace Gravel- Occasional Sand Seams- Brown (CL/Fill)	S2	24		<1												
5			S3	24		<1												
5			S4	24		<1												
10		Silty Sand- Brown- Moist to Wet (SM/Fill)	S5	24		<1												
10			S6	24		<1												
12		END OF SOIL PROBE AT 12 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2 NO STAINING OR ODORS ENCOUNTERED

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: 7 FEET  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)												
								0	10	20	30	40	50							
0		GROUND SURFACE ELEVATION= NOT MEASURED																		
		Driller Reported 4 Inches of Asphalt																		
		Fine to Coarse Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	24		<1														
		Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Brown- Gray (CL)	S2	24		<1														
5			S3	24		<1														
		Silty Clay- Trace Sand and Gravel- Gray and Brown (CL)	S4	24		<1														
			S5	24		<1														
10		END OF SOIL PROBE AT 10 FEET																		
15																				
20																				
25																				
30																				
35																				
<b>WATER LEVEL OBSERVATIONS</b> GROUNDWATER ENCOUNTERED DURING DRILLING GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING			<b>Notes:</b> 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL. 2. GROUNDWATER WAS NOT ENCOUNTERED 3. NO STAINING OR ODORS ENCOUNTERED																	

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING:

RIG NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Mulch and Crushed Brick (SP/Fill)																
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1	X											
5		Silty Clay- Trace Sand and Gravel- Occasional Sand Seams- Brown (CL)	S2	24		<1												
5			S3	12		<1												
5			S4	12		95.2	X											
10			S5	24		<1												
10		Silty Clay- Trace Sand and Gravel- Brown (CL)	S6	24		<1												
10			S7	24		95.2												
15			S8	24														
16		END OF SOIL PROBE AT 16 FEET																
20																		
25																		
30																		
35																		
<b>WATER LEVEL OBSERVATIONS</b> GROUNDWATER ENCOUNTERED DURING DRILLING GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING			<b>Notes:</b> 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL. 2. GROUNDWATER WAS NOT ENCOUNTERED 3. NO STAINING OR ODORS ENCOUNTERED															

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING:  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)									
								0	10	20	30	40	50				
		GROUND SURFACE ELEVATION= NOT MEASURED															
0		Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	S1	24		<1											
		Fine to Medium Sand- Trace Silt, Root Fibers and Slag- Crushed Brick and Gravel (SP/Fill)	S2	24		<1											
5		Silty Clay- Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	S3	24		<1											
		Silty Clay- Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	S4	12		105											
		Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	S5	12		105											
10		Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	S6	12		131											
		Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	S7	12		68.9											
15		Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	S8	12		1,317											
		Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	S9	12		1,642											
20		Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	S10	12		2,858											
		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Dark Gray (CL)	S11	24		<1											
		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Dark Gray (CL)	S12	24		<1											
25		Silt- Trace to Some Sand- Trace Root Fibers- Gray- Wet (SM)															
		END OF SOIL PROBE AT 24 FEET															
30																	
35																	

**WATER LEVEL OBSERVATIONS**  
 ▽ GROUNDWATER ENCOUNTERED DURING DRILLING  
 ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 6 TO 24 FEET

DRILLER: BJM  
 GRIP NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 19 FEET  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)											
								0	10	20	30	40	50						
0		GROUND SURFACE ELEVATION= NOT MEASURED																	
0		Fine to Medium Sand- Some Topsoil- Trace Silt and Root Fibers- Dark Brown- Moist (SP/Fill)	S1	24		<1	▲												
		Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	S2	24		<1													
5		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	S3	24		<1													
		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	S4	24		<1													
		Silty Clay- Trace to Some Sand- Trace Gravel, Root Fibers, Glass, and Slag- Brown and Gray (CL/Fill)	S5	18		<1													
10		Fine to Medium Sand- Trace to Some Gravel- Trace Silt, Crushed Brick, Concrete Fragments, Wood Fragments and Glass- Dark Gray and Black- Moist (SP/ Fill)	S6	24		1,892	▲												
			S7	24		104													
			S8	0															
			S9	24		316													
			S19	12		315													
20			S11	24		239	▲												
			S12	12		272													
25		END OF SOIL PROBE AT 25 FEET	S13	12		1,325													
30																			
35																			

**WATER LEVEL OBSERVATIONS**  
 ▽ GROUNDWATER ENCOUNTERED DURING DRILLING  
 ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2 STAINING AND ODORS ENCOUNTERED AT 8 TO 25 FEET



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

SOIL PROBE SP9/MW104

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED Driller Reported 4 Inches of Concrete																
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1												
5			S2	24		12.4												
5			S3	24		<1												
5			S4	24		28.6												
10		Sandy Clay- Trace to Some Silt- Trace Gravel, Slag, Glass, and Crushed Brick- Occasional Sand Seams- Brown and Black (CL/Fill)	S5	12		102												
10			S6	24		78.4												
15			S7	12		25.5												
15			S8	24		16.0												
20		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	S19	24		<1												
20			S11	24		<1												
25		Sandy Clay- Some Silt- Trace Root Fibers- Gravel- Dark Gray (CL/Fill)	S12	24		<1												
25			S13	24		<1												
25		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	S14	24		20.4												
30		Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Dark Gray (CL/Fill)	S15	24		<1												
30		Fine to Medium Sand- Some Silt- Greenish Gray- Wet (SP/Fill)																
30		Silty Clay- Trace Sand- Gravel- Gray (CL)																
30		END OF SOIL PROBE AT 30 FEET																
35																		

**WATER LEVEL OBSERVATIONS**

- ▽ GROUNDWATER ENCOUNTERED DURING DRILLING
- ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 6 TO 16 FEET AND 26 TO 30 FEET

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: 28 FEET

RIG NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 3 Inches of Asphalt																
0		Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	S1	12		<1												
0			S2	24		<1												
5			S3	24		<1												
5		Silty Clay- Trace Sand and Gravel- Brown (CL)	S4	24		<1												
5			S5	24		<1												
10			S6	24		<1												
12		END OF SOIL PROBE AT 12 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED  
 3. NO STAINING OR ODORS ENCOUNTERED

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING:  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Concrete																
0		Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	S1	18	72.4													
5		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	S2	24	574													
5			S3	12	964													
8		Silty Clay- Trace to Some Sand- Trace Gravel- Gray (CL/Fill)	S4	24	980													
8		Fine to Coarse Sand- Some Gravel- Trace Silt- Brown- Wet (SP/Fill)																
8		Silty Clay- Trace Sand and Gravel and Wood Fragments- Gray and Brown (CL)	S5	24	<1													
10		END OF SOIL PROBE AT 10 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 ▽ GROUNDWATER ENCOUNTERED DURING DRILLING  
 ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 8 FEET

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 7 FEET  
 WATER LEVEL UPON COMPLETION:





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED Driller Reported 3 Inches of Asphalt																
0-5		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown to Black (SP/Fill)	S1 S2 S3 S4	18 24 24 24	<1 <1 <1 30 5													
5-18		Silty Clay- Trace to Some Sand- Trace Gravel and Wood Fragments- Occasional Sand Seams- Gray and Dark Gray (CL/Fill)	S5 S6 S7 S8 S9	12 24 24 12 24	35 8 1,655 1,628 16.3 24.5													
18-35		END OF SOIL PROBE AT 18 FEET																

**WATER LEVEL OBSERVATIONS**  
 ▽ GROUNDWATER ENCOUNTERED DURING DRILLING  
 ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2. GROUNDWATER WAS NOT ENCOUNTERED  
 3. STAINING AND/OR ODORS ENCOUNTERED 4 TO 18 FEET

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: None

RIG NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
		GROUND SURFACE ELEVATION= NOT MEASURED																
0	XXXX	Driller Reported 6 Inches of Asphalt																
	XXXX	Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Brown to Black- Moist (SP/Fill)	S1	18		370	X											
	XXXX	Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Gray- Moist (CL/Fill)	S2	24		1,653												
5	XXXX		S3	24		1,763												
	XXXX		S4	24		1,831	X											
	XXXX	Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Occasional Sand Seams- Gray and Black (CL)	S5	12		1,582												
10	XXXX		S6	12		1,140												
	XXXX		S7	24		75 2	X											
		Organic Clay- Trace to Some Silt- Trace Root Fibers and Sand- Black (CL)																
		END OF SOIL PROBE AT 14 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 14 FEET

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING:  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)									
								0	10	20	30	40	50				
0		GROUND SURFACE ELEVATION= NOT MEASURED Driller Reported 3 Inches of Asphalt															
0 - 2.5		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1											
2.5 - 4.5			S2	24		<1											
4.5 - 6.5			S3	24		506											
6.5 - 8.5			S4	24		385											
8.5 - 10.5			S5	24		1,250											
10.5 - 12.5			S6	24		2,533											
12.5 - 14.5			S7	18		2,722											
14.5 - 16.5		Sandy Clay- Trace to Some Silt- Trace Gravel- Occasional Sand Seams- Gray and Black (CL/Fill)	S8	24		75.0											
16.5 - 18.5			S9	12		1,820											
18.5 - 20.5			S19	12		83.1											
20.5 - 22.5			S11	12		903											
22.5 - 24.5			S12	12		703											
24.5 - 26.5		Silty Clay- Trace Sand and Gravel- Brown (CL)	S13	12		14.2											
26.5 - 28.5			S14	12		<1											
28.5 - 30.5		END OF SOIL PROBE AT 28 FEET															
30.5 - 32.5																	
32.5 - 34.5																	
34.5 - 36.5																	

**WATER LEVEL OBSERVATIONS**  
 1 GROUNDWATER ENCOUNTERED DURING DRILLING  
 2 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2. STAINING AND ODORS ENCOUNTERED 4 TO 24 FEET  
 3. EVIDENCE OF FREE PRODUCT AT 10.5 TO 11 FEET



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Concrete Fine to Medium Sand- Trace Silt, Gravel, and Coal Fragments- Brown- Moist (SP/Fill)	S1	16		5												
5		Sandy Clay- Trace to Some Sand- Trace Gravel- Occasional Fine to Medium Sand Seams- Brown to Black (CL/Fill)	S2	16		1,106												
5			S3	18		1,406												
5			S4	18		1,387												
10		Silty Clay- Trace to Some Sand- Trace Gravel- Occasional Fine to Medium Sand Seams- Brown to Black (CL/Fill)	S5	16		1,816												
10		Concrete and Sandy Clay Fill- Wet (CL/ Fill)	S6	8		1,870												
15			S7	18		1,922												
15		Silty Clay- Trace to Some Sand- Trace Gravel- Brown (CL/Fill)	S8	18		176												
15			S9	18		19												
20			S19	18		5												
20			S11	20		3												
22		END OF SOIL PROBE AT 22 FEET																
25																		
30																		
35																		

WATER LEVEL OBSERVATIONS  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

Notes: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED 0 TO 18 FEET.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 9 Feet  
 WATER LEVEL UPON COMPLETION:



**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (F)	WELL DIAGRAM	DEPTH (F)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
		0		GROUND SURFACE ELEVATION= NOT MEASURED		
				Mulch and Crushed Brick (SP/Fill)		
					Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED
			5		Silty Clay- Trace Sand and Gravel- Occasional Sand Seams- Brown (CL)	Well Screen Tip Elevation: NOT MEASURED Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
			10		Silty Clay- Trace Sand and Gravel- Brown (CL)	Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15		END OF SOIL PROBE AT 16 FEET	Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y	
		20			Protective Casing Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL	
		25			Well Cap Type: EXPANDABLE PLUG	
		30			Northing: Easting:	
		35				

WELL TYPE: DRILLING METHODS: DIRECT PUSH  
 DRILLER: BJM  
 RIG NUMBER OR CONTRACTOR:

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
 2. GROUNDWATER WAS NOT ENCOUNTERED.

WATER LEVEL DATA		
DATE	DEPTH (Feet)	ELEVATION (Feet)



# soil and materials engineers, inc.

Monitoring Well

MW102

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (ft.)	WELL DIAGRAM	DEPTH (ft.)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
		0		GROUND SURFACE ELEVATION= NOT MEASURED		
				Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED	
				Fine to Medium Sand- Trace Silt, Root Fibers and Slag- Crushed Brick and Gravel (SP)	Well Screen Tip Elevation: NOT MEASURED	
			5	Silty Clay- Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND	
				Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:	
			10		<u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y	
			15		Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	<u>Protective Casing</u> Total Length: 12 INCH Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL
			20		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Dark Gray (CL)	<u>Well Cap</u> Type: EXPANDABLE PLUG
					Silt- Trace to Some Sand- Trace Root Fibers- Gray- Wet (SM)	
			25		END OF SOIL PROBE AT 24 FEET	Northing: Easting:
		30				
		35				

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**

1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)
	19 FEET	



# soil and materials engineers, inc.

Monitoring Well

MW103

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
		0		GROUND SURFACE ELEVATION= NOT MEASURED	
				Fine to Medium Sand- Some Topsoil- Trace Silt and Root Fibers- Dark Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED
				Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
			5	Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	Borehole Diameter: 3 INCHES
				Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	Filter Pack Type: 2 NS SAND
			10	Silty Clay- Trace to Some Sand- Trace Gravel, Root Fibers, Glass, and Slag- Brown and Gray (CL/Fill)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15	Fine to Medium Sand- Trace to Some Gravel- Trace Silt, Crushed Brick, Concrete Fragments, Wood Fragments and Glass- Dark Gray and Black- Moist (SP/ Fill)	<u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y	
		20		<u>Protective Casing</u> Total Length: 12 INCH Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL	
		25		END OF SOIL PROBE AT 25 FEET	<u>Well Cap</u> Type: EXPANDABLE PLUG
		30			Northing: Easting:
		35			

WELL TYPE: DRILLER: BJM RIG NUMBER OR CONTRACTOR:			DRILLING METHODS: DIRECT PUSH		
<b>WATER LEVEL DATA</b>					
DATE	DEPTH (Feet)	ELEVATION (Feet)			
	21 FEET				

**Notes:**  
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL





**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FT.)	WELL DIAGRAM	DEPTH (FT.)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
		0		GROUND SURFACE ELEVATION= NOT MEASURED		
				Driller Reported 4 Inches of Concrete		
				Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED	
			5		Well Screen Tip Elevation: NOT MEASURED	
					Borehole Diameter: 3 INCHES	
					Filter Pack Type: 2 NS SAND	
			10		Sandy Clay- Trace to Some Silt- Trace Gravel, Slag, Glass, and Crushed Brick- Occasional Sand Seams- Brown and Black (CL/Fill)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:
			15			<u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
			20		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	<u>Protective Casing</u> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
			25		Sandy Clay- Some Silt- Trace Root Fibers- Gravel- Dark Gray (CL/Fill)	<u>Well Cap</u> Type: EXPANDABLE PLUG
				Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	Nothing: Easting:	
				Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Dark Gray (CL/Fill)		
				Fine to Medium Sand- Some Silt- Greenish Gray- Wet (SP/Fill)		
				Silty Clay- Trace Sand- Gravel- Gray (CL)		
		30		END OF SOIL PROBE AT 30 FEET		
		35				

WELL TYPE:			DRILLING METHODS: DIRECT PUSH		
DRILLER: BJM					
RIG NUMBER OR CONTRACTOR:					
WATER LEVEL DATA					
DATE	DEPTH (Feet)	ELEVATION (Feet)			
	28 FEET				

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.



# soil and materials engineers, inc.

Monitoring Well

MW105

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL) PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
		0	GROUND SURFACE ELEVATION= NOT MEASURED Driller Reported 3 inches of Asphalt	Top of Casing Elevation: NOT MEASURED
		5	Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
		10	Silty Clay- Trace Sand and Gravel- Brown (CL)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
		12	END OF SOIL PROBE AT 12 FEET	Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15		Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20		Protective Casing Total Length: 12 INCHES Length Above Ground: SLUSH Diameter: 12 INCHES Type: STEEL
		25		Well Cap Type: EXPANDABLE PLUG
		30		Northing: Easting:
		35		

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**

1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL
2. GROUNDWATER WAS NOT ENCOUNTERED

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)



# soil and materials engineers, inc.

Monitoring Well

MW106

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FT.)	WELL DIAGRAM	DEPTH (FT.)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
				GROUND SURFACE ELEVATION= NOT MEASURED	
		0		Driller Reported 4 Inches of Concrete	<b>Top of Casing</b> Elevation: NOT MEASURED
				Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	
		5		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	<b>Well Screen Tip</b> Elevation: NOT MEASURED
				Silty Clay- Trace to Some Sand- Trace Gravel- Gray (CL/Fill)	<b>Borehole Diameter: 3 INCHES</b>
				Fine to Coarse Sand- Some Gravel- Trace Silt- Brown- Wet (SP/Fill)	<b>Filter Pack Type:</b> 2 NS SAND
			Silty Clay- Trace Sand and Gravel and Wood Fragments- Gray and Brown (CL)	<b>Well Casing</b> Diameter: 0.75 INCH Length: Type: PVC Joint Type:	
		10		END OF SOIL PROBE AT 10 FEET	<b>Well Screen</b> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		15			<b>Protective Casing</b> Total Length: 12 INCHES Length Above Ground: SLUSH Diameter: 12 INCHES Type: STEEL
		20			<b>Well Cap</b> Type: EXPANDABLE PLUG
		25			<b>Northing:</b> <b>Easting:</b>
		30			
		35			

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**

1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)
	7 FEET	



# soil and materials engineers, inc.

Monitoring Well

MW107

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL) PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
		0	GROUND SURFACE ELEVATION= NOT MEASURED	
			Driller Reported 3 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED
			Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown to Black (SP/Fill)	Well Screen Top Elevation: NOT MEASURED
			Silty Clay- Trace to Some Sand- Trace Gravel and Wood Fragments- Occasional Sand Seams- Gray and Dark Gray (CL/Fill)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND  Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:  Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		18	END OF SOIL PROBE AT 18 FEET	Protective Casing Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL  Well Cap Type: EXPANDABLE PLUG  Northing: Easting:
		20		
		25		
		30		
		35		

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**  
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL  
2. GROUNDWATER WAS NOT ENCOUNTERED.

WATER LEVEL DATA		
DATE	DEPTH (Feet)	ELEVATION (Feet)
	None	



# soil and materials engineers, inc.

Monitoring Well

MW108

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (Ft.)	WELL DIAGRAM	DEPTH (FL) PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
		0	GROUND SURFACE ELEVATION= NOT MEASURED	
			Driller Reported 6 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED
			Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Brown to Black- Moist (SP/Fill)	
			Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Gray- Moist (CL/Fill)	Well Screen Tip Elevation: NOT MEASURED
			Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Occasional Sand Seams- Gray and Black (CL)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
		10		Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15	Organic Clay- Trace to Some Silt- Trace Root Fibers and Sand- Black (CL) END OF SOIL PROBE AT 14 FEET	Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20		Protective Casing Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
		25		Well Cap Type: EXPANDABLE PLUG
		30		Nothing: Easting:
		35		

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**  
1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)



# soil and materials engineers, inc.

Monitoring Well

MW109

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FT)	WELL DIAGRAM	DEPTH (FT) PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
		0	GROUND SURFACE ELEVATION= NOT MEASURED	
			Driller Reported 3 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED
			Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
				Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
				<b>Well Casing</b> Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		10		<b>Well Screen</b> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		15	Sandy Clay- Trace to Some Silt- Trace Gravel- Occasional Sand Seams- Gray and Black- Evidence of Free Product at 10.5 to 11 Feet (CL)	<b>Protective Casing</b> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
		20		<b>Well Cap</b> Type: EXPANDABLE PLUG
		25	Silty Clay- Trace Sand and Gravel- Brown (CL)	Northing: Easting:
			END OF SOIL PROBE AT 28 FEET	
		30		
		35		
<b>WELL TYPE:</b> <b>DRILLER:</b> BJM <b>RIG NUMBER OR CONTRACTOR:</b>			<b>DRILLING METHODS:</b> DIRECT PUSH	
<b>Notes:</b> 1 THE INDICATED STRATIFICATION LINES ARE APPROXIMATE IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL				
<b>WATER LEVEL DATA</b>				
DATE	DEPTH (Feet)	ELEVATION (Feet)		
	24 FEET			

## **APPENDIX C**

### **ANALYTICAL RESULTS TABLES**

**Table 1- SME Soil Analytical Results**

**Table 2- SME Groundwater Analytical Results**

**Table 3- SME UST Assessment Soil Analytical Results**



**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 2 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Sample Location	SP6	SP6	SP6	SP7	SP7	SP8	SP8	SP8	SP9
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample ID	S1	Duplicate	S4	S3	S10	S1	S6	S11	S2
								Depth (feet)	1-2'	1-2'	7-8'	4-5'	18-19'	0.5-1.5'	11-12'	20-21'	3-4'	
								Date Collected	3/7/2007	3/7/2007	3/7/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	
<b>VOCs</b>																		
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<50	<50	<50	<50	6,700J	<50	350J	2,500J	220
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	<50	<50	<50	<50	7,300J	<50	74	1,900	320
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	<250	<250	<250	<13,000	<250	<250	440	<250
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<13,000	<250	<250	<250	<250
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<330	<330	<330	<330	<17,000	<330	<330	<330	<330
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	5,100J	<50	<50	56	<50
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<100	<100	<100	<100	8,200	<100	<100	500	130
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	<2,500	<50	<50	71	<50
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	1,100	<2,500	79J	<50	<50	<50
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	<50	<50	<50	<50	<2,500	<50	120J	470J	350
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	<100	<100	<100	<100	6,900	<100	<100	1,300	320
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<100	<100	<100	<100	<5,000	<100	<100	960	100
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	<150	<150	<150	<150	8,200	<150	280	5,300	1,600
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	990	<330	<330	<330
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<330	<330	<330	380	<330	4,300	650	<330	<330
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<330	<330	<330	<330	<330	5,100	440	<330	<330
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<330	<330	<330	340	<330	7,200	650	<330	<330
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<330	<330	<330	<330	<330	4,000	400	<330	<330
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	<330	<330	<330	<330	<330	2,500	<330	<330	<330
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<330	<330	<330	<330	<330	5,300	690	<330	<330
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<330	<330	<330	<330	<330	650	<330	<330	<330
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<330	<330	<330	530	<330	11,000	1,000	<330	<330
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<330	<330	<330	<330	<330	4,200	<330	<330	<330
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<330	<330	<330	<330	570	<330	610	420	<330
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<330	<330	<330	<330	<330	4,600	890	340	<330
Pyrene	129-00-4	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<330	<330	<330	460	<330	8,200	970	<330	<330
<b>Inorganics</b>																		
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	78	87	160	290	320	1,100	340	380	330
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	3,500	2,900	12,000	11,000	10,000	7,500	11,000	7,000	9,300
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	4,000	5,100	9,200	32,000	71,000	72,000	54,000	56,000	37,000
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE

Notes on last page

**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 3 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Soil Saturation Concentration Screening Levels	Sample Location	SP9	SP10	SP11	SP11	SP12	SP12	SP12	SP12	SP13
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria		Sample ID	S5	S2	S1	S4	S1	S6	Duplicate	S9	S1
									Sample ID										
									Depth (feet)										
									Date Collected	3/8/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<50	<50	260	750	<50	5,300	5,000	430	250	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	77	<50	550	6,100	<50	7,500	9,800	<50	1,500	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	<250	<250	770	<250	1,100	980	<250	<250	
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<330	<330	<330	1,400	<330	4,200	4,100	<330	<330	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	10,000,000	10,000,000	<50	<50	64	1,100	<50	3,300	2,600	<50	1,400	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<100	<100	200	3,000	<100	5,200	4,800	350	1,100	
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	300	<50	480	450	<50	260	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	190	<50	480	140	<50	620	610	72	1,100	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	110	<100	1,800	130	<100	18,000	21,000	140	4,800	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<100	<100	560	<100	<100	7,000	6,100	<100	870	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	390	<150	2,500	740	<150	16,000	20,000	790	3,600	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	970	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	1,900	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	440	<330	<330	<330	<330	<330	<330	<330	<330	
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	530	<330	<330	<330	<330	<330	<330	<330	<330	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	1,100	<330	<330	<330	<330	<330	<330	<330	<330	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	1,100	<330	<330	6,900	<330	2,200	1,900	<330	<330	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
<b>Inorganics</b>																			
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	19,000	NE	NE	NE	NE	NE	NE	NE	NE	
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	160,000	NE	NE	NE	NE	NE	NE	NE	NE	
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	1,300	130	300	260	150	170	180	160	320	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	14,000	9,700	13,000	7,400	9,700	18,000	16,000	14,000	8,600	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	1,200,000	7,000	61,000	61,000	29,000	16,000	18,000	10,000	120,000	
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	610	NE	NE	NE	NE	NE	NE	NE	NE	
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	1,200	NE	NE	NE	NE	NE	NE	NE	NE	
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	300	NE	NE	NE	NE	NE	NE	NE	NE	

Notes on last page



**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 4 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Sample Location	SP13	SP13	SP14	SP14	SP14	SP15	SP15	SP15	SP15
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample ID	S4	S7	S1	S6	S14	S3	Duplicate	S6	S11
								Depth (feet)	6-7'	13-14'	1-2'	10-11'	26-27'	4-6'		10-11'	20-22'	
								Date Collected	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/12/2007	3/12/2007	3/12/2007	3/12/2007	
<b>VOCs</b>																		
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	1,800	2,900	<50	3,100	<50	4,700	7,000	68,000	590
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	2,900	4,400	<50	3,200	<50	8,700	10,000	11,000	<50
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	280	<250	270	<250	1,600	1,600	7,600J	<250
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<250	<250	<250	<250	270
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	410	<330	<330	470	<330	7,800	7,100	40,000	<330
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	2,500,000	2,500,000	10,000,000	130	87	<50	750	<50	4,700	4,500	20,000	<50
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	770	690	<100	1,400	<100	8,100	7,800	33,000	180
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	2,500,000	2,500,000	10,000,000	<50	<50	<50	120	<50	740	700	2,400J	<50
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	670	100	<50	1,600	<50	7,300	6,500	910,000	<50
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	4,800	3,000	<100	6,300	<100	10,000	14,000	210,000	<100
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	1,200	950	<100	1,700	<100	6,300	6,900	65,000	<100
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	8,100	8,100	<150	8,800	<150	11,000	13,000	460,000	260
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	520	<330
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	400	<330
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	ID	200,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<330	<330	<330	<330	<330	<330	<330	360	<330
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<330	<330	<330	<330	<330	<330	<330	1,100	<330
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<330	<330	<330	6,900	<330	13,000	15,000	21,000	<330
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<330	<330	<330	810	<330	<330	<330	1,100	<330
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<330	<330	<330	510	<330	<330	<330	800	<330
<b>Inorganics</b>																		
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	NE	NE	NE	NE	NE	NE	NE	5,100	NE
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	NE	NE	NE	NE	NE	NE	NE	42,000	NE
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	210	310	93	310	190	240	160	200	190
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	15,000	13,000	5,300	6,900	19,000	11,000	25,000	7,900	19,000
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	11,000	12,000	6,300	84,000	11,000	58,000	14,000	120,000	11,000
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	NE	NE	NE	NE	NE	NE	NE	88	NE
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	NE	NE	NE	NE	NE	NE	NE	380	NE
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	NE	NE	NE	NE	NE	NE	NE	<100	NE

- NOTES:**
- (1) Concentrations reported in ug/kg (parts per billion) unless otherwise noted.
  - (2) Analytical results were compared to the MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, dated January 23, 2006.
  - (3) <RL = Analytical result was less than the reporting limit.
  - (4) CS = Constituent Specific.
  - (5) ID = Insufficient data to develop criteria.
  - (6) NA = Criterion or value is not available.
  - (7) NLV = Chemical is not likely to volatilize under most conditions.
  - (8) NLL = Hazardous substance is not likely to leach under most soil conditions.
  - (9) J = Analyte positively identified - estimated value.
  - (10) ^ = GSI calculated for water not protected as a drinking water source.
  - (11) *Italicized GSI Criterion* were calculated using a water hardness of 150 mg/L CaCO3 and the MDEQ spreadsheet (G).
  - (12) **Highlighted and bolded results exceed corresponding MDEQ Part 201 Generic Residential Cleanup Criteria.**

**TABLE 2**  
**SME GROUNDWATER ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
 SME Project No. PE54816  
 1 of 2

Constituent	CAS Number	Part 201 Generic Residential CC/SL				Water Solubility Criteria	Sample Location	MW102	MW103	MW104	MW106	MAW16 Dup 1	MW107	MW108	MW108 Dup 2	MW109	MW201
		Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria^	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria		Screen Depth Date Collected	16.5'-21.5' 3/15/2007	19.5'-24.5' 3/15/2007	23'-24.5' 3/14/2007	7'-8' 3/13/2007	3/13/2007	11'-16' 3/13/2007	6.5'-11.5' 3/14/2007	3/14/2007	19'-24' 3/14/2007	UNKNOWN 3/13/2007
<b>VOCs</b>																	
Benzene	71-43-2	5.0	200	5,600	11,000	1,750,000	1,800	2,600	3.2	700	690	1,200	1,000	2,100	9,800	<1.0	
n-Butylbenzene	104-51-8	80	ID	ID	5,900	NA	<1.0	<1.0	<1.0	37	35	11	<1.0	<1.0	<1.0	<1.0	
sec-Butylbenzene	135-98-8	80	ID	ID	4,400	NA	13	<1.0	<1.0	14	14	3.4	5.4	5.4	2.4	<1.0	
Ethylbenzene	100-41-4	74	18	110,000	170,000	169,000	1,000	830	<1.0	1,200	1,200	210	750	1,100	280	<1.0	
Isopropylbenzene	98-82-8	800	ID	56,000	56,000	56,000	120	72	<5.0	89	88	24	51	51	44	<5.0	
MTBE	1634-04-4	40 (E) / 240	730	47,000,000	610,000	46,800,000	<5.0	<5.0	370	<5.0	<5.0	<5.0	<5.0	<5.0	87	<5.0	
Naphthalene	91-20-3	520	13	31,000	31,000	31,000	280	120	<5.0	150	150	19	220	230	61	<5.0	
n-Propylbenzene	103-65-1	80	ID	ID	15,000	NA	<10	180	1.2	290	280	76	180	180	89	<1.0	
Toluene	108-88-3	790	140	530,000	530,000	526,000	84	49	1.6	62	62	23	850	1,300	190	<1.0	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	56,000	55,890	1,200	700	<1.0	97	95	21	960	1,200	85	<1.0	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	61,000	61,150	230	200	<1.0	38	37	6.2	380	310	25	<1.0	
Xylenes	1330-20-7	280	35	190,000	190,000	186,000	720	540	<3.0	340	340	100	1,800	3,300	390	<3.0	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																	
Acenaphthene	83-32-9	1,300	19	4,200	4,200	4,240	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	52	ID	3,900	3,900	3,930	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	43	43	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Benzo(a)anthracene	56-55-3	2.1	ID	NLV	9.4	9.4	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	1.0 (M)	1.62	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	1.5	1.5	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0 (M)	NA	NLV	1.0 (M)	0.26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0 (M)	NA	NLV	1.0 (M)	0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	1.6	1.6	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0 (M)	ID	NLV	2.0 (M)	2.49	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	210	206	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	880	12	2,000	2,000	1,980	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0 (M)	ID	NLV	2.0 (M)	2.0 (M)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	260	ID	ID	25,000	24,600	61	24	<5.0	41	35	11	64	49	<5.0	<5.0	
Phenanthrene	85-01-8	52	2.4	1,000	1,000	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	140	135	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Inorganics</b>																	
Cadmium	7440-43-9	5.0	3.0	NLV	190,000	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chromium (III)*	16065-83-1	100	100	NLV	290,000,000	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Lead	7439-92-1	4.0	16	NLV	ID	NA	6.1	3.1	<3.0	3.9	4.3	4.9	10	13	<3.0	<3.0	

Notes on last page



**TABLE 2**  
**SME GROUNDWATER ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
 SME Project No. PE54816  
 2 of 2

Constituent	CAS Number	Part 201 Generic Residential CC/SL				Water Solubility Criteria	Sample Location	OW1	OW1 Dup 3	OW4	OW7	SP15 GW
		Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria^	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria		Screen Depth Date Collected	UNKNOWN 3/15/2007	3/15/2007	UNKNOWN 3/15/2007	UNKNOWN 3/14/2007	6'-11' 3/12/2007
<b>VOCs</b>												
Benzene	71-43-2	5.0	200	5,600	11,000	1,750,000	2,400	1,100	91	36	6,600	
n-Butylbenzene	104-51-8	80	ID	ID	5,900	NA	17	<1.0	1.8	<1.0	<1.0	
sec-Butylbenzene	135-98-8	80	ID	ID	4,400	NA	7.2	7.7	1.8	<1.0	<1.0	
Ethylbenzene	100-41-4	74	18	110,000	170,000	169,000	1,500	4,000	3.5	1.9	1,900	
Isopropylbenzene	98-82-8	800	ID	56,000	56,000	56,000	87	100	<5.0	<5.0	85J	
MTBE	1634-04-4	40 (E) / 240	730	47,000,000	610,000	46,800,000	<5.0	<5.0	<5.0	130	53	
Naphthalene	91-20-3	520	13	31,000	31,000	31,000	72	63	<5.0	<5.0	120J	
n-Propylbenzene	103-65-1	80	ID	ID	15,000	NA	230	240	1.5	4.8	190J	
Toluene	108-88-3	790	140	530,000	530,000	526,000	150	180	1.1	1.5	15,000	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	56,000	55,890	180	<1.0	2	1.3	1,000	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	61,000	61,150	100	110	<1.0	<1.0	320	
Xylenes	1330-20-7	280	35	190,000	190,000	186,000	770	3,900	3.4	10	7,800	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>												
Acenaphthene	83-32-9	1,300	19	4,200	4,200	4,240	<5.0	<5.0	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	52	ID	3,900	3,900	3,930	<5.0	<5.0	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	43	43	<5.0	<5.0	<5.0	<5.0	<5.0	
Benzo(a)anthracene	56-55-3	2.1	ID	NLV	9.4	9.4	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	1.0 (M)	1.62	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	1.5	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0 (M)	NA	NLV	1.0 (M)	0.26	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0 (M)	NA	NLV	1.0 (M)	0.8	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	1.6	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0 (M)	ID	NLV	2.0 (M)	2.49	<2.0	<2.0	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	210	206	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	880	12	2,000	2,000	1,980	<5.0	<5.0	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0 (M)	ID	NLV	2.0 (M)	2.0 (M)	<2.0	<2.0	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	260	ID	ID	25,000	24,600	27	28	<5.0	<5.0	31	
Phenanthrene	85-01-8	52	2.4	1,000	1,000	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	140	135	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Inorganics</b>												
Cadmium	7440-43-9	5.0	3.0	NLV	190,000	NA	<1.0	<1.0	<1.0	<1.0	NE	
Chromium (III)*	16065-83-1	100	100	NLV	290,000,000	NA	<10	<10	<10	<10	NE	
Lead	7439-92-1	4.0	16	NLV	ID	NA	<3.0	<3.0	<3.0	<3.0	NE	

**NOTES:**

- (1) Concentrations reported in µg/L (parts per billion or ppb) unless otherwise noted
- (2) Analytical results were compared to the MDEQ Part 201 Generic Residential Cleanup Criteria and Screening Levels, dated January 23, 2006 (CC/SL)
- (3) <RL = Analytical result was less than the reporting limit.
- (4) CS = Constituent Specific.
- (5) ID = Insufficient data to develop criteria.
- (6) NA = Criterion or value is not available
- (7) NR = Laboratory analysis was not requested.
- (8) NLV = Chemical is not likely to volatilize under most conditions.
- (9) E = Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the NREPA. Second criterion is the residential health-based drinking water value
- (10) ^ = GSI calculated for water not protected as a drinking water source.
- (11) M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
- (12) \* = Total chromium concentration is assumed to be chromium (III) based on historic site use.
- (13) *Italicized GSI Criterion were calculated using a water hardness of 150 mg/L CaCO3 and the MDEQ spreadsheet [G].*
- (14) **Highlighted and bolded results exceed corresponding MDEQ Part 201 Cleanup Criteria.**

**TABLE 3**  
**SME UST ASSESSMENT SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 1 of 1

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Sample Location	SS1	SS2	SS3	SS4	SS5	SS6
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample ID	~12'	~12'	~12'	~12'	~12'	~12'
									Date Collected	10/12/2007	10/12/2007	10/12/2007	10/12/2007	10/12/2007	10/12/2007
									Soil Saturation Concentration Screening Levels						
<b>VOCs</b>															
Benzene	71-43-2	<b>100</b>	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<b>152</b>	<50	<b>260</b>	<b>178</b>	<50	<50
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	83	<50	<50	<50	<50	<50
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	1,370	183	801	681	<100	183
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	427	<150	186	276	<150	<150
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	NE	NE	NE	NE	NE	NE

**NOTES:**

- (1) Concentrations reported in ug/kg (parts per billion) unless otherwise noted.
- (2) Analytical results were compared to the MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, dated January 23, 2006.
- (3) <RL = Analytical result was less than the reporting limit.
- (4) CS = Constituent Specific.
- (5) **Highlighted and bolded results exceed corresponding MDEQ Part 201 Generic Residential Cleanup Criteria.**

**APPENDIX D**  
**LABORATORY DATA REPORTS**



Thursday, March 15, 2007

**RECD MAR 23 2007**

Fibertec Project Number: 22113  
Project Identification: PE54494B  
Submittal Date: 3/8/2007

Mr. Dan Cassidy  
Soil and Materials Engineers, Inc. - Plymouth  
43980 Plymouth Oaks  
Plymouth, MI 48170

Dear Mr. Cassidy,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed as requested and the results compiled in the enclosed report.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,



Daryl P. Strandbergh  
Laboratory Director

DPS/kc

Enclosures

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-001</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 6.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-001</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 6.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth** Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22113** Sample Number: **22113-001**

### Client Sample Information

Project Identification: **PE54494B** Client Sample Description: **SP1 S1 1-2**  
Project Number: **NA** Client Sample Number: **1**  
Sample Date: **3/7/2007** Chain of Custody Number: **48931**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 6.90%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

#### Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)

Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-001A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 6.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Dry Weight Determination (ASTM D 2974-87)**

Percent Moisture (Water Content)	<b>6.9</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
----------------------------------	------------	---	-----	---	----	-----------	-----------	-----

**Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)**

Cadmium	<b>67</b>	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>3400</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>2500</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG

**Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)**

Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-001A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 6.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-002</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S5 8-9</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	<b>5400</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-002</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S5 8-9</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	<b>11000</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	<b>1200</b>	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-002</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S5 8-9</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)**

Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	<b>4900</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	<b>8700</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	<b>37000</b>	µg/kg	500	5	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	<b>7000</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	<b>62000</b>	µg/kg	750	5	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-002A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S5 8-9</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>12</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>370</b>	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>11000</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>46000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-002A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S5 8-9</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 12.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-003</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S6 10-11</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 18.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	<b>1600</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-003</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S6 10-11</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 18.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	<b>31000</b>	µg/kg	250	5	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	<b>3600</b>	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-003</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S6 10-11</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 18.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)**

Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	<b>10000</b>	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	<b>13000</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	<b>5100</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	<b>120000</b>	µg/kg	500	5	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	<b>25000</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	<b>130000</b>	µg/kg	750	5	VE07C12A	3/7/2007	3/12/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-003A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S6 10-11</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 18.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>18</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>200</b>	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>12000</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>25000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	<b>10000</b>	µg/kg	1700	5	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-003A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP1 S6 10-11</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 18.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-005</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-005</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-005</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\approx$ 4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-005A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>5.9</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>84</b>	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>3900</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>6300</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-005A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.90%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-006</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S2 3-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)**

Acetone	ND	µg/kg	1000	1	VE07C13A	3/7/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Benzene	<b>270</b>	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-006</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S2 3-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\approx$ 4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-006</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S2 3-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Toluene	<b>68</b>	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C13A	3/7/2007	3/13/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C13A	3/7/2007	3/13/2007	BAG

# Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-006A</b>

## Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S2 3-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Dry Weight Determination (ASTM D 2974-87)**

Percent Moisture (Water Content)	<b>16</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
----------------------------------	-----------	---	-----	---	----	-----------	-----------	-----

**RCRA Elements by ICP/MS (EPA 3050B/EPA 6020)**

Arsenic	<b>5000</b>	µg/kg	100	1	42946	3/13/2007	3/14/2007	JAG
Barium	<b>57000</b>	µg/kg	1000	1	42946	3/13/2007	3/15/2007	JAG
Cadmium	<b>410</b>	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	<b>17000</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>49000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
Selenium	<b>660</b>	µg/kg	200	1	42946	3/13/2007	3/14/2007	JAG
Silver	<b>160</b>	µg/kg	100	1	42946	3/13/2007	3/14/2007	JAG

**Mercury by CVAAS (EPA 7471A)**

Mercury	<b>62</b>	µg/kg	50	1	42944	3/13/2007	3/13/2007	PAM
---------	-----------	-------	----	---	-------	-----------	-----------	-----

**Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)**

Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-006A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP2 S2 3-4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Polyaromatic Hydrocarbons (PAHs) (EPA 3550B/EPA 8270C)**

Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-007</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C13A	3/7/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-007</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG



## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-007

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP3 S1 1-2
Project Number:	NA	Client Sample Number:	7
Sample Date:	3/7/2007	Chain of Custody Number:	48931

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C13A	3/7/2007	3/13/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-007A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	11	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	77	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	4100	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	3500	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-007A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 11.3%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-008</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S7 12-13</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.9%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyt
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Toluene-d8)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	<b>2100</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-008</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S7 12-13</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.9%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Toluene-d8)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	<b>1800</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	<b>850</b>	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-008</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S7 12-13</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.9%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Toluene-d8)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	<b>550</b>	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	<b>2900</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	<b>570</b>	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	<b>1200</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	<b>410</b>	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	<b>2200</b>	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-008A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S7 12-13</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.9%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>18</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>260</b>	µg/kg	50	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>9700</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>27000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	<b>1500</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-008A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP3 S7 12-13</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.9%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Dibromofluoromethane, Toluene-d8, 4-Bromofluorobenzene)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Dibromofluoromethane, Toluene-d8, 4-Bromofluorobenzene)**

Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Dibromofluoromethane, Toluene-d8, 4-Bromofluorobenzene)**

Isopropylbenzene	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (High Surrogate recovery - Dibromofluoromethane, Toluene-d8, 4-Bromofluorobenzene)</b>								
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	17	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	150	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	15000	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	9500	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-010A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP4 S2 2-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48931</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 17.4%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA)s (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-011</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP5 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)**

Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-011</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP5 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-011</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP5 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-011A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP5 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>10</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>520</b>	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	<b>12000</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>66000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	<b>690</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	<b>850</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	<b>1100</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	<b>500</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	<b>410</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Chrysene	<b>810</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	<b>1900</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	<b>550</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-011A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP5 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 10.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	<b>1700</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	<b>1500</b>	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-012</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.70%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-012</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.70%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C12A	3/7/2007	3/12/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-012</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.70%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)**

Methylene Chloride	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-012A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 S1 1-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.70%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>5.7</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>78</b>	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	<b>3500</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>4000</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-012A

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP6 S1 1-2
Project Number:	NA	Client Sample Number:	12
Sample Date:	3/7/2007	Chain of Custody Number:	48933

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 5.70%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-014

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP6 S4 7-8
Project Number:	NA	Client Sample Number:	14
Sample Date:	3/7/2007	Chain of Custody Number:	48933

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C13A	3/7/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-014

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP6 S4 7-8
Project Number:	NA	Client Sample Number:	14
Sample Date:	3/7/2007	Chain of Custody Number:	48933

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-014

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP6 S4 7-8
Project Number:	NA	Client Sample Number:	14
Sample Date:	3/7/2007	Chain of Custody Number:	48933

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C13A	3/7/2007	3/13/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-014A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 S4 7-8</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>15</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>160</b>	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	<b>12000</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>9200</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN



## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22113	Sample Number:	22113-014A

### Client Sample Information

Project Identification:	PE54494B	Client Sample Description:	SP6 S4 7-8
Project Number:	NA	Client Sample Number:	14
Sample Date:	3/7/2007	Chain of Custody Number:	48933

Comments:  
Definitions:

**All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth** Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22113** Sample Number: **22113-015**

### Client Sample Information

Project Identification: **PE54494B** Client Sample Description: **SP6 duplicate**  
Project Number: **NA** Client Sample Number: **15**  
Sample Date: **3/7/2007** Chain of Custody Number: **48933**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 4.60%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	ND	µg/kg	1000	1	VE07C13A	3/7/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Benzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-015</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 duplicate</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 4.60%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C13A	3/7/2007	3/13/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-015</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 duplicate</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 4.60%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)**

Methylene Chloride	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C13A	3/7/2007	3/13/2007	BAG
Naphthalene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Toluene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C13A	3/7/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	VE07C13A	3/7/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C13A	3/7/2007	3/13/2007	BAG
Xylenes	ND	µg/kg	150	1	VE07C13A	3/7/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-015A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 duplicate</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 4.60%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>4.6</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>87</b>	µg/kg	50	1	42946	3/13/2007	3/15/2007	JAG
Chromium	<b>2900</b>	µg/kg	500	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>5100</b>	µg/kg	1000	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Acenaphthylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(a)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(b)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(ghi)perylene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Benzo(k)fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Chrysene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluoranthene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Fluorene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
2-Methylnaphthalene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-015A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 duplicate</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 4.60%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN
Pyrene	ND	µg/kg	330	1	42933	3/12/2007	3/14/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-016</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
Acetone	18	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	13	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	88	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	75	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	72	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	77	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	62	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	7	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	25	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	85	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	86	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	81	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	59	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	90	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	91	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	73	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	82	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	46	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	78	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	74	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-016</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
1,2-Dibromo-3-chloropropane	49	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	86	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	81	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	83	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	83	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	29	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	78	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	82	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	75	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	76	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	81	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	81	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	77	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	73	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	90	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	85	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	25	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	63	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	93	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	28	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-016</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low Surrogate recovery - Dibromofluoromethane)</b>								
Methylene Chloride	<b>69</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	<b>77</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	<b>70</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	<b>86</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	<b>87</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	<b>84</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	<b>64</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	<b>128</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	<b>91</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	<b>80</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	<b>83</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	<b>82</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	<b>88</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	<b>80</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	<b>61</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	<b>88</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	<b>87</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	<b>61</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	<b>89</b>	% Recovery	NA	1	VE07C12A	3/7/2007	3/12/2007	BAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth** Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22113** Sample Number: **22113-016A**

## Client Sample Information

Project Identification: **PE54494B** Client Sample Description: **SP6 MS**  
Project Number: **NA** Client Sample Number: **16**  
Sample Date: **3/7/2007** Chain of Custody Number: **48933**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	15	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	102	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
Chromium	61	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
Lead	98	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	83	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	82	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	78	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	87	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	94	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	96	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	90	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	86	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	77	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	82	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	81	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	86	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	96	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	90	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-016A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MS</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	77	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	88	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-019</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MSD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>19</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Acetone	29	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Acrylonitrile	16	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Benzene	126	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Bromobenzene	108	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Bromochloromethane	101	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Bromodichloromethane	114	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Bromoform	91	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Bromomethane	9	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
2-Butanone	35	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
n-Butylbenzene	126	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
sec-Butylbenzene	127	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
tert-Butylbenzene	130	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Disulfide	86	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Carbon Tetrachloride	132	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Chlorobenzene	129	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroethane	93	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Chloroform	115	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Chloromethane	61	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
2-Chlorotoluene	114	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromochloromethane	110	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-019</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MSD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>19</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	79	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Dibromomethane	121	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichlorobenzene	116	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,3-Dichlorobenzene	121	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,4-Dichlorobenzene	121	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Dichlorodifluoromethane	39	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethane	111	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloroethane	118	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1-Dichloroethene	109	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,2-Dichloroethene	108	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,2-Dichloroethene	113	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2-Dichloropropane	116	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
cis-1,3-Dichloropropene	114	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
trans-1,3-Dichloropropene	108	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylbenzene	131	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Ethylene Dibromide	125	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
2-Hexanone	33	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Methyl Iodide	95	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Isopropylbenzene	135	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
4-Methyl-2-pentanone	38	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-019</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MSD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>19</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B)</b>								
Methylene Chloride	<b>96</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
MTBE	<b>110</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Naphthalene	<b>101</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
n-Propylbenzene	<b>127</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Styrene	<b>130</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1,2-Tetrachloroethane	<b>124</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2,2-Tetrachloroethane	<b>98</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Tetrachloroethene	<b>124</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Toluene	<b>130</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trichlorobenzene	<b>116</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,1-Trichloroethane	<b>120</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,1,2-Trichloroethane	<b>116</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Trichloroethene	<b>122</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Trichlorofluoromethane	<b>112</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,3-Trichloropropane	<b>86</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,2,4-Trimethylbenzene	<b>126</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
1,3,5-Trimethylbenzene	<b>128</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Vinyl Chloride	<b>83</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG
Xylenes	<b>128</b>	% Recovery	NA	50	VE07C12A	3/7/2007	3/12/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-019A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MSD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>19</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>15</b>	%	0.1	1	NA	3/12/2007	3/13/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>105</b>	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
Chromium	<b>62</b>	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
Lead	<b>99</b>	% Recovery	NA	1	42946	3/13/2007	3/14/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	<b>83</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Acenaphthylene	<b>84</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Anthracene	<b>78</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)anthracene	<b>85</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(a)pyrene	<b>95</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(b)fluoranthene	<b>98</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(ghi)perylene	<b>89</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Benzo(k)fluoranthene	<b>89</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Chrysene	<b>78</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Dibenzo(a,h)anthracene	<b>84</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Fluoranthene	<b>82</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Fluorene	<b>88</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Indeno(1,2,3-cd)pyrene	<b>95</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
2-Methylnaphthalene	<b>92</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22113</b>	Sample Number:	<b>22113-019A</b>

### Client Sample Information

Project Identification:	<b>PE54494B</b>	Client Sample Description:	<b>SP6 MSD</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>19</b>
Sample Date:	<b>3/7/2007</b>	Chain of Custody Number:	<b>48933</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.6%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	<b>80</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN
Pyrene	<b>87</b>	% Recovery	NA	1	42933	3/12/2007	3/13/2007	LAN

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
VE07C12A  
VOLATILES

Sample Matrix : SOIL/SOLID (S035) Preparation Method : SW-846 S035 Analytical Method : SW-846 82.60 FULL  
 Inclusive Projects : VARIOUS Preparation Date : 3/12/2007 Analysis Date : 3/12/2007  
 Preparer(s) Initials : DH Analyst(s) Initials : DH

Analyte	RL	Units	Matrix		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE												
			Conc. (mg/Kg)	Flag	Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Recovery (%)	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. W (mg/Kg)	Conc. W Spiked (mg/Kg)	MS Conc. W (mg/Kg)	MSD Conc. W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Maxed (%)	UCL (%)	Flag
Vinyl chloride	0.05	mg/Kg	U		1.00	0.60	60.5	39	114		22113014	U	1.00	0.61	0.83	61	83	22	134		29	27	*
1,1-Dichloroethene	0.05	mg/Kg	U		1.00	0.84	83.6	54	136		22113014	U	1.00	0.75	1.09	75	109	60	132		36	25	*
Methylene chloride	0.05	mg/Kg	U		1.00	0.82	82.1	60	126		22113014	U	1.00	0.69	0.96	69	96	56	134		32	34	*
trans-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	0.92	92.4	60	142		22113014	U	1.00	0.81	1.13	81	113	66	140		34	25	*
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	0.93	92.5	64	134		22113014	U	1.00	0.78	1.11	78	111	68	134		35	23	*
cis-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	0.93	92.8	68	134		22113014	U	1.00	0.76	1.08	76	108	66	138		35	23	*
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	0.96	96.1	72	124		22113014	U	1.00	0.83	1.20	83	120	66	136		36	20	*
Carbontetrachloride	0.05	mg/Kg	U		1.00	1.02	101.9	74	122		22113014	U	1.00	0.90	1.32	90	132	72	128		38	22	*
Benzene	0.05	mg/Kg	U		1.00	1.02	101.8	72	128		22113014	U	1.00	0.88	1.26	88	126	64	136		36	23	*
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	0.94	94.4	74	126		22113014	U	1.00	0.81	1.16	81	116	70	130		35	21	*
Trichloroethene	0.05	mg/Kg	U		1.00	1.02	101.8	72	128		22113014	U	1.00	0.88	1.22	88	122	66	138		32	29	*
Bromodichloromethane	0.05	mg/Kg	U		1.00	0.98	98.3	74	126		22113014	U	1.00	0.81	1.16	81	116	70	130		35	21	*
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	0.95	95.2	76	116		22113014	U	1.00	0.82	1.16	82	116	66	138		35	25	*
Toluene	0.05	mg/Kg	U		1.00	0.97	97.0	64	126		22113014	U	1.00	0.77	1.14	77	114	58	134		35	20	*
Dibromochloroethane	0.05	mg/Kg	U		1.00	1.06	105.6	64	126		22113014	U	1.00	0.91	1.30	91	130	70	134		39	23	*
Tetrahydrofuran	0.05	mg/Kg	U		1.00	0.96	96.1	70	116		22113014	U	1.00	0.74	1.10	74	110	62	126		3	66	*
2-Hexanone	0.05	mg/Kg	U		1.00	1.00	105.6	66	146		22113014	U	1.00	0.99	1.28	99	128	46	172		29	47	*
Ethylbenzene	0.05	mg/Kg	U		1.00	0.67	67.1	7	62		22113014	U	1.00	0.49	0.66	49	66	6	71		66	128	*
total-Xylene	0.15	mg/Kg	U		1.00	1.05	105.2	64	128		22113014	U	1.00	0.90	1.31	90	131	66	128		37	25	*
Styrene	0.05	mg/Kg	U		1.00	3.09	3.09	67	127		22113014	U	1.00	2.67	3.85	89	128	69	127		36	73	*
Dibromofluorochloroethane (S)**			U		1.00	1.06	105.6	64	130			U	1.00	0.87	1.30	87	130	64	132		40	26	*
Toluene-d8 (S)**			U		100	99.6	100	70	134			U	100	77.0	100.7	77	101	70	134				
4-Bromofluorobenzene (S)**			U		100	103.9	104	74	129			U	100	85.3	109.0	85	109	74	129				
			U		100	96.1	96	70	119			U	100	80.9	103.9	81	104	70	119				

**Code/Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix; therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation

**Comments :**  
 \*\*\*Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank.

Result is always reported as "wet weight".  
 The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 The analyte was detected in the associated method blank.  
 Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 Not calculable.  
 Not applicable.  
 If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

*Dorey Holmes*  
 Chemist/DIC 03-22-07  
 Quality Assurance Officer Date 74 3/22/07

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 11776 Grand River Ave Brighton, Michigan 48116 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
VE07C13A  
VOLATILES

Sample Matrix: **SOIL/SOLID (S05)**  
Inclusive Projects: **VARIOUS**

Preparation Method: **SW-846 5035**  
Preparation Date: **3/13/2007**  
Preparer(s) Initials: **JAS/DH**

Analytical Method: **SW-846 8260 FULL**  
Analysis Date: **3/13/2007**  
Analyst(s) Initials: **JAS**

Analyte	RL	Units	Matrix		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)													
			Conc (mg/Kg) (**)	Flag	Spiked Conc (mg/Kg)	LFB Conc (mg/Kg)	Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc (mg/Kg)	Conc W Spiked (mg/Kg)	MS Conc (mg/Kg)	MSD Conc (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD (MS/MSD) (%)	UCL (%)	Flag	
Vinyl chloride	0.05	mg/Kg	U		1.00	0.81	80.9	39	114		22117019	U	1.00	1.10	1.10	1.10	110	110	22	134	0	27		
1,1-Dichloroethene	0.05	mg/Kg	U		1.00	0.92	92.5	54	136		22117019	U	1.00	1.21	1.24	121	124	60	132	3	25			
Methylene chloride	0.05	mg/Kg	U		1.00	0.94	94.0	60	126		22117019	U	1.00	1.17	1.19	117	119	56	134	2	34			
trans-1,2-Dichloroethene	0.05	mg/Kg	U		1.00	1.02	102.1	60	142		22117019	U	1.00	1.31	1.33	131	133	66	140	2	25			
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	1.00	99.9	64	134		22117019	U	1.00	1.28	1.31	128	131	68	134	3	23			
cis-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	0.99	99.3	68	134		22117019	U	1.00	1.25	1.29	125	129	66	138	3	23			
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	1.01	101.2	72	124		22117019	U	1.00	1.30	1.34	130	134	66	136	3	20			
Carbontetrachloride	0.05	mg/Kg	U		1.00	1.11	111.3	74	122		22117019	U	1.00	1.45	1.50	145	150	72	128					
Benzene	0.05	mg/Kg	U		1.00	1.10	109.8	72	128		22117019	U	1.00	1.44	1.48	144	148	64	136					
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	1.05	105.0	70	126		22117019	U	1.00	1.38	1.41	138	141	70	130					
Trichloroethene	0.05	mg/Kg	U		1.00	1.04	104.3	74	126		22117019	U	1.00	1.54	1.49	154	149	70	138					
Bromodichloromethane	0.05	mg/Kg	U		1.00	1.00	100.0	64	116		22117019	U	1.00	1.35	1.41	135	141	66	128					
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	1.03	102.6	64	126		22117019	U	1.00	1.33	1.37	133	137	58	134					
Toluene	0.05	mg/Kg	U		1.00	1.11	111.0	72	126		22117019	U	1.00	1.48	1.52	148	152	70	134					
Dibromochloromethane	0.05	mg/Kg	U		1.00	0.95	95.0	70	116		22117019	U	1.00	1.35	1.42	135	142	62	126					
Tetrachloroethane	0.05	mg/Kg	U		1.00	1.26	126.3	66	146		22117019	U	1.00	2.13	2.15	213	215	46	172					
2-Hexanone	0.05	mg/Kg	U		1.00	0.83	83.3	7	62		22117019	U	1.00	1.00	1.00	100	100	6	71					
Ethylbenzene	0.05	mg/Kg	U		1.00	1.09	109.3	64	128		22117019	U	1.00	1.46	1.51	146	151	69	127					
total-Xylene	0.15	mg/Kg	U		3.00	3.23	107.8	67	127		22117019	U	3.00	4.30	4.43	430	443	64	132					
Styrene	0.05	mg/Kg	U		1.00	1.09	108.6	64	130		22117019	U	1.00	1.54	1.61	154	161	64	132					
Dibromofluoromethane (S)**			101		100	96.1	96	70	134			97.2	100	82.7	82.8	83	83	70	134					
Toluene-d8 (S)**			103		100	100.0	100	74	129			118.1	100	92.0	91.8	92	92	74	129					
4-Bromofluorobenzene (S)**			86		100	87.8	88	70	119			99.4	100	81.5	80.5	81	80	70	119					

**Code/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantization limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank

*[Signature]*  
 Chemist/Date  
*[Signature]*  
 Quality Assurance Officer/Date  
 3/21/07

1914 Holloway Drive  
 11776 Grand River Ave  
 Holt, Michigan 48842  
 Brighton, Michigan 48116

Telephone: (517) 699-0345  
 Telephone: (810) 220-3300

Facsimile: (517) 699-0388  
 Facsimile: (810) 220-3311

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
42946  
METALS

Sample Matrix : SOIL/SOLID Preparation Method : EPA 200.8/MSW-446 3050B Analytical Method : EPA 200.8/SW-446 6020  
 Inclusive Projects : 22113, 22139 Preparation Date : 3/14/2007 Analysis Date : 3/14/2007  
 Preparer(s) Initials: JAG Analyst(s) Initials: JAG

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)						MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MD / MS / MSD)													
				Conc. (mg/Kg)	Flag	Spiked Conc. (mg/Kg)	LFB Conc. (mg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. W (mg/Kg)	MD Conc. W (mg/Kg)	Conc. W Spiked (mg/Kg)	MS Conc. W (mg/Kg)	MSD Conc. W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Standard Deviation (%)	RPD Non-Standard Deviation (%)	UCL (%)
Arsenic	M007002003	0.10	mg/Kg	U	10.0	9.40	94	85	115		22113 014	5.89	NA	10.0	20.1	18.7	142	128	70	130	*M	#####	#####	20	####
Barium	M007002004	1.00	mg/Kg	U	50.0	47.8	96	85	115		22113 014	34.0	NA	50.0	64.5	61.6	61	55	70	130	*M	#####	#####	10	####
Chromium	M007002007	0.50	mg/Kg	U	10.0	9.11	91	85	115		22113 014	0.13	NA	10.0	10.4	10.6	103	105	70	130	*M	#####	#####	1.9	####
Chromium	M007002009	0.50	mg/Kg	U	20.0	20.0	100	85	115		22113 014	12.5	NA	20.0	24.8	24.8	62	62	70	130	*M	#####	#####	0	####
Copper	M007002011	1.00	mg/Kg	U	20.0	19.6	98	85	115		22113 014	13.0	NA	20.0	26.8	27.6	69	73	70	130	*M	#####	#####	5.6	####
Lead	M007002013	1.00	mg/Kg	U	20.0	20.3	102	85	115		22113 014	9.20	NA	20.0	28.8	29.1	98	100	70	130		#####	#####	2	####
Selenium	M007002022	0.20	mg/Kg	U	10.0	8.96	90	85	115		22113 014	0.24	NA	10.0	9.64	9.49	94	93	70	130		#####	#####	2	####
Silver	M007002023	0.20	mg/Kg	U	10.0	11.5	115	85	115		22113 014	0.02	NA	10.0	11.8	11.6	118	116	70	130		#####	#####	1.7	####
Zinc	M007002030	1.00	mg/Kg	U	50.0	48.8	98	85	115		22113 014	35.5	NA	50.0	89.6	89.6	108	108	70	130		#####	#####	0	####

**Codes/Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments :**  
 W Result is always reported as "wet weight"  
 J The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 B The analyte was detected in the associated method blank.  
 M Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 NC Not calculable.  
 NA Not applicable.  
 A If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

1914 Holloway Drive Holt, Michigan 48842  
 7794 Boardwalk Road Brighton, Michigan 48116

Telephone: (517) 699-0345  
 Telephone: (248) 446-5700

Facsimile: (517) 699-0388  
 Facsimile: (248) 446-5701

Chemist/Date: W. C. 3-16-07  
 Quality Assurance Officer/Date: ZA 3/19/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
42944  
METALS

Sample Matrix: SOIL/SOLID      Preparation Method: EPA 245.5/SW-846 7471      Analytical Method: EPA 245.5/SW-846 7471  
 Inclusive Projects: 22104, 22113, 22135,      Preparation Date: 3/13/2007      Analysis Date: 3/13/2007  
 22119      Preparation(s) Initials: PAM      Analyst(s) Initials: PAM

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)				MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MD / MS / MSD)															
				Conc. (µg/Kg)	Flag	Conc. Spiked (µg/Kg)	LFB Conc. (µg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (µg/Kg)	MD Conc. (µg/Kg)	Conc. Spiked (µg/Kg)	MS Conc. (µg/Kg)	MSD Conc. (µg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Sample/MDN (%)	RPD MS/MSD (%)	UCL (%)
Mercury	M007004017	0.100	mg/Kg	U		200	197	99	85	115	22104003	828	97	200	270	396	A	A	70	130	*M	158	NA	20	*

**Codes/Flags:**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are < 5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation

**Comments:**  
 W Result is always reported as "wet weight".  
 J The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 B The analyte was detected in the associated method blank.  
 M Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 NC Not calculable.  
 NA Not applicable.  
 A If the sample result is > 4 times the amount spiked, the MS recovery cannot be properly evaluated.

Chemist/Date: AKL 3/13/07  
 Quality Assurance Officer/Date: TM 3/14/07

1914 Holloway Drive Holt, Michigan 48842      Telephone: (517) 699-0345      Facsimile: (517) 699-0388  
 7794 Boardwalk Rd. Brighton, Michigan 48116      Telephone: (248) 446-5700      Facsimile: (248) 446-5701

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
**42933**

SEMI-VOLATILES

Sample Matrix : **SOIL/SOLID** Preparation Method : **SW-846 3550B** Analytical Method : **SW-846 8270D - PNA**  
 Inclusive Projects : **VARIOUS** Preparation Date : **3/12/2007** Analysis Date : **3/13-3/14/07**  
 Preparer(s) Initials : **GN** Matrix Spike / Matrix Spike Duplicate : **MS / MSD** Analyst(s) Initials : **LAN**

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)					MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)													
				Conc. (mg/Kg)	Flag	Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (mg/Kg)	Conc. W Spiked (mg/Kg)	MS Conc. W (mg/Kg)	MSD Conc. W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Naphthalene	S007005089	0.330	mg/Kg	U		2.67	2.08	77.8	38	112		22113014	U	2.67	2.10	2.22	78.8	83.3	38	112		5.5	30	
2-Methylnaphthalene	S007005027	0.330	mg/Kg	U		2.67	2.33	87.1	43	116		22113014	U	2.67	2.39	2.45	89.5	91.6	43	116		2.4	30	
Acenaphthylene	S007005045	0.330	mg/Kg	U		2.67	2.13	79.8	49	120		22113014	U	2.67	2.20	2.24	82.4	83.8	49	120		1.8	30	
Acenaphthene	S007005044	0.330	mg/Kg	U		2.67	2.09	78.3	48	122		22113014	U	2.67	2.21	2.20	82.7	82.5	48	122		0.3	30	
Fluorene	S007005082	0.330	mg/Kg	U		2.67	2.23	83.7	50	125		22113014	U	2.67	2.30	2.34	86.2	87.7	50	125		1.6	30	
Phenanthrene	S007005098	0.330	mg/Kg	U		2.67	2.00	74.9	54	125		22113014	U	2.67	2.06	2.13	77.3	79.6	54	125		3.0	30	
Anthracene	S007005047	0.330	mg/Kg	U		2.67	1.99	74.5	51	125		22113014	U	2.67	2.07	2.08	77.5	77.9	51	125		0.6	30	
Fluoranthene	S007005081	0.330	mg/Kg	U		2.67	2.08	77.8	50	132		22113014	U	2.67	2.17	2.19	81.3	82.0	50	132		0.9	30	
Pyrene	S007005101	0.330	mg/Kg	U		2.67	2.22	83.3	49	130		22113014	U	2.67	2.17	2.32	88.3	86.9	49	130		1.6	30	
Benz(a)anthracene	S007005055	0.330	mg/Kg	U		2.67	2.24	84.0	52	131		22113014	U	2.67	2.32	2.26	86.7	84.6	52	131		2.4	30	
Chrysene	S007005071	0.330	mg/Kg	U		2.67	2.02	75.8	51	129		22113014	U	2.67	2.06	2.07	77.3	77.6	51	129		0.4	30	
Benzofluoranthene	S007005071	0.330	mg/Kg	U		2.67	2.40	89.9	50	128		22113014	U	2.67	2.56	2.61	95.8	95.8	50	128		2.2	30	
Benzofluoranthene	S007005058	0.330	mg/Kg	U		2.67	2.28	85.3	52	126		22113014	U	2.67	2.28	2.37	85.5	88.8	52	126		3.8	30	
Benzofluoranthene	S007005060	0.330	mg/Kg	U		2.67	2.28	85.3	52	126		22113014	U	2.67	2.28	2.37	85.5	88.8	52	126		3.8	30	
Benzofluoranthene	S007005057	0.330	mg/Kg	U		2.67	2.36	88.5	49	126		22113014	U	2.67	2.50	2.55	93.7	95.3	49	126		1.7	30	
Benzofluoranthene	S007005073	0.330	mg/Kg	U		2.67	2.47	92.4	46	137		22113014	U	2.67	2.55	2.53	95.6	94.8	46	137		0.9	30	
Indeno(1,2,3-cd)pyrene	S007005087	0.330	mg/Kg	U		2.67	2.14	80.2	47	136		22113014	U	2.67	2.17	2.25	81.5	84.2	47	136		3.3	30	
Dibenz(a,h)anthracene	S007005087	0.330	mg/Kg	U		2.67	2.21	82.8	41	142		22113014	U	2.67	2.39	2.37	89.4	88.9	41	142		0.6	30	
Benzofluoranthene	S007005059	0.330	mg/Kg	U		2.67	2.21	82.8	41	142		22113014	U	2.67	2.39	2.37	89.4	88.9	41	142		0.6	30	
4-Terphenyl-D-14 (S)**	S007005103		mg/Kg			2.6	2.70	80.9	38	140		22113014		0.0	3.33	2.74	82.1	85.0	38	140		3.4	30	

**Codes/Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix; therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments :**  
 \*\*1-terphenyl(S) is added to all samples at 3.33 mg/Kg, and is therefore presented as a percent recovery in the reagent blank.  
 MS, MSD and parent sample all run on SIM.

Result is always reported as "wet weight".  
 The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 The analyte was detected in the associated method blank.  
 Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 Not calculable.  
 Not applicable.  
 If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.



Geoprobe  
7794 Boardwalk Road  
Brighton, MI 48116  
Phone: 248 446 5700  
Fax: 248 446 5701

Industrial Hygiene Services, Inc.  
1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0382  
email: asbestos@fibertec-usa.com

Analytical Laboratory  
8660 S. Mackinaw Trail  
Cadillac, MI 49601  
Phone: 231 775 8368  
Fax: 231 775 8584  
email: lab@fibertec-usa.com



Client Name: <u>S.M.E.</u>		Turnaround		Matrix Code	
Contact Person: <u>DAN CASSIDY (PLYMOUTH)</u>		24 hour RUSH (surcharge applies)		S Soil	
Project Name/ Number: <u>PE54494B</u>		48 hour RUSH (surcharge applies)		W Water	
Purchase Order #		72 hour RUSH (surcharge applies)		A Air	
Lab Sample #	Date	Time	Client Sample #	Other: Specify	<input type="checkbox"/> Oil
	<u>3/17/07</u>	<u>10:10</u>	<u>SP1 S1</u>	<u>1-2</u>	<input checked="" type="checkbox"/> P Wipe
		<u>10:20</u>	<u>SP1 S5</u>	<u>8-9</u>	<input type="checkbox"/> X Other: Specify
		<u>10:30</u>	<u>SP1 S6</u>	<u>10-11</u>	
		<u>10:40</u>	<u>SP1 S8</u>	<u>14-15</u>	
		<u>11:15</u>	<u>SP2 S1</u>	<u>1-2</u>	
		<u>11:30</u>	<u>SP2 S2</u>	<u>3-4</u>	
		<u>12:15</u>	<u>SP3 S1</u>	<u>1-2</u>	
		<u>12:35</u>	<u>SP3 S7</u>	<u>12-13</u>	
		<u>13:00</u>	<u>SP4 S1</u>	<u>1-2</u>	
		<u>13:05</u>	<u>SP4 S2</u>	<u>2-3</u>	
Matrix (SEE RIGHT CORNER FOR CODE)		# OF CONTAINERS		PRESERVED (Y/N)	
		<u>S 2 Y</u>		<u>Y</u>	
PARAMETERS		Remarks:			
		<u>DOGS</u>			
		<u>DATA</u>			
		<u>C.C.P.</u>			
		<u>DATA &amp; MESS</u>			

Comments:

Relinquished By: [Signature] Date/Time: 3.8.07 9:25 am Received By: [Signature]

Relinquished By: [Signature] Date/Time: 3.8.07 2:45 pm Received By: [Signature]

Relinquished By: [Signature] Date/Time: 3/8/07 15:36 Received By: [Signature]

LAB USE ONLY:  
Fibertec project number:  
Laboratory Tracking:  
Temperature at Receipt:

**RCVD ON**  
**6° ICE**

# Fibertec Environmental Services

**Analytical Laboratory**  
 1914 Holloway Drive  
 Holt, MI 48842  
 Phone: 517 699 0345  
 Fax: 517 699 0388  
 email: lab@fibertec-usa.com

**Industrial Hygiene Services, Inc.**  
 1914 Holloway Drive  
 Holt, MI 48842  
 Phone: 517 699 0345  
 Fax: 517 699 0382  
 email: asbestos@fibertec-usa.com

**Geoprobe**  
 7794 Boardwalk Road  
 Brighton, MI 48116  
 Phone: 248 446 5700  
 Fax: 248 446 5701

Chain of Custody #  
**48933**  
 PAGE 2 of 2

Client Name: S.M.E.


Contact Person: David Cassidy (Dymouth)

Project Name/ Number: PE544948


Purchase Order #

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS				Turnaround	Matrix Code	
	3/1/07	13:25	SP5 S1	1-2		5	Y	VOCs	PAHs	CO, Cr, Pb	PCPA	OTHER METALS	<input checked="" type="checkbox"/> 24 hour RUSH (surcharge applies)	S Soil
		14:20	SP6 S1	1-2		1	Y						<input type="checkbox"/> 48 hour RUSH (surcharge applies)	W Water
		14:25	SP6 S2	3-4		1	Y						<input type="checkbox"/> 72 hour RUSH (surcharge applies)	A Air
		14:35	SP6 S4	9-8		1	Y						<input type="checkbox"/> Standard (57 bus. days)	O Oil
		14:30	SP6 Duplicate			1	Y						<input type="checkbox"/> Other: Specify	P Wipe
		14:40	SP6 MS/MAD			1	Y						<input type="checkbox"/> Other: Specify	
		12:00	Fired Bank # 1			W	Y							
			TRIP BANK # 1			W	Y							

Comments:

Relinquished By: 

Date/Time: 5.8.07 9:25 AM Received By: 

Relinquished By: 

Date/Time: 3.8.07 2:45 PM Received By: 

Relinquished By: 

Date/Time: 5/8/07 1:53 PM Received By: 

LAB USE ONLY:  
 Fibertec project number:  
 Laboratory Tracking:  
 Temperature at Receipt:

RCVD ON  
 6 ICE  
 COC Revision: October, 2003

TERMS & CONDITIONS ON BACK



REC'D MAR 28 2007

March 20, 2007

Case Narrative

Customer: SME  
Project Identification: 35975 Woodward/PE54816  
Fibertec Project Number: 22142

Sample Collection/ Receipt

The following samples were collected and received by Fibertec on March 12, 2007.

5 Soils (1 sample on hold)

3 Water (including a field blank and trip blank)

All Samples were received on ice and in good condition.

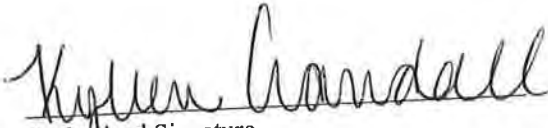
Analysis

Analyses were conducted in accordance with chain of custody and within hold times. As discussed, there was no metals container for 2242.006 (SP15-GW).

All applicable quality assurance/ quality control parameters were within acceptance limits unless otherwise noted.

Volatiles

Samples 22142.001 (SP15-S3 (4-6)) and 22142.005 (S-DUP1) had an estimated result for 1,2-dibromo-3-chloropropane, compound failed low on CCV. Sample 22142.002 (SP15-S6 (10-11)) had estimated results for bromomethane, 2-butanone and 1,2-dibromo-3-chloropropane, compounds failed low on CCV and had high surrogate recovery for 4-bromofluorobenzene. Sample 22142.004 (SP15-S11 (20-22)) had an estimated result for bromomethane, compound failed low on CCV. Sample 22142.006 (SP15-GW) had estimated results for bromodichloromethane, styrene and trichloroethene, compounds failed low on LCS and had high surrogate recovery for 4-bromofluorobenzene. Samples 22142.007 (Field Blank) and 22142.008 (Trip Blank) had estimated results for bromodichloromethane, styrene, and trichloroethene, compounds failed low on LCS.

  
Authorized Signature

3/20/07  
Date



Tuesday, March 20, 2007

Fibertec Project Number: 22142  
Project Identification: 35975 Woodward/PE54816  
Submittal Date: 3/12/2007

Mr. Mark Quimby  
Soil and Materials Engineers, Inc. - Plymouth  
43980 Plymouth Oaks  
Plymouth, MI 48170

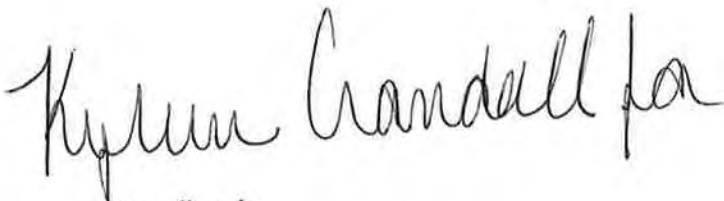
Dear Mr. Quimby,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed as requested and the results compiled in the enclosed report.

As discussed, there was no metals container for 22142.006 (SP15-GW).

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,



Daryl P. Strandbergh  
Laboratory Director

DPS/kc

Enclosures

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-001</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S3 (4-6)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)</b>								
Acetone	ND	µg/kg	1000	1	VE07C16A	3/12/2007	3/16/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Benzene	<b>4700</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C16A	3/12/2007	3/16/2007	BAG
n-Butylbenzene	<b>4700</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
sec-Butylbenzene	<b>740</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-001</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S3 (4-6)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Ethylbenzene	<b>8700</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C16A	3/12/2007	3/16/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Isopropylbenzene	<b>1600</b>	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C16A	3/12/2007	3/16/2007	BAG



## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22142**      Sample Number: **22142-001**

### Client Sample Information

Project Identification: **35975 Woodward**      Client Sample Description: **SP15-S3 (4-6)**  
Project Number: **PE54816**      Client Sample Number: **1**  
Sample Date: **3/12/2007**      Chain of Custody Number: **63572**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.1%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)</b>								
Methylene Chloride	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Naphthalene	<b>7800</b>	µg/kg	330	1	VE07C16A	3/12/2007	3/16/2007	BAG
n-Propylbenzene	<b>8100</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Toluene	<b>7300</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,4-Trimethylbenzene	<b>10000</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,3,5-Trimethylbenzene	<b>6300</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C16A	3/12/2007	3/16/2007	BAG
Xylenes	<b>11000</b>	µg/kg	150	1	VE07C16A	3/12/2007	3/16/2007	BAG

## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22142**      Sample Number: **22142-001A**

### Client Sample Information

Project Identification: **35975 Woodward**      Client Sample Description: **SP15-S3 (4-6)**  
Project Number: **PE54816**      Client Sample Number: **1**  
Sample Date: **3/12/2007**      Chain of Custody Number: **63572**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.1%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>15</b>	%	0.1	1	NA	3/14/2007	3/15/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>240</b>	µg/kg	50	1	42965	3/15/2007	3/15/2007	JAG
Chromium	<b>11000</b>	µg/kg	500	1	42965	3/15/2007	3/15/2007	JAG
Lead	<b>58000</b>	µg/kg	1000	1	42965	3/15/2007	3/15/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Acenaphthylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(b)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(ghi)perylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(k)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Chrysene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluorene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
2-Methylnaphthalene	<b>13000</b>	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-001A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S3 (4-6)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 15.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-002</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S6 (10-11)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane, 2-butanone, and 1,2-dibromo-3-chloropropane. High Surrogate Recovery - 4-Bromofluorobenzene)**

Acetone	ND	µg/kg	1000	1	VE07C15A	3/12/2007	3/15/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Benzene	<b>68000</b>	µg/kg	1000	20	VE07C15A	3/12/2007	3/15/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C15A	3/12/2007	3/15/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C15A	3/12/2007	3/15/2007	BAG
n-Butylbenzene	<b>20000</b>	µg/kg	1000	20	VE07C15A	3/12/2007	3/15/2007	BAG
sec-Butylbenzene	<b>2400 J</b>	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG

## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Soil/Solid**  
Fibertec Project Number: **22142**      Sample Number: **22142-002**

### Client Sample Information

Project Identification: **35975 Woodward**      Client Sample Description: **SP15-S6 (10-11)**  
Project Number: **PE54816**      Client Sample Number: **2**  
Sample Date: **3/12/2007**      Chain of Custody Number: **63572**

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane, 2-butanone, and 1,2-dibromo-3-chloropropane. High Surrogate Recovery - 4-Bromofluorobenzene)</b>								
Dibromochloromethane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C15A	3/12/2007	3/15/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Ethylbenzene	<b>110000</b>	µg/kg	1000	20	VE07C15A	3/12/2007	3/15/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C15A	3/12/2007	3/15/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C15A	3/12/2007	3/15/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-002</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S6 (10-11)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane, 2-butanone, and 1,2-dibromo-3-chloropropane. High Surrogate Recovery - 4-Bromofluorobenzene)**

Isopropylbenzene	<b>7600 J</b>	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C15A	3/12/2007	3/15/2007	BAG
Methylene Chloride	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C15A	3/12/2007	3/15/2007	BAG
Naphthalene	<b>40000</b>	µg/kg	6600	20	VE07C15A	3/12/2007	3/15/2007	BAG
n-Propylbenzene	<b>33000</b>	µg/kg	2000	20	VE07C15A	3/12/2007	3/15/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Toluene	<b>910000</b>	µg/kg	5000	100	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C15A	3/12/2007	3/15/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C15A	3/12/2007	3/15/2007	BAG
1,2,4-Trimethylbenzene	<b>210000</b>	µg/kg	2000	20	VE07C15A	3/12/2007	3/15/2007	BAG
1,3,5-Trimethylbenzene	<b>65000</b>	µg/kg	2000	20	VE07C15A	3/12/2007	3/15/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-002</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S6 (10-11)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane, 2-butanone, and 1,2-dibromo-3-chloropropane. High Surrogate Recovery - 4-Bromofluorobenzene)</b>								
Vinyl Chloride	ND	µg/kg	40	1	VE07C15A	3/12/2007	3/15/2007	BAG
Xylenes	<b>460000</b>	µg/kg	3000	20	VE07C15A	3/12/2007	3/15/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-002A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S6 (10-11)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	17	%	0.1	1	NA	3/14/2007	3/15/2007	BMG
<b>RCRA Elements by ICP/MS (EPA 3050B/EPA 6020)</b>								
Arsenic	5100	µg/kg	100	1	42965	3/15/2007	3/15/2007	JAG
Barium	42000	µg/kg	1000	1	42965	3/15/2007	3/15/2007	JAG
Cadmium	200	µg/kg	50	1	42965	3/15/2007	3/15/2007	JAG
Chromium	7900	µg/kg	500	1	42965	3/15/2007	3/15/2007	JAG
Lead	120000	µg/kg	1000	1	42965	3/15/2007	3/15/2007	JAG
Selenium	380	µg/kg	200	1	42965	3/15/2007	3/15/2007	JAG
Silver	ND	µg/kg	100	1	42965	3/15/2007	3/15/2007	JAG
<b>Mercury by CVAAS (EPA 7471A)</b>								
Mercury	88	µg/kg	50	1	42967	3/15/2007	3/15/2007	PAM
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Acenaphthylene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Benzo(a)anthracene	520	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Benzo(a)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Benzo(b)fluoranthene	400	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Benzo(ghi)perylene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Benzo(k)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-002A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S6 (10-11)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 16.7%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)**

Chrysene	<b>360</b>	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Fluoranthene	<b>1100</b>	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Fluorene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
2-Methylnaphthalene	<b>21000</b>	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Phenanthrene	<b>1100</b>	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ
Pyrene	<b>800</b>	µg/kg	330	1	42951	3/14/2007	3/14/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-004</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S11 (20-22)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 19.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane)</b>								
Acetone	ND	µg/kg	1000	1	V307C17A	3/12/2007	3/18/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Benzene	<b>590</b>	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Bromobenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Bromoform	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Bromomethane	ND	µg/kg	200	1	V307C17A	3/12/2007	3/18/2007	BAG
2-Butanone	ND	µg/kg	750	1	V307C17A	3/12/2007	3/18/2007	BAG
n-Butylbenzene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
sec-Butylbenzene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Chloroethane	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
Chloroform	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Chloromethane	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-004</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S11 (20-22)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 19.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane)**

1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	V307C17A	3/12/2007	3/18/2007	BAG
Dibromomethane	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Ethylbenzene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	V307C17A	3/12/2007	3/18/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	V307C17A	3/12/2007	3/18/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Isopropylbenzene	ND	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	V307C17A	3/12/2007	3/18/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-004</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S11 (20-22)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 19.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - Bromomethane)</b>								
Methylene Chloride	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
MTBE	<b>270</b>	µg/kg	250	1	V307C17A	3/12/2007	3/18/2007	BAG
Naphthalene	ND	µg/kg	330	1	V307C17A	3/12/2007	3/18/2007	BAG
n-Propylbenzene	<b>180</b>	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Styrene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Toluene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Trichloroethene	ND	µg/kg	50	1	V307C17A	3/12/2007	3/18/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/kg	100	1	V307C17A	3/12/2007	3/18/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	V307C17A	3/12/2007	3/18/2007	BAG
Xylenes	<b>260</b>	µg/kg	150	1	V307C17A	3/12/2007	3/18/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-004A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S11 (20-22)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 19.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Dry Weight Determination (ASTM D 2974-87)</b>								
Percent Moisture (Water Content)	<b>19</b>	%	0.1	1	NA	3/14/2007	3/15/2007	BMG
<b>Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)</b>								
Cadmium	<b>230</b>	µg/kg	50	1	42965	3/15/2007	3/15/2007	JAG
Chromium	<b>8600</b>	µg/kg	500	1	42965	3/15/2007	3/15/2007	JAG
Lead	<b>51000</b>	µg/kg	1000	1	42965	3/15/2007	3/15/2007	JAG
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Acenaphthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Acenaphthylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(b)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(ghi)perylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(k)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Chrysene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluorene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
2-Methylnaphthalene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-004A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-S11 (20-22)</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 19.1%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-005</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>S-DUP1</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)</b>								
Acetone	ND	µg/kg	1000	1	VE07C16A	3/12/2007	3/16/2007	BAG
Acrylonitrile	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Benzene	<b>7000</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromochloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromodichloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromoform	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Bromomethane	ND	µg/kg	200	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Butanone	ND	µg/kg	750	1	VE07C16A	3/12/2007	3/16/2007	BAG
n-Butylbenzene	<b>4500</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
sec-Butylbenzene	<b>700</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
tert-Butylbenzene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Carbon Disulfide	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Carbon Tetrachloride	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chlorobenzene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloroethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloroform	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Chloromethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Chlorotoluene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dibromochloromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-005</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>S-DUPI</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/kg	10	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dibromomethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,3-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,4-Dichlorobenzene	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Dichlorodifluoromethane	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1-Dichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
cis-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
trans-1,2-Dichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2-Dichloropropane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
cis-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
trans-1,3-Dichloropropene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Ethylbenzene	<b>10000</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Ethylene Dibromide	ND	µg/kg	20	1	VE07C16A	3/12/2007	3/16/2007	BAG
2-Hexanone	ND	µg/kg	2500	1	VE07C16A	3/12/2007	3/16/2007	BAG
Methyl Iodide	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Isopropylbenzene	<b>1600</b>	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
4-Methyl-2-pentanone	ND	µg/kg	2500	1	VE07C16A	3/12/2007	3/16/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-005</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>S-DUP1</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS, 5035 (EPA 5035/EPA 8260B) (Low CCV Recovery - 1,2-dibromo-3-chloropropane)**

Methylene Chloride	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
MTBE	ND	µg/kg	250	1	VE07C16A	3/12/2007	3/16/2007	BAG
Naphthalene	<b>7100</b>	µg/kg	330	1	VE07C16A	3/12/2007	3/16/2007	BAG
n-Propylbenzene	<b>7800</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Styrene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Tetrachloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Toluene	<b>6500</b>	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/kg	330	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,1-Trichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,1,2-Trichloroethane	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Trichloroethene	ND	µg/kg	50	1	VE07C16A	3/12/2007	3/16/2007	BAG
Trichlorofluoromethane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,3-Trichloropropane	ND	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,2,4-Trimethylbenzene	<b>14000</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
1,3,5-Trimethylbenzene	<b>6900</b>	µg/kg	100	1	VE07C16A	3/12/2007	3/16/2007	BAG
Vinyl Chloride	ND	µg/kg	40	1	VE07C16A	3/12/2007	3/16/2007	BAG
Xylenes	<b>13000</b>	µg/kg	150	1	VE07C16A	3/12/2007	3/16/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Soil/Solid</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-005A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>S-DUP1</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Dry Weight Determination (ASTM D 2974-87)**

Percent Moisture (Water Content)	<b>15</b>	%	0.1	1	NA	3/14/2007	3/15/2007	BMG
----------------------------------	-----------	---	-----	---	----	-----------	-----------	-----

**Lead + Cadmium + Chromium by ICP/MS (EPA 3050B/EPA 6020)**

Cadmium	<b>160</b>	µg/kg	50	1	42965	3/15/2007	3/15/2007	JAG
Chromium	<b>25000</b>	µg/kg	500	1	42965	3/15/2007	3/15/2007	JAG
Lead	<b>14000</b>	µg/kg	1000	1	42965	3/15/2007	3/15/2007	JAG

**Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)**

Acenaphthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Acenaphthylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(a)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(b)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(ghi)perylene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Benzo(k)fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Chrysene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluoranthene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Fluorene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
2-Methylnaphthalene	<b>15000</b>	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Soil/Solid
Fibertec Project Number:	22142	Sample Number:	22142-005A

### Client Sample Information

Project Identification:	35975 Woodward	Client Sample Description:	S-DUP1
Project Number:	PE54816	Client Sample Number:	5
Sample Date:	3/12/2007	Chain of Custody Number:	63572

Comments: **All Results Reported On Dry Weight Basis. Percent Moisture = 14.8%.**  
 Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3550B/EPA 8270C)</b>								
Phenanthrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ
Pyrene	ND	µg/kg	330	1	42951	3/14/2007	3/15/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-006</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-GW</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene; High Surrogate Recovery - 4-Bromofluorobenzene)</b>								
Acetone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Benzene	<b>6600</b>	µg/L	50	50	V907C14A	3/14/2007	3/14/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-006</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-GW</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene; High Surrogate Recovery - 4-Bromofluorobenzene)</b>								
Dibromochloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Ethylbenzene	<b>1900</b>	µg/L	50	50	V907C14A	3/14/2007	3/14/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-006</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-GW</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene; High Surrogate Recovery - 4-Bromofluorobenzene)</b>								
Isopropylbenzene	<b>85 J</b>	$\mu\text{g/L}$	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	$\mu\text{g/L}$	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Methylene Chloride	ND	$\mu\text{g/L}$	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
MTBE	<b>53</b>	$\mu\text{g/L}$	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Naphthalene	<b>120 J</b>	$\mu\text{g/L}$	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Propylbenzene	<b>190 J</b>	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Styrene	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Tetrachloroethene	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Toluene	<b>15000</b>	$\mu\text{g/L}$	200	200	VB07C14A	3/14/2007	3/14/2007	BAG
1,2,4-Trichlorobenzene	ND	$\mu\text{g/L}$	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichloroethene	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	$\mu\text{g/L}$	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	<b>1000</b>	$\mu\text{g/L}$	50	50	V907C14A	3/14/2007	3/14/2007	BAG
1,3,5-Trimethylbenzene	<b>320</b>	$\mu\text{g/L}$	50	50	V907C14A	3/14/2007	3/14/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-006</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-GW</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene; High Surrogate Recovery - 4-Bromofluorobenzene)**

Vinyl Chloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Xylenes	7800	µg/L	150	50	V907C14A	3/14/2007	3/14/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-006A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>SP15-GW</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Anthracene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Chrysene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Fluorene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
2-Methylnaphthalene	<b>31</b>	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
Pyrene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-007</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Field Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
Acetone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Benzene	ND	µg/L	1.0	1	V907C14A	3/14/2007	3/14/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-007</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Field Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-007</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Field Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
Methylene Chloride	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
MTBE	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Naphthalene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Styrene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Toluene	ND	µg/L	1.0	1	V907C14A	3/14/2007	3/14/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Xylenes	ND	µg/L	3.0	1	V907C14A	3/14/2007	3/14/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-007A</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Field Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	42952	3/14/2007	3/14/2007	JAG
Chromium	ND	µg/L	10	1	42952	3/14/2007	3/14/2007	JAG
Lead	ND	µg/L	3.0	1	42952	3/14/2007	3/14/2007	JAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-007B</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Field Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Anthracene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Chrysene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42918	3/15/2007	3/16/2007	LAN
Fluorene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
2-Methylnaphthalene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42918	3/15/2007	3/16/2007	LAN
Pyrene	ND	µg/L	5.0	1	42918	3/15/2007	3/16/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-008</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
Acetone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Benzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-008</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	V907C13B	3/13/2007	3/13/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22142</b>	Sample Number:	<b>22142-008</b>

### Client Sample Information

Project Identification:	<b>35975 Woodward</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>PE54816</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/12/2007</b>	Chain of Custody Number:	<b>63572</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B) (Low LCS Recovery - Bromodichloromethane, Styrene, Trichloroethene)</b>								
Methylene Chloride	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
2-Methylnaphthalene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
MTBE	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Naphthalene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Styrene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Toluene	<b>1.7</b>	µg/L	1.0	1	V907C14A	3/14/2007	3/14/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	V907C13B	3/13/2007	3/13/2007	BAG
Xylenes	ND	µg/L	3.0	1	V907C13B	3/13/2007	3/13/2007	BAG

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
V307C17A  
VOLATILES

Sample Matrix: **SOIL/SOLID (S)S**  
Inclusive Projects: **VARIOUS**

Preparation Method: **SW-846-5035**  
Preparation Date: **3/17/2007**  
Prepared(s) Initials: **JAS**

Analytical Method: **SW-846-8260 FULL**  
Analysis Date: **3/17/2007**  
Analyst(s) Initials: **JAS**

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)						RPD (%)	UCL (%)	Flag		
			Conc. (mg/Kg)	Flag	Conc. Spiked (mg/Kg)	LFB Conc. (mg/Kg)	LFB Recovery (%)	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc-W (mg/Kg)	Conc-W Spiked (mg/Kg)	MS Conc-W (mg/Kg)	MSD Conc-W (mg/Kg)	MS Percent Recovery				MSD Percent Recovery	LCL (%)
Vinyl chloride	0.05	mg/Kg	U		1.00	0.89	88.8	39	114	22178010	U	1.00	1.30	1.29	130	129	22	134	1	27	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	0.94	93.9	54	136	22178010	U	1.00	1.06	1.05	106	105	60	132	2	25	
Methylene chloride	0.05	mg/Kg	U		1.00	0.87	87.3	60	126	22178010	U	1.00	0.88	0.86	88	86	56	134	3	34	
trans-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	1.03	102.9	60	142	22178010	U	1.00	1.08	1.07	108	107	66	140	1	25	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	1.02	102.1	64	134	22178010	U	1.00	1.05	1.03	105	103	68	134	1	23	
cis-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	0.94	94.2	68	134	22178010	U	1.00	0.93	0.92	93	92	66	138	1	23	
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	1.03	102.6	72	124	22178010	U	1.00	1.05	1.05	105	105	66	136	2	20	
Carbontetrachloride	0.05	mg/Kg	U		1.00	1.12	111.9	74	122	22178010	U	1.00	1.08	1.06	108	106	72	128	2	22	
Benzene	0.05	mg/Kg	U		1.00	1.03	103.0	72	128	22178010	U	1.00	0.98	0.98	98	98	70	130	2	21	
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	0.98	98.0	70	126	22178010	U	1.00	1.00	0.98	98	96	70	130	2	29	
Trichloroethane	0.05	mg/Kg	U		1.00	1.08	108.1	74	126	22178010	U	1.00	1.17	1.13	117	113	70	138	3	29	
Bromodichloroethane	0.05	mg/Kg	U		1.00	0.95	94.7	76	116	22178010	U	1.00	1.00	0.96	96	96	66	128	4	22	
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	0.88	88.4	64	126	22178010	U	1.00	1.34	1.32	134	132	58	134	2	25	
Toluene	0.05	mg/Kg	U		1.00	1.09	108.7	72	126	22178010	U	1.00	2.29	2.29	191	175	70	134	2	20	
Dibromochloroethane	0.05	mg/Kg	U		1.00	0.82	82.3	66	146	22178010	U	1.00	0.74	0.73	74	73	62	126	1	23	
Tetrahydroethane	0.05	mg/Kg	U		1.00	1.22	122.4	66	146	22178010	U	1.00	1.13	1.12	113	112	46	172	1	66	
2-Hexanone	0.05	mg/Kg	U		1.00	0.85	84.9	7	62	22178010	U	1.00	0.56	0.56	56	56	6	71	6	47	
Ethylbenzene	0.05	mg/Kg	U		1.00	1.05	104.7	64	128	22178010	U	1.00	1.76	1.76	176	176	66	128	5	25	
total-Xylene	0.15	mg/Kg	U		3.00	3.00	100.1	67	127	22178010	U	3.00	16.15	16.18	366	368	69	127	0	0	
Styrene	0.05	mg/Kg	U		1.00	1.04	104.4	64	130	22178010	U	1.00	1.00	0.98	98	98	64	132	0	2	
Dibromofluoroethane (S)**			123		100	91.2	91	70	134		108.3	100	92.5	85.1	93	85	70	134			
Toluene-48 (S)**			135	*	100	100.7	101	74	129		128.4	100	104.9	96.8	105	97	74	129			
4-Bromofluorobenzene (S)**			128	*	100	95.9	96	70	119		11.5	100	94.5	85.0	95	85	70	119			

**Code/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank

*J. Smith*  
 J. Smith  
 Analyst/Date

Quality Assurance Officer/Date  
 TW 3/22/07

1914 Holloway Drive  
 11776 Grand River Ave  
 Holt, Michigan 48842  
 Brighton, Michigan 48116

Telephone: (517) 699-0345  
 Telephone: (810) 220-3300  
 Facsimile: (517) 699-0388  
 Facsimile: (810) 220-3311

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
42918

SEMI-VOLATILES

Sample Matrix : WATER, TOTAL  
Inclusive Projects : VARIOUS  
Preparation Method : SW-846 3555A  
Preparation Date : 3/7/2007  
Preparer(s) Initials: am,mp  
Analytical Method : SW-846 8270D - PNA  
Analysis Date : 3/8/2007  
Analysis(s) Initials : gn

Analyte	Laboratory Control Number	LOQ	Units	Method Blank		Laboratory Fortified Blank (LFB)				MATRIX SPIKE/MATRIX SPIKE DUPLICATE													
				Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	LCL (%)
Naphthalene	S011005089	5.0	ug/L	U	U	80.0	0.0	0	23	123	***	GW MATRIX	U	80.0	50.6	49.5	63	62	41	134	2.24	30	30
2-Methylnaphthalene	S011005027	5.0	ug/L	U	U	80.0	0.0	0	25	91	***	GW MATRIX	U	80.0	54.2	53.4	68	67	30	81	1.41	30	30
Acenaphthylene	S011005045	5.0	ug/L	U	U	80.0	0.0	0	40	114	***	GW MATRIX	U	80.0	53.5	53.4	67	67	55	118	0.3	30	30
Acenaphthene	S011005044	5.0	ug/L	U	U	80.0	0.0	0	39	107	***	GW MATRIX	U	80.0	53.4	52.5	67	66	48	110	1.700	30	30
Fluorene	S011005082	5.0	ug/L	U	U	80.0	0.0	0	40	109	***	GW MATRIX	U	80.0	56.7	55.9	71	70	56	105	1.3	30	30
Phenanthrene	S011005098	5.0	ug/L	U	U	80.0	0.0	0	48	110	***	GW MATRIX	U	80.0	54.0	52.8	68	66	60	108	2.2	30	30
Anthracene	S011005047	5.0	ug/L	U	U	80.0	0.0	0	44	109	***	GW MATRIX	U	80.0	57.8	57.4	72	72	61	105	0.7	30	30
Fluoranthene	S011005081	5.0	ug/L	U	U	80.0	0.0	0	45	113	***	GW MATRIX	U	80.0	55.6	55.8	70	70	62	100	0.3	30	30
Pyrene	S011005101	5.0	ug/L	U	U	80.0	0.0	0	50	113	***	GW MATRIX	U	80.0	57.0	57.0	72	72	66	108	1.60	30	30
Benzo(a)anthracene	S011005055	5.0	ug/L	U	U	80.0	0.0	0	48	102	***	GW MATRIX	U	80.0	53.0	52.7	66	66	60	106	0.61	30	30
Chrysene	S011005071	5.0	ug/L	U	U	80.0	0.0	0	48	106	***	GW MATRIX	U	80.0	47.6	47.1	60	59	64	107	1.1	30	30
Benzo(b)fluoranthene	S011005058	5.0	ug/L	U	U	80.0	0.0	0	51	115	***	GW MATRIX	U	80.0	55.6	57.1	70	71	65	117	2.6	30	30
Benzo(k)fluoranthene	S011005060	5.0	ug/L	U	U	80.0	0.0	0	51	106	***	GW MATRIX	U	80.0	58.5	58.9	73	74	63	120	0.78	30	30
Benzo(a)pyrene	S011005057	5.0	ug/L	U	U	80.0	0.0	0	52	105	***	GW MATRIX	U	80.0	55.9	55.7	70	70	66	111	0.39	30	30
Indeno(1,2,3-cd)pyrene	S011005073	5.0	ug/L	U	U	80.0	0.0	0	31	136	***	GW MATRIX	U	80.0	49.9	51.6	62	65	65	114	3.31	30	30
Dibenz(a,h)anthracene	S011005087	5.0	ug/L	U	U	80.0	0.0	0	35	108	***	GW MATRIX	U	80.0	45.9	46.7	57	58	60	116	1.73	30	30
Benzo(g,h)perylene	S011005059	5.0	ug/L	U	U	80.0	0.0	0	45	106	***	GW MATRIX	U	80.0	55.1	56.8	69	71	64	113	2.97	30	30
4-Terphenyl D-14 (S)**	S011005103	100	ug/L	U	U	100	0.0	0	63	116	***	GW MATRIX	U	100	72.7	70.7	73	71	63	116	2.71	30	30

**Codes/Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments :**  
 \*\*Terphenyl(S) is added to all samples at 100 ug/L, and is therefore presented as a percent recovery in the reagent blank  
 \*\*\*No sample available for ms/msd, lcs/lcsd controls the batch  
 #LCS/LCSD Meet LCS QC Limits

1914 Holloway Drive Holt, Michigan 48842  
 11776 Grand River Avenue Brighton, Michigan 48116  
 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

Checked/Date: *[Signature]* 3/19/07  
 Quality Assurance Officer/Date: *[Signature]* 3/12/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
**42965**  
**METALS**

Sample Matrix :	<b>SOIL/SOLID</b>	Preparation Method :	EPA 200.8/M/SW-846 3050B	Analytical Method :	EPA 200.8/SW-846 6020
Inclusive Projects :	<b>22142, 22150</b>	Preparation Date :	3/15/2007	Analysis Date :	3/15/2007
		Preparer(s) Initials:	JAG	Analyst(s) Initials :	JAG

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Verified Blank (LFB)						MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MD / MS / MSD)															
				Conc. (mg/Kg)	Flag	Conc. Spiked (mg/Kg)	LFB Conc (mg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc W (mg/Kg)	MD Conc W (mg/Kg)	Conc W Spiked (mg/Kg)	MS Conc W (mg/Kg)	MSD Conc W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Sample W (mg/Kg)	RPD MS/Kg W (mg/Kg)	UCL (%)	Flag	
				U		10.0	10.3	103	85	115		22142 001	11.0	19.0	10.0	71.1	18.2	601	72	70	130	*M	53	157	20	*	
Arsenic	M007002003	0.10	mg/Kg	U		50.0	54.7	109	85 <td>115</td> <td></td> <td>22142 001</td> <td>57.9</td> <td>58.1</td> <td>50.0</td> <td>107</td> <td>99.2</td> <td>98</td> <td>83</td> <td>70 <td>130</td> <td>0.3</td> <td>17</td> <td>20</td> <td>*</td> </td>	115		22142 001	57.9	58.1	50.0	107	99.2	98	83	70 <td>130</td> <td>0.3</td> <td>17</td> <td>20</td> <td>*</td>	130	0.3	17	20	*		
Barium	M007002004	1.00	mg/Kg	U		10.0	10.4	104	85 <td>115</td> <td></td> <td>22142 001</td> <td>0.24</td> <td>0.26</td> <td>10.0</td> <td>10.7</td> <td>10.7</td> <td>105</td> <td>105</td> <td>70 <td>130</td> <td>8.0</td> <td>0.0</td> <td>20</td> <td>*</td> </td>	115		22142 001	0.24	0.26	10.0	10.7	10.7	105	105	70 <td>130</td> <td>8.0</td> <td>0.0</td> <td>20</td> <td>*</td>	130	8.0	0.0	20	*		
Cadmium	M007002007	0.050	mg/Kg	U		20.0	22.3	112	85 <td>115</td> <td></td> <td>22142 001</td> <td>10.7</td> <td>9.42</td> <td>20.0</td> <td>29.1</td> <td>27.9</td> <td>92</td> <td>86</td> <td>70 <td>130</td> <td>13</td> <td>6.7</td> <td>20</td> <td>*</td> </td>	115		22142 001	10.7	9.42	20.0	29.1	27.9	92	86	70 <td>130</td> <td>13</td> <td>6.7</td> <td>20</td> <td>*</td>	130	13	6.7	20	*		
Chromium	M007002009	0.50	mg/Kg	U		20.0	22.2	111	85 <td>115</td> <td></td> <td>22142 001</td> <td>21.5</td> <td>23.5</td> <td>20.0</td> <td>45.0</td> <td>38.2</td> <td>118</td> <td>84</td> <td>70 <td>130</td> <td>8.9</td> <td>3.4</td> <td>20</td> <td>*</td> </td>	115		22142 001	21.5	23.5	20.0	45.0	38.2	118	84	70 <td>130</td> <td>8.9</td> <td>3.4</td> <td>20</td> <td>*</td>	130	8.9	3.4	20	*		
Copper	M007002011	1.00	mg/Kg	U		20.0	21.9	110	85 <td>115</td> <td></td> <td>22142 001</td> <td>58.4</td> <td>71.6</td> <td>20.0</td> <td>122</td> <td>71.6</td> <td>318</td> <td>66</td> <td>70 <td>130</td> <td>20</td> <td>131</td> <td>20</td> <td>*</td> </td>	115		22142 001	58.4	71.6	20.0	122	71.6	318	66	70 <td>130</td> <td>20</td> <td>131</td> <td>20</td> <td>*</td>	130	20	131	20	*		
Lead	M007002013	1.00	mg/Kg	U		10.0	10.1	101	85 <td>115</td> <td></td> <td>22142 001</td> <td>0.89</td> <td>0.83</td> <td>10.0</td> <td>9.93</td> <td>9.60</td> <td>90</td> <td>87</td> <td>70 <td>130</td> <td>34</td> <td>3.7</td> <td>20</td> <td>*</td> </td>	115		22142 001	0.89	0.83	10.0	9.93	9.60	90	87	70 <td>130</td> <td>34</td> <td>3.7</td> <td>20</td> <td>*</td>	130	34	3.7	20	*		
Selenium	M007002022	0.20	mg/Kg	U		10.0	10.7	107	85 <td>115</td> <td></td> <td>22142 001</td> <td>0.07</td> <td>0.09</td> <td>10.0</td> <td>10.1</td> <td>10.3</td> <td>100</td> <td>102</td> <td>70 <td>130</td> <td>2.5</td> <td>2.0</td> <td>20</td> <td>*</td> </td>	115		22142 001	0.07	0.09	10.0	10.1	10.3	100	102	70 <td>130</td> <td>2.5</td> <td>2.0</td> <td>20</td> <td>*</td>	130	2.5	2.0	20	*		
Silver	M007002023	0.20	mg/Kg	U		50.0	52.8	106	85 <td>115</td> <td></td> <td>22142 001</td> <td>100</td> <td>117</td> <td>50.0</td> <td>175</td> <td>149</td> <td>150</td> <td>98</td> <td>70 <td>130</td> <td>16</td> <td>42</td> <td>20</td> <td>*</td> </td>	115		22142 001	100	117	50.0	175	149	150	98	70 <td>130</td> <td>16</td> <td>42</td> <td>20</td> <td>*</td>	130	16	42	20	*		
Zinc	M007002030	1.00	mg/Kg	U																							

**Codes/Rings :**

- U The analyte was not detected at or above the quantitation limit.
- E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
- DL The sample was diluted due to sample matrix; therefore QC was not recoverable.
- \* The value is outside quality control limits.
- K Reported concentration is proportional to dilution factor and may be exaggerated.
- P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
- LOQ Analytical limit of quantitation.

**W** Result is always reported as "wet weight".

**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.

**B** The analyte was detected in the associated method blank.

**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.

**NC** Not calculable.

**NA** Not applicable.

**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments :**

  
 3-16-07  
 74 3/21/07  
 Chemist/Date  
 Quality Assurance Officer/Date

1914 Holloway Drive Holt, Michigan 48842  
7794 Boardwalk Road Brighton, Michigan 48116

Telephone: (517) 699-0345  
Facsimile: (517) 699-0388  
Telephone: (248) 446-5700  
Facsimile: (248) 446-5701



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
42951

SEMI-VOLATILES

Sample Matrix: **SOIL/SOLID** Preparation Method: **SW-946 3650B** Analytical Method: **SW-946 8270D - PNA**  
 Inclusive Projects: **VAK005** Preparation Date: **3/16/2007** Analysis Date: **3/15/2007**  
 Preparer(s) Initials: **RR** Preparer(s) Initials: **AJ**


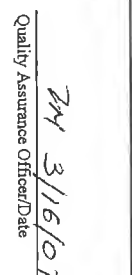
Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Verified Blank (LEB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)										RPD		
				Conc. (mg/Kg)	Flag	Conc. Spiked (mg/Kg)	LEB Conc. (mg/Kg)	LEB Percent Recovery	LEB ICL (%)	LEB UCL (%)	LEB Flag	Laboratory Sample ID	Sample Conc-W (mg/Kg)	Conc-W Spiked (mg/Kg)	MS Conc-W (mg/Kg)	MSD Conc-W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	ICL (%)	UCL (%)	Flag	RPD mass (%)	ICL (%)	Flag
Naphthalene	S007005089	0.330	mg/Kg	U		2.67	1.64	61.6	38	112		22135-004	U	2.67	1.89	1.84	70.9	68.9	38	112		2.9	30	
2-Methyl-naphthalene	S007005027	0.330	mg/Kg	U		2.67	1.89	70.9	43	116		22135-004	U	2.67	1.95	1.92	72.9	71.9	43	116		1.4	30	
Acenaphthylene	S007005045	0.330	mg/Kg	U		2.67	2.07	77.5	49	120		22135-004	U	2.67	2.05	2.03	76.9	75.9	49	120		1.3	30	
Acenaphthene	S007005044	0.330	mg/Kg	U		2.67	2.01	75.1	48	122		22135-004	U	2.67	2.27	2.13	84.9	79.9	48	122		6.1	30	
Fluorene	S007005082	0.330	mg/Kg	U		2.67	2.28	82.5	50	125		22135-004	U	2.67	2.29	2.16	85.9	80.9	50	125		6.0	30	
Phenanthrene	S007005098	0.330	mg/Kg	U		2.67	2.14	80.2	54	125		22135-004	4.0	2.67	6.16	4.91	80.9	34.0	54	125	*	81.7	30	
Anthracene	S007005047	0.330	mg/Kg	U		2.67	2.86	77.2	51	125		22135-004	0.9	2.67	3.07	2.69	82.4	68.4	51	125	*	18.5	30	
Fluoranthene	S007005081	0.330	mg/Kg	U		2.67	2.26	84.8	50	132		22135-004	9.6	2.67	11.28	9.49	64.2	-2.7	50	132	*	217.9	30	
Pyrene	S007005101	0.330	mg/Kg	U		2.67	2.24	84.1	49	130		22135-004	7.1	2.67	8.85	7.63	64.4	18.5	49	130	*	110.8	30	
Benzo(a)anthracene	S007005065	0.330	mg/Kg	U		2.67	2.67	82.8	52	131		22135-004	3.8	2.67	5.23	4.67	54.7	33.7	52	131	*	47.5	30	
Chrysene	S007005071	0.330	mg/Kg	U		2.67	1.96	73.3	51	129		22135-004	4.7	2.67	6.03	5.39	50.9	27.0	51	129	*	61.5	30	
Benzo(b)fluoranthene	S007005058	0.330	mg/Kg	U		2.67	2.06	77.3	50	128		22135-004	6.3	2.67	7.31	7.09	37.7	29.7	50	128	*	23.7	30	
Benzo(k)fluoranthene	S007005060	0.330	mg/Kg	U		2.67	2.67	80.8	52	126		22135-004	2.2	2.67	4.56	3.84	89.6	62.7	52	126	*	35.4	30	
Benzo(e)pyrene	S007005057	0.330	mg/Kg	U		2.67	2.26	84.5	49	136		22135-004	4.4	2.67	6.16	5.68	64.7	46.7	49	136	*	32.3	30	
Indeno(1,2,3-cd)pyrene	S007005073	0.330	mg/Kg	U		2.67	2.33	87.4	46	137		22135-004	3.6	2.67	5.33	5.01	63.7	51.7	46	137	*	20.8	30	
Dibenz(a,h)anthracene	S007005067	0.330	mg/Kg	U		2.67	2.16	80.8	47	136		22135-004	0.6	2.67	2.32	2.29	65.7	64.7	47	136	*	1.5	30	
Benzo(g,h)perylene	S007005059	0.330	mg/Kg	U		2.67	2.28	85.4	41	142		22135-004	3.5	2.67	5.28	4.88	66.7	51.7	41	142	*	25.3	30	
4-Terphenyl D-14 (S)**	S007005103		mg/Kg	U		2.5	3.33	2.67	38	140		22135-004	2.9	3.33	2.61	2.56	78.5	76.9	38	140		2.1	30	

**Codes/Flags:**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix; therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments:**  
 \*\*Tetraphenyl(S) is added to all samples at 3.33 mg/Kg, and is therefore presented as a percent recovery in the reagent blank MS, MSD and parent sample all run on SDA.

Result is always reported as "wet weight".  
 W The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 J The analyte was detected in the associated method blank.  
 B Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 M Not calculable.  
 NC Not applicable.  
 NA If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.  
 A

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 7794 Boardwalk Road Brighton, Michigan 48116 Telephone: (248) 446-5700 Facsimile: (248) 446-5701

Chemist/Date:  3/16/07  
 Quality Assurance Officer/Date:  3/16/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
VB07C14A  
VOLATILES

Sample Matrix: **WATER, TOTAL**  
Inclusive Projects: **VARIOUS**

Preparation Method: **SW-846 S030**  
Preparation Date: **3/14/2007**  
Preparer(s) Initials: **BG**

Analytical Method: **SW-846 8260 UST**  
Analysis Date: **3/14/2007**  
Analyst(s) Initials: **BG**

Analyte	RL	Units	Matrix		Laboratory Fortified Blank (LEFB)					MATRIX SPIKE / MATRIX SPIKE DUPLICATE													
			Conc. (ug/L)	Flag	Spiked (ug/L)	LEFB Conc. (ug/L)	LEFB Percent Recovery	ICL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Spiked Conc. (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	ICL (%)	UCL (%)	Flag	RPD (M/MSD) (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	41.3	82.7	58	168		22121001	U	50.0	59.4	52.3	119	105	68	138		12.8	60	
1,1-Dichloroethane	1.00	ug/L	U		50.0	71.8	143.6	76	145		22121001	U	50.0	78.5	72.5	157	145	78	122	*	7.9	35	
Methylene chloride	1.00	ug/L	U		50.0	69.2	138.3	68	138		22121001	U	50.0	72.2	67.6	144	135	78	122	*	6.5	21	
trans-1,2-Dichloroethane	1.00	ug/L	U		50.0	63.5	127.1	80	132	*	22121001	U	50.0	65.0	59.9	130	120	80	120	*	8.3	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	60.1	120.2	76	134		22121001	U	50.0	59.3	56.2	119	112	76	116	*	5.4	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	62.8	125.5	78	140		22121001	U	50.0	60.9	56.6	122	113	84	130	*	7.4	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	60.2	120.4	82	140		22121001	U	50.0	59.5	55.2	119	110	86	126	*	7.5	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	71.0	142.1	53	195		22121001	U	50.0	68.5	64.0	137	128	87	130	*	6.8	27	
Benzene	1.00	ug/L	U		50.0	57.8	115.5	80	140		22121001	U	50.0	56.7	54.4	113	109	86	124		4.2	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	60.4	120.8	80	135		22121001	U	50.0	60.8	57.9	122	116	80	124		4.8	22	
Bromodichloroethane	1.00	ug/L	U		50.0	55.5	111.0	80	135		22121001	U	50.0	54.0	50.5	108	101	86	126		6.7	18	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	60.1	120.1	78	142		22121001	U	50.0	58.4	57.2	117	114	86	128		2.1	19	
Toluene	1.00	ug/L	U		50.0	49.0	98.0	78	138		22121001	U	50.0	47.5	46.2	95	92	90	128		2.9	23	
Dibromochloroethane	1.00	ug/L	U		50.0	56.0	112.1	80	132		22121001	U	50.0	54.7	52.1	109	104	86	124		4.9	18	
Tetrachloroethane	1.00	ug/L	U		50.0	52.7	105.4	80	135		22121001	U	50.0	49.4	49.6	99	99	88	122		0.5	19	
2-Hexanone	1.00	ug/L	U		50.0	54.1	108.3	60	123		22121001	U	50.0	46.5	43.9	93	88	70	110		5.8	23	
Ethylbenzene	1.00	ug/L	U		50.0	64.4	128.7	39	143		22121001	U	50.0	50.7	50.4	101	101	50	117		0.6	44	
total-Xylene	3.00	ug/L	U		50.0	56.2	112.3	84	132		22121001	U	50.0	53.0	51.3	106	103	86	126		3.2	13	
Styrene	1.00	ug/L	U		50.0	165.3	110.2	50	124		22121001	U	150	157.4	151.8	105	101	83	121		3.7	29	
Dibromofluoromethane (S)**		ug/L	U		50.0	53.1	106.2	84	134		22121001	U	50.0	49.6	47.5	99	95	86	126		4.2	14	
Toluene-d8 (S)**		ug/L	100		100	99.5	99.5	80	120		22121001	U	100	102.0	100.3	100	100	80	120		0	30	
4-Bromofluorobenzene (S)**		ug/L	98		100	101.0	101.0	80	120		22121001	U	100	102.0	102.7	102	103	80	120		1	30	
		ug/L	96		100	106.7	106.7	80	120		22121001	U	100	106.7	110.9	107	111	80	120		4	30	

**Codes/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix; therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
**S** Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

1914 Holloway Drive  
11776 Grand River Ave  
Holt, Michigan 48842  
Brighton, Michigan 48116  
Telephone: (517) 699-0345  
Facsimile: (517) 699-0388  
Telephone: (810) 220-3300  
Facsimile: (810) 220-3311  
Quality Assurance Officer/Date  
3-21-07  
24 3/23/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
V907C14A  
VOLATILES

Sample Matrix: **WATER, TOTAL** Preparation Method: **SW-846 5030** Analytical Method: **SW-846 8260 UST**  
 Inclusive Projects: **VARIOUS** Preparation Date: **3/14/2007** Analysis Date: **3/14/2007**  
 Preparer(s) Initials: **BG** Preparer(s) Initials: **BG**

Analyte	RL	Units	Matrix		Laboratory Fortified Blank (LEFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)												
			Conc (ug/L)	Flag	Spiked (ug/L)	LFB Conc (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc (ug/L)	Conc Spiked (ug/L)	MS Conc (ug/L)	MSD Conc (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	0.0	0.0	58	168	*	Water Sample	U	50.0	35.4	53.5	71	107	68	138		40.7	60	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	76	145	*	Water Sample	U	50.0	47.2	53.9	94	108	78	122		13.4	35	
Methylene chloride	1.00	ug/L	U		50.0	0.0	0.0	68	138	*	Water Sample	U	50.0	41.7	49.8	83	100	78	122		17.6	21	
trans-1,2-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	80	132	*	Water Sample	U	50.0	52.1	58.9	104	118	80	120		12.1	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	76	134	*	Water Sample	U	50.0	52.5	58.8	105	118	76	116	*	11.3	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	78	140	*	Water Sample	U	50.0	50.2	55.8	100	112	84	130		10.6	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	82	140	*	Water Sample	U	50.0	49.3	53.2	99	106	86	126		7.6	30	
Carbontetrachloride	1.00	ug/L	U		50.0	0.0	0.0	53	195	*	Water Sample	U	50.0	50.0	54.3	100	109	82	130		8.2	27	
Benzene	1.00	ug/L	U		50.0	0.0	0.0	80	140	*	Water Sample	U	50.0	50.2	56.8	100	114	86	124		12.3	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	0.0	0.0	80	135	*	Water Sample	U	50.0	50.5	56.7	101	113	80	124		11.6	22	
Trichloroethene	1.00	ug/L	U		50.0	0.0	0.0	80	135	*	Water Sample	U	50.0	42.9	47.3	86	95	86	126	*	9.7	18	
Bromodichloromethane	1.00	ug/L	U		50.0	0.0	0.0	78	142	*	Water Sample	U	50.0	44.6	50.8	89	102	86	128		13.0	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	78	138	*	Water Sample	U	50.0	48.3	52.9	97	106	90	128		9.1	23	
Toluene	1.00	ug/L	U		50.0	0.0	0.0	80	132	*	Water Sample	U	50.0	47.8	54.5	96	109	86	124		13.1	18	
Dibromochloromethane	1.00	ug/L	U		50.0	0.0	0.0	80	135	*	Water Sample	U	50.0	48.2	51.5	96	103	88	122		6.8	19	
Tetrachloroethane	1.00	ug/L	U		50.0	0.0	0.0	60	123	*	Water Sample	U	50.0	52.6	37.7	105	75	70	110		33.2	23	*
2-Hexanone	1.00	ug/L	U		50.0	0.0	0.0	39	143	*	Water Sample	U	50.0	52.6	48.1	105	96	50	117		8.9	44	
Ethylbenzene	1.00	ug/L	U		50.0	0.0	0.0	84	132	*	Water Sample	U	50.0	52.3	56.9	105	114	86	126		8.3	13	
total-Xylene	3.00	ug/L	U		130	0.0	0.0	50	124	*	Water Sample	U	150	151.1	166.0	101	111	83	121		9.4	29	
Styrene	1.00	ug/L	U		50.0	0.0	0.0	84	134	*	Water Sample	U	50.0	47.6	52.0	95	104	86	126		8.7	14	
Dibromofluoromethane (S)**		ug/L			100	0.0	0.0	80	120	*	Water Sample	U	100	108.4	110.3	108	110	80	120		2	4	
Toluene-d8 (S)**		ug/L			100	0.0	0.0	80	120	*	Water Sample	U	100	100.6	104.4	101	104	80	120		4	30	
4-Bromofluorobenzene (S)**		ug/L			103	0.0	0.0	80	120	*	Water Sample	U	100	103.9	104.9	104	105	80	120		1	30	

**Codes/Flags:**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.  
 Inefficient sample was available for MS/MSD. Precision and accuracy were determined by LCS/LCSD.

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 11776 Grand River Ave Brighton, Michigan 48116 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

Result is always reported as "wet weight".  
 The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
 The analyte was detected in the associated method blank.  
 Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
 Not calculable.  
 NA Not applicable.  
 A If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Chemist/Date: *[Signature]* 3-21-07  
 Quality Assurance Officer/Date: *[Signature]* 3/23/07



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
VE07C15A  
VOLATILES

Sample Matrix: **SOIL/SOLID (5035)**  
Inclusive Projects: **VARIOUS**

Preparation Method: **SW-846 5035**  
Preparation Date: **3/15/2007**  
Preparer(s) Initials: **JAS/JLH**

Analytical Method: **SW-846 8260 FULL**  
Analysis Date: **3/15/2007**  
Analyst(s) Initials: **JAS**

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)													
			Conc (mg/Kg)	Flag	Spiked Conc (mg/Kg)	LFB Conc (mg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc/W (mg/Kg)	Conc/W Spiked (mg/Kg)	MS Conc/W (mg/Kg)	MSD Conc/W (mg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag	
Vinyl chloride	0.05	mg/Kg	U		1.00	0.56	56.4	39	114		22145001	U	1.00	1.06	1.04	1.02	106	104	22	134		2	27	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	0.75	74.8	54	136		22145001	U	1.00	1.04	1.02	104	102	60	60	132		1	25	
Methylene chloride	0.05	mg/Kg	U		1.00	0.73	73.1	60	126		22145001	U	1.00	0.96	0.94	96	94	56	56	134		1	34	
trans-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	0.83	83.0	60	142		22145001	U	1.00	1.07	1.06	107	106	66	66	140		0	25	
1,1-Dichloroethane	0.05	mg/Kg	U		1.00	0.81	81.1	64	134		22145001	U	1.00	1.02	1.01	102	101	68	68	134		1	23	
cis-1,2-Dichloroethane	0.05	mg/Kg	U		1.00	0.83	83.4	68	134		22145001	U	1.00	0.99	0.97	99	97	66	66	138		1	23	
1,1,1-Trichloroethane	0.05	mg/Kg	U		1.00	0.86	86.0	72	124		22145001	U	1.00	1.05	1.02	105	102	72	72	128		2	20	
Carbon tetrachloride	0.05	mg/Kg	U		1.00	0.98	97.6	74	122		22145001	U	1.00	1.15	1.12	115	112	66	66	136		2	22	
Benzene	0.05	mg/Kg	U		1.00	0.96	96.1	72	128		22145001	U	1.00	1.17	1.14	117	114	64	64	136		2	23	
1,2-Dichloropropane	0.05	mg/Kg	U		1.00	0.90	89.7	70	126		22145001	U	1.00	1.08	1.05	108	105	70	70	130		3	21	
Trichloroethane	0.05	mg/Kg	U		1.00	0.91	91.3	74	126		22145001	U	1.00	1.11	1.08	111	108	70	70	138		3	29	
Bromodichloromethane	0.05	mg/Kg	U		1.00	0.88	88.0	76	116		22145001	U	1.00	1.00	1.00	104	100	66	66	128		4	22	
1,1,2-Trichloroethane	0.05	mg/Kg	U		1.00	0.89	89.1	64	126		22145001	U	1.00	1.07	1.01	107	101	58	58	134		6	25	
Toluene	0.05	mg/Kg	U		1.00	1.02	101.6	72	126		22145001	U	1.00	1.20	1.15	120	115	70	70	134		4	20	
Dibromochloromethane	0.05	mg/Kg	U		1.00	0.84	83.6	70	116		22145001	U	1.00	0.97	0.96	97	96	62	62	126		2	23	
Tetrachloroethane	0.05	mg/Kg	U		1.00	0.91	90.7	66	146		22145001	U	1.00	1.56	1.41	156	141	46	46	172		10	66	
2-Hexanone	0.05	mg/Kg	U		1.00	0.66	66.1	64	128		22145001	U	1.00	0.68	0.64	68	64	6	6	128		2	25	
Ethylbenzene	0.05	mg/Kg	U		1.00	0.99	99.2	64	128		22145001	U	1.00	1.14	1.11	114	111	69	69	127		2	25	
total-Xylene	0.15	mg/Kg	U		3.00	2.92	97.2	67	127		22145001	U	3.00	3.34	3.23	334	323	64	64	132		3	73	
Styrene	0.05	mg/Kg	U		1.00	0.98	97.5	64	130		22145001	U	1.00	1.13	1.10	113	110	70	70	134		3	26	
Dibromofluoromethane (S)**			101		100	84.0	84	70	134		87.9	100	90.9	93.6	91	94	70	70	134					
Toluene-d8 (S)**			93		100	93.0	93	74	129		94.9	100	97.9	100.9	98	101	74	74	129					
4-Bromofluorobenzene (S)**			111		100	82.2	82	70	119		80.2	100	83.9	88.5	84	88	70	70	119					

**Code/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix; therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 2.00 mg/Kg, and are presented as a percent recovery in the reagent blank

*[Signature]*  
 Date: 3/15/07

Quality Assurance Officer/Date  
 JAH 3/23/07

1914 Holloway Drive Holt, Michigan 48842  
 11776 Grand River Ave Brighton, Michigan 48116  
 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 Telephone: (810) 220-3300 Facsimile: (810) 220-3311



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
V907C13B  
VOLATILES

Sample Matrix: WATER, TOTAL  
Preparation Method: SW-846 5030  
Preparation Date: 3/13/2007  
Preparer(s) Initials: JLC

Inclusive Projects: VARIOUS  
Preparation Method: SW-846 8260 UST  
Preparation Date: 3/13/2007  
Preparer(s) Initials: JLC

Analytical Method: SW-846 8260 UST  
Analysis Date: 3/13/2007  
Analysis(s) Initials: JLC

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE												
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	0.0	0.0	58	168		Water Sample	U	50.0	31.0	34.5	62	69	68	138		10.5	60	
1,1-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	76	145		Water Sample	U	50.0	41.2	42.9	82	86	78	122		4.0	35	
Methylene chloride	1.00	ug/L	U		50.0	0.0	0.0	68	138		Water Sample	U	50.0	35.8	39.7	72	79	78	122	*	10.2	21	
trans-1,2-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	80	132		Water Sample	U	50.0	45.6	48.2	91	96	80	120		5.7	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	76	134		Water Sample	U	50.0	44.9	48.3	90	97	76	116		7.3	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	78	140		Water Sample	U	50.0	43.8	46.8	88	94	84	130		6.8	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	82	140		Water Sample	U	50.0	43.0	45.3	86	86	86	126	*	5.2	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	0.0	0.0	53	195		Water Sample	U	50.0	43.1	45.5	86	91	82	130		5.4	27	
Benzene	1.00	ug/L	U		50.0	0.0	0.0	80	140		Water Sample	U	50.0	44.3	47.2	89	94	86	124		6.4	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	0.0	0.0	80	135		Water Sample	U	50.0	43.4	46.0	87	92	80	124		5.8	22	
Trichloroethene	1.00	ug/L	U		50.0	0.0	0.0	80	135		Water Sample	U	50.0	37.8	39.7	76	79	86	126		5.1	18	
Bromodichloromethane	1.00	ug/L	U		50.0	0.0	0.0	78	142		Water Sample	U	50.0	38.6	41.9	77	84	86	128		8.2	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	78	138		Water Sample	U	50.0	41.9	43.4	84	87	90	128		3.5	23	
Toluene	1.00	ug/L	U		50.0	0.0	0.0	80	132		Water Sample	U	50.0	41.7	44.8	83	90	86	124	*	7.3	18	
Dibromochloromethane	1.00	ug/L	U		50.0	0.0	0.0	80	135		Water Sample	U	50.0	39.9	41.5	80	83	88	122		4.2	19	
Tetrachloroethene	1.00	ug/L	U		50.0	0.0	0.0	60	123		Water Sample	U	50.0	34.3	40.3	69	81	70	110	*	16.0	23	
2-Hexanone	1.00	ug/L	U		50.0	0.0	0.0	39	143		Water Sample	U	50.0	38.0	33.0	76	66	50	117		14.3	44	
Ethylbenzene	1.00	ug/L	U		50.0	0.0	0.0	84	132		Water Sample	U	50.0	45.2	46.3	90	93	86	126		2.3	13	
total Xylene	3.00	ug/L	U		150	0.0	0.0	50	124		Water Sample	U	150	132.5	135.6	88	90	83	121		2.3	29	
Styrene	1.00	ug/L	U		50.0	0.0	0.0	84	134		Water Sample	U	50.0	41.7	43.5	83	87	86	126	*	4.2	14	
Dibromofluoromethane (S)**		ug/L		105	100	0.0	0.0	80	120	*	Water Sample	0.0	100	110.2	110.2	110	110	80	120		0	30	
Toluene-d8 (S)**		ug/L		97	100	0.0	0.0	80	120	*	Water Sample	0.0	100	101.8	104.1	102	104	80	120		2	30	
4-Bromofluorobenzene (S)**		ug/L		100	100	0.0	0.0	80	120	*	Water Sample	0.0	100	104.5	104.2	105	104	80	120		0	30	

**Codes, Flags:**

**U** The analyte was not detected at or above the quantitation limit.

**E** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.

**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable

**\*** The value is outside quality control limits

**K** Reported concentration is proportional to dilution factor and may be exaggerated.

**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.

**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight"

**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit

**B** The analyte was detected in the associated method blank

**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.

**NC** Not calculable.

**NA** Not applicable.

**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**

\*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

Insufficient sample was available for MS/MSD. Precision and accuracy were determined by LCS/LCSD.

Signature: *[Handwritten Signature]* 3/21  
Date: 3/21/07  
Quality Assurance Officer/Date

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
11776 Grand River Ave Brighton, Michigan 48116 Telephone: (810) 220-3300 Facsimile: (810) 220-3311

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
42967  
METALS

Sample Matrix : **SOL/SOLID** Preparation Method : **EPA 245.5/SW-846 7471** Analytical Method : **EPA 245.5/SW-846 7471**  
 Inclusive Projects : **22143, 22150, 22177** Preparation Date : **3/15/2007** Analysis Date : **3/15/2007**  
 Preparer(s) Initials: **PAM** Preparer(s) Initials: **PAM** Analyst(s) Initials: **PAM**

Analytic	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)						MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MD / MS / MSD)														
				Conc. (µg/Kg)	Flag	Conc. Spiked (µg/Kg)	LFB Conc. (µg/Kg)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (µg/Kg)	MD Conc. (µg/Kg)	Conc. Spiked (µg/Kg)	MS Conc. (µg/Kg)	MSD Conc. (µg/Kg)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Sample/MD (%)	RPD MS/MSD (%)	UCL (%)	Flag
Mercury	M007004017	0.100	mg/Kg	U		200	206	103	85	115		22150001	11	11	200	242	211	116	100	70	130	5	14	20		

**Codes/Flags :**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <S times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**Comments :**

Result is always reported as "wet weight"  
**J** The analyte was detected at a conc below the quant limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Chemist/Date: *[Signature]* 3-13-2007  
 Quality Assurance Officer/Date: TM 3/27/07

1914 Holloway Drive Holt, Michigan 48842  
 7794 Boardwalk Rd. Brighton, Michigan 48116  
 Telephone: (517) 699-0345  
 Telephone: (248) 446-5700  
 Facsimile: (517) 699-0388  
 Facsimile: (248) 446-5701



1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0388  
email: lab@fibertec.us

Analytical Laboratory  
8660 S. Mackinaw Trail  
Cadillac, MI 49601  
Phone: 231 775 8368  
Fax: 231 775 8584

Industrial Hygiene Services, Inc.  
1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0382  
email: asbestos@fibertec.us

Geoprobe  
7794 Boardwalk Road  
Brighton, MI 48116  
Phone: 248 446 5700  
Fax: 248 446 5701

Chain of Custody #  
**63572**

PAGE \_\_\_ of \_\_\_

Client Name: **SME**  
Contact Person: **Mark Quinby**  
Project Name/ Number: **35975 Woodward PESY816**

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS	Turnaround	Matrix Code
1	3/12/07	10:30	SP15-S3	SP15-S3		S 2 Y		VOCs	24 hour RUSH (surcharge applies)	S Soil
2		10:35	SP15-S6	SP15-S6		S 2 Y		PAHs	48 hour RUSH (surcharge applies)	A Air
3		10:40	SP15-S7	SP15-S7		S 2 Y		Cd, Cr, Pb	72 hour RUSH (surcharge applies)	O Oil
4		12:05	SP15-S11	SP15-S11		S 2 Y		8 RCRA Metals	Standard (5-7 bus. days)	P Wipe
5		-	S-Dup 4	S-Dup 4		S 2 Y			Other: Specify	X Other: Specify
6		9:05	SP15-GW	SP15-GW		W 3 Y				
7		9:15	FIELD BLANK	FIELD BLANK		W 4 Y				
8		-	TRIP BLANK	TRIP BLANK		W 1 Y				

Remarks: **Samples kept on ice in the field**

Comments:

Relinquished By: *[Signature]* Date/Time: **3/12/07 2:25** Received By: *[Signature]*

Relinquished By: *[Signature]* Date/Time: **3/12/07 16:01** Received By: *[Signature]*

Relinquished By: *[Signature]* Date/Time: **3/12/07** Received By: *[Signature]*

**RCV'D ON ICE**

**ICE**

**3**

LAB USE ONLY:  
Fibertec project number: **V3**  
Laboratory Tracking: **02142**  
Temperature at Receipt:

TERMS & CONDITIONS ON BACK

**3CI**  
**NO D.V.C.R.**



REC'D MAR 30 2007

March 26, 2007

Case Narrative

Customer: SME  
Project Identification: PE54494C  
Fibertec Project Number: 22267

Sample Collection/ Receipt

The following samples were collected on March 13 and 14, 2007 and received by Fibertec on March 14, 2007.

9 Waters (including a trip blank, a field blank and an equipment blank)

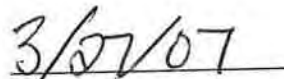
All Samples were received on ice and in good condition.

Analysis

Analyses were conducted in accordance with chain of custody and within hold times.

All applicable quality assurance/ quality control parameters were within acceptance limits unless otherwise noted.

  
Authorized Signature

  
Date

Monday, March 26, 2007

Fibertec Project Number: 22267  
Project Identification: PE54494C  
Submittal Date: 3/20/2007

Mr. Dan Cassidy  
Soil and Materials Engineers, Inc. - Plymouth  
43980 Plymouth Oaks  
Plymouth, MI 48170

Dear Mr. Cassidy,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed as requested and the results compiled in the enclosed report.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,



Daryl P. Strandbergh  
Laboratory Director

DPS/kc

Enclosures

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22267	Sample Number:	22267-008

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	MW12
Project Number:	NA	Client Sample Number:	8
Sample Date:	3/14/2007	Chain of Custody Number:	64628

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	310	µg/L	5.0	5	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-008</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW12</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>12</b>	µg/L	5.0	5	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-008</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW12</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Methylnaphthalene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>1.6</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>6.3</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	5.0	5	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>1.2</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>23</b>	µg/L	15	5	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-003</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW106</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>700</b>	µg/L	10	10	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>37</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>14</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-003</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW106</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>1200</b>	µg/L	10	10	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>89</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-003</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW106</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>150</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>290</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>62</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>97</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>38</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>340</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-003A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW106</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	<b>41</b>	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-003B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW106</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	<b>3.9</b>	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-002</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW107</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>1200</b>	µg/L	10	10	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>11</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>3.4</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-002</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW107</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>210</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>24</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-002</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW107</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>19</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>76</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>23</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>21</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>6.2</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>100</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-002A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW107</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	<b>11</b>	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-002B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW107</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	<b>4.9</b>	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW108</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>1000</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>5.4</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW108</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>750</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>51</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW108</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>220</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>180</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>850</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>960</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>380</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>1800</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-009A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW108</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	<b>64</b>	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-009B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW108</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	10	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-001</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW201</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/21/2007	3/21/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-001</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW201</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-001</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW201</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C21B	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-001A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW201</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA)s (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-001B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW201</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\approx$ 4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	ND	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-004</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>DUP1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>690</b>	µg/L	10	10	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>35</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>14</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22267**      Sample Number: **22267-004**

### Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **DUP1**  
Project Number: **NA**      Client Sample Number: **4**  
Sample Date: **3/13/2007**      Chain of Custody Number: **64628**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>1200</b>	µg/L	10	10	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>88</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22267	Sample Number:	22267-004

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	DUPI
Project Number:	NA	Client Sample Number:	4
Sample Date:	3/13/2007	Chain of Custody Number:	64628

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	150	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	280	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	62	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	95	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	37	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	340	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22267	Sample Number:	22267-004A

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	DUP1
Project Number:	NA	Client Sample Number:	4
Sample Date:	3/13/2007	Chain of Custody Number:	64628

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	<b>35</b>	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-004B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>DUP1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	<b>4.3</b>	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21A	3/21/2007	3/21/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C21A	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-005A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-005B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	ND	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/21/2007	3/21/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/21/2007	3/21/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/21/2007	3/21/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C21B	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-006A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42977	3/20/2007	3/21/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42977	3/20/2007	3/21/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42977	3/20/2007	3/21/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-006B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43001	3/22/2007	3/22/2007	JAG
Chromium	ND	µg/L	10	1	43001	3/22/2007	3/22/2007	JAG
Lead	ND	µg/L	3.0	1	43001	3/22/2007	3/22/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21A	3/21/2007	3/21/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21A	3/21/2007	3/21/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22267</b>	Sample Number:	<b>22267-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/13/2007</b>	Chain of Custody Number:	<b>64628</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
2-Methylnaphthalene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21A	3/21/2007	3/21/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C21A	3/21/2007	3/21/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

42977  
SEMI-VOLATILES

Sample Matrix: WATER, TOTAL  
Inclusive Projects: YAKJODS  
Preparation Method: SW-946 3555A  
Preparation Date: 3/19/2007  
Preparer(s) Initials: MP  
Analytical Method: SW-946 8270D - PNA  
Analysis Date: 3/19/2007  
Analyst(s) Initials: AJ

Analyte	Laboratory Control Number	LOQ	Units	Method Blank Conc. (ug/L)	Method Blank Flag	Laboratory Fortified Blank (LFB)					MATRIX SPIKE / MATRIX SPIKE DUPLICATE												
						Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Meas'd (%)	UCL (%)	Flag
Naphthalene	S011005089	5.0	ug/L	U	80.0	44.1	55	23	123		22189-007	U	80.0	51.5	53.4	64	67	41	134		3.55	30	
2-Methylanthracene	S011005027	5.0	ug/L	U	80.0	48.5	61	25	91		22189-007	U	80.0	57.3	58.9	72	74	30	81		2.75	30	
Acenaphthylene	S011005045	5.0	ug/L	U	80.0	53.8	67	40	114		22189-007	U	80.0	61.3	62.8	77	78	55	118		1.1	30	
Acenaphthene	S011005044	5.0	ug/L	U	80.0	51.7	65	39	107		22189-007	U	80.0	59.5	59.8	74	75	48	110		0.537	30	
Fluorene	S011005082	5.0	ug/L	U	80.0	55.9	70	40	109		22189-007	U	80.0	64.3	63.6	80	80	56	105		0.9	30	
Phenanthrene	S011005098	5.0	ug/L	U	80.0	57.2	71	48	110		22189-007	U	80.0	65.8	63.6	82	80	60	108		3.4	30	
Anthracene	S011005047	5.0	ug/L	U	80.0	57.2	72	44	109		22189-007	U	80.0	65.6	63.0	82	79	61	105		4.1	30	
Fluoranthene	S011005081	5.0	ug/L	U	80.0	58.8	74	45	113		22189-007	U	80.0	65.6	63.5	82	79	62	100		3.2	30	
Pyrene	S011005101	5.0	ug/L	U	80.0	60.1	75	50	113		22189-007	U	80.0	67.8	66.3	85	83	66	108		2.24	30	
Benzo(a)anthracene	S011005055	5.0	ug/L	U	80.0	55.6	70	48	102		22189-007	U	80.0	67.5	65.0	84	81	60	106		3.81	30	
Chrysene	S011005071	5.0	ug/L	U	80.0	45.4	57	48	106		22189-007	U	80.0	56.1	53.4	70	67	64	107		4.8	30	
Benzo(b)fluoranthene	S011005058	5.0	ug/L	U	80.0	54.5	68	51	115		22189-007	U	80.0	64.2	62.8	80	79	65	117		2.1	30	
Benzo(k)fluoranthene	S011005060	5.0	ug/L	U	80.0	56.6	71	51	106		22189-007	U	80.0	68.9	67.6	86	85	63	120		1.88	30	
Benzo(a)pyrene	S011005057	5.0	ug/L	U	80.0	57.2	72	52	105		22189-007	U	80.0	70.1	67.6	88	85	66	111		3.66	30	
Indeno(1,2,3-cd)pyrene	S011005073	5.0	ug/L	U	80.0	58.3	73	31	136		22189-007	U	80.0	72.1	68.4	90	86	65	114		5.27	30	
Dibenz(a,h)anthracene	S011005087	5.0	ug/L	U	80.0	49.6	62	35	108		22189-007	U	80.0	60.8	58.4	76	73	60	116		4.16	30	
Benzo(ghi)perylene	S011005059	5.0	ug/L	U	80.0	56.4	71	45	106		22189-007	U	80.0	63.6	67.0	87	84	64	113		3.72	30	
4-Terphenyl D-14 (S)**	S011005103	100	ug/L	79		72.2	72	63	116		22189-007	U	100	84.0	82.3	84	82	63	116		2.09	30	

**Codes/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The sample was detected at a concentration greater than the calibration range, therefore the result is estimated.  
**DL** The analyte was detected due to sample matrix, therefore QC was not recoverable.  
**K** The value is outside quality control limits.  
**P** Reported concentration is proportional to dilution factor and may be exaggerated.  
**F** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**Comments:**  
 \*\*Turbidity(S) is added to all samples at 100 ug/L, and is therefore presented as a percent recovery in the reagent blank.  
 \*\*\* No sample was available for Matrix Spikes. Precision and Recovery for the batch were determined by LCS and LCS duplicate.

1914 Holloway Drive Holt, Michigan 48842  
 7794 Boardwalk Road Brighton, Michigan 48116  
 Telephone: (517) 699-0345  
 Facsimile: (517) 699-0388  
 Telephone: (248) 446-5700  
 Facsimile: (248) 446-5701

Chemist's Date:  3/20/07  
 Quality Assurance Officer Date: 3/20/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
VB07C21B  
VOLATILES

Sample Matrix: WATER, TOTAL  
Inclusive Projects: VARIOUS  
Preparation Method: SW-846 5030  
Preparation Date: 3/21/2007  
Preparer(s) Initials: BG  
Analytical Method: SW-846 8260 UST  
Analysis Date: 3/21/2007  
Analys(e)s Initials: BG

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)												
			Conc (ug/L)	Flag	Spiked (ug/L)	LFB Conc (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc (ug/L)	Spiked Conc (ug/L)	MS Conc (ug/L)	MSD Conc (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	52.7	105.3	37	158		22268001	U	50.0	35.7	37.0	71	74	68	138		3.7	60	
1,1-Dichloroethene	1.00	ug/L	U		50.0	50.0	100.0	66	154		22268001	U	50.0	35.6	38.5	71	77	78	122		7.9	35	
Methylchloride	1.00	ug/L	U		50.0	49.7	99.3	60	138		22268001	U	50.0	36.6	38.0	73	76	78	122		3.9	21	
trans-1,2-Dichloroethene	1.00	ug/L	U		50.0	52.1	104.2	70	141		22268001	U	50.0	38.9	41.0	78	82	80	120		5.3	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	50.4	100.8	67	134		22268001	U	50.0	38.4	40.1	77	80	76	116		4.3	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	48.9	97.9	66	130		22268001	U	50.0	37.0	38.2	74	76	84	130		3.1	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	46.0	91.9	67	135		22268001	U	50.0	33.5	35.4	67	71	86	126		5.7	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	48.9	97.8	59	147		22268001	U	50.0	37.2	39.4	74	79	82	130		5.7	27	
Benzene	1.00	ug/L	U		50.0	56.5	113.0	76	129		22268001	36.4	50.0	91.5	90.0	110	107	86	124		2.7	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	53.8	107.6	70	133		22268001	U	50.0	46.5	49.6	93	99	80	124		6.6	22	
Trichloroethene	1.00	ug/L	U		50.0	49.8	99.5	71	127		22268001	U	50.0	42.7	45.1	85	90	86	126		5.5	18	
Bromodichloromethane	1.00	ug/L	U		50.0	48.3	96.6	66	137		22268001	U	50.0	38.5	40.7	77	81	86	128		5.5	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	49.5	99.0	63	125		22268001	U	50.0	47.3	50.1	95	100	90	128		5.8	23	
Toluene	1.00	ug/L	U		50.0	54.5	109.1	78	133		22268001	1.5	50.0	50.8	53.4	99	104	86	124		5.1	18	
Dibromochloromethane	1.00	ug/L	U		50.0	42.7	85.3	59	130		22268001	U	50.0	37.2	39.9	74	80	88	122		7.1	19	
Tetrachloroethene	1.00	ug/L	U		50.0	59.0	118.0	31	159		22268001	U	50.0	53.8	56.8	108	114	70	110		5.4	23	
2-Hexanone	1.00	ug/L	U		50.0	42.2	84.5	32	172		22268001	U	50.0	38.6	40.2	77	80	50	117		4.2	44	
Ethylbenzene	1.00	ug/L	U		50.0	54.2	108.3	74	134		22268001	1.9	50.0	52.8	54.1	102	104	86	126		2.5	13	
total-Xylene	3.00	ug/L	U		150	157.1	104.7	68	136		22268001	U	150	149.9	156.4	93	97	83	121		4.5	29	
Styrene	1.00	ug/L	U		50.0	48.9	97.8	73	134		22268001	U	50.0	45.0	47.7	90	95	86	126		5.7	14	
Dibromofluoromethane (S)**		ug/L			100	98.0	98.0	86	111		22268001	81.7	100	81.0	81.0	81	81	80	120		0	30	
Toluene-d8 (S)**		ug/L			100	101.6	101.6	92	117		22268001	95.3	100	95.8	95.4	96	95	80	120		0	30	
4-Bromofluorobenzene (S)**		ug/L			100	104.7	104.7	81	112		22268001	96.9	100	98.8	98.0	99	98	80	120		1	30	

**Codes, Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable.  
**A** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.  
**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

1914 Holloway Drive Holt, Michigan 48842  
 11776 Grand River Ave Brighton, Michigan 48116  
 Telephone: (517) 699-0345  
 Facsimile: (517) 699-0388

3-23-07  
 3/26/07

Quality Assurance Office/Date

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

VB07C22A  
VOLATILES

Sample Matrix : **WATER, TOTAL** Preparation Method : **SW-846 5030** Analytical Method : **SW-846 8260 UST**  
 Inclusive Projects : **VARIOUS** Preparation Date : **3/22/2007** Analysis Date : **3/22/2007**  
 Preparer(s) Initials : **BG** Analyst(s) Initials : **BG**

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LEB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)												
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	0.0	0.0	37	138	*	Water Sample	U	50.0	36.6	41.1	73	82	68	138		11.5	60	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	66	154	*	Water Sample	U	50.0	38.5	43.5	77	87	78	122	*	12.0	35	
Methylene chloride	1.00	ug/L	U		50.0	0.0	0.0	60	138	*	Water Sample	U	50.0	38.3	44.9	77	90	78	122	*	16.0	21	
trans-1,2-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	70	141	*	Water Sample	U	50.0	41.6	46.7	83	93	80	120		11.6	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	134	*	Water Sample	U	50.0	41.3	45.4	83	91	76	116		9.3	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	66	130	*	Water Sample	U	50.0	39.6	44.0	79	88	84	130	*	10.5	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	135	*	Water Sample	U	50.0	36.1	41.1	72	82	86	126	*	12.8	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	0.0	0.0	59	147	*	Water Sample	U	50.0	41.2	44.7	82	89	82	130		8.0	27	
Benzene	1.00	ug/L	U		50.0	0.0	0.0	76	129	*	Water Sample	U	50.0	53.4	54.7	107	109	86	124		2.4	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	0.0	0.0	70	133	*	Water Sample	U	50.0	48.7	52.0	97	104	80	124		6.4	22	
Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	71	127	*	Water Sample	U	50.0	45.5	47.4	91	95	86	126		4.2	18	
Bromodichloromethane	1.00	ug/L	U		50.0	0.0	0.0	66	137	*	Water Sample	U	50.0	41.8	44.6	84	89	86	128	*	6.4	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	63	125	*	Water Sample	U	50.0	49.3	50.7	99	101	90	128		2.8	23	
Toluene	1.00	ug/L	U		50.0	0.0	0.0	78	133	*	Water Sample	U	50.0	52.2	52.7	104	105	86	124		1.0	18	
Dibromochloromethane	1.00	ug/L	U		50.0	0.0	0.0	59	130	*	Water Sample	U	50.0	39.9	40.2	80	80	88	122	*	0.6	19	
Tetrachloroethane	1.00	ug/L	U		50.0	0.0	0.0	31	159	*	Water Sample	U	50.0	60.0	56.2	120	112	70	110	*	6.6	23	
2-Hexanone	1.00	ug/L	U		50.0	0.0	0.0	32	172	*	Water Sample	U	50.0	47.0	40.3	94	81	50	117		15.4	44	
Ethylbenzene	1.00	ug/L	U		50.0	0.0	0.0	74	134	*	Water Sample	U	50.0	52.5	54.1	105	108	86	126		2.9	13	
Total-Xylene	3.00	ug/L	U		150	0.0	0.0	68	136	*	Water Sample	U	150	147.7	151.4	98	101	83	121		2.4	29	
Styrene	1.00	ug/L	U		50.0	0.0	0.0	73	134	*	Water Sample	U	50.0	48.5	48.5	97	97	86	126		0.2	14	
Dibromofluoromethane (S)**		ug/L		81		0.0	0.0	86	111	*	Water Sample	U	100	82.6	86.4	83	86	80	120		5	30	
Toluene-d8 (S)**		ug/L		92		0.0	0.0	92	117	*	Water Sample	U	100	94.5	94.0	94	94	80	120		0	30	
4-Bromofluorobenzene (S)**		ug/L		96		0.0	0.0	81	112	*	Water Sample	U	100	100.6	107.2	101	107	80	120		0	30	

**Code/Flags :**  
 U The analyte was not detected at a concentration greater than the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix; therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments :**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.  
 Insignificant sample was available for MS/MSD. Precision and accuracy were determined by LCS/LCSD.

Chemist/Date: *[Signature]* 3-22-07  
 Quality Assurance Officer/Date: *[Signature]* 3/26/07

1914 Holloway Drive Holt, Michigan 48842  
 11776 Grand River Ave Brighton, Michigan 48116  
 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 Telephone: (810) 220-3300 Facsimile: (810) 220-3311



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

VB07C21A  
VOLATILES

Sample Matrix: WATER, TOTAL  
Inclusive Projects: VARIOUS  
Preparation Method: SW-846 5030  
Preparation Date: 3/21/2007  
Preparer(s) Initials: BG  
Analytical Method: SW-846 8260 UST  
Analysis Date: 3/21/2007  
Analyst(s) Initials: BG

Analyte	RL	Units	Matrix		Laboratory Fortified Blank (LFB)					MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)					RPD MSMSD (%)	UCL (%)	Flag				
			Conc. (ug/L)	Flag	Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Spiked Conc. (ug/L)	MS Conc. (ug/L)				MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)
Vinyl chloride	1.00	ug/L	U		50.0	59.4	118.9	37	158	22209001	U	50.0	56.0	54.2	112	108	68	138	3.4	60	
1,1-Dichloroethane	1.00	ug/L	U		50.0	54.6	109.2	66	154	22209001	U	50.0	53.9	49.8	108	100	78	122	7.7	35	
Methylene chloride	1.00	ug/L	U		50.0	50.8	101.7	60	138	22209001	U	50.0	52.8	50.2	106	100	78	122	5.0	21	
trans-1,2-Dichloroethane	1.00	ug/L	U		50.0	53.8	107.6	70	141	22209001	U	50.0	53.9	50.7	108	101	80	120	6.0	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	52.6	105.3	67	134	22209001	U	50.0	52.8	49.5	106	99	76	116	6.5	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	50.9	101.8	66	130	22209001	U	50.0	51.0	48.5	102	97	84	130	5.1	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	49.0	98.0	67	135	22209001	U	50.0	49.4	45.5	99	91	86	126	8.2	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	52.7	105.3	59	147	22209001	U	50.0	51.6	48.6	103	97	82	130	5.9	27	
Benzene	1.00	ug/L	U		50.0	58.5	116.9	76	129	22209001	U	50.0	58.4	55.2	117	110	86	124	5.6	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	54.1	108.2	70	133	22209001	U	50.0	55.9	52.4	112	105	80	124	6.4	22	
Trichloroethane	1.00	ug/L	U		50.0	49.7	99.3	71	127	22209001	U	50.0	49.1	46.6	98	93	86	126	5.2	18	
Bromodichloromethane	1.00	ug/L	U		50.0	50.5	100.9	66	137	22209001	U	50.0	50.9	47.3	102	95	86	128	7.4	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	48.9	97.7	63	125	22209001	U	50.0	53.1	51.3	106	103	90	128	3.3	23	
Dibromochloromethane	1.00	ug/L	U		50.0	50.0	113.5	78	133	22209001	U	50.0	55.6	51.8	111	104	86	124	7.1	18	
Toluene	1.00	ug/L	U		50.0	41.0	82.1	59	130	22209001	U	50.0	44.0	42.9	88	86	88	122	2.5	19	
Tetrachloroethane	1.00	ug/L	U		50.0	53.5	107.0	31	159	22209001	U	50.0	55.1	51.7	110	103	70	110	6.4	23	
2-Hexanone	1.00	ug/L	U		50.0	40.9	81.8	32	172	22209001	U	50.0	47.9	46.5	96	93	50	117	2.9	44	
Ethylbenzene	1.00	ug/L	U		50.0	52.4	104.7	74	134	22209001	U	50.0	55.1	51.7	110	103	86	126	6.4	13	
total-Xylene	3.00	ug/L	U		150	151.2	100.8	68	136	22209001	U	150	161.0	151.7	107	101	83	121	5.9	29	
Styrene	1.00	ug/L	U		50.0	46.7	93.4	73	134	22209001	U	50.0	48.8	46.9	98	94	86	126	4.0	14	
Dibromofluoromethane (S)**		ug/L	102		100	96.5	96.5	86	111	22209001	99.3	100	100.3	99.7	100	100	80	120	1	30	
Toluene-d8 (S)**		ug/L	100		100	100.2	100.2	92	117	22209001	96.1	100	103.2	101.9	103	102	80	120	1	30	
4-Bromofluorobenzene (S)**		ug/L	100		100	106.8	106.8	81	112	22209001	101.2	100	105.0	107.6	105	108	80	120	2	30	

**Codes/Flags:**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix; therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

1914 Holloway Drive Holt, Michigan 48842  
 11776 Grand River Ave Brighton, Michigan 48116  
 Telephone: (517) 699-0345  
 Facsimile: (517) 699-0388  
 Telephone: (810) 220-3300  
 Facsimile: (810) 220-3311  
 Date: 3-23-07  
 Signature: [Handwritten Signature]  
 Title: Quality Assurance Officer

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
V907C22A

VOLATILES

Sample Matrix: WATER, TOTAL  
Inclusive Projects: VARIOUS

Preparation Method: SW-846 5090  
Preparation Date: 3/22/2007  
Preparer(s) Initials: BC

Analytical Method: SW-846 8260 UST  
Analysis Date: 3/22/2007  
Analyst(s) Initials: BC

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LEB)							MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)											
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LEB Conc. (ug/L)	LEB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	57.3	114.5	37	158		22268011	U	50.0	56.0	53.2	112	106	68	138		5.1	60	
1,1-Dichloroethane	1.00	ug/L	U		50.0	60.3	120.7	66	154		22268011	U	50.0	62.1	61.6	124	123	78	122	*	0.8	35	
Methylene chloride	1.00	ug/L	U		50.0	54.3	108.6	60	138		22268011	U	50.0	54.6	52.4	109	105	78	122		4.1	21	
trans-1,2-Dichloroethane	1.00	ug/L	U		50.0	55.0	109.9	70	141		22268011	U	50.0	56.1	54.0	112	108	80	120		3.8	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	39.0	78.0	67	134		22268011	U	50.0	41.8	42.2	84	84	76	116		0.9	24	
cis-1,2-Dichloroethane	1.00	ug/L	U		50.0	51.8	103.5	66	130		22268011	U	50.0	52.6	50.8	105	102	84	130		3.5	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	46.6	93.3	67	135		22268011	U	50.0	47.5	45.9	95	92	86	126		3.3	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	30.5	61.0	59	147		22268011	U	50.0	24.2	23.3	48	47	82	130	*	3.4	27	
Benzene	1.00	ug/L	U		50.0	54.6	109.2	76	129		22268011	91.2	50.0	144.8	142.6	107	103	86	124		4.3	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	55.9	111.8	70	133		22268011	U	50.0	55.8	54.4	112	109	80	124		2.6	22	
Trichloroethene	1.00	ug/L	U		50.0	60.9	121.8	71	127		22268011	U	50.0	62.3	62.4	125	125	86	126		0.2	18	
Bromodichloromethane	1.00	ug/L	U		50.0	53.3	106.5	66	137		22268011	U	50.0	51.5	51.5	103	103	86	128		0.0	19	
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	45.9	91.9	63	125		22268011	U	50.0	57.9	56.8	116	114	90	128		1.9	23	
Toluene	1.00	ug/L	U		50.0	60.9	121.8	78	133		22268011	1.1	50.0	61.9	60.9	122	120	86	124		1.7	18	
Dibromochloromethane	1.00	ug/L	U		50.0	46.3	92.5	59	130		22268011	U	50.0	42.8	42.3	86	85	88	122	*	1.4	19	
Tetrachloroethene	1.00	ug/L	U		50.0	48.0	96.0	31	159		22268011	U	50.0	47.5	47.0	95	94	70	110		1.1	23	
2-Hexanone	1.00	ug/L	U		50.0	32.9	65.7	32	172		22268011	U	50.0	39.0	38.7	78	77	50	117		0.6	44	
Ethylbenzene	1.00	ug/L	U		50.0	55.8	111.6	74	134		22268011	3.5	50.0	59.9	58.7	113	110	86	126		2.1	13	
total Xylene	3.00	ug/L	U		150	167.3	111.5	68	136		22268011	3	150	171.7	166.1	112	109	83	121		3.4	29	
Styrene	1.00	ug/L	U		50.0	53.6	107.3	73	134		22268011	U	50.0	53.8	52.9	108	106	86	126		1.6	14	
Dibromofluoromethane (S)**	104	ug/L	U		100	98.5	98.5	86	111		22268011	86.5	100	102.4	97.7	102	98	80	120		5	30	
Toluene-d8 (S)**	113	ug/L	U		100	109.8	109.8	92	117		22268011	95.5	100	113.2	107.7	113	108	80	120		5	30	
4-Bromofluorobenzene (S)**	109	ug/L	U		100	106.8	106.8	81	112		22268011	104.2	100	112.2	105.8	112	106	80	120		6	30	

**Codes/Flags:**  
**U** The analyte was not detected at or above the quantitation limit.  
**E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
**DL** The sample was diluted due to sample matrix, therefore QC was not recoverable.  
**\*** The value is outside quality control limits.  
**K** Reported concentration is proportional to dilution factor and may be exaggerated.  
**P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
**LOQ** Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments:**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank

1914 Holloway Drive  
11776 Grand River Ave  
Brighton, Michigan 48116

Holt, Michigan 48842  
Telephone: (517) 699-0345  
Telephone: (810) 220-3300

Facsimile: (517) 699-0388  
Facsimile: (810) 220-3311

Chemist/Date: *SLR* 3-27-07  
 Quality Assurance Officer/Date: *ZW* 3/28/07



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER  
43001  
METALS

Sample Matrix : WATER, TOTAL  
Inclusive Projects : 22233, 22235, 22254, 22262, 22267, 22279  
Preparation Method : EPA 200.2/SW-846 6020  
Preparation Date : 3/22/2007  
Preparer(s) Initials: JAG  
Analytical Method : EPA 200.8/SW-846 6020  
Analysis Date : 3/22/2007  
Analyst(s) Initials: JAG

Analyte	Laboratory Control Number	LOQ	Units	Reagent Blank		Laboratory Fortified Blank (LFB)						Laboratory Sample ID	Sample Conc. (µg/L)	MD Conc. (µg/L)	Conc. Spiked (µg/L)	MS Conc. (µg/L)	MSD Conc. (µg/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Standard (%)	RPD Method (%)	UCL (%)	Flag	
				Conc. (µg/L)	Flag	Conc. Spiked (µg/L)	LFB Conc. (µg/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag																
Arsenic	M011002003	5.0	µg/L	U		20.0	18.7	94	85	115		U	0.06	20.0	21.3	21.7	107	109	70	130	M				20		
Cadmium	M011002007	0.5	µg/L	U		20.0	20.6	103	85	115	22267004	U	1.44	40.0	45.6	44.0	111	107	70	130	M	P	1.8	20			
Chromium	M011002009	5.0	µg/L	U		40.0	44.6	112	85	115	22267004	1.21	1.44	40.0	45.6	44.0	111	107	70	130	M	17	3.7	20			
Copper	M011002011	4.0	µg/L	U		40.0	41.7	104	85	115	22267004	4.29	4.13	40.0	44.7	43.9	101	99	70	130	M	3.8	1.8	20			
Lead	M011002013	3.0	µg/L	U		40.0	41.7	104	85	115																	
Nickel	M011002019	20	µg/L	U		40.0	42.0	105	85	115																	
Silver	M011002023	0.20	µg/L	U		20.0	20.6	103	85	115																	
Zinc	M011002030	50	µg/L	U		100	109	109	85	115																	

**Codes/Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable  
 \* The value is outside quality control limits  
 K Reported concentration is proportional to dilution factor and may be exaggerated  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated  
 LOQ Analytical limit of quantitation.

**W** Result is always reported as "wet weight"  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit  
**B** The analyte was detected in the associated method blank  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result  
**NC** Not calculable  
**NA** Not applicable  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated

**Comments :**  
 \*Minerals analyzed by Method 6010.

1914 Holloway Drive Holt, Michigan 48842  
 7794 Boardwalk Road Brighton, Michigan 48116

Telephone: (517) 699-0345  
 Telephone: (248) 446-5700

Facsimile: (517) 699-0388  
 Facsimile: (248) 446-5701

*Janis Harvey*  
 Quality Assurance Officer  
 Date: 3/26/07

*JM*  
 Quality Assurance Officer  
 Date: 3/27/07

# Fibertec Environmental Services

1914 Holloway Drive  
 Holt, MI 48842  
 Phone: 517 699 0345  
 Fax: 517 699 0388  
 email: lab@fibertec.us

Analytical Laboratory  
 8660 S. Mockinaw Trail  
 Cadillac, MI 49601  
 Phone: 231 775 8368  
 Fax: 231 775 8584

Industrial Hygiene Services, Inc.  
 1914 Holloway Drive  
 Holt, MI 48842  
 Phone: 517 699 0345  
 Fax: 517 699 0382  
 email: asbetos@fibertec.us

Geoprobe  
 7794 Boardwalk Road  
 Brighton, MI 48116  
 Phone: 248 446 5700  
 Fax: 248 446 5701

Chain of Custody #

64628

PAGE 1 of 1

Client Name: *SME*  
 Contact Person: *Dan Cassidy - SME Plymouth*  
 Project Name/ Number: *PE54494E*

Purchase Order#

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor
	<i>3/13/07</i>	<i>1130</i>		<i>MW201</i>
		<i>1145</i>		<i>MW107</i>
		<i>1415</i>		<i>MW106</i>
		<i>—</i>		<i>Deep-1</i>
		<i>1330</i>		<i>FB</i>
		<i>1500</i>		<i>EB</i>
		<i>—</i>		<i>Trip Blank</i>
	<i>3/14/07</i>	<i>1000</i>		<i>MW12</i>
	<i>"</i>	<i>11:00</i>		<i>MW108</i>

MATRIX (SEE RIGHT CORNER FOR CODE)  
 # OF CONTAINERS  
 PRESERVED (Y/N)

*VOC  
 PAH  
 Cd, Cr, Pb*

PARAMETERS

Turnaround	Matrix Code
24 hour RUSH (surcharge applies)	S Soil <input checked="" type="checkbox"/> Ground Water
48 hour RUSH (surcharge applies)	A Air
72 hour RUSH (surcharge applies)	O Oil
Standard (5-7 bus. days)	W Waste Water
Other: Specify	X Other: Specify

Remarks:

*Part 201 Criteria detection limits*

Comments:

Relinquished By: *Phyllis Beck* Date/Time: *3/14/07 12:28* Received By: *N. James*  
 Relinquished By: *N. James* Date/Time: *3-14-07* Received By: *Fibertec cold storage*  
 Relinquished By: *Fibertec cold storage* Date/Time: *3/15/07 08:00* Received By: *Phyllis Beck*

LAB USE ONLY:  
 Fibertec project number: \_\_\_\_\_  
 Laboratory Tracking: *230007*  
 Temperature at Receipt: *03*

TERMS & CONDITIONS ON BACK

RCV'D ON  
 ICE  
 COC Revision: April 2006



REC'D APR 06 2007

March 27, 2007

Case Narrative

Customer: SME  
Project Identification: PE54494C  
Fibertec Project Number: 22267

Sample Collection/ Receipt

The following samples were collected on March 14 and 15, 2007 and received by Fibertec on March 16, 2007. The revised chain of custody was received on March 20, 2007.

18 Waters (including a trip blank, a field blank and an equipment blank)  
All Samples were received on ice and in good condition.

Analysis

Analyses were conducted in accordance with chain of custody and within hold times. As discussed, the 1 liter amber for 22268.018 (EB) broke at the laboratory.


All applicable quality assurance/ quality control parameters were within acceptance limits unless otherwise noted.


Semi-volatiles

Sample 22268.002 (MW104) has low surrogate recoveries for 2-fluorobiphenyl (24%) and 4-terphenyl (16%).

The following results were reported with elevated reporting limits.

<u>Laboratory Number</u>	<u>Client ID</u>	<u>Analysis</u>	<u>Reason for elevated RL</u>
22268.002	MW104	VOC	Sample Matrix
22268.003	MW109	VOC	Sample Matrix
22268.004	Dup-2	VOC	Sample Matrix
22268.010	OW1	VOC	Sample Matrix
22268.012	MW102	VOC	Sample Matrix
22268.013	MW103	VOC	Sample Matrix
22268.016	Dup-3	VOC	Sample Matrix

  
Authorized Signature

  
Date

Tuesday, March 27, 2007

Fibertec Project Number: 22268  
Project Identification: PE54494C  
Submittal Date: 3/21/2007

Mr. Dan Cassidy  
Soil and Materials Engineers, Inc. - Plymouth  
43980 Plymouth Oaks  
Plymouth, MI 48170

Dear Mr. Cassidy,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed as requested and the results compiled in the enclosed report.

As discussed, the 1 liter amber for 22268.018 (EB) broke at the laboratory.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345. Please note samples will be disposed of 30 days after reporting date.

Sincerely,



Daryl P. Strandbergh  
Laboratory Director

DPS/kc

Enclosures

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-012</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW102</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>1800</b>	µg/L	10	10	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>13</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22268	Sample Number:	22268-012

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	MW102
Project Number:	NA	Client Sample Number:	12
Sample Date:	3/15/2007	Chain of Custody Number:	57547

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	1000	µg/L	10	10	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	120	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-012</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW102</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>12</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>280</b>	µg/L	50	10	V907C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	10	10	V907C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>84</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>1200</b>	µg/L	10	10	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>230</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>720</b>	µg/L	30	10	V907C22A	3/22/2007	3/22/2007	BAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-012A**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **MW102**  
Project Number: **NA**      Client Sample Number: **12**  
Sample Date: **3/15/2007**      Chain of Custody Number: **57547**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	<b>61</b>	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22268	Sample Number:	22268-012B

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	MW102
Project Number:	NA	Client Sample Number:	12
Sample Date:	3/15/2007	Chain of Custody Number:	57547

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	6.1	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth** Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268** Sample Number: **22268-013**

## Client Sample Information

Project Identification: **PE54494C** Client Sample Description: **MW103**  
Project Number: **NA** Client Sample Number: **13**  
Sample Date: **3/15/2007** Chain of Custody Number: **57547**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>2600</b>	µg/L	10	10	V907C22A	3/23/2007	3/23/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-013</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW103</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>13</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>830</b>	µg/L	10	10	V907C22A	3/23/2007	3/23/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>72</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-013</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW103</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>13</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>120</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>180</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>49</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>700</b>	µg/L	10	10	V907C22A	3/23/2007	3/23/2007	BAG
1,3,5-Trimethylbenzene	<b>200</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>540</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-013A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW103</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>13</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	<b>24</b>	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-013B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW103</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>13</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	<b>3.1</b>	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-002</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW104</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>3.2</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-002</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW104</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-002**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **MW104**  
Project Number: **NA**      Client Sample Number: **2**  
Sample Date: **3/14/2007**      Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

### Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)

Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	<b>370</b>	µg/L	50	10	V907C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>1.2</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>1.6</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-002A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW104</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C) (Low surrogate recoveries for 2-fluorobiphenyl (24%) and 4-terphenyl (16%))</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	<b>1.1</b>	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	<b>1.1</b>	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	<b>1.3</b>	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	<b>1.1</b>	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	<b>2.0</b>	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-002B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW104</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>2</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	Soil and Materials Engineers, Inc. - Plymouth	Sample Matrix:	Ground Water
Fibertec Project Number:	22268	Sample Number:	22268-003

### Client Sample Information

Project Identification:	PE54494C	Client Sample Description:	MW109
Project Number:	NA	Client Sample Number:	3
Sample Date:	3/14/2007	Chain of Custody Number:	57543

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>9800</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>2.4</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-003</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW109</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>280</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>44</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-003</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW109</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	<b>87</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>61</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>89</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>190</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>85</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>25</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>390</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-003A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW109</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-003B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MW109</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>3</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-010</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>2400</b>	µg/L	20	20	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>17</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>7.2</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-010**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **OW1**  
Project Number: **NA**      Client Sample Number: **10**  
Sample Date: **3/15/2007**      Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>1500</b>	µg/L	20	20	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>87</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-010</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>72</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>230</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>150</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>180</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>100</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>770</b>	µg/L	60	20	V907C22A	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-010A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	<b>27</b>	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-010B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW1</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>10</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-011</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Benzene	<b>91</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>1.8</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>1.8</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-011</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>3.5</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-011**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **OW4**  
Project Number: **NA**      Client Sample Number: **11**  
Sample Date: **3/15/2007**      Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>15</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Toluene	<b>1.1</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>2.0</b>	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Xylenes	<b>3.4</b>	µg/L	3.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-011A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-011B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW4</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>11</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-001</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>36</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth** Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268** Sample Number: **22268-001**

## Client Sample Information

Project Identification: **PE54494C** Client Sample Description: **OW7**  
Project Number: **NA** Client Sample Number: **1**  
Sample Date: **3/14/2007** Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>1.9</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-001</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\approx$ 4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	<b>130</b>	µg/L	50	10	V907C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>4.8</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>1.5</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>1.3</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>10</b>	µg/L	3.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-001A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-001B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>OW7</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>1</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-004**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **Dup-2**  
Project Number: **NA**      Client Sample Number: **4**  
Sample Date: **3/14/2007**      Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>2100</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>5.4</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-004</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>1100</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>51</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-004</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>230</b>	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>180</b>	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>1300</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>1200</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>310</b>	µg/L	50	50	V907C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>3300</b>	µg/L	150	50	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-004A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	<b>49</b>	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-004B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-2</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>4</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	<b>13</b>	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-005</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-005A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-005B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>5</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-006</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-006A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA)s (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	ND	µg/L	1.0	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	ND	µg/L	2.0	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	ND	µg/L	5.0	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-006B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>6</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	<b>28</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	<b>15</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>110</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromobenzene	<b>92</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	<b>76</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	<b>77</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	<b>77</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	<b>60</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	<b>33</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>94</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>98</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	<b>113</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	<b>108</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	<b>74</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	<b>93</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	<b>68</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	<b>72</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	<b>61</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	<b>93</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	<b>74</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

1,2-Dibromo-3-chloropropane	<b>98</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	<b>103</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	<b>100</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	<b>99</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	<b>98</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	<b>63</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	<b>77</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	<b>64</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	<b>71</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	<b>74</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	<b>78</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	<b>93</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	<b>79</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	<b>66</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>102</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	<b>92</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	<b>38</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	<b>134</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>97</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	<b>49</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-007</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Methylene Chloride	<b>73</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	<b>619</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>108</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>107</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	<b>90</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	<b>87</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	<b>108</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	<b>108</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>99</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	<b>99</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	<b>67</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	<b>95</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	<b>85</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	<b>54</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	<b>78</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>105</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>102</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	<b>71</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>93</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG

# Analytical Laboratory Report

Client Identification: **Soil and Materials Engineers, Inc. - Plymouth**      Sample Matrix: **Ground Water**  
Fibertec Project Number: **22268**      Sample Number: **22268-007A**

## Client Sample Information

Project Identification: **PE54494C**      Client Sample Description: **MS (OW7)**  
Project Number: **NA**      Client Sample Number: **7**  
Sample Date: **3/14/2007**      Chain of Custody Number: **57543**

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	<b>59</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	<b>60</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	<b>63</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	<b>64</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	<b>65</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	<b>61</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	<b>65</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	<b>66</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	<b>51</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	<b>53</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	<b>66</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	<b>61</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	<b>65</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	<b>59</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	<b>60</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	<b>65</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-007B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>7</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	110	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Chromium	108	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Lead	110	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-008</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	<b>28</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Acrylonitrile	<b>16</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Benzene	<b>107</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromobenzene	<b>96</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromochloromethane	<b>77</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromodichloromethane	<b>81</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromoform	<b>83</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Bromomethane	<b>66</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Butanone	<b>32</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Butylbenzene	<b>100</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>104</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	<b>117</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Disulfide	<b>115</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	<b>79</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chlorobenzene	<b>99</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroethane	<b>72</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloroform	<b>75</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Chloromethane	<b>67</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	<b>97</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromochloromethane	<b>80</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-008</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	<b>103</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dibromomethane	<b>110</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	<b>105</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	<b>105</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	<b>104</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	<b>67</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	<b>80</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	<b>67</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	<b>77</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	<b>76</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	<b>82</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	<b>99</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	<b>84</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	<b>70</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>104</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	<b>101</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
2-Hexanone	<b>40</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Methyl Iodide	<b>138</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>102</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	<b>52</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-008</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Methylene Chloride	<b>76</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
MTBE	<b>586</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Naphthalene	<b>111</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>110</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Styrene	<b>95</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	<b>91</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	<b>115</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Tetrachloroethene	<b>114</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Toluene	<b>104</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	<b>106</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	<b>71</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	<b>100</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichloroethene	<b>90</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	<b>58</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	<b>81</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	<b>104</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>105</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Vinyl Chloride	<b>74</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG
Xylenes	<b>97</b>	% Recovery	NA	1	VB07C21B	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-008A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNA's) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	<b>64</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Acenaphthylene	<b>66</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Anthracene	<b>70</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)anthracene	<b>71</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(a)pyrene	<b>72</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(b)fluoranthene	<b>69</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(ghi)perylene	<b>75</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Benzo(k)fluoranthene	<b>74</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Chrysene	<b>57</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Dibenzo(a,h)anthracene	<b>61</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Fluoranthene	<b>72</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Fluorene	<b>68</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Indeno(1,2,3-cd)pyrene	<b>75</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
2-Methylnaphthalene	<b>63</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Phenanthrene	<b>68</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ
Pyrene	<b>75</b>	% Recovery	NA	1	42994	3/21/2007	3/22/2007	AMJ

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-008B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW7)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>8</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	<b>105</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Chromium	<b>108</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Lead	<b>110</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-014</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	59	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Acrylonitrile	24	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Benzene	107	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromobenzene	104	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromochloromethane	89	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromodichloromethane	103	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromoform	79	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromomethane	103	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Butanone	33	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
n-Butylbenzene	106	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
sec-Butylbenzene	112	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
tert-Butylbenzene	117	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Carbon Disulfide	132	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Carbon Tetrachloride	48	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chlorobenzene	104	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloroethane	120	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloroform	108	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloromethane	111	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Chlorotoluene	107	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dibromochloromethane	86	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-014</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	<b>73</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dibromomethane	<b>103</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichlorobenzene	<b>102</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,3-Dichlorobenzene	<b>103</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,4-Dichlorobenzene	<b>99</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dichlorodifluoromethane	<b>97</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1-Dichloroethane	<b>84</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichloroethane	<b>110</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1-Dichloroethene	<b>124</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
cis-1,2-Dichloroethene	<b>105</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
trans-1,2-Dichloroethene	<b>112</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichloropropane	<b>112</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
cis-1,3-Dichloropropene	<b>68</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
trans-1,3-Dichloropropene	<b>52</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Ethylbenzene	<b>113</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Ethylene Dibromide	<b>81</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Hexanone	<b>38</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Methyl Iodide	<b>57</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Isopropylbenzene	<b>122</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
4-Methyl-2-pentanone	<b>63</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-014</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	109	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
MTBE	27	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Naphthalene	97	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
n-Propylbenzene	115	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Styrene	108	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,1,2-Tetrachloroethane	88	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,2,2-Tetrachloroethane	109	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Tetrachloroethene	95	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Toluene	122	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,4-Trichlorobenzene	102	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,1-Trichloroethane	95	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,2-Trichloroethane	116	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Trichloroethene	124	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Trichlorofluoromethane	97	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,3-Trichloropropane	93	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,4-Trimethylbenzene	112	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,3,5-Trimethylbenzene	111	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Vinyl Chloride	112	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Xylenes	112	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-014A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	<b>90</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	<b>93</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	<b>94</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	<b>97</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	<b>104</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	<b>106</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	<b>121</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	<b>114</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	<b>87</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	<b>93</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	<b>99</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	<b>97</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	<b>121</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	<b>86</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	<b>96</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	<b>96</b>	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-014B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MS (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>14</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	<b>110</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Chromium	<b>108</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Lead	<b>110</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-015</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	51	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Acrylonitrile	23	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Benzene	103	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromobenzene	104	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromochloromethane	83	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromodichloromethane	103	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromoform	80	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Bromomethane	111	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Butanone	33	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
n-Butylbenzene	105	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
sec-Butylbenzene	109	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
tert-Butylbenzene	116	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Carbon Disulfide	131	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Carbon Tetrachloride	47	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chlorobenzene	102	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloroethane	117	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloroform	103	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Chloromethane	111	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Chlorotoluene	104	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dibromochloromethane	84	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-015</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	77	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dibromomethane	101	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichlorobenzene	101	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,3-Dichlorobenzene	101	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,4-Dichlorobenzene	98	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Dichlorodifluoromethane	90	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1-Dichloroethane	84	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichloroethane	108	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1-Dichloroethene	123	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
cis-1,2-Dichloroethene	102	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
trans-1,2-Dichloroethene	108	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2-Dichloropropane	109	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
cis-1,3-Dichloropropene	72	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
trans-1,3-Dichloropropene	58	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Ethylbenzene	110	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Ethylene Dibromide	81	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
2-Hexanone	38	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Methyl Iodide	74	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Isopropylbenzene	117	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
4-Methyl-2-pentanone	63	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-015</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	<b>105</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
MTBE	<b>31</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Naphthalene	<b>97</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
n-Propylbenzene	<b>113</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Styrene	<b>106</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,1,2-Tetrachloroethane	<b>82</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,2,2-Tetrachloroethane	<b>109</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Tetrachloroethene	<b>94</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Toluene	<b>120</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,4-Trichlorobenzene	<b>101</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,1-Trichloroethane	<b>92</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,1,2-Trichloroethane	<b>114</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Trichloroethene	<b>124</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Trichlorofluoromethane	<b>93</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,3-Trichloropropane	<b>92</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,2,4-Trimethylbenzene	<b>109</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
1,3,5-Trimethylbenzene	<b>109</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Vinyl Chloride	<b>106</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG
Xylenes	<b>108</b>	% Recovery	NA	1	V907C22A	3/23/2007	3/23/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-015A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	85	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	86	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	89	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	89	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	94	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	97	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	110	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	105	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	81	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	84	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	93	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	90	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	108	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	79	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	90	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	92	% Recovery	NA	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-015B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>MSD (OW4)</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>15</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	<b>105</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Chromium	<b>103</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG
Lead	<b>108</b>	% Recovery	NA	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-016</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Benzene	<b>1100</b>	µg/L	50	50	V907C23A	3/23/2007	3/23/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	<b>7.7</b>	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-016</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	<b>4000</b>	µg/L	50	50	V907C23A	3/23/2007	3/23/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	<b>100</b>	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-016</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Naphthalene	<b>63</b>	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	<b>240</b>	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Toluene	<b>180</b>	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	<b>110</b>	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Xylenes	<b>3900</b>	µg/L	150	50	V907C23A	3/23/2007	3/23/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-016A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	<b>28</b>	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-016B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Dup-3</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>16</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-017</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>17</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Benzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-017</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>17</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-017</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>17</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Toluene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-017A</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>17</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Polynuclear Aromatic Hydrocarbons (PNAs) (EPA 3535/EPA 8270C)</b>								
Acenaphthene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Acenaphthylene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Anthracene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)anthracene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(a)pyrene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(b)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(ghi)perylene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Benzo(k)fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Chrysene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Dibenzo(a,h)anthracene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Fluoranthene	ND	µg/L	1.0	1	42997	3/21/2007	3/22/2007	LAN
Fluorene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Indeno(1,2,3-cd)pyrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
2-Methylnaphthalene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN
Phenanthrene	ND	µg/L	2.0	1	42997	3/21/2007	3/22/2007	LAN
Pyrene	ND	µg/L	5.0	1	42997	3/21/2007	3/22/2007	LAN



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-017B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>FB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>17</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	µg/L	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	µg/L	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	µg/L	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-018</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>18</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Acetone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Benzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-018</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>18</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-018</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>18</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
2-Methylnaphthalene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Toluene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	V907C22A	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	V907C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-018B</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>EB</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>18</b>
Sample Date:	<b>3/15/2007</b>	Chain of Custody Number:	<b>57547</b>

Comments:  
Definitions:

**ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Lead + Cadmium + Chromium, Total (EPA 3005A/EPA 6020)</b>								
Cadmium	ND	$\mu\text{g/L}$	1.0	1	43008	3/26/2007	3/26/2007	JAG
Chromium	ND	$\mu\text{g/L}$	10	1	43008	3/26/2007	3/26/2007	JAG
Lead	ND	$\mu\text{g/L}$	3.0	1	43008	3/26/2007	3/26/2007	JAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration (>=4X the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

Acetone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Acrylonitrile	ND	µg/L	2.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Benzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromochloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromodichloromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromoform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Bromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Butanone	ND	µg/L	25	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
sec-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
tert-Butylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Disulfide	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Carbon Tetrachloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloroform	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Chloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Chlorotoluene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromochloromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG

## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
---------	--------	-------	--------------	-----------------	------------	----------------	--------------------	---------

**Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)**

1,2-Dibromo-3-chloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dibromomethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,4-Dichlorobenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Dichlorodifluoromethane	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,2-Dichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2-Dichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
cis-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
trans-1,3-Dichloropropene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Ethylene Dibromide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Hexanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG
Methyl Iodide	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Isopropylbenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
4-Methyl-2-pentanone	ND	µg/L	50	1	VB07C22A	3/22/2007	3/22/2007	BAG



## Analytical Laboratory Report

Client Identification:	<b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Matrix:	<b>Ground Water</b>
Fibertec Project Number:	<b>22268</b>	Sample Number:	<b>22268-009</b>

### Client Sample Information

Project Identification:	<b>PE54494C</b>	Client Sample Description:	<b>Trip Blank</b>
Project Number:	<b>NA</b>	Client Sample Number:	<b>9</b>
Sample Date:	<b>3/14/2007</b>	Chain of Custody Number:	<b>57543</b>

Comments:  
Definitions: **ND = Not Detected at or above the reporting limit; RL = Reporting Limit; NA = Not Applicable/Not Available**  
**FF = Field Filtered; B = Analyte detected in blank; TIC = Tentatively Identified Compound;**  
**E = Estimated value; J = Analyte positively identified - estimated value**  
**X - Spike recovery distorted due to elevated sample target analyte concentration ( $\geq 4X$  the amount spiked)**  
**Y - Spike unrecoverable due to sample dilution.**

Analyte	Result	Units	Report Limit	Dilution Factor	Prep Batch	Prep Date/Time	Analysis Date/Time	Analyst
<b>Volatile Organic Compounds (VOCs) by GC/MS (EPA 5030B/EPA 8260B)</b>								
Methylene Chloride	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
2-Methylnaphthalene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
MTBE	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Naphthalene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
n-Propylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Styrene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2,2-Tetrachloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Tetrachloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Toluene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trichlorobenzene	ND	µg/L	5.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,1-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,1,2-Trichloroethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichloroethene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Trichlorofluoromethane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,3-Trichloropropane	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,2,4-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
1,3,5-Trimethylbenzene	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Vinyl Chloride	ND	µg/L	1.0	1	VB07C22A	3/22/2007	3/22/2007	BAG
Xylenes	ND	µg/L	3.0	1	VB07C22A	3/22/2007	3/22/2007	BAG



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

42994

SEMI-VOLATILES

Sample Matrix: **WATER, TOTAL** Analytical Method: **SW-846 8270D - PNA**  
 Inclusive Projects: **VARIOUS** Preparation Date: **3/21/2007**  
 Preparer(s) Initials: **MP** Analyst(s) Initials: **AJ**

Analyte	Laboratory Control Number	LOQ	Units	Method Blank			Laboratory Fortified Blank					MATRIX SPIKE (MATRIX SPIKE DUPLICATE)									
				Conc. (ug/L)	Flag	Conc. (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Conc. Spiked (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Percent Recovery
Naphthalene	S011005089	5.0	ug/L	U			80.0	46.8	58	23	123	U	80.0	43.4	54	58	41	134		6.60	30
2-Methylnaphthalene	S011005027	5.0	ug/L	U			80.0	53.5	67	25	91	U	80.0	47.5	59	63	30	81		6.44	30
Acenaphthylene	S011005045	5.0	ug/L	U			80.0	59.6	74	40	114	U	80.0	48.3	60	66	55	118		9.2	30
Acenaphthene	S011005044	5.0	ug/L	U			80.0	58.0	73	39	107	U	80.0	46.9	59	64	48	110		9.226	30
Fluorene	S011005082	5.0	ug/L	U			80.0	61.8	77	40	109	U	80.0	48.9	61	68	56	105		10.9	30
Phenanthrene	S011005098	5.0	ug/L	U			80.0	60.6	76	48	110	U	80.0	48.4	60	68	60	108		11.8	30
Anthracene	S011005047	5.0	ug/L	U			80.0	63.1	79	44	109	U	80.0	50.3	63	70	61	105		10.7	30
Fluoranthene	S011005081	5.0	ug/L	U			80.0	64.2	80	45	113	U	80.0	52.7	66	72	62	100		8.5	30
Pyrene	S011005101	5.0	ug/L	U			80.0	64.4	81	50	113	U	80.0	52.4	65	75	66	108		13.70	30
Benzo(a)anthracene	S011005055	5.0	ug/L	U			80.0	63.3	79	48	102	U	80.0	50.9	64	71	60	106		10.71	30
Chrysene	S011005071	5.0	ug/L	U			80.0	49.1	61	48	106	U	80.0	40.7	51	57	64	107		11.5	30
Benzo(b)fluoranthene	S011005058	5.0	ug/L	U			80.0	61.8	77	51	115	U	80.0	48.6	61	69	65	117		12.2	30
Benzo(k)fluoranthene	S011005060	5.0	ug/L	U			80.0	64.1	80	51	106	U	80.0	52.7	66	74	63	120		11.45	30
Benzo(e)pyrene	S011005057	5.0	ug/L	U			80.0	64.2	80	52	105	U	80.0	52.1	65	72	66	111		10.76	30
Indeno(1,2,3-cd)pyrene	S011005073	5.0	ug/L	U			80.0	65.8	82	31	136	U	80.0	52.4	65	75	65	114		12.90	30
Dibenz(a,h)anthracene	S011005087	5.0	ug/L	U			80.0	53.4	67	35	108	U	80.0	42.7	53	61	60	116		13.83	30
Benzo(ghi)perylene	S011005059	5.0	ug/L	U			80.0	63.4	79	45	106	U	80.0	51.7	65	75	64	113		14.12	30
4-Terphenyl D-14 (S)**	S011005103	100	ug/L	65			100	80.8	81	63	116		100	62.9	63	73	63	116		14.24	30

**Codes, Flags:**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore, the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable.  
 \* The value is outside quality control limits.  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <3 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**Comments:**  
 \*\*Terphenyl(S) is added to all samples at 100 ug/L, and is therefore presented as a percent recovery in the reagent blank.  
 \*\*\* No sample was available for Matrix Spikes. Precision and Recovery for the batch were determined by LCS and LCS duplicate.

Chemist/Date: 3/23/07  
 Quality Assurance Officer/Date: 3/23/07

1914 Holloway Drive Holt, Michigan 48842 Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
 7794 Boardwalk Road Brighton, Michigan 48116 Telephone: (248) 446-5700 Facsimile: (248) 446-5701

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

42997

**SEMI-VOLATILES**

Sample Matrix :	<b>WATER, TOTAL</b>	Preparation Method :	SW-846 3535A	Analytical Method :	SW-846 8270D - PNA
Inclusive Projects :	<b>VARIOUS</b>	Preparation Date :	3/21/2007	Analysis Date :	3/22/2007
		Preparer(s) Initials :	AM	Analyst(s) Initials :	LAN

Analyte	Laboratory Control Number	LOQ	Units	Method Blank		Laboratory Fortified Blank (LFB)				MATRIX SPIKE / MATRIX SPIKE DUPLICATE																												
				Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery (%)	L.C.I. (%)	U.C.I. (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery (%)	L.C.I. (%)	U.C.I. (%)	Flag	RED MSMSD (%)	U.C.I. (%)	Flag															
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)													
Naphthalene	S011005089	5.0	ug/L	U		80.0	54.4	68	23	123																U	80.0	53.0	52.1	66	41	134				1.71	30	
2-Methylnaphthalene	S011005027	5.0	ug/L	U		80.0	53.7	67	25	91																	U	80.0	51.9	50.5	65	30	81				2.74	30
Acenaphthylene	S011005045	5.0	ug/L	U		80.0	60.0	75	40	114																	U	80.0	55.7	54.9	70	55	118				1.4	30
Acenaphthene	S011005044	5.0	ug/L	U		80.0	59.6	75	39	107																	U	80.0	53.8	54.3	67	68	110				0.814	30
Fluorene	S011005082	5.0	ug/L	U		80.0	63.9	80	40	109																	U	80.0	58.4	57.9	73	72	105				0.9	30
Phenanthrene	S011005098	5.0	ug/L	U		80.0	64.3	80	48	110																	U	80.0	57.9	57.7	72	72	108				0.2	30
Anthracene	S011005047	5.0	ug/L	U		80.0	62.7	78	44	109																	U	80.0	56.2	56.9	70	71	105				1.2	30
Fluoranthene	S011005081	5.0	ug/L	U		80.0	65.9	82	45	113																	U	80.0	59.2	59.6	74	75	102				0.7	30
Pyrene	S011005101	5.0	ug/L	U		80.0	65.0	81	50	113																	U	80.0	57.7	58.6	72	73	106				1.55	30
Benzo(a)anthracene	S011005055	5.0	ug/L	U		80.0	60.0	75	48	102																	U	80.0	58.1	56.7	73	71	106				2.40	30
Chrysenes	S011005071	5.0	ug/L	U		80.0	54.0	68	48	106																	U	80.0	51.7	51.7	73	64	107				0.5	30
Benzo(b)fluoranthene	S011005058	5.0	ug/L	U		80.0	63.2	79	51	115																	U	80.0	62.3	62.3	79	78	117				1.9	30
Benzo(k)fluoranthene	S011005060	5.0	ug/L	U		80.0	67.0	84	51	106																	U	80.0	68.4	67.4	85	84	120				1.44	30
Benzo(a)pyrene	S011005057	5.0	ug/L	U		80.0	60.9	76	52	105																	U	80.0	62.5	59.9	78	75	111				4.31	30
Indeno(1,2,3-cd)pyrene	S011005073	5.0	ug/L	U		80.0	70.4	88	31	136																	U	80.0	72.3	68.8	90	86	114				5.02	30
Dibenz(a,h)anthracene	S011005087	5.0	ug/L	U		80.0	54.0	68	35	108																	U	80.0	55.7	53.8	70	67	116				3.36	30
Benzo(ghi)perylene	S011005059	5.0	ug/L	U		80.0	69.1	86	45	106																	U	80.0	72.8	70.3	91	88	113				3.52	30
4-Terphenyl D-14 (S)**	S011005103	100	ug/L	86		100	84.7	85	63	116																	U	100	78.6	76.3	79	76	116				2.94	30

Code	Flag	Description
W		Result is always reported as "wet weight".
J		The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
B		The analyte was detected at a concentration greater than the method detection limit.
M		The analyte was detected in the associated method blank.
NC		Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
NA		Not calculable.
A		If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

Comments :  
\*\* Terphenyl(S) is added to all samples at 100 ug/L, and is therefore presented as a percent recovery in the reagent blank.

Chemist/Date  
*David Lee 3/23/07*

Quality Assurance Officer/Date  
*TM 3/23/07*

1914 Holloway Drive Holt, Michigan 48842  
7794 Boardwalk Road Brighton, Michigan 48116

Telephone: (517) 699-0345 Facsimile: (517) 699-0388  
Telephone: (248) 446-5700 Facsimile: (248) 446-5701



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

**43008**

**METALS**

Sample Matrix : **WATER, TOTAL**      Preparation Method : **EPA 200.2/SW-846 6020**      Analytical Method : **EPA 200.8/SW-846 6020**  
 Inclusive Projects : **22268, 22272, 22276**      Preparation Date : **3/26/2007**      Analysis Date : **3/26/2007**  
 Preparer(s) Initials : **JAG**      Analyst(s) Initials : **JAG**

**MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE  
(MD / MS / MSD)**

Analyte	Laboratory Control Number	LOQ	Units	Laboratory Fortified Blank (LFB)				MATRIX DUPLICATE / MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MD / MS / MSD)														
				Conc. Spiked (µg/L)	LFB Conc. (µg/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (µg/L)	MD Conc. (µg/L)	Conc. Spiked (µg/L)	MS Conc. (µg/L)	MSD Conc. (µg/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD Spiked (%)	RPD MS/MSD (%)
Arsenic	M011002003	5.0	µg/L	20.0	20.4	102	85	115		U	0.05	20.0	21.6	21.1	108	106	70	130		P	2.2	20
Cadmium	M011002007	0.5	µg/L	20.0	20.5	102	85	115		U	0.67	40.0	43.4	42.7	107	105	70	130		7.2	1.7	20
Chromium	M011002009	5.0	µg/L	40.0	42.8	107	85	115		U	1.31	40.0	44.4	43.5	104	102	70	130		75	2.0	20
Copper	M011002011	4.0	µg/L	40.0	44.6	112	85	115		U												
Lead	M011002013	3.0	µg/L	40.0	44.6	111	85	115		U												
Nickel	M011002019	20	µg/L	40.0	42.6	107	85	115		U												
Silver	M011002023	0.20	µg/L	20.0	21.2	106	85	115		U												
Zinc	M011002030	50	µg/L	100	111	111	85	115		U												

**Codes/Flags :**

- U** The analyte was not detected at or above the quantitation limit
- E** The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
- DL** The sample was diluted due to sample matrix, therefore QC was not recoverable
- \*** The value is outside quality control limits
- K** Reported concentration is proportional to dilution factor and may be exaggerated
- P** When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
- LOQ** Analytical limit of quantitation.

**Comments :**

0

*Jeri Nancy 3-27-07*  
 Jeri Nancy 3-27-07  
 Chemist/Date

*JM 3/27/07*  
 JM 3/27/07  
 Quality Assurance Officer/Date

1914 Holloway Drive Holt, Michigan 48842      Telephone: (517) 699-0345      Facsimile: (517) 699-0388  
 7794 Boardwalk Road Brighton, Michigan 48116      Telephone: (248) 446-5700      Facsimile: (248) 446-5701

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

VB07C21B

VOLATILES


Sample Matrix : **WATER, TOTAL** Analytical Method : **SW-846 8260 UST**  
 Inclusive Projects : **VARIOUS** Preparation Date : **3/21/2007**  
 Preparer(s) Initials : **BG** Analyst(s) Initials : **BG**

Analyte	RL	Units	Matrix Blank		Laboratory Forfeited Blank (LFB)				MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)																							
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery (%)	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery (%)	MSD Percent Recovery (%)	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL Flag										
Vinyl chloride	1.00	ug/L	U	U	50.0	52.7	105.3	37	158	U	50.0	50.0	35.7	37.0	71	74	68	138		22268001	U	50.0	50.0	35.7	37.0	71	74	68	138		3.7	60
1,1-Dichloroethene	1.00	ug/L	U	U	50.0	50.0	100.0	66	154	U	50.0	50.0	35.6	38.5	71	77	78	122	*	22268001	U	50.0	50.0	35.6	38.5	71	77	78	122	*	7.9	35
Methylene chloride	1.00	ug/L	U	U	50.0	49.7	99.3	60	138	U	50.0	50.0	36.6	38.0	73	76	78	122	*	22268001	U	50.0	50.0	36.6	38.0	73	76	78	122	*	3.9	21
trans-1,2-Dichloroethene	1.00	ug/L	U	U	50.0	52.1	104.2	70	141	U	50.0	50.0	38.9	41.0	78	82	80	120	*	22268001	U	50.0	50.0	38.9	41.0	78	82	80	120	*	5.3	28
1,1-Dichloroethane	1.00	ug/L	U	U	50.0	50.4	100.8	67	134	U	50.0	50.0	38.4	40.1	77	80	76	116		22268001	U	50.0	50.0	38.4	40.1	77	80	76	116		4.3	24
cis-1,2-Dichloroethene	1.00	ug/L	U	U	50.0	48.9	97.9	66	130	U	50.0	50.0	37.0	38.2	74	76	84	130	*	22268001	U	50.0	50.0	37.0	38.2	74	76	84	130	*	3.1	29
1,1,1-Trichloroethane	1.00	ug/L	U	U	50.0	46.0	91.9	67	135	U	50.0	50.0	33.5	35.4	67	71	86	126	*	22268001	U	50.0	50.0	33.5	35.4	67	71	86	126	*	5.7	30
Carbon tetrachloride	1.00	ug/L	U	U	50.0	48.9	97.8	59	147	U	50.0	50.0	37.2	39.4	74	79	82	130	*	22268001	U	50.0	50.0	37.2	39.4	74	79	82	130	*	5.7	27
Benzene	1.00	ug/L	U	U	50.0	56.5	113.0	76	129	U	50.0	50.0	91.5	90.0	110	107	86	124		22268001	36.4	50.0	50.0	91.5	90.0	110	107	86	124		2.7	18
1,2-Dichloropropane	1.00	ug/L	U	U	50.0	53.8	107.6	70	133	U	50.0	50.0	46.5	49.6	93	99	80	124		22268001	U	50.0	50.0	46.5	49.6	93	99	80	124		6.6	22
Trichloroethene	1.00	ug/L	U	U	50.0	49.8	99.5	71	127	U	50.0	50.0	42.7	45.1	85	90	86	126	*	22268001	U	50.0	50.0	42.7	45.1	85	90	86	126	*	5.5	18
Bromodichloromethane	1.00	ug/L	U	U	50.0	50.0	96.6	66	137	U	50.0	50.0	38.5	40.7	77	81	86	128	*	22268001	U	50.0	50.0	38.5	40.7	77	81	86	128	*	5.5	19
1,1,2-Trichloroethane	1.00	ug/L	U	U	50.0	49.5	99.0	63	125	U	50.0	50.0	47.3	50.1	95	100	90	128		22268001	U	50.0	50.0	47.3	50.1	95	100	90	128		5.8	23
Toluene	1.00	ug/L	U	U	50.0	54.5	109.1	78	133	U	50.0	50.0	50.8	53.4	99	104	86	124		22268001	1.5	50.0	50.0	50.8	53.4	99	104	86	124		5.1	18
Dibromochloromethane	1.00	ug/L	U	U	50.0	42.7	85.3	59	130	U	50.0	50.0	37.2	39.9	74	80	88	122	*	22268001	U	50.0	50.0	37.2	39.9	74	80	88	122	*	7.1	19
Tetrachloroethene	1.00	ug/L	U	U	50.0	50.0	118.0	31	159	U	50.0	50.0	53.8	56.8	108	114	70	110	*	22268001	U	50.0	50.0	53.8	56.8	108	114	70	110	*	5.4	23
2-Hexanone	1.00	ug/L	U	U	50.0	42.2	84.5	32	172	U	50.0	50.0	38.6	40.2	77	80	50	117		22268001	U	50.0	50.0	38.6	40.2	77	80	50	117		4.2	44
Ethylbenzene	1.00	ug/L	U	U	50.0	54.2	108.3	74	134	U	50.0	50.0	52.8	54.1	102	104	86	126		22268001	1.9	50.0	50.0	52.8	54.1	102	104	86	126		2.5	13
total-Xylene	3.00	ug/L	U	U	150	157.1	104.7	68	136	U	150	150	149.9	156.4	93	97	83	121		22268001	10	150	150	149.9	156.4	93	97	83	121		4.5	29
Styrene	1.00	ug/L	U	U	50.0	48.9	97.8	73	134	U	50.0	50.0	45.0	47.7	90	95	86	126		22268001	U	50.0	50.0	45.0	47.7	90	95	86	126		5.7	14
Dibromofluoromethane (S)**		ug/L	97		100	98.0	98.0	86	111		100	100	81.0	81.0	81	81	80	120		22268001	81.7	100	100	81.0	81.0	81	81	80	120		0	30
Toluene-d8 (S)**		ug/L	100		100	101.6	101.6	92	117		100	100	95.8	95.4	96	95	80	120		22268001	95.3	100	100	95.8	95.4	96	95	80	120		0	30
4-Bromofluorobenzene (S)**		ug/L	100		100	104.7	104.7	81	112		100	100	98.8	98.0	99	98	80	120		22268001	96.9	100	100	98.8	98.0	99	98	80	120		1	30

**Codes, Flags :**  
 U The analyte was not detected at or above the quantitation limit.  
 E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
 DL The sample was diluted due to sample matrix, therefore QC was not recoverable  
 \* The value is outside quality control limits  
 K Reported concentration is proportional to dilution factor and may be exaggerated.  
 P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
 LOQ Analytical limit of quantitation.

**W** Result is always reported as "wet weight".  
**J** The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
**B** The analyte was detected in the associated method blank.  
**M** Matrix interference has resulted in an elevated quantitation limit or distorted QC result.  
**NC** Not calculable.  
**NA** Not applicable.  
**A** If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments :**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

  
 Chemist/Date: 3-23-07  
 Quality Assurance Officer/Date: TM 3/28/07

QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

VB07C22A


VOLATILES

Sample Matrix :	WATER, TOTAL	Preparation Method :	SW-846 5030	Analytical Method :	SW-846 8260 UST
Inclusive Projects :	VARIOUS	Preparation Date :	3/22/2007	Analysis Date :	3/22/2007
		Preparer(s) Initials :	BG	Analyst(s) Initials :	BG

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)					MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)													
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Laboratory Sample ID	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD MS/MSD (%)	UCL (%)	Flag
Vinyl chloride	1.00	ug/L	U		50.0	0.0	0.0	37	158	*	U	50.0	36.6	41.1	73	82	68	138		11.5	60		
1,1-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	66	154	*	U	50.0	38.5	43.5	77	87	78	122	*	12.0	35		
Methylene chloride	1.00	ug/L	U		50.0	0.0	0.0	60	138	*	U	50.0	38.3	44.9	77	90	78	122	*	16.0	21		
trans-1,2-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	70	141	*	U	50.0	41.6	46.7	83	93	80	120		11.6	28		
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	134	*	U	50.0	41.3	45.4	83	91	76	116		9.3	24		
cis-1,2-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	66	130	*	U	50.0	39.6	44.0	79	88	84	130	*	10.5	29		
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	135	*	U	50.0	36.1	41.1	72	82	86	126	*	12.8	30		
Carbon tetrachloride	1.00	ug/L	U		50.0	0.0	0.0	59	147	*	U	50.0	41.2	44.7	82	89	82	130		8.0	27		
Benzene	1.00	ug/L	U		50.0	0.0	0.0	76	129	*	U	50.0	53.4	54.7	107	109	86	124		2.4	18		
1,2-Dichloropropane	1.00	ug/L	U		50.0	0.0	0.0	70	133	*	U	50.0	48.7	52.0	97	104	80	124		6.4	22		
Trichloroethene	1.00	ug/L	U		50.0	0.0	0.0	71	127	*	U	50.0	45.5	47.4	91	95	86	126		4.2	18		
Bromodichloromethane	1.00	ug/L	U		50.0	0.0	0.0	66	137	*	U	50.0	41.8	44.6	84	89	85	128	*	6.4	19		
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	63	125	*	U	50.0	49.3	50.7	99	101	90	128		2.8	23		
Toluene	1.00	ug/L	U		50.0	0.0	0.0	78	133	*	U	50.0	52.2	52.7	104	105	86	124		1.0	18		
Dibromochloromethane	1.00	ug/L	U		50.0	0.0	0.0	59	130	*	U	50.0	39.9	40.2	80	80	88	122	*	0.6	19		
Tetrachloroethene	1.00	ug/L	U		50.0	0.0	0.0	31	159	*	U	50.0	60.0	56.2	120	112	70	110	*	6.6	23		
2-Hexanone	1.00	ug/L	U		50.0	0.0	0.0	32	172	*	U	50.0	47.0	40.3	94	81	50	117		15.4	44		
Ethylbenzene	1.00	ug/L	U		50.0	0.0	0.0	74	134	*	U	50.0	52.5	54.1	105	108	86	126		2.9	13		
total-Xylene	3.00	ug/L	U		150	0.0	0.0	68	136	*	U	150	147.7	151.4	98	101	83	121		2.4	29		
Styrene	1.00	ug/L	U		50.0	0.0	0.0	73	134	*	U	50.0	48.5	48.5	97	97	86	126		0.2	14		
Dibromofluoromethane (S)**		ug/L	81	*	100	0.0	0.0	86	111	*	U	100	82.6	86.4	83	86	80	120		5	30		
Toluene-d8 (S)**		ug/L	92	*	100	0.0	0.0	92	117	*	U	100	94.5	94.0	94	94	80	120		0	30		
4-Bromofluorobenzene (S)**		ug/L	96		100	0.0	0.0	81	112	*	U	100	100.6	107.2	101	107	80	120		6	30		

**Codes, Flags :**  
W Result is always reported as "wet weight".  
J The analyte was detected at a conc. below the quant. limit but above the method detection limit.  
E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.  
DL The sample was diluted due to sample matrix, therefore QC was not recoverable  
\* The value is outside quality control limits  
K Reported concentration is proportional to dilution factor and may be exaggerated.  
P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.  
LOQ Analytical limit of quantitation.

**Comments :**  
\*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.  
Insufficient sample was available for MS/MSD. Precision and accuracy were determined by LCS/LCSD.

  
Chemist/Date: 3-23-07  
Quality Assurance Officer/Date: 24 3/26/07



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

V907C23A

**VOLATILES**

Sample Matrix : **WATER, TOTAL** Preparation Method : **SW-846 5030** Analytical Method : **SW-846 8260 UST**  
 Inclusive Projects : **VARIOUS** Preparation Date : **3/23/2007** Analysis Date : **3/23/2007**  
 Preparer(s) Initials : **BG/JLC** Analyst(s) Initials : **JLC**

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)				MATRIX SPIKE / MATRIX SPIKE DUPLICATE												
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	Sample Conc. (ug/L)	Conc. Spiked (ug/L)	MS Conc. (ug/L)	MSD Conc. (ug/L)	MS Percent Recovery	MSD Percent Recovery	LCL (%)	UCL (%)	Flag	RPD ASSMSD (%)	UCL Flag
Vinyl chloride	1.00	ug/L	U		50.0	0.0	0.0	37	158	*	U	50.0	44.4	51.6	103	68	138		15.0	60	
1,1-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	66	154	*	U	50.0	49.0	62.3	98	78	122	*	23.9	35	
Methylene chloride	1.00	ug/L	U		50.0	0.0	0.0	60	138	*	U	50.0	44.0	54.5	88	78	122		21.4	21	
trans-1,2-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	70	141	*	U	50.0	46.1	57.9	92	80	120		22.8	28	
1,1-Dichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	134	*	U	50.0	32.9	43.4	66	76	116	*	27.7	24	
cis-1,2-Dichloroethene	1.00	ug/L	U		50.0	0.0	0.0	66	130	*	U	50.0	42.9	55.8	86	84	130	*	26.1	29	
1,1,1-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	67	135	*	U	50.0	38.4	53.9	77	86	126	*	33.6	30	
Carbon tetrachloride	1.00	ug/L	U		50.0	0.0	0.0	59	147	*	U	50.0	23.2	34.7	46	82	130	*	39.7	27	
Benzene	1.00	ug/L	U		50.0	0.0	0.0	76	129	*	U	50.0	45.6	57.4	91	86	124	*	23.0	18	
1,2-Dichloropropane	1.00	ug/L	U		50.0	0.0	0.0	70	133	*	U	50.0	46.8	57.6	94	80	124	*	20.6	22	
Trichloroethene	1.00	ug/L	U		50.0	0.0	0.0	71	127	*	U	50.0	50.7	65.2	101	86	126	*	25.0	18	
Bromodichloromethane	1.00	ug/L	U		50.0	0.0	0.0	66	137	*	U	50.0	43.0	60.5	86	121		33.8	19		
1,1,2-Trichloroethane	1.00	ug/L	U		50.0	0.0	0.0	63	125	*	U	50.0	39.0	48.7	78	90	128	*	22.1	23	
Toluene	1.00	ug/L	U		50.0	0.0	0.0	78	133	*	U	50.0	51.1	64.2	102	86	124	*	22.6	18	
Dibromochloromethane	1.00	ug/L	U		50.0	0.0	0.0	59	130	*	U	50.0	38.2	52.7	76	105	88	122	*	32.1	19
Tetrachloroethene	1.00	ug/L	U		50.0	0.0	0.0	31	159	*	U	50.0	41.1	52.2	82	70	110		23.7	23	
2-Hexanone	1.00	ug/L	U		50.0	0.0	0.0	32	172	*	U	50.0	30.0	48.4	60	50	117		46.9	44	
Ethylbenzene	1.00	ug/L	U		50.0	0.0	0.0	74	134	*	U	50.0	47.2	60.0	94	86	126	*	23.7	13	
total-Xylene	3.00	ug/L	U		150	0.0	0.0	68	136	*	U	150	141.1	178.6	94	83	121		23.4	29	
Styrene	1.00	ug/L	U		50.0	0.0	0.0	73	134	*	U	50.0	44.8	57.4	90	86	126		24.8	14	
Dibromo fluoromethane (S)**		ug/L	98		100	0.0	0.0	86	111	*	U	100	99.2	104.2	99	80	120		5	30	
Toluene-d8 (S)**		ug/L	113		100	0.0	0.0	92	117	*	U	100	110.4	111.7	110	80	120		1	30	
4-Bromofluorobenzene (S)**		ug/L	110		100	0.0	0.0	81	112	*	U	100	109.3	112.1	109	80	120		2	30	

**Codes, Flags :**

- U The analyte was not detected at or above the quantitation limit.
- E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
- DL The sample was diluted due to sample matrix; therefore QC was not recoverable
- \* The value is outside quality control limits
- K Reported concentration is proportional to dilution factor and may be exaggerated.
- P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
- LOQ Analytical limit of quantitation.

- W Result is always reported as "wet weight".
- J The analyte was detected at a conc. below the quant. limit but above the method detection limit.
- B The analyte was detected in the associated method blank.
- M Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
- NC Not calculable.
- NA Not applicable.
- A If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments :**  
 \*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

*Bh. Singh* 3/26/07  
 Chemist/Date

Quality Assurance Officer/Date  
*201* 4/3/07



QUALITY ASSURANCE REPORT  
for  
LABORATORY BATCH NUMBER

V907C22A

**VOLATILES**

Sample Matrix :	WATER, TOTAL	Preparation Method :	SW-846 5030	Analytical Method :	SW-846 8260 UST
Inclusive Projects :	VARIOUS	Preparation Date :	3/22/2007	Analysis Date :	3/22/2007
		Preparer(s) Initials :	BG	Analyst(s) Initials :	BG

Analyte	RL	Units	Matrix Blank		Laboratory Fortified Blank (LFB)						MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS / MSD)									
			Conc. (ug/L)	Flag	Conc. Spiked (ug/L)	LFB Conc. (ug/L)	LFB Percent Recovery	LFB Percent Recovery	LCL (%)	UCL (%)	Flag	MS Conc. (ug/L)	MSD Conc. (ug/L)	MSD Percent Recovery	MSD Percent Recovery	I.L.C. (%)	U.C.L. (%)	Flag	RPD MS/MSD (%)	UCL (%)
Vinyl chloride	1.00	ug/L	U	U	50.0	57.3	114.5	37	158	U	50.0	56.0	53.2	112	106	68	138	5.1	60	
1,1-Dichloroethene	1.00	ug/L	U	U	50.0	60.3	120.7	66	154	U	50.0	50.0	61.6	124	123	78	122	0.8	35	*
Methylene chloride	1.00	ug/L	U	U	50.0	54.3	108.6	60	138	U	50.0	54.6	52.4	109	105	78	122	4.1	21	
trans-1,2-Dichloroethene	1.00	ug/L	U	U	50.0	55.0	109.9	70	141	U	50.0	56.1	54.0	112	108	80	120	3.8	28	
1,1-Dichloroethane	1.00	ug/L	U	U	50.0	39.0	78.0	67	134	U	50.0	41.8	42.2	84	84	76	116	0.9	24	
cis-1,2-Dichloroethene	1.00	ug/L	U	U	50.0	51.8	103.5	66	130	U	50.0	52.6	50.8	105	102	84	130	3.5	29	
1,1,1-Trichloroethane	1.00	ug/L	U	U	50.0	46.6	93.3	67	135	U	50.0	47.5	45.9	95	92	86	126	3.3	30	
Carbon tetrachloride	1.00	ug/L	U	U	50.0	30.5	61.0	59	147	U	50.0	24.2	23.3	48	47	82	130	3.4	27	
Benzene	1.00	ug/L	U	U	50.0	54.6	109.2	76	129	U	91.2	144.8	142.6	107	103	86	124	4.3	18	
1,2-Dichloropropane	1.00	ug/L	U	U	50.0	55.9	111.8	70	133	U	50.0	55.8	54.4	112	109	80	124	2.6	22	
Trichloroethene	1.00	ug/L	U	U	50.0	60.9	121.8	71	127	U	50.0	62.3	62.4	125	125	86	126	0.2	18	
Bromodichloromethane	1.00	ug/L	U	U	50.0	53.3	106.5	66	137	U	50.0	51.5	51.5	103	103	86	128	0.0	19	
1,1,2-Trichloroethane	1.00	ug/L	U	U	50.0	45.9	91.9	63	125	U	50.0	57.9	56.8	116	114	90	128	1.9	23	
Toluene	1.00	ug/L	U	U	50.0	60.9	121.8	78	133	U	1.1	61.9	60.9	122	120	86	124	1.7	18	
Dibromochloromethane	1.00	ug/L	U	U	50.0	46.3	92.5	59	130	U	50.0	42.8	42.3	86	85	88	122	1.4	19	*
Tetrachloroethene	1.00	ug/L	U	U	50.0	48.0	96.0	31	159	U	50.0	47.5	47.0	95	94	70	110	1.1	23	
2-Hexanone	1.00	ug/L	U	U	50.0	32.9	65.7	32	172	U	50.0	39.0	38.7	78	77	50	117	0.6	44	
Ethylbenzene	1.00	ug/L	U	U	50.0	55.8	111.6	74	134	U	3.5	59.9	58.7	113	110	86	126	2.1	13	
total-Xylene	3.00	ug/L	U	U	150	167.3	334.6	68	136	U	3	171.7	166.1	112	109	83	121	3.4	29	
Styrene	1.00	ug/L	U	U	50.0	53.6	107.3	73	134	U	50.0	53.8	52.9	108	106	86	126	1.6	14	
Dibromofluoromethane (S)**		ug/L	104		100	98.5	98.5	86	111		86.5	102.4	97.7	102	98	80	120	5	30	
Toluene-d8 (S)**		ug/L	113		100	109.8	109.8	92	117		95.5	113.2	107.7	113	108	80	120	5	30	
4-Bromofluorobenzene (S)**		ug/L	109		100	106.3	106.3	81	112		104.2	112.2	105.8	112	106	80	120	6	30	

**Codes, Flags :**

- U The analyte was not detected at or above the quantitation limit.
- E The analyte was detected at a concentration greater than the calibration range; therefore the result is estimated.
- DL The sample was diluted due to sample matrix, therefore QC was not recoverable.
- \* The value is outside quality control limits
- K Reported concentration is proportional to dilution factor and may be exaggerated
- P When one or both sample results are <5 times the quantitation limit, the RPD cannot be properly evaluated.
- LOQ Analytical limit of quantitation.
- W Result is always reported as "wet weight".
- J The analyte was detected at a conc. below the quant. limit but above the method detection limit.
- B The analyte was detected in the associated method blank.
- M Matrix interference has resulted in an elevated quantitation limit or distorted QC result.
- NC Not calculable.
- NA Not applicable.
- A If the sample result is >4 times the amount spiked, the MS recovery cannot be properly evaluated.

**Comments :**

\*\*Surrogates (S) are added to all samples at 100 ug/L, and are presented as a percent recovery in the reagent blank.

*[Signature]*  
3-27-07  
Chemist/Date

Quality Assurance Officer/Date  
204 3/28/07

**Fibertec**  
environmental  
services

Analytical Laboratory

1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0388  
email: lab@fibertec-usa.com

Industrial Hygiene Services, Inc.

1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0382  
email: asbestos@fibertec-usa.com

Geoprobe

7794 Boardwalk Road  
Brighton, MI 48116  
Phone: 248 446 5700  
Fax: 248 446 5701

Chain of Custody #

**57543**

PAGE 1 of 2

Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor	MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PREERVED (Y/N)	PARAMETERS	Turnaround	Matrix Code
1	3/14/07	1330		OWF	ADH Y					S Soil
2		1400		MW104						W Water
3		1630		MW109						A Air
4				Dug-2						O Oil
5		1240		FB						P Wipe
6		1500		FB						X Other: Specify
7		1340		M5/M5D (OWF)						
8				Trip Blank						
9				OW1						
10	3/15/07	1020		OWF OW4						
11		1020								

Remarks: Part 201  
Detection limits

Comments: 1115

Relinquished By: S. Smith  
Date/Time: 3/16/07 8:00  
Received By: SE Cold Storage  
Date/Time: 3/16/07 10:50  
Received By: James  
Date/Time: 3/16/07 14:23  
Received By Laboratory:

LAB USE ONLY:  
Fibertec project number:  
Laboratory Tracking:  
Temperature at Receipt:

TERMS & CONDITIONS ON BACK

COC Revision: October, 2003

3



**Fibertec**  
environmental  
services

Analytical Laboratory  
1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0388  
email: lab@fibertec-usa.com

8660 S. Mackinaw Trail  
Cadillac, MI 49601  
Phone: 231 775 8368  
Fax: 231 775 8584

Industrial Hygiene Services, Inc.  
1914 Holloway Drive  
Holt, MI 48842  
Phone: 517 699 0345  
Fax: 517 699 0382  
email: asbestos@fibertec-usa.com

Geoprobe  
7794 Boardwalk Road  
Brighton, MI 48116  
Phone: 248 446 5700  
Fax: 248 446 5701

Chain of Custody #  
**57547**  
PAGE 2 of 2

Client Name: <i>SME</i>		Purchase Order#		MATRIX (SEE RIGHT CORNER FOR CODE)		PRESERVED (Y/N)		PARAMETERS		Turnaround		Matrix Code	
Contact Person: <i>Dan Cassidy SME - Plymouth</i>		Client Sample Descriptor		# OF CONTAINERS		VOG P4H CA, G, R				24 hour RUSH (surcharge applies) 48 hour RUSH (surcharge applies) 72 hour RUSH (surcharge applies) Standard (5-7 bus. days) Other: Specify		S Soil <del>W Water</del> A Air O Oil P Wipe X Other: Specify	
Project Name/ Number: <i>PE57494C</i>										Remarks: <i>fast 2el</i> <i>Detection limits</i>			
Lab Sample #	Date	Time	Client Sample #	MATRIX	# OF CONTAINERS	PRESERVED (Y/N)	PARAMETERS	Turnaround	Matrix Code				
<i>12</i>	<i>3/14/07</i>	<i>1515</i>	<i>MW102</i>	<i>6</i>	<i>4</i>	<i>Y</i>							
<i>13</i>		<i>1335</i>	<i>MW103</i>	<i>1</i>									
<i>14</i>		<i>1120</i>	<i>MS(OW4)</i>	<i>1</i>									
<i>15</i>		<i>1120</i>	<i>MSD(OW4)</i>	<i>4</i>									
<i>16</i>		<i>---</i>	<i>DUP-3</i>	<i>1</i>									
<i>17</i>		<i>1235</i>	<i>F'B</i>	<i>1</i>									
<i>18</i>		<i>1245</i>	<i>EB</i>	<i>1</i>									
Comments:													
Relinquished By: <i>P. Woodruff</i>		Date/Time: <i>3/16/07 8:00</i>		Received By: <i>SME Cold Storage - Skelton</i>		Date/Time: <i>3/16/07 050</i>		Received By: <i>M. James</i>					
Relinquished By: <i>SME Cold Storage</i>		Date/Time: <i>3/16/07</i>		Received By: <i>M. James</i>		Date/Time: <i>3/16/07</i>		Received By: <i>M. James</i>					
Relinquished By: <i>M. James</i>		Date/Time: <i>3/16/07 1423</i>		Received By: <i>M. James</i>		Date/Time: <i>3/16/07</i>		Received By: <i>M. James</i>					
LAB USE ONLY: Fibertec project number: Laboratory Tracking: Temperature at Receipt:													



# **BASELINE ENVIRONMENTAL ASSESSMENT REPORT**

Conducted Pursuant to Section 20126(1)(c) of 1994 PA 451,  
Part 201, as amended

35975 Woodward Avenue, Birmingham, Michigan

SME Project Number: 075099.01  
November 14, 2016





**Baseline Environmental Assessment Submittal Form**

*This form is for submittal of a Baseline Environmental Assessment (BEA), as defined by Part 201, Environmental Remediation and Part 213, Leaking Underground Storage Tanks, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, for the purpose of establishing an exemption to liability pursuant to Section 20126(1)(c) and Section 21323a(1)(b) for a new owner or operator of property that is a facility as defined by Section 20101(1)(s) or Property as defined by Section 21303(d). The BEA report must be conducted either prior to or within 45 days after becoming the owner or operator, whichever is earliest. This form and the BEA report must be submitted prior to or within 6 months of becoming the owner or operator whichever is earliest. A separate BEA is required for each legal entity that is or will be a new owner or operator of the property. To maintain the exemption to liability, the owner and operator must also disclose the BEA to any subsequent purchaser or transferee before conveying interest in the property pursuant to Section 20126(1)(c) and Section 21323a(1)(b). An owner or operator of a facility or Property also has due care obligations under Section 20107a and Section 21304c with respect to any existing contamination to prevent unacceptable exposure; prevent exacerbation; take reasonable precautions; provide reasonable cooperation, assistance, and access to authorized persons taking response activities at the property; comply with land use restrictions associated with response activities; and not impede the effectiveness of response activities implemented at the property. Documentation of due care evaluations and conducted response activities need to be available, but not submitted, to the MDEQ within 8 months of becoming the owner or operator of a facility and/or Property.*

**Section A: Legal Entity Information**

Name of legal entity that does or will own or operate the property: August, LLC Address: 1901 St. Antoine Street, 6 <sup>th</sup> Floor City: Detroit State: MI Zip: 48226 Contact person (Name & Title): Diane E. Wells, Manager Telephone: 313-393-7595 E-Mail:	Contact for BEA questions if different from submitter Name & Title: Troy Helmick, Project Consultant Company: SME  Address: 43980 Plymouth Oak Blvd City: Plymouth Township State: MI Zip: 48170  Telephone: 734-2602-756 E-Mail: helmick@sme-usa.com
--	--

**Section B: Property Information**

Street Address of Property: 35975 Woodward Avenue City: Birmingham State: MI Zip: 48009  Property Tax ID (include all applicable IDs): 19-25-179-001  Address according to tax records, if different than above (include all applicable addresses):  City: State: Zip: Status of submitter relative to the property (check all that apply): Owner Former <input type="checkbox"/> Current <input checked="" type="checkbox"/> Prospective <input type="checkbox"/> Operator <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	County: Oakland City/Village/Township: Birmingham Town: 2N Range: 10E Section: 25 Quarter: Quarter-Quarter:  Decimal Degrees Latitude: 42.55638 Decimal Degrees Longitude: -83.21885  Reference point for latitude and longitude: Center of site <input checked="" type="checkbox"/> Main/front door <input type="checkbox"/> Front gate/main entrance <input type="checkbox"/> Other <input type="checkbox"/> Collection method: Survey <input type="checkbox"/> GPS <input checked="" type="checkbox"/> Interpolation <input type="checkbox"/>
---	--

**Section C: Source of contamination at the property (check all that are known to apply):**

Facility regulated pursuant to Part 201, other source, or source unknown Part 201 Site ID, if known: (00005681)	<input checked="" type="checkbox"/>
Property - Leaking Underground Storage Tank regulated pursuant to Part 213 Part 211/213 Facility ID, if known: (00005681)	<input checked="" type="checkbox"/>
Oil or gas production and development regulated pursuant to Part 615 or 625	<input type="checkbox"/>
Licensed landfill regulated pursuant to Part 115	<input type="checkbox"/>
Licensed hazardous waste treatment, storage, or disposal facility regulated pursuant to Part 111	<input type="checkbox"/>

**Section D: Applicable Dates (provide date for all that are relevant):**

	MM/DD/YYYY
Date All Appropriate Inquiry (AAI) Report or Phase I Environmental Assessment Report completed:	10/21/2016
Date Baseline Environmental Assessment Report conducted:	11/14/2016
Date submitter first became the owner:	
Date submitter first became the operator (if prior to ownership):	
Anticipated date of becoming the owner for prospective owners:	4 <sup>th</sup> Quarter of 2016
Anticipated date of becoming the operator for prospective operators:	4 <sup>th</sup> Quarter of 2016
If former owner or operator of this property, prior dates of being the owner or operator:	



**Section E: Check the appropriate response to each of the following questions:**

	YES	NO
1. Is the property at which the BEA was conducted a "facility" as defined by Section 20101(1)(s) or a Property as defined by Section 21303(d)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Was the All Appropriate Inquiry (AAI) completed in accordance with Section 20101(1)(f) and or 21302(1)(b)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Was the BEA, including the sampling, conducted either prior to or within 45 days of the date of becoming the owner, operator, or of foreclosure, whichever is earliest?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Is this BEA being submitted to the department within 6 months of the submitter first becoming the owner or operator, or foreclosing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Does the BEA provide sufficient rationale to demonstrate that the data is reliable and relevant to define conditions at the property at the time of purchase, occupancy, or foreclosure, even if the BEA relies on studies of data prepared by others or conducted for other purposes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Does this BEA contain the legal description of the property addressed by the BEA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Does this BEA contain the environmental analytical results, a scaled map showing the sample locations, and the basis for the determination that the property is a facility as defined by Section 20101(1)(s) or the basis for the determination that the property is a Property as defined by Section 21303(d)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Section F: Environmental Consultant Signature:**

*I certify to the best of my knowledge and belief, that this BEA and all related materials are true, accurate, and complete. I certify that the property is a facility as defined by Section 20101(1)(s) or a Property as defined by Section 21303(d) and have provided the sampling and analyses that support that determination. I certify that any exceptions to, or deletions from, the All Appropriate Inquiry Rule are described in Section 1 of the BEA report.*

Signature:  Date: 1-18-17

Printed Name: Troy Helmick

Company: SME

Mailing Address: 43980 Plymouth Oaks Boulevard

City: Plymouth

State: MI

Zip: 48170

Telephone: 734-454-9900

E-Mail: Helmick@sme-usa.com

**Section G: Legal Entity Signature:**

*With my signature below, I certify that to the best of my knowledge and belief, this BEA and all related materials are true, accurate, and complete.*

Signature:  Date: 1-16-17

(Person legally authorized to bind the legal entity)

Printed Name: Diane E. Wells

Title and Relationship of signatory to submitter: Manager, August, LLC

Address: 1901 St. Antoine Street, 6<sup>th</sup> Floor

City: Detroit

State: MI

Zip: 48226

Telephone: 313-393-7595

E-Mail:

Submit the BEA report and this form to the MDEQ District Office for the county in which the property is located. A office map is located at [www.michigan.gov/deqrrd](http://www.michigan.gov/deqrrd).

# TABLE OF CONTENTS

<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. PROPERTY INFORMATION .....</b>	<b>2</b>
<b>3. SUMMARY OF PHASE I ENVIRONMENTAL SITE ASSESSMENT .....</b>	<b>3</b>
<b>4. SUMMARY OF PHASE II ESAS AND OTHER ENVIRONMENTAL INVESTIGATIONS.....</b>	<b>4</b>
<b>5. KNOWN CONTAMINATION.....</b>	<b>5</b>
<b>5.1 SURFACE AND SUBSURFACE CONDITIONS .....</b>	<b>5</b>
<b>5.2 CHEMICAL ANALYSIS RESULTS .....</b>	<b>5</b>
<b>6. FACILITY STATUS .....</b>	<b>6</b>
<b>7. IDENTIFICATION OF AUTHOR OF THE BEA .....</b>	<b>7</b>
<b>8. REFERENCES.....</b>	<b>8</b>

## FIGURES

- FIGURE 1: PROPERTY LOCATION MAP
- FIGURE 2: PROPERTY FEATURES DIAGRAM
- FIGURE 3: SOIL EXCEEDANCE DIAGRAM
- FIGURE 4: GROUNDWATER EXCEEDANCE DIAGRAM

## TABLE

- TABLE 1: SOIL ANALYTICAL RESULTS
- TABLE 2: GROUNDWATER ANALYTICAL RESULTS
- TABLE 3: SOIL GAS ANALYTICAL RESULTS

## APPENDICES

- APPENDIX A: LEGAL DESCRIPTION AND SURVEY
- APPENDIX B: SME'S PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT, OCTOBER 21, 2016
- APPENDIX C: HISTORICAL ENVIRONMENTAL RESULTS
- APPENDIX D: FIELD PROCEDURES
- APPENDIX E: SOIL BORING AND SOIL GAS WELL LOGS
- APPENDIX F: LABORATORY DATA
- APPENDIX G: QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL



# 1. INTRODUCTION

This report documents the results of a Baseline Environmental Assessment (BEA) of a 0.54-acre property at 35975 Woodward Avenue in Birmingham, Michigan (hereinafter “the Property”). SME’s project team conducted the BEA and prepared this report on behalf of August, LLC, which plans to acquire the Property in November 2016. August, LLC plans to develop the Property into a two-story building with approximately 11,000 square feet of office space.

We prepared this BEA report pursuant to Section 20126 of Part 201 of the Natural Resources and Environmental Protection Act (NREPA), Public Act 451 of 1994, as amended (Part 201). This report was prepared in general accordance with the Michigan Department of Environmental Quality (MDEQ) “Baseline Environmental Assessment Submittal Form” [Form EQP 4025 (09/2015)] and the MDEQ guidance document titled “Contents of a BEA Report.” We are providing this BEA report to the MDEQ in accordance with Section 20126(1)(c)(i) of Part 201.

In the process of obtaining information for preparation of this BEA report, we followed procedures that represent current reasonable and accepted environmental practices and principles, in a manner consistent with the level of care and skill ordinarily exercised by members of our profession at the time and place this BEA report was completed. The goal of this BEA was to evaluate if the Property was a facility as defined by Part 201, for which we relied upon the results of environmental investigations performed by SME and PM Environmental, Inc. (PME). The information not generated by SME, referenced in the appropriate sections of this report, was evaluated by SME and determined to be adequate and reliable for its intended purpose. We cannot guarantee all potential contaminants have been identified. Undetected contamination resulting from historical activities or off-site sources may be present on the Property.

## 2. PROPERTY INFORMATION

The Property is located south of Oak Avenue between Woodward Avenue and North Old Woodward Avenue in the City of Birmingham. The Property is located in a mixed commercial and residential area. Figure 1 is a scaled area map showing the location of the Property and surrounding areas. The Property consists of one parcel of land occupying approximately 0.54-acres. The tax identification number and legal description of the Property is provided on the ALTA Survey included in Appendix A. The Property is currently developed as a paved parking with no buildings. Figure 2 is a scaled Property features diagram.

### 3. SUMMARY OF PHASE I ENVIRONMENTAL SITE ASSESSMENT

We conducted a Phase I Environmental Site Assessment (ESA) of the Property and prepared a Phase I ESA report, dated October 21, 2016 (Appendix B). The Phase I ESA was conducted for August, LLC, the prospective purchaser of the Property, in conformance with the scope and limitations of ASTM Practice E 1527-13.

Our review of readily available historical information as part of the Phase I ESA indicated that the Property operated as a gas station, for towing service, and for rental car service between at 1967 and 2012. The Property's structures were demolished and underground storage tanks (USTs) were removed by 2013. A confirmed release from the former USTs product piping was reported in January 1989 (#C-0008-89). Although the USTs were reportedly removed, the UST release is still listed by the MDEQ as regulatory "open". In addition, a Restrictive Covenant (RC) was recorded by Amoco (the presumed liable party) with the County Register of Deeds on March 18, 1998, under Liber Number 18211. The RC was recorded to limit the land use activities to prevent unacceptable human exposure to the remaining contamination that resulted from the UST release.

In the Phase I ESA, we identified the following recognized environmental conditions (RECs) in connection with the Property:

- The reported contamination as evidenced by the previous assessments and the recorded Restrictive Covenant and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012;
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site;
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner.

We identified one data gap in connection with the Phase I ESA; the City of Birmingham Fire Department did not respond to our requests for information. However, this data gap did not impact our ability to identify or evaluate suspect RECs in connection with the Property because a sufficient Property history was developed using the other historical sources documented in the Phase I ESA report. We identified no limitations in connection with this Phase I ESA.

## 4. SUMMARY OF PHASE II ESAS AND OTHER ENVIRONMENTAL INVESTIGATIONS

Phase II ESAs and other environmental investigations were conducted at the Property by PME and SME from 1989 to 2016. The previous assessments were documented in the following reports:

- **Baseline Environmental Assessment, 35975 Woodward Avenue, Michigan, April 27, 2006** (PME)
- **Technical Memorandum, March 2007 Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, November 1, 2007** (SME)
- **Baseline Environmental Assessment, 35975 Woodward Avenue, Michigan, November 16, 2007** (SME)

The 2006 BEA report provided results from PME's October 2005 through April 2006 Phase II ESA. The 2007 Technical Memorandum provided results from SME's March 2007 environmental assessment and the October 2007 UST removal activities. The 2007 BEA was based on the results of SME's 2007 environmental assessments. Copies of the 2006 PME BEA report and 2007 SME BEA report are on file with the MDEQ. A copy of SME's 2007 Technical Memorandum is included in Appendix C of this report. The following paragraphs summarize the scope of the environmental assessments conducted by PME and SME. The findings and results from these assessments are summarized in Section 5.

PME installed 12 groundwater monitoring wells on the Property and conducted sampling events in October 2005, February 2006, and April 2006. In addition, PME advanced 17 soil borings between February 2006 and April 2006 and collected and analyzed soil samples to evaluate RECs identified in their May 2005 Phase I ESA. PME submitted a total of 43 soil and groundwater samples for analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs) and metals. We included the results of PME's assessments in this BEA (Section 5 and Section 6).

SME advanced 15 soil borings and installed 9 groundwater monitoring wells between September and November 2007 and collected and analyzed 33 soil and 12 groundwater samples to further evaluate the environmental conditions of the site. SME submitted the soil and groundwater samples for analysis of VOCs, PAHs and metals. We included the results of our 2007 assessments in this BEA (Section 5 and Section 6).

In October 2016, SME installed five soil gas sampling points (SG1 through SG5; Figure 2) to further evaluate the potential for vapor intrusion into the proposed building. We collected and analyzed the five soil gas samples for VOCs using Method TO-15. Field procedures for soil gas sampling point advancement, soil screening and soil gas sampling are summarized in Attachment D.

## 5. KNOWN CONTAMINATION

We compiled and evaluated the cumulative results from the previous environmental assessments described in Section 4 to identify constituents present on the Property at concentrations greater than Part 201 generic residential cleanup criteria (Part 201 criteria). Our evaluation of the cumulative results from these assessments are presented in the following subsections. Additional information about site environmental conditions can be found in the PME's BEA report (200603161LV) and SME's BEA report (200702735LV) on file with the MDEQ.

### 5.1 SURFACE AND SUBSURFACE CONDITIONS

Detailed descriptions of the soil conditions encountered at the soil borings advanced by SME during our 2016 soil gas assessment are documented in the Boring Logs in Appendix E. Soil conditions encountered during SME's 2007 environmental assessments are documented in the Boring Logs included in the 2007 Technical Memorandum (Appendix C). The surface and subsurface conditions encountered by SME are summarized below. These soil conditions were generally consistent with the conditions reported by PME.

We encountered approximately six inches of asphalt across the Property during our October 2016 soil gas assessment. The surface material was generally underlain by sand and clay fill extending to depths ranging from approximately 2.5 feet on the north end of the property to 29 feet below ground surface (bgs) on the south end of the property. In general, the depth of the fill increased from north to south, toward the Rouge River. The fill contained slag, crushed brick, gravel, coal, glass, metal fragments, and wood fragments. Native clay was encountered below the fill at depths between 10 feet and 30 feet bgs, the maximum depths explored. Groundwater was generally encountered at depths of 7 feet to 28 feet bgs. Groundwater was generally encountered in perched conditions in the fill overlying the native clay. The groundwater flow direction is presumed to be southeast, towards the Rouge River, based on local and regional topography.

### 5.2 CHEMICAL ANALYSIS RESULTS

Results from the chemical analyses performed on soil, groundwater, and soil gas samples collected during SME's 2007 environmental assessments and 2016 soil gas assessment are summarized in the following paragraphs and tabulated in Table 1 (soil), Table 2 (groundwater) and Table 3 (soil gas). Results from PME's 2005-2006 environmental assessments are included in their 2006 BEA report. We reviewed the sampling and analysis methods, data consistency and reasonableness, and laboratory analysis reports, from PME's assessments. We found that the chemical analysis data was generated by accredited laboratories using USEPA analytical methods and that the reported data was of acceptable quality and quantity for the purposes of this BEA.

We compared the results of chemical analyses of the samples collected by SME in 2007 to the current Part 201 Generic Residential Cleanup Criteria (Part 201 criteria), dated December 30, 2013, to determine if the Property is a "facility" as defined in Part 201. Target analytes present in soil and groundwater concentrations greater than Part 201 criteria are indicated in Table 1 and 2 and are depicted on exceedance Figures 3 (soil) and Figure 4 (groundwater). Laboratory analysis reports and chain of custody documentation are included in Appendix F.

In summary, concentrations of VOCs, PAHs and metals were measured in soil and groundwater samples at concentrations above residential cleanup criteria. In addition, concentrations of VOCs were measured in soil gas samples above the vapor intrusion pathway screening levels for residential and nonresidential use.

## 6. FACILITY STATUS

The results of multiple site assessments demonstrated the Property is a “facility” as defined by Part 201 because the following constituents were measured in soil and groundwater at concentrations above Part 201 generic residential cleanup criteria.

CONSTITUENT	CAS #	CONSTITUENT	CAS #
Benzene	71-43-2	Acenaphthene	83-32-9
Ethylbenzene	100-41-4	Benzo(a)pyrene	50-32-8
Isopropylbenzene	92-82-8	Fluoranthene	206-44-0
Methyl-tert-butyl ether (MTBE)	1634-04-4	2-Methynaphthalene	91-57-6
Naphthalene	91-20-3	Phenanthrene	85-01-8
n-Propylbenzene	103-65-1	Arsenic	7440-38-2
Tolulene	108-88-3	Lead	7439-92-1
1,2,4-Trimethylbenzene (TMB)	95-63-6	Mercury	7439-97-6
1,3,5-TMB	108-67-8	Selenium	7439-49-2
Xylenes	1330-20-7		

For these contaminants, the concentrations, sampling locations and depths, and criteria exceeded are presented in Table 1 (soil) and Table 2 (groundwater) and on Figure 3 and Figure 4.

## 7. IDENTIFICATION OF AUTHOR OF THE BEA

This Baseline Environmental Assessment (BEA) report was prepared by Mr. Troy Helmick, CPG and reviewed by Mr. Daniel R. Cassidy, CPG. Mr. Helmick's and Mr. Cassidy's resumes are attached in Appendix G. Contact information for Mr. Helmick is provided below:

Troy Helmick, CPG  
Project Consultant  
SME  
43980 Plymouth Oaks Blvd.  
Plymouth, MI 48170  
(734) 454-9900  
[helmick@sme-usa.com](mailto:helmick@sme-usa.com)



## 8. REFERENCES

1. **Part 201 of 1994 PA 451, as amended, the Natural Resources and Environmental Protection Act**
2. Michigan Department of Environmental Quality, Promulgated Cleanup Criteria, R 299.44, R 299.46, and R 299.49, **Part 201 Generic Residential Cleanup Criteria and Screening Levels**, December 30, 2013
3. Michigan Department of Environmental Quality, **Guidance Document for the Vapor Intrusion Pathway**, May 2013
4. **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, April 27, 2006, 20603161LV** (PME)
5. **Technical Memorandum March 2007 Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, November 1, 2007** (SME)
6. **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, November 16, 2007, 200703735LV** (SME)

## **FIGURES**

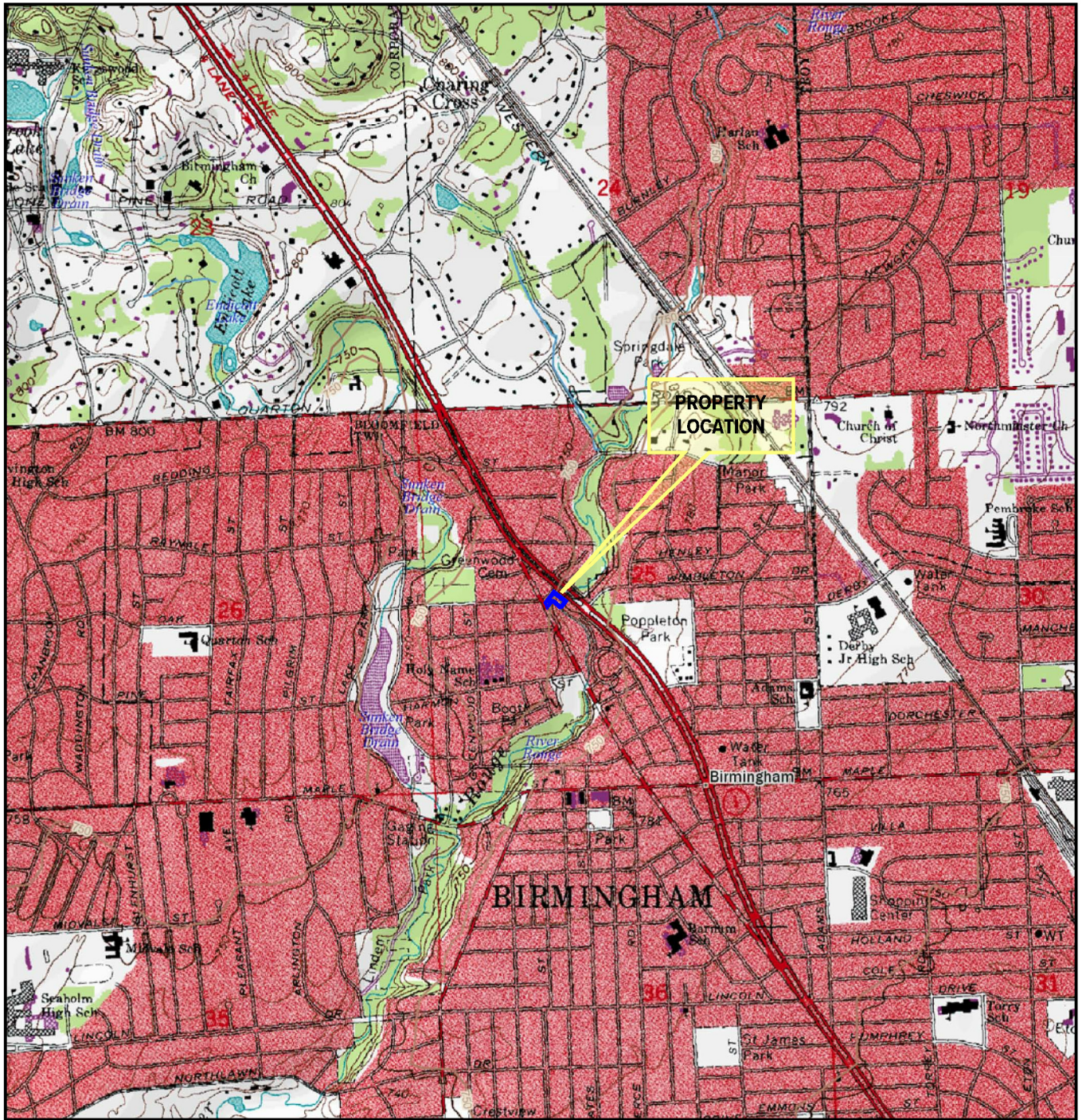
**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: PROPERTY FEATURES DIAGRAM**

**FIGURE 3: SOIL EXCEEDANCE DIAGRAM**

**FIGURE 4: GROUNDWATER EXCEEDANCE DIAGRAM**





Base map obtained from © DeLorme Topo North America™ 10.

### LEGEND



APPROXIMATE  
PROPERTY LOCATION

USGS QUADRANGLE(S) REFERENCED  
BIRMINGHAM (MI) TOPO QUAD - 1981

No.	Revision Date	Date	10-10-16
		Drawn By	GM
		Designed By	CEB
		Scale	1" = 2000'
		Project	075099.01

**PROPERTY LOCATION MAP**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**

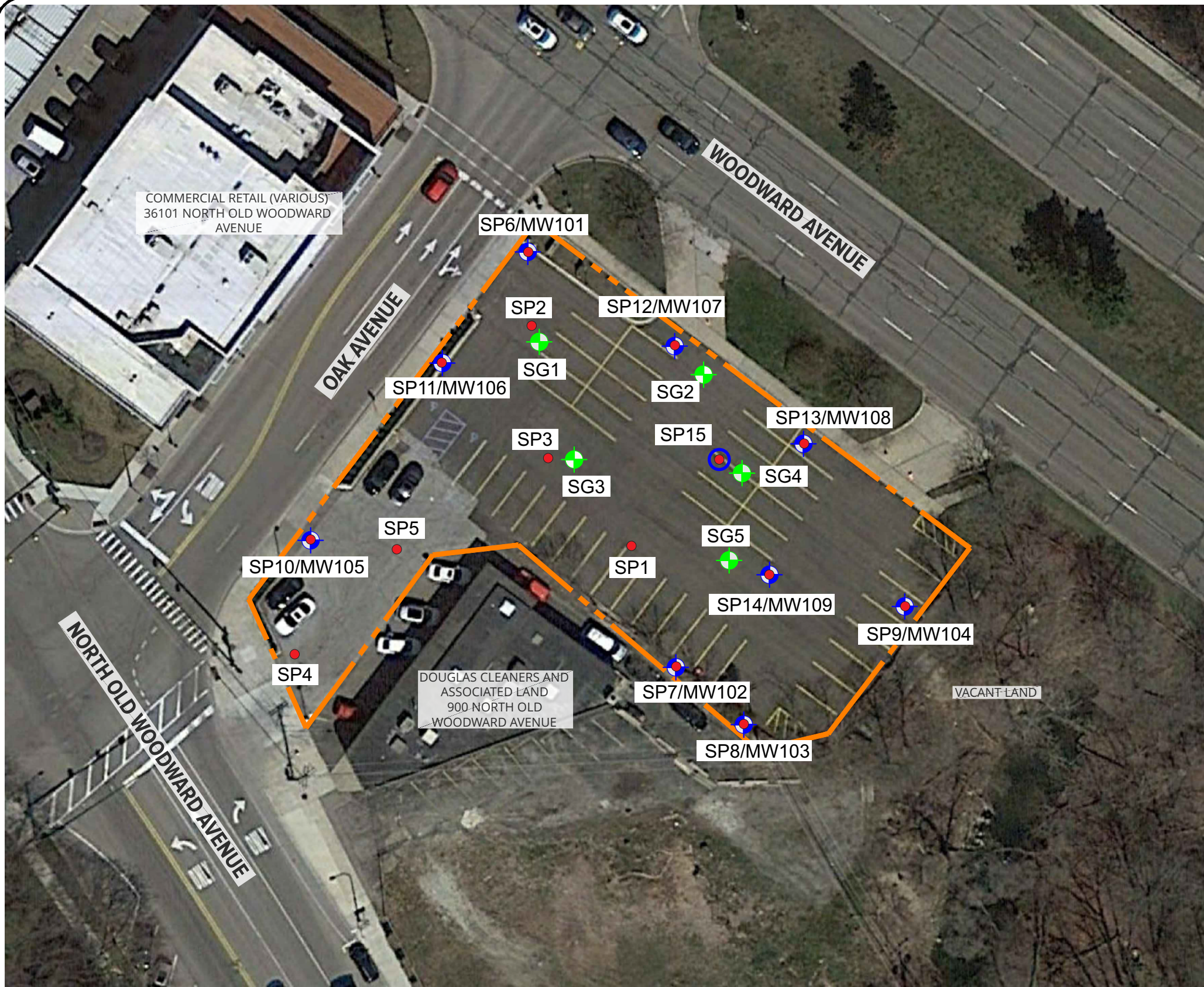


www.sme-usa.com

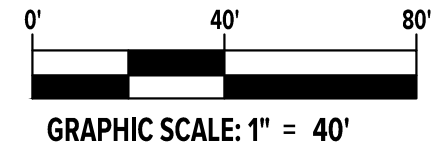
**Figure No. 1**



Oct 10, 2016 - 1:59pm - MANDRILA FILE LOCATION: \\sme-inc\p\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg  
 PLOT DATE:



NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO  
 AND SITE RECONNAISSANCE.



www.sme-usa.com

Project

**AUGUST LLC  
 REDEVELOPMENT  
 PROJECT**

Project Location

**35975 WOODWARD  
 AVENUE  
 BIRMINGHAM,  
 MICHIGAN**

Sheet Name

**PROPERTY  
 FEATURES  
 DIAGRAM**

No.	Revision Date

Date	10-10-16
CADD	GM
Designer	CEB
Scale	1" = 40'
Project	075099.01

Figure No.	2
------------	---

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17"  
 AND WILL SCALE INCORRECTLY IF PRINTED ON ANY  
 OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR  
 CONSENT OF SME  
 © 2015

**LEGEND**

- 2007 SOIL PROBE LOCATION
- ⊕ 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
- 2007 TEMPORARY MONITORING WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- ⊕ OCTOBER 2016 SOIL GAS SAMPLING POINT LOCATION



**Project**  
**AUGUST LLC**  
**REDEVELOPMENT**  
**PROJECT**

**Project Location**  
**35975 WOODWARD**  
**AVENUE**  
**BIRMINGHAM,**  
**MICHIGAN**

**Sheet Name**  
**PROPERTY AND**  
**ASSESSMENT**  
**SUMMARY**  
**DIAGRAM- SOIL**

No.	Revision Date

**Date**  
**10-10-16**

**CADD**  
**GM**

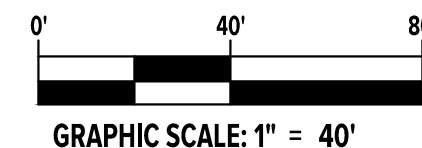
**Designer**  
**CEB**

**Scale**  
**1" = 40'**

**Project**  
**075099.01**

**Figure No.**  
**3**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
 © 2015



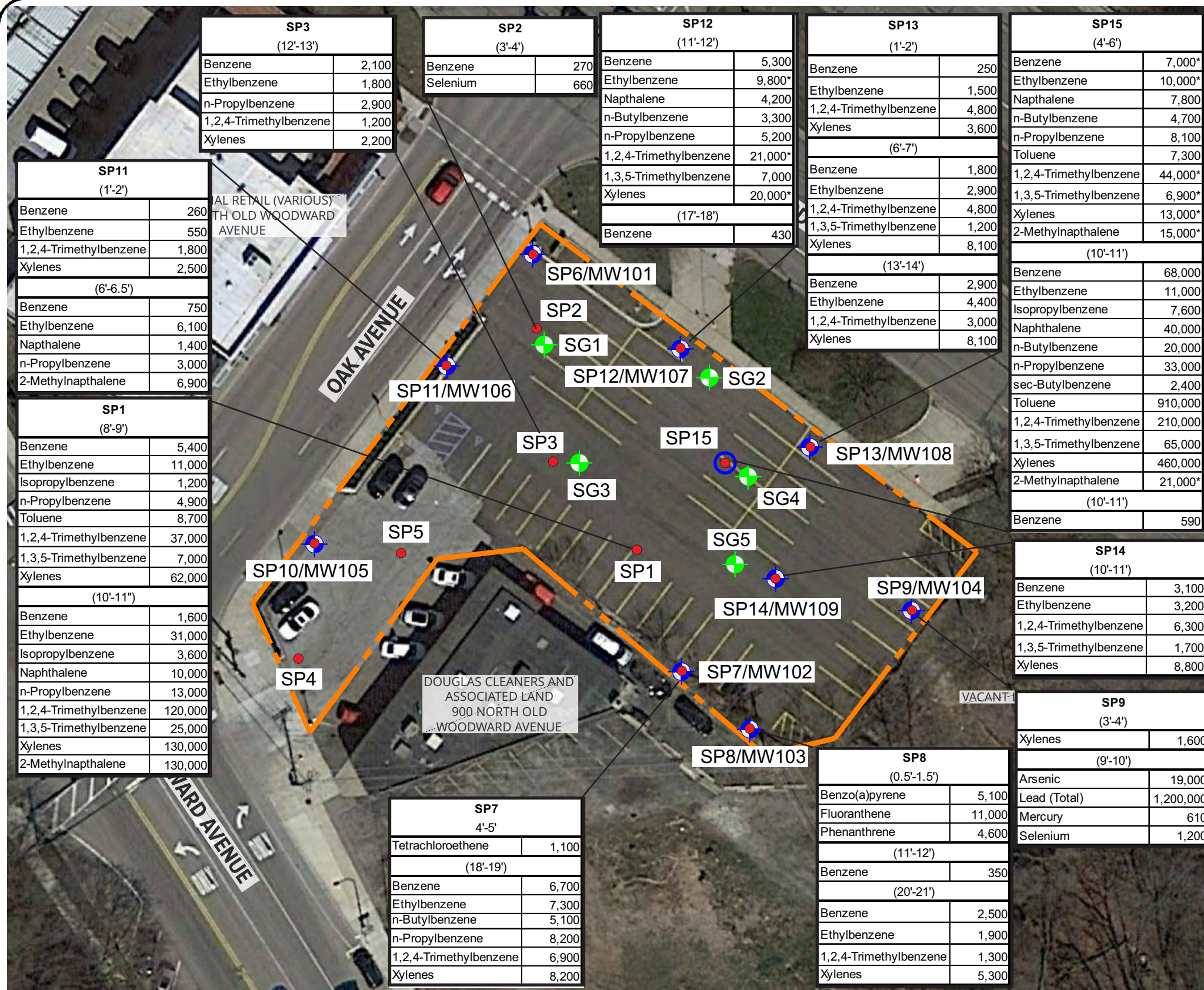
SAMPLE IDENTIFICATION		SCREEN INTERVAL
SP14		(10'-11')
Benzene	3,100	
Ethylbenzene	3,200	
1,2,4-Trimethylbenzene	6,300	
1,3,5-Trimethylbenzene	1,700	
Xylenes	8,800	

CONCENTRATIONS COMPARED TO PART 201 RESIDENTIAL CRITERIA GROUNDWATER SCREENING LEVELS

- NOTE:**
- ALL UNITS IN MICROGRAMS PER KILOGRAM (µg/kg).
  - \* = DUPLICATE SAMPLE RESULT REPORTED.

**LEGEND**

- 2007 SOIL PROBE LOCATION
- ⊕ 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
- 2007 TEMPORARY MONITORING WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY
- ⊕ OCTOBER 2016 SOIL GAS SAMPLING POINT LOCATION



SP3 (12'-13')	
Benzene	2,100
Ethylbenzene	1,800
n-Propylbenzene	2,900
1,2,4-Trimethylbenzene	1,200
Xylenes	2,200

SP2 (3'-4')	
Benzene	270
Selenium	660

SP12 (11'-12')	
Benzene	5,300
Ethylbenzene	9,800*
Napthalene	4,200
n-Butylbenzene	3,300
n-Propylbenzene	5,200
1,2,4-Trimethylbenzene	21,000*
1,3,5-Trimethylbenzene	7,000
Xylenes	20,000*
(17'-18')	
Benzene	430

SP13 (1'-2')	
Benzene	250
Ethylbenzene	1,500
1,2,4-Trimethylbenzene	4,800
Xylenes	3,600
(6'-7')	
Benzene	1,800
Ethylbenzene	2,900
1,2,4-Trimethylbenzene	4,800
1,3,5-Trimethylbenzene	1,200
Xylenes	8,100
(13'-14')	
Benzene	2,900
Ethylbenzene	4,400
1,2,4-Trimethylbenzene	3,000
Xylenes	8,100

SP15 (4'-6')	
Benzene	7,000*
Ethylbenzene	10,000*
Napthalene	7,800
n-Butylbenzene	4,700
n-Propylbenzene	8,100
Toluene	7,300
1,2,4-Trimethylbenzene	44,000*
1,3,5-Trimethylbenzene	6,900*
Xylenes	13,000*
2-Methylnapthalene	15,000*
(10'-11')	
Benzene	68,000
Ethylbenzene	11,000
Isopropylbenzene	7,600
Napthalene	40,000
n-Butylbenzene	20,000
n-Propylbenzene	33,000
sec-Butylbenzene	2,400
Toluene	910,000
1,2,4-Trimethylbenzene	210,000
1,3,5-Trimethylbenzene	65,000
Xylenes	460,000
2-Methylnapthalene	21,000*
Benzene	590

SP14 (10'-11')	
Benzene	3,100
Ethylbenzene	3,200
1,2,4-Trimethylbenzene	6,300
1,3,5-Trimethylbenzene	1,700
Xylenes	8,800

SP9 (3'-4')	
Xylenes	1,600
(9'-10')	
Arsenic	19,000
Lead (Total)	1,200,000
Mercury	610
Selenium	1,200

SP8 (0.5'-1.5')	
Benzo(a)pyrene	5,100
Fluoranthene	11,000
Phenanthrene	4,600
(11'-12')	
Benzene	350
(20'-21')	
Benzene	2,500
Ethylbenzene	1,900
1,2,4-Trimethylbenzene	1,300
Xylenes	5,300

SP7 4'-5'	
Tetrachloroethene	1,100
(18'-19')	
Benzene	6,700
Ethylbenzene	7,300
n-Butylbenzene	5,100
n-Propylbenzene	8,200
1,2,4-Trimethylbenzene	6,900
Xylenes	8,200

SP11 (1'-2')	
Benzene	260
Ethylbenzene	550
1,2,4-Trimethylbenzene	1,800
Xylenes	2,500
(6'-6.5')	
Benzene	750
Ethylbenzene	6,100
Napthalene	1,400
n-Propylbenzene	3,000
2-Methylnapthalene	6,900

SP1 (8'-9')	
Benzene	5,400
Ethylbenzene	11,000
Isopropylbenzene	1,200
n-Propylbenzene	4,900
Toluene	8,700
1,2,4-Trimethylbenzene	37,000
1,3,5-Trimethylbenzene	7,000
Xylenes	62,000
(10'-11")	
Benzene	1,600
Ethylbenzene	31,000
Isopropylbenzene	3,600
Napthalene	10,000
n-Propylbenzene	13,000
1,2,4-Trimethylbenzene	120,000
1,3,5-Trimethylbenzene	25,000
Xylenes	130,000
2-Methylnapthalene	130,000

SP1 (8'-9')	
Benzene	5,400
Ethylbenzene	11,000
Isopropylbenzene	1,200
n-Propylbenzene	4,900
Toluene	8,700
1,2,4-Trimethylbenzene	37,000
1,3,5-Trimethylbenzene	7,000
Xylenes	62,000
(10'-11")	
Benzene	1,600
Ethylbenzene	31,000
Isopropylbenzene	3,600
Napthalene	10,000
n-Propylbenzene	13,000
1,2,4-Trimethylbenzene	120,000
1,3,5-Trimethylbenzene	25,000
Xylenes	130,000
2-Methylnapthalene	130,000

\\sme-inc\pz\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg

FILE LOCATION:

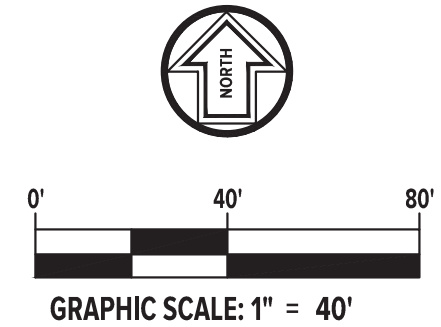
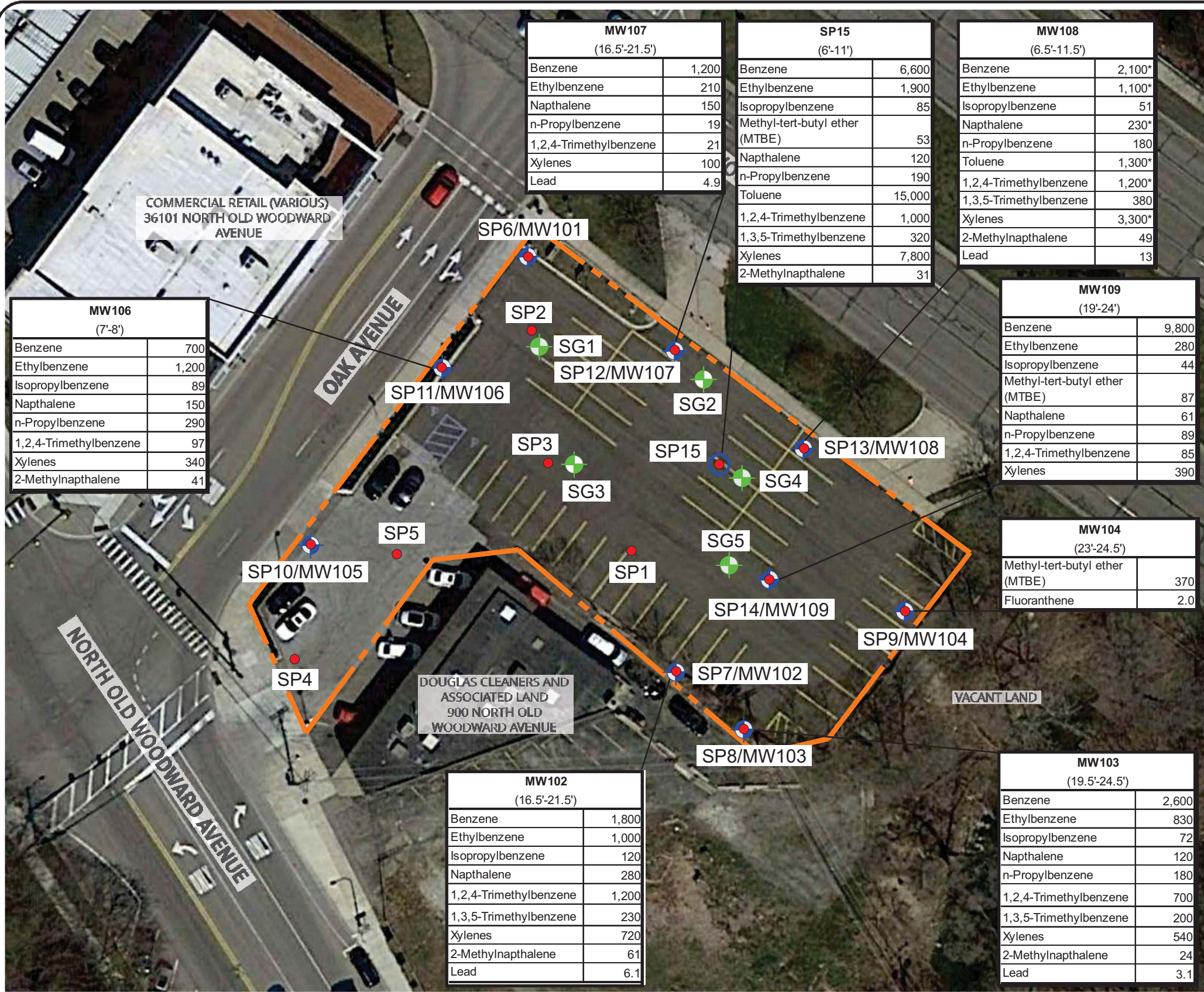
MANDRILA

PLOT DATE:

**NOTE:**  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO  
 AND SITE RECONNAISSANCE.



Oct 10, 2016 - 1:59pm - MANDRILA FILE LOCATION: \\sme-inc\p\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg PLOT DATE:




Methyl-tert-butyl ether (MTBE)	370
Fluoranthene	2.0

CONCENTRATIONS COMPARED TO PART 201 RESIDENTIAL CRITERIA GROUNDWATER SCREENING LEVELS

NOTE:  
 1. ALL UNITS IN MICROGRAMS PER LITER (µg/L).  
 2. \* = DUPLICATE SAMPLE RESULT REPORTED.

- LEGEND**
- 2007 SOIL PROBE LOCATION
  - ⊕ 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
  - 2007 TEMPORARY MONITORING WELL LOCATION
  - APPROXIMATE PROPERTY BOUNDARY
  - ⊕ OCTOBER 2016 SOIL GAS SAMPLING POINT LOCATION



www.sme-usa.com

**Project**  
**AUGUST LLC REDEVELOPMENT PROJECT**

**Project Location**  
**35975 WOODWARD AVENUE BIRMINGHAM, MICHIGAN**

**Sheet Name**  
**PROPERTY AND ASSESSMENT SUMMARY DIAGRAM-GROUNDWATER**

No.	Revision Date

**Date** 10-10-16  
**CADD** GM  
**Designer** CEB  
**Scale** 1" = 40'  
**Project** 075099.01  
**Figure No.** 4

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
 © 2015

NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO AND SITE RECONNAISSANCE.

**TABLE**

**TABLE 1: SOIL ANALYTICAL RESULTS**

**TABLE 2: GROUNDWATER ANALYTICAL RESULTS**

**TABLE 3: SOIL GAS ANALYTICAL RESULTS**





**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 1 OF 4**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Residential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification									
			Drinking Water Protection Criteria	Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization Indoor Air Inhalation Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet) Date Collected									
									SP1 (1' - 2')	SP1 (8' - 9')	SP1 (10' - 11')	SP2 (1' - 2')	SP2 (3' - 4')	SP3 (1' - 2')	SP3 (12' - 13')	SP4 (2' - 3')	SP5 (1' - 2')	SP6 (1' - 2')
03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/08/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07			
<b>VOCs</b>																		
Benzene	71-43-2	NA	<b>100</b>	180,000	<b>4,000</b>	<b>1,600</b>	<b>50</b>	<50	<b>5,400</b>	<b>1,600</b>	<50	<b>270</b>	<50	<b>2,100</b>	<50	<50	<50	<50
Ethylbenzene	100-41-4	NA	<b>1,500</b>	2,200,000	<b>360</b>	87,000	<b>198</b>	<50	<b>11,000</b>	<b>31,000</b>	<50	<50	<50	<b>1,800</b>	<50	<50	<50	<50
Isopropylbenzene	92-82-8	NA	91,000	25,000,000	<b>3,200</b>	400,000	<b>250</b>	<250	<b>1,200</b>	<b>3,600</b>	<250	<250	<250	<b>850</b>	<250	<250	<250	<250
Naphthalene	91-20-3	NA	35,000	16,000,000	<b>730</b>	250,000	<b>443</b>	<330	<330	<b>10,000</b>	<330	<330	<330	<b>550</b>	<330	<330	<330	<330
n-Propylbenzene	103-65-1	NA	<b>1,600</b>	2,500,000	ID	ID	<b>141</b>	<100	<b>4,900</b>	<b>13,000</b>	<100	<100	<100	<b>2,900</b>	<100	<100	<100	<100
Toluene	108-88-3	NA	16,000	50,000,000	<b>5,400</b>	330,000	10,100	<50	<b>8,700</b>	<b>5,100</b>	<50	<b>68</b>	<50	<b>570</b>	<50	<50	<50	<50
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	32,000,000	<b>570</b>	4,300,000	<b>2,200</b>	<100	<b>37,000</b>	<b>120,000</b>	<100	<100	<100	<b>1,200</b>	<100	<100	<100	<100
1,3,5-Trimethylbenzene	108-67-8	NA	<b>1,800</b>	32,000,000	<b>1,100</b>	2,600,000	<b>1,660</b>	<100	<b>7,000</b>	<b>25,000</b>	<100	<100	<100	<b>410</b>	<100	<100	<100	<100
Xylenes	1330-20-7	NA	<b>5,600</b>	410,000,000	<b>820</b>	6,300,000	<b>291</b>	<150	<b>62,000</b>	<b>130,000</b>	<150	<150	<150	<b>2,200</b>	<150	<150	<150	<150
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Benzo(a)anthracene	56-55-3	NA	NLL	20,000	NLL	NLV	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>690</b>	<330	<330
Benzo(a)pyrene	50-32-8	NA	NLL	2,000	NLL	ID	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>850</b>	<330	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	20,000	NLL	NLV	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,100</b>	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	2,500,000	NLL	NLV	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>500</b>	<330	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	200,000	NLL	NLV	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>410</b>	<330	<330
Chrysene	218-01-9	NA	NLL	2,000,000	NLL	ID	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>810</b>	<330	<330
Fluoranthene	206-44-0	NA	730,000	46,000,000	5,500	1,000,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,900</b>	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	20,000	NLL	NLV	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>550</b>	<330	<330
2-Methylnaphthalene	91-57-6	NA	57,000	8,100,000	<b>4,200</b>	2,700,000	<b>7,480</b>	<330	<330	<b>10,000</b>	<330	<330	<330	<b>1,500</b>	<330	<330	<330	<330
Phenanthrene	85-01-8	NA	56,000	1,600,000	2,100	2,800,000	5,140	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,700</b>	<330	<330
Pyrene	129-00-0	NA	480,000	29,000,000	ID	1,000,000,000	64,700,000	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,500</b>	<330	<330
Various PAHs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>Metals</b>																		
Arsenic	7440-38-2	5,800	<b>5,800</b>	7,600	<b>5,800</b>	NLV	NC	NA	NA	NA	NA	<b>5,000</b>	NA	NA	NA	NA	NA	NA
Barium	7440-39-3	75,000	1,300,000	37,000,000	440,000*	NLV	NC	NA	NA	NA	NA	<b>57,000</b>	NA	NA	NA	NA	NA	NA
Cadmium	7440-43-9	1,200	6,000	550,000	3,000	NLV	NC	<b>67</b>	<b>370</b>	<b>200</b>	<b>84</b>	<b>410</b>	<b>77</b>	<b>260</b>	<b>150</b>	<b>520</b>	<b>78</b>	<b>87</b>
Chromium, Total	7440-47-3	18,000	1,000,000,000	790,000,000	2,900,000,000*	NLV	NC	<b>3,400</b>	<b>11,000</b>	<b>12,000</b>	<b>3,900</b>	<b>17,000</b>	<b>4,100</b>	<b>9,700</b>	<b>15,000</b>	<b>12,000</b>	<b>3,500</b>	<b>2,900</b>
Lead, Total (Calculated)*	7439-92-1	21,000	700,000	400,000	2,500,000*	NLV	NC	<b>2,500</b>	<b>46,000</b>	<b>25,000</b>	<b>6,300</b>	<b>49,000</b>	<b>3,500</b>	<b>27,000</b>	<b>9,500</b>	<b>66,000</b>	<b>4,000</b>	<b>5,100</b>
Mercury	7439-97-6	130	1,700	160,000	130	48,000	NC	NA	NA	NA	NA	<b>62</b>	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	410	4,000	2,600,000	<b>410</b>	NLV	NC	NA	NA	NA	NA	<b>660</b>	NA	NA	NA	NA	NA	NA
Silver	7440-22-4	1,000	4,500	2,500,000	1,000	NLV	NC	NA	NA	NA	NA	<b>160</b>	NA	NA	NA	NA	NA	NA

- Notes:
- Concentrations reported in micrograms per kilogram (ug/kg).
  - Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
  - Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
  - VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs - polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
  - CS = Criterion is specific to individual constituent.
  - <RL = Analytical result was less than laboratory reporting limit.
  - NA = Not analyzed.
  - NC = No criterion available.
  - NLL = not likely to leach under most soil conditions.
  - ID - Insufficient data to develop criterion.
  - NLV - Not likely to volatilize.
  - \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
  - Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 2 OF 4**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Residential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification										
			Drinking Water Protection Criteria	Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization Indoor Air Inhalation Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet) Date Collected										
									SP6	SP7	SP7	SP8	SP8	SP8	SP9	SP9	SP10	SP11	SP11
									(7' - 8')	(4' - 5')	(18' - 19')	(0.5' - 1.5')	(11' - 12')	(20' - 21')	(3' - 4')	(9' - 10')	(3' - 4')	(1' - 2')	(6 - 6.5')
03/07/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/09/07	03/09/07	03/09/07							
<b>VOCs</b>																			
Benzene	71-43-2	NA	<b>100</b>	180,000	<b>4,000</b>	<b>1,600</b>	<b>50</b>	<50	<50	<b>6,700</b>	<50	<b>350</b>	<b>2,500</b>	<b>220</b>	<50	<50	<b>260</b>	<b>750</b>	
Ethylbenzene	100-41-4	NA	<b>1,500</b>	2,200,000	<b>360</b>	87,000	<b>198</b>	<50	<50	<b>7,300</b>	<50	<b>74</b>	<b>1,900</b>	<b>320</b>	<b>77</b>	<50	<b>550</b>	<b>6,100</b>	
Isopropylbenzene	92-82-8	NA	91,000	25,000,000	3,200	400,000	<b>250</b>	<250	<250	<13,000	<250	<250	<b>440</b>	<250	<250	<250	<250	<b>770</b>	
Naphthalene	91-20-3	NA	35,000	16,000,000	<b>730</b>	250,000	<b>443</b>	<330	<330	<17,000	<330	<330	<330	<330	<330	<330	<330	<b>1,400</b>	
n-Butylbenzene	104-51-8	NA	<b>1,600</b>	2,500,000	ID	ID	<b>450</b>	<50	<50	<b>5,100</b>	<50	<50	<b>56</b>	<50	<50	<50	<b>64</b>	<b>1,100</b>	
n-Propylbenzene	103-65-1	NA	<b>1,600</b>	2,500,000	ID	ID	<b>141</b>	<100	<100	<b>8,200</b>	<100	<100	<b>500</b>	<b>130</b>	<100	<100	<b>200</b>	<b>3,000</b>	
sec-Butylbenzene	135-98-8	NA	1,600	2,500,000	ID	ID	<b>50</b>	<50	<50	<2,500	<50	<50	<b>71</b>	<50	<50	<50	<50	<b>300</b>	
Tetrachloroethene	127-18-4	NA	<b>100</b>	200,000	1,200	11,000	<b>50</b>	<50	<b>1,100</b>	<2,500	<b>79</b>	<50	<50	<50	<50	<50	<50	<50	
Toluene	108-88-3	NA	16,000	50,000,000	5,400	330,000	10,100	<50	<50	<2,500	<50	<b>120</b>	<b>470</b>	<b>350</b>	<b>190</b>	<50	<b>480</b>	<b>140</b>	
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	32,000,000	<b>570</b>	4,300,000	<b>2,200</b>	<100	<100	<b>6,900</b>	<100	<100	<b>1,300</b>	<b>320</b>	<b>110</b>	<100	<b>1,800</b>	<b>130</b>	
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	32,000,000	1,100	2,600,000	1,660	<100	<100	<5,000	<100	<100	<b>960</b>	<b>100</b>	<100	<100	560	<100	
Xylenes	1330-20-7	NA	<b>5,600</b>	410,000,000	<b>820</b>	6,300,000	<b>291</b>	<150	<150	<b>8,200</b>	<150	<b>280</b>	<b>5,300</b>	<b>1,600</b>	<b>390</b>	<150	<b>2,500</b>	<b>740</b>	
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Anthracene	120-12-7	NA	41,000	230,000,000	ID	1,000,000,000	35,600,000	<330	<330	<330	<b>990</b>	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NA	NLL	20,000	NLL	NLV	NC	<330	<b>380</b>	<330	<b>4,300</b>	<b>650</b>	<330	<330	<b>970</b>	<330	<330	<330	
Benzo(a)pyrene	50-32-8	NA	NLL	<b>2,000</b>	NLL	ID	NC	<330	<330	<330	<b>5,100</b>	<b>440</b>	<330	<330	<b>1,300</b>	<330	<330	<330	
Benzo(b)fluoranthene	205-99-2	NA	NLL	20,000	NLL	NLV	NC	<330	<b>340</b>	<330	<b>7,200</b>	<b>650</b>	<330	<330	<b>1,300</b>	<330	<330	<330	
Benzo(g,h,i)perylene	191-24-2	NA	NLL	2,500,000	NLL	NLV	NC	<330	<330	<330	<b>4,000</b>	<b>400</b>	<330	<330	<b>1,900</b>	<330	<330	<330	
Benzo(k)fluoranthene	207-08-9	NA	NLL	200,000	NLL	NLV	NC	<330	<330	<330	<b>2,500</b>	<330	<330	<330	<b>440</b>	<330	<330	<330	
Chrysene	218-01-9	NA	NLL	2,000,000	NLL	ID	NC	<330	<330	<330	<b>5,300</b>	<b>690</b>	<330	<330	<b>1,300</b>	<330	<330	<330	
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	2,000	NLL	NLV	NC	<330	<330	<330	<b>650</b>	<330	<330	<330	<b>530</b>	<330	<330	<330	
Fluoranthene	206-44-0	NA	730,000	46,000,000	<b>5,500</b>	1,000,000,000	NC	<330	<b>530</b>	<330	<b>11,000</b>	<b>1,000</b>	<330	<330	<b>1,500</b>	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	20,000	NLL	NLV	NC	<330	<330	<330	<b>4,200</b>	<330	<330	<330	<b>1,100</b>	<330	<330	<330	
2-Methylnaphthalene	91-57-6	NA	57,000	8,100,000	<b>4,200</b>	2,700,000	7,480	<330	<330	<b>570</b>	<330	<b>610</b>	<b>420</b>	<330	<b>1,100</b>	<330	<330	<b>6,900</b>	
Phenanthrene	85-01-8	NA	56,000	1,600,000	<b>2,100</b>	2,800,000	5,140	<330	<330	<330	<b>4,600</b>	<b>890</b>	<b>340</b>	<330	<b>1,500</b>	<330	<330	<330	
Pyrene	129-00-0	NA	480,000	29,000,000	ID	1,000,000,000	64,700,000	<330	<b>460</b>	<330	<b>8,200</b>	<b>970</b>	<330	<330	<b>1,500</b>	<330	<330	<330	
Various PAHs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>Metals</b>																			
Arsenic	7440-38-2	5,800	<b>5,800</b>	<b>7,600</b>	<b>5,800</b>	NLV	NC	NA	NA	NA	NA	NA	NA	NA	<b>19,000</b>	NA	NA	NA	
Barium	7440-39-3	75,000	1,300,000	37,000,000	440,000*	NLV	NC	NA	NA	NA	NA	NA	NA	NA	<b>160,000</b>	NA	NA	NA	
Cadmium	7440-43-9	1,200	6,000	550,000	3,000	NLV	NC	<b>160</b>	<b>290</b>	<b>320</b>	<b>1,100</b>	<b>340</b>	<b>380</b>	<b>330</b>	<b>1,300</b>	<b>130</b>	<b>300</b>	<b>260</b>	
Chromium, Total	7440-47-3	18,000	1,000,000,000	790,000,000	2,900,000,000*	NLV	NC	<b>12,000</b>	<b>11,000</b>	<b>10,000</b>	<b>7,500</b>	<b>11,000</b>	<b>7,000</b>	<b>9,300</b>	<b>14,000</b>	<b>9,700</b>	<b>13,000</b>	<b>7,400</b>	
Lead, Total (Calculated)*	7439-92-1	21,000	<b>700,000</b>	<b>400,000</b>	<b>2,500,000*</b>	NLV	NC	<b>9,200</b>	<b>32,000</b>	<b>71,000</b>	<b>72,000</b>	<b>54,000</b>	<b>56,000</b>	<b>37,000</b>	<b>1,200,000</b>	<b>7,000</b>	<b>61,000</b>	<b>61,000</b>	
Mercury	7439-97-6	130	1,700	160,000	<b>130</b>	48,000	NC	NA	NA	NA	NA	NA	NA	NA	<b>610</b>	NA	NA	NA	
Selenium	7782-49-2	410	4,000	2,600,000	<b>410</b>	NLV	NC	NA	NA	NA	NA	NA	NA	NA	<b>1,200</b>	NA	NA	NA	
Silver	7440-22-4	1,000	4,500	2,500,000	<b>1,000</b>	NLV	NC	NA	NA	NA	NA	NA	NA	NA	<b>300</b>	NA	NA	NA	

Notes:  
1. Concentrations reported in micrograms per kilogram (ug/kg).  
2. Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.  
3. Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.  
4. VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.  
5. CS = Criterion is specific to individual constituent.  
6. <RL = Analytical result was less than laboratory reporting limit.  
7. NA = Not analyzed.  
8. NC = No criterion available.  
9. NLL = not likely to leach under most soil conditions.  
10. ID = Insufficient data to develop criterion.  
11. NLV = Not likely to volatilize.  
12. \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.  
13. *Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 3 OF 4**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Residential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification									
			Drinking Water Protection Criteria	Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization Indoor Air Inhalation Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet) Boring Location Date Collected									
									SP12 (1' - 2')	SP12 (11' - 12')	SP12 Duplicate (11' - 12')	SP12 (17' - 18')	SP13 (1' - 2')	SP13 (6' - 7')	SP13 (13' - 14')	SP14 (1' - 2')	SP14 (10' - 11')	SP14 (26' - 27')
03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/12/07			
<b>VOCs</b>																		
Benzene	71-43-2	NA	<b>100</b>	180,000	<b>4,000</b>	<b>1,600</b>	<b>50</b>	<50	<b>5,300</b>	<b>5,000</b>	<b>430</b>	<b>250</b>	<b>1,800</b>	<b>2,900</b>	<50	<b>3,100</b>	<50	<b>4,700</b>
Ethylbenzene	100-41-4	NA	<b>1,500</b>	2,200,000	<b>360</b>	87,000	<b>198</b>	<50	<b>7,500</b>	<b>9,800</b>	<50	<b>1,500</b>	<b>2,900</b>	<b>4,400</b>	<50	<b>3,200</b>	<50	<b>8,700</b>
Isopropylbenzene	92-82-8	NA	91,000	25,000,000	3,200	400,000	<b>250</b>	<250	<b>1,100</b>	<b>980</b>	<250	<250	<b>280</b>	<b>980</b>	<250	<b>270</b>	<250	<b>1,600</b>
Naphthalene	91-20-3	NA	35,000	16,000,000	<b>730</b>	250,000	<b>443</b>	<330	<b>4,200</b>	<b>4,100</b>	<330	<330	<b>410</b>	<330	<330	<b>470</b>	<330	<b>7,800</b>
n-Butylbenzene	104-51-8	NA	<b>1,600</b>	2,500,000	ID	ID	<b>450</b>	<50	<b>3,300</b>	<b>2,600</b>	<50	<b>1,400</b>	<b>130</b>	<b>87</b>	<50	<b>750</b>	<50	<b>4,700</b>
n-Propylbenzene	103-65-1	NA	<b>1,600</b>	2,500,000	ID	ID	<b>141</b>	<100	<b>5,200</b>	<b>4,800</b>	<b>350</b>	<b>1,100</b>	<b>770</b>	<b>690</b>	<100	<b>1,400</b>	<100	<b>8,100</b>
sec-Butylbenzene	135-98-8	NA	<b>1,600</b>	2,500,000	ID	ID	<b>50</b>	<50	<b>480</b>	<b>450</b>	<50	<b>260</b>	<50	<50	<50	<b>120</b>	<50	<b>740</b>
Toluene	108-88-3	NA	16,000	50,000,000	<b>5,400</b>	330,000	10,100	<50	<b>620</b>	<b>610</b>	<b>72</b>	<b>1,100</b>	<b>670</b>	<b>100</b>	<50	<b>1,600</b>	<50	<b>7,300</b>
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	32,000,000	<b>570</b>	4,300,000	<b>2,200</b>	<100	<b>18,000</b>	<b>21,000</b>	<b>140</b>	<b>4,800</b>	<b>4,800</b>	<b>3,000</b>	<100	<b>6,300</b>	<100	<b>10,000</b>
1,3,5-Trimethylbenzene	108-67-8	NA	<b>1,800</b>	32,000,000	<b>1,100</b>	2,600,000	<b>1,660</b>	<100	<b>7,000</b>	<b>6,100</b>	<100	<b>870</b>	<b>1,200</b>	<b>950</b>	<100	<b>1,700</b>	<100	<b>6,300</b>
Xylenes	1330-20-7	NA	<b>5,600</b>	410,000,000	<b>820</b>	6,300,000	<b>291</b>	<150	<b>16,000</b>	<b>20,000</b>	<b>790</b>	<b>3,600</b>	<b>8,100</b>	<b>8,100</b>	<150	<b>8,800</b>	<150	<b>11,000</b>
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
2-Methylnaphthalene	91-57-6	NA	57,000	8,100,000	<b>4,200</b>	2,700,000	<b>7,480</b>	<330	<b>2,200</b>	<b>1,900</b>	<330	<330	<330	<330	<330	<b>6,900</b>	<330	<b>13,000</b>
Phenanthrene	85-01-8	NA	56,000	1,600,000	2,100	2,800,000	5,140	<330	<330	<330	<330	<330	<330	<330	<330	<b>810</b>	<330	<330
Pyrene	129-00-0	NA	480,000	29,000,000	ID	1,000,000,000	64,700,000	<330	<330	<330	<330	<330	<330	<330	<330	<b>510</b>	<330	<330
Various PAHs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>Metals</b>																		
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	<b>150</b>	<b>170</b>	<b>180</b>	<b>160</b>	<b>320</b>	<b>210</b>	<b>310</b>	<b>93</b>	<b>310</b>	<b>190</b>	<b>240</b>
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	<b>9,700</b>	<b>18,000</b>	<b>16,000</b>	<b>14,000</b>	<b>8,600</b>	<b>15,000</b>	<b>13,000</b>	<b>5,300</b>	<b>6,900</b>	<b>19,000</b>	<b>11,000</b>
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	<b>29,000</b>	<b>16,000</b>	<b>18,000</b>	<b>10,000</b>	<b>120,000</b>	<b>11,000</b>	<b>12,000</b>	<b>6,300</b>	<b>84,000</b>	<b>11,000</b>	<b>58,000</b>

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs - polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NC = No criterion available.
- NLL = not likely to leach under most soil conditions.
- ID = Insufficient data to develop criterion.
- NLV = Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 4 OF 4**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Residential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification		
			Drinking Water Protection Criteria	Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization Indoor Air Inhalation Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet)		
									Boring Location		
									SP15 Duplicate	SP15	SP15
								(4' - 6')	(10' - 11')	(20' - 22')	
								03/12/07	03/12/07	03/12/07	
<b>VOCs</b>											
Benzene	71-43-2	NA	<b>100</b>	180,000	<b>4,000</b>	<b>1,600</b>	<b>50</b>	<b>7,000</b>	<b>68,000</b>	<b>590</b>	
Ethylbenzene	100-41-4	NA	<b>1,500</b>	2,200,000	<b>360</b>	87,000	<b>198</b>	<b>10,000</b>	<b>11,000</b>	<50	
Isopropylbenzene	92-82-8	NA	<b>91,000</b>	25,000,000	<b>3,200</b>	400,000	<b>250</b>	<b>1,600</b>	<b>7,600</b>	<250	
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	<b>800</b>	1,500,000	140,000	9,900,000	14,200	<250	<250	<b>270</b>	
Naphthalene	91-20-3	NA	<b>35,000</b>	16,000,000	<b>730</b>	250,000	<b>443</b>	<b>7,100</b>	<b>40,000</b>	<330	
n-Butylbenzene	104-51-8	NA	<b>1,600</b>	2,500,000	ID	ID	<b>450</b>	<b>4,500</b>	<b>20,000</b>	<50	
n-Propylbenzene	103-65-1	NA	<b>1,600</b>	2,500,000	ID	ID	<b>141</b>	<b>7,800</b>	<b>33,000</b>	<b>180</b>	
sec-Butylbenzene	135-98-8	NA	<b>1,600</b>	2,500,000	ID	ID	<b>50</b>	<b>700</b>	<b>2,400</b>	<50	
Toluene	108-88-3	NA	<b>16,000</b>	50,000,000	<b>5,400</b>	<b>330,000</b>	<b>10,100</b>	<b>6,500</b>	<b>910,000</b>	<50	
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	32,000,000	<b>570</b>	4,300,000	<b>2,200</b>	<b>14,000</b>	<b>210,000</b>	<100	
1,3,5-Trimethylbenzene	108-67-8	NA	<b>1,800</b>	32,000,000	<b>1,100</b>	2,600,000	<b>1,660</b>	<b>6,900</b>	<b>65,000</b>	<100	
Xylenes	1330-20-7	NA	<b>5,600</b>	410,000,000	<b>820</b>	6,300,000	<b>291</b>	<b>13,000</b>	<b>460,000</b>	<b>260</b>	
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	
<b>PAHs</b>											
Benzo(a)anthracene	56-55-3	NA	NLL	20,000	NLL	NLV	NA	<330	<b>520</b>	<330	
Benzo(b)fluoranthene	205-99-2	NA	NLL	20,000	NLL	NLV	NA	<330	<b>400</b>	<330	
Chrysene	218-01-9	NA	NLL	2,000,000	NLL	ID	NA	<330	<b>360</b>	<330	
Fluoranthene	206-44-0	NA	730,000	46,000,000	5,500	1,000,000,000	NA	<330	<b>1,100</b>	<330	
2-Methylnaphthalene	91-57-6	NA	57,000	8,100,000	<b>4,200</b>	2,700,000	<b>7,480</b>	<b>15,000</b>	<b>21,000</b>	<330	
Phenanthrene	85-01-8	NA	56,000	1,600,000	2,100	2,800,000	5,140	<330	<b>1,100</b>	<330	
Pyrene	129-00-0	NA	480,000	29,000,000	ID	1,000,000,000	64,700,000	<330	<b>800</b>	<330	
Various PAHs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	
<b>Metals</b>											
Arsenic	7440-38-2	5,800	<i>5,800</i>	<i>5,800</i>	NLV	37,000	NC	NA	<b>5,100</b>	NA	
Barium	7440-39-3	75,000	1,300,000	440,000*	NLV	130,000,000	NC	NA	<b>42,000</b>	NA	
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	<b>160</b>	<b>200</b>	<b>190</b>	
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	<b>25,000</b>	<b>7,900</b>	<b>19,000</b>	
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	<b>14,000</b>	<b>120,000</b>	<b>11,000</b>	
Mercury	7439-97-6	130	1,700	130	89,000	580,000	ID	NA	<b>88</b>	NA	
Selenium	7782-49-2	410	4,000	<i>410</i>	NLV	9,600,000	NC	NA	<b>380</b>	NA	

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NC = No criterion available.
- NLL = not likely to leach under most soil conditions.
- ID - Insufficient data to develop criterion.
- NLV - Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 2**  
**SUMMARY OF ANALYSIS RESULTS - GROUNDWATER**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO. 075099.01**  
**PAGE 1 of 1**

CONSTITUENT	Chemical Abstract Service Number	Part 201 Generic Residential Cleanup Criteria			Vapor Intrusion Screening Levels	Sample Identification Screened Interval (feet) Date Collected											
		Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria		Nonresidential Vapor Intrusion Groundwater Screening Levels	MW102	MW103	MW104	MW106	MW106	MW107	MW108	MW108	MW109	SP15	MW201
							(16.5'-21.5')	(19.5'-24.5')	(23'-24.5')	(7'-8')	(7'-8') Duplicate	(11'-16')	(6.5'-11.5')	(6.5'-11.5') Duplicate	(19' - 24')	(6' - 11')	Unknown
03/15/07	03/15/07	03/14/07	03/13/07	03/13/07	03/13/07	03/14/07	03/14/07	03/14/07	03/14/07	03/12/07	03/13/07						
<b>VOCs</b>																	
Benzene	71-43-2	5	200	5,600	27	1,800	2,600	3.2	700	690	1,200	1,000	2,100	9,800	6,600	<1.0	
n-Butylbenzene	104-51-8	80	ID	ID	91	<1.0	<1.0	<1.0	37	35	11	<1.0	<1.0	<1.0	<1.0	<1.0	
sec-Butylbenzene	135-98-8	80	ID	ID	16	13	<1.0	<1.0	14	14	3.4	5.4	5.4	2.4	<1.0	<1.0	
Ethylbenzene	100-41-4	74	18	110,000	700	1,000	830	<1.0	1,200	1,200	210	750	1,100	280	1,900	<1.0	
Isopropyl benzene	98-82-8	800	28	56,000	10	120	72	<5.0	89	88	24	51	51	44	85	<5.0	
Methyl-tert-butyl ether (MTBE)	1634-04-4	40	7,100	47,000,000	250,000	<5.0	<5.0	370	<5.0	<5.0	<5.0	<5.0	<5.0	87	53	<5.0	
Naphthalene	91-20-3	520	11	31,000	240	280	120	<5.0	150	150	19	220	230	61	120	<5.0	
n-Propylbenzene	103-65-1	80	ID	ID	92	<10	180	1.2	290	280	76	180	180	89	190	<1.0	
Toluene	108-88-3	790	270	530,000	36,000	84	49	1.6	62	62	23	850	1,300	190	15,000	<1.0	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	1,700	1,200	700	<1.0	97	95	21	960	1,200	85	1,000	<1.0	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	1,200.0	230	200	<1.0	38	37	6.2	380	310	25	320	<1.0	
Xylenes	1330-20-7	280	41	19,000	10,000	720	540	<3.0	340	340	100	1,800	3,300	390	7,800	<3.0	
Other VOC Constituents	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																	
Acenaphthene	83-32-9	1,300	38	4,200	55,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	52	ID	3,900	15,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	870,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Benzoanthracene	56-55-3	2	ID	NLV	NLV	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzopyrene	50-32-8	5	ID	NLV	NLV	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(a)fluoranthene	205-99-2	1.5	ID	NLV	NLV	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0	ID	NLV	NLV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.5	ID	NLV	NLV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	NLV	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0	ID	NLV	NLV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	NLV	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	880	12	2,000	71,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	ID	NLV	NLV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	260	19	25,000	940	61	24	<5.0	41	35	11	64	49	<5.0	31	<5.0	
Phenanthrene	85-01-8	52	2.0	1,000	110	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	410,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Metals</b>																	
Cadmium	7440-43-9	5	3.0*	NLV	NLV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	
Chromium**	16065-83-1	100	100*	NLV	NLV	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	
Lead	7439-92-1	4	29*	NLV	NLV	6.1	3.1	<3.0	3.9	4.3	4.9	10	13	<3.0	NA	<3.0	

- Notes:
- Concentrations reported in micrograms per liter (ug/L).
  - Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.44, Table 1. Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels and the Guidance Document for the Vapor Intrusion Pathway, Nonresidential VI Screening Levels, dated May 2013.
  - Detected results shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
  - VOCs = volatile organic compounds and PAHs = polynuclear aromatic hydrocarbons. Refer to the analytical report for the full list of VOC and PAH analytes.
  - CS = Criterion is specific to individual constituent.
  - <RL = Analytical result was below laboratory reporting limit(s).
  - NA - Not analyzed.
  - NC = No criterion.
  - ID = Insufficient data to develop criterion.
  - \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
  - \*\* Chromium results were compared to the trivalent chromium criteria because hexavalent was not a constituent of concern for the site.



**TABLE 3**  
**SOIL GAS ANALYTICAL RESULTS**  
**AUGUST, LLC PROJECT**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**

ANALYTE	CAS NUMBER	MDEQ SOIL GAS SCREENING LEVELS		CHEMICAL ANALYSES RESULTS					
				SAMPLE IDENTIFICATION	SG1	SG2	SG3	SG4	SG5
		Residential Vapor Intrusion Deep Soil Gas Screening Levels	Nonresidential Vapor Intrusion Deep Soil Gas Screening Levels	DATE COLLECTED	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016
		DEPTH (ft)	5-5.5	5-5.5	5-5.5	5-5.5	5-5.5		
<b>VOCs (TO-15)</b>									
Benzene	71-43-2	<b>320</b>	<b>6,500</b>		<b>2,100</b>	<b>1,100</b>	<b>120</b>	<b>13,000</b>	<b>120,000</b>
Cyclohexane	110-82-7	580,000	9,700,000		<b>150,000</b>	<b>66,000</b>	<b>2,500</b>	<b>170,000</b>	<b>230,000</b>
1,2-Dichloroethane	107-06-2	820	1,600		<130	<150	<37	<b>370</b>	<88
Ethylbenzene	100-41-4	<b>6,400</b>	130,000		<1,600	<1,800	<460	<b>9,100</b>	<b>5,200</b>
n-Heptane	142-82-5	<b>280,000</b>	1,100,000		<b>25,000</b>	<b>28,000</b>	<b>1,500</b>	<b>500,000</b>	<b>270,000</b>
n-Hexane	110-54-3	<b>66,000</b>	<b>1,100,000</b>		<b>230,000</b>	<b>320,000</b>	<b>18,000</b>	<b>1,300,000</b>	<b>1,800,000</b>
Toluene	108-88-3	440,000	7,400,000		<530	<610	<150	<b>3,100</b>	<b>3,300</b>
Trichloroethene	79-01-6	120	2,100		<b>1,100</b>	<59	<15	<160	<35
1,2,4-Trimethylbenzene	95-63-6	15,000	250,000		<530	<610	<150	<670	<b>2,100</b>
1,3,5-Trimethylbenzene	108-67-8	15,000	250,000		<520	<600	<150	<660	<b>730</b>
Xylenes	1330-20-7	7,600	130,000		<4,700	<5,300	<1,400	<5,900	<b>4,500</b>
Other Analyzed VOCs	CS	CS	CS		<RL	<RL	<RL	<RL	<RL

**Notes:**

1. Criteria taken from May 2013 Guidance Document for the Vapor Intrusion Pathway, Screening Levels for Nonresidential Use.
2. Results exceeding the screening levels are shaded, as are the screening levels exceeded.
3. VOCs -Volatile Organic Compounds; Refer to the analytical report for the full list of VOC analytes.
4. CS - Screening level is specific to individual constituent.
5. <RL - concentrations of all non-listed constituents were below their respective reporting limits.
6. Screening levels and sample results are reported in parts per billion by volume (ppbv).

**APPENDIX A**  
**LEGAL DESCRIPTION AND SURVEY**



**LEGAL DESCRIPTION**  
(Per First American Title Insurance Company, Commitment #751231, dated July 12, 2016)

The land referred to in this Commitment, situated in the County of Oakland, City of Birmingham, State of Michigan, is described as follows:

Part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as: Beginning at a point in the Westerly line of Hunter Boulevard (200.00 feet wide), said point located North 88 degrees 16 minutes 00 seconds West, 659.12 feet and North 49 degrees 21 minutes 00 seconds West, 120.93 feet from the Center of said Section 25; thence North 49 degrees 21 minutes 00 seconds West, along the Westerly line of said Hunter Boulevard, 200.00 feet to the Southerly line of Oak Street (60.00 feet wide); thence South 40 degrees 39 minutes 00 seconds East, 49.17 feet; thence North 40 degrees 39 minutes 00 seconds East, 77.11 feet; thence North 85 degrees 39 minutes 00 seconds East, 22.63 feet; thence South 49 degrees 21 minutes 00 seconds East, 113.19 feet; thence South 88 degrees 16 minutes 00 seconds East, 34.45 feet; thence North 40 degrees 39 minutes 00 seconds East, 78.36 feet to the Point of Beginning.

**ZONING**  
(Per letter dated August 31, 2016 from City of Birmingham, Senior Planner, Mathew Baka and per Article 02 - Sections 2.31-2.32 of Zoning Ordinance)

- "The property at 35975 Woodward is currently zoned B2B."
- "There is currently an outstanding code enforcement violation on record for this property for the construction of a parking lot without site plan approval."
- SETBACKS:
 

Front:	n/a
Rear:	10 feet when the rear open space abuts a P, B1, B2, B2B, B2C, B3, B4, O1, or O2 zoning district. 20 feet when adjacent to residential zoning district.
Side:	0 feet for commercial, office or parking 0 feet for residential with walls facing side lot lines which do not contain windows 20 feet at each residential wall containing windows when the side lot lines do not abut a street or alley.
- MINIMUM FLOOR AREA PER UNIT:
 

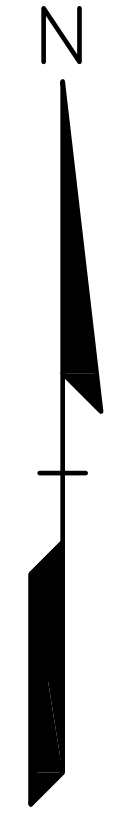
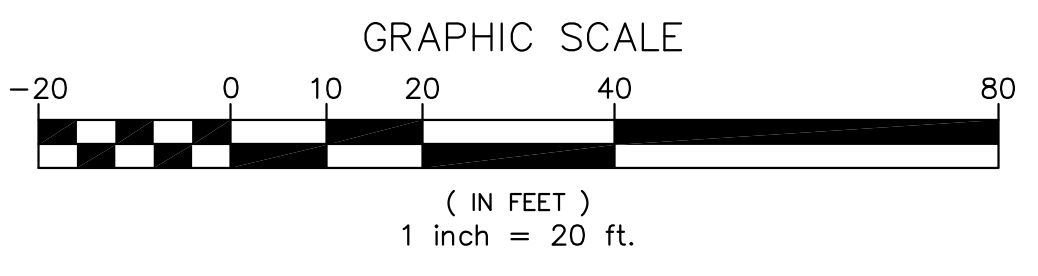
300 sq ft (single story hotel or motel)
600 sq ft (efficiency or one bedroom)
800 sq ft (two or more bedroom)
- MAXIMUM BUILDING HEIGHT:
 

30 feet (commercial/office development or commercial/office with residential)
2 stories (commercial/office development or commercial/office with residential)
40 feet (residential only development)
3 stories (residential only development)

**FLOODPLAIN NOTE:**  
BY GRAPHICAL PLOTTING, SITE IS WITHIN FLOOD ZONE "X". AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBERS 26125C0537F & 26125C0536F, DATED SEPTEMBER 29, 2006.

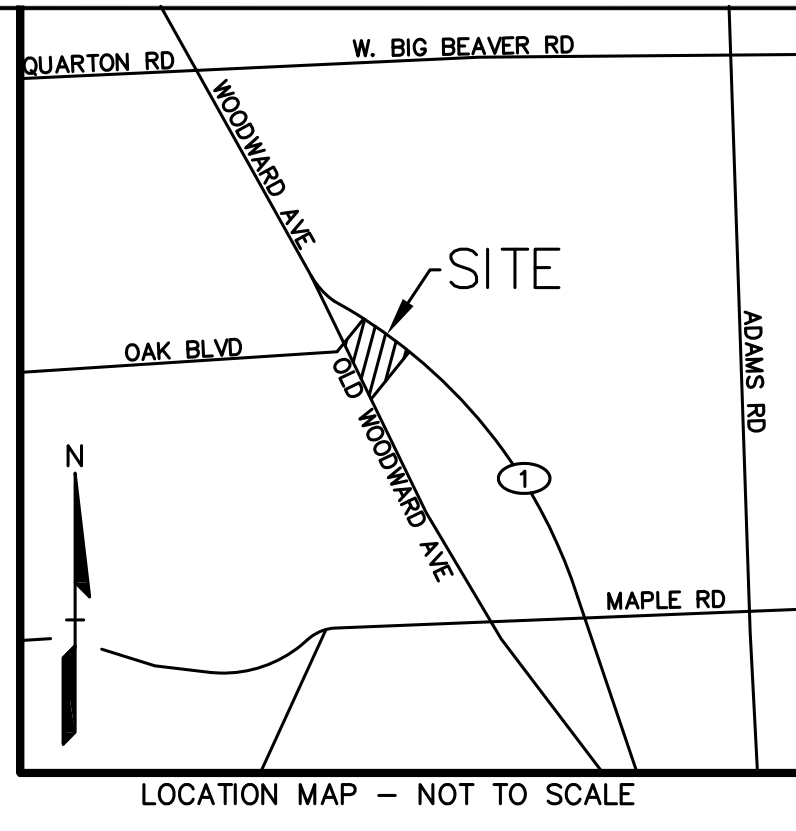
**SURVEY NOTES:**

- A. The subject parcel contains 46 parking spaces, including 2 handicapped spaces.
- B. There were no buildings observed on the subject parcel.
- C. There was no evidence of recent earth moving work, building construction, or building additions observed in the process of conducting the fieldwork.
- D. There was no information concerning any proposed changes in street right of way lines nor any evidence of recent street or sidewalk construction or repair observed in the process of conducting the fieldwork.
- E. There were no wetlands delineated by a qualified specialist hired by the client to locate at the time of survey.
- F. There are four square 2x2' hinged steel access lids to 2 foot deep vaults that contain piping that may be part of a current or formerly active monitoring/remediation system. The vaults themselves lie on Parcel 19-25-179-002 to the south, but the concrete pad they are set in crosses the subject parcel as depicted.
- G. Guy lines/anchors for pole cross parcel line as depicted.
- H. A water service lead crosses parcel as depicted.
- I. Fire Hydrant lies on parcel line.



**LEGEND**

● IRON FOUND	○ BRASS PLUG SET	⊙ SEC. CORNER FOUND
⊙ IRON SET	⊙ MONUMENT FOUND	⊙ RECORDED
⊙ NAIL FOUND	⊙ MONUMENT SET	⊙ MEASURED
⊙ NAIL & CAP SET	⊙ CALCULATED	
<b>EXISTING</b>		
— OH-ELEC	ELEC. PHONE OR CABLE TV OH. LINE, POLE & GUY WIRE	
— UG-CATV	UNDERGROUND CABLE TV, CATV PEDESTAL	
— UG-PHONE	TELEPHONE U.G. CABLE, MANHOLE & MANHOLE	
— UG-ELEC	ELECTRIC U.G. CABLE, MANHOLE, METER & HANDHOLE	
—	GAS MAIN, VALVE & GAS LINE MARKER	
—	WASTEWATER, W/D, C&S VALVE, TAPPING SLEEVE & VALVE	
—	SANITARY SEWER, CLEANOUT & MANHOLE	
—	STORM SEWER, CLEANOUT & MANHOLE	
—	DOWNSPOUT	
—	COMBINED SEWER & MANHOLE	
—	SQUARE, ROUND & BERTHOFF CATCH BASIN	
—	COLLECT	
—	POST INDICATOR VALVE	
—	WATER VALVE BOX/HYDRANT VALVE BOX, SERVICE SHUTOFF	
—	MALBOX, TRANSFORMER, IRRIGATION CONTROL VALVE	
—	MONITORING WELL	
—	2'x2' STEEL WALL	
—	UNIDENTIFIED STRUCTURE	
—	PEDESTRIAN CROSSING POLE	
—	DITCH	
—	FENCE	
—	GUARD RAIL	
—	LIGHT POLE	
—	SION	
—	PLOTTED SCHEDULE B-I EXCEPTION NUMBER	



**REVISIONS**

NO.	BY	DATE	DESCRIPTION

**SCHEDULE BII EXCEPTIONS**  
(Per First American Title Insurance Company, Commitment #751231, dated July 12, 2016)

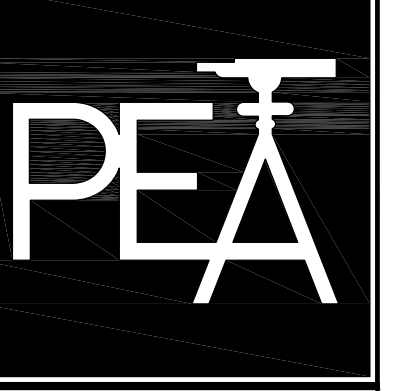
- Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or by making inquiry of persons in possession of the Land.
- Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
- Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title including discrepancies, conflicts in boundary lines, shortage in area, or any other facts that would be disclosed by an accurate and complete land survey of the Land, and that are not shown in the Public Records.
- Any lien or right to lien for services, labor or material imposed by law and not shown by the Public Records.
- Taxes and assessments not due and payable at Commitment Date.
- Terms and Conditions contained in Easement and Right of Way for ingress and egress as disclosed by instrument recorded in 4570, page 47 and as disclosed by Notice of Claim of Interest Under Marketable Record Title Act (MCL 565.001) as recorded in Liber 39107, page 345. [As plotted.]
- Terms and Conditions contained in Restrictive Covenant as disclosed by instrument recorded in Liber 18211, page 238. [As plotted.]
- Any rights, title interest or claim thereof to that portion of the land taken, used or granted for streets, roads or highways.
- Interest of others in oil, gas and mineral rights, if any, recorded in the public records or unrecorded.
- Interest, if any, of the United States, State of Michigan, or any political subdivision thereof, in the oil, gas and minerals in and under and that may be produced from the captioned land.
- Rights of tenants, if any, under any unrecorded leases.
- Lien for outstanding water or sewer charges, if any.

**CAUTION!**  
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EXPRESSED OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION SHOWN HEREON. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

THE DRAWING AND DESIGN ARE THE PROPERTY OF PEACON, INC. AND ARE NOT TO BE REPRODUCED, COPIED, REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF PEACON, INC. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHERWISE ARE HEREBY SPECIALLY RESERVED. © 2016 PEACON, INC.

CONSTRUCTION CONTRACTOR AGREES THAT IN CONNECTION WITH THE PERFORMANCE OF THE WORK SHOWN ON THIS DRAWING, CONTRACTOR SHALL BE REQUIRED TO ADHERE TO ALL APPLICABLE CONSTRUCTION PRACTICES, CONSTRUCTION STANDARDS, AND REGULATIONS, AND TO MAINTAIN SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, AND TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, AND REGULATIONS. CONTRACTOR SHALL BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION SHALL BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION SHALL BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, AND FOR HOLDING PROFESSIONAL LIABILITY INSURANCE FROM ANY AND ALL LIABILITY RISK OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

**3 FULL WORKING DAYS BEFORE YOU DIG CALL 811**  
Know what's below Call before you dig  
MISS DIG System, Inc.  
1-800-482-7171 www.missdig.net



**PEA, Inc.**  
2430 Rochester Ct, Ste 100  
Troy, MI 48063-1872  
t: 248.689.9090  
f: 248.689.1044  
www.peainc.com

**AUGUST, LLC**  
C/O BODMAN, LLC  
DETROIT, MICHIGAN 48226

**ALTANSIPS LAND TITLE SURVEY**  
**35975 WOODWARD**  
PART OF THE NORTHWEST 1/4 OF SECTION 25, T2N, R10E  
CITY OF BIRMINGHAM, OAKLAND COUNTY, MICHIGAN

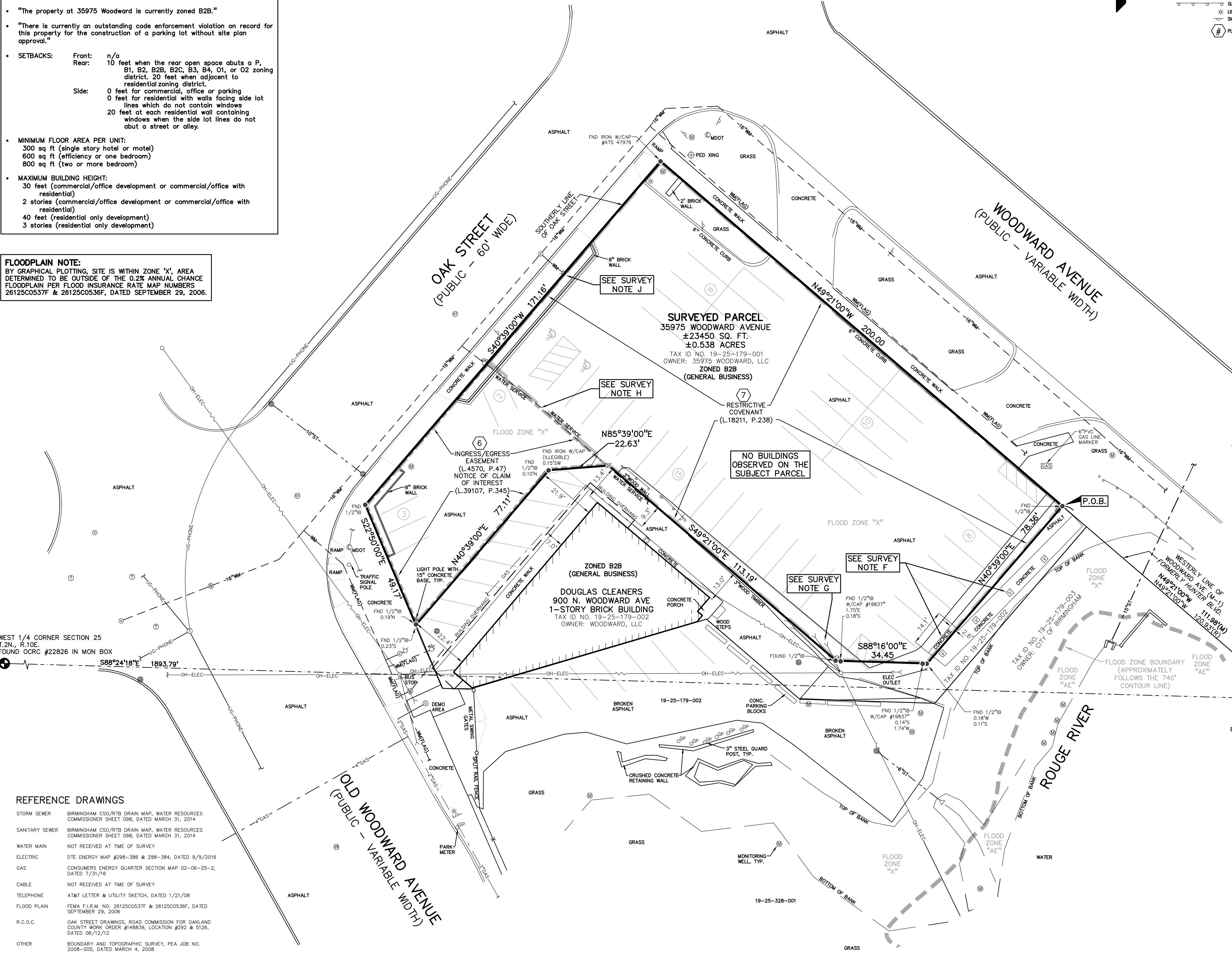
DES. BY: A. NORD, P.E.  
SUR. BY: A. NORD, P.E.  
CHKD BY: J. W. MADON, P.E.  
DATE: 08/08/2016

ORIGINAL ISSUE DATE:  
SEPTEMBER 23, 2016

PEA JOB NO. 2016-226

SCALE: 1" = 20'

DRAWING NUMBER:  
**1**



**REFERENCE DRAWINGS**

STORM SEWER	BIRMINGHAM CSO/RTB DRAIN MAP, WATER RESOURCES COMMISSIONER SHEET 098, DATED MARCH 31, 2014
SANITARY SEWER	BIRMINGHAM CSO/RTB DRAIN MAP, WATER RESOURCES COMMISSIONER SHEET 098, DATED MARCH 31, 2014
WATER MAIN	NOT RECEIVED AT TIME OF SURVEY
ELECTRIC	DTE ENERGY MAP #298-386 & 298-384, DATED 9/9/2016
GAS	CONSUMERS ENERGY QUARTER SECTION MAP 02-06-25-2, DATED 7/31/76
CABLE	NOT RECEIVED AT TIME OF SURVEY
TELEPHONE	AT&T LETTER & UTILITY SKETCH, DATED 1/21/08
FLOOD PLAIN	FEMA F.I.R.M. NO. 26125C0537F & 26125C0536F, DATED SEPTEMBER 29, 2006
R.C.O.C.	OAK STREET DRAWINGS, ROAD COMMISSION FOR OAKLAND COUNTY WORK ORDER #148839, LOCATION #292 & 5126, DATED 06/12/12
OTHER	BOUNDARY AND TOPOGRAPHIC SURVEY, PEA JOB NO. 2008-005, DATED MARCH 4, 2008

To: First American Title Insurance Company  
August, LLC, a Michigan limited liability company  
35975 Woodward, LLC, a Michigan limited liability company

This is to certify that this map or plot and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes items 1, 2, 3, 4, 6a, 8, 9, 11, 13, 16, 17 and 18 of Table A thereof. The field work was completed on Sept. 08, 2016.

David A. Nord, PS No. 56501  
Agent for Professional Engineering Associates, Inc.

**APPENDIX B**  
**SME'S PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT**  
**OCTOBER 21, 2016**



4219 Woodward Avenue  
Suite 204  
Detroit, MI 48201

T (313) 922-7000

[www.sme-usa.com](http://www.sme-usa.com)

October 21, 2016

Mr. David Larsen  
Bodman, PLC  
6th Floor at Ford Field  
1901 St. Antoine Street  
Detroit, Michigan 48226

RE: Phase I Environmental Site Assessment Report  
35975 Woodward Avenue  
Birmingham, Michigan 48009  
SME Project No.: 075099.01

Dear Mr. Larsen:

We have completed a Phase I Environmental Site Assessment (ESA) of the above-referenced property, hereinafter referred to as the Property. The enclosed Phase I ESA report presents our interpretation of site conditions at the time the Phase I ESA was completed, based on field observations, a review of readily available historical and regulatory records, and interviews.

The Phase I ESA was requested to identify recorded and readily observable recognized environmental conditions associated with the Property. We understand August LLC will rely upon the professional opinions and representations contained in the report in accordance with the terms and conditions agreed upon for the project. This reliance is not to be construed as a warranty or guarantee on the part of SME.

If you have any questions concerning this report, or if additional services are required, please contact us.

Sincerely,

**SME**

Troy Helmick, CPG  
Project Consultant

Daniel R. Cassidy, CPG  
Vice President



# PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

35975 WOODWARD AVENUE, BIRMINGHAM, MICHIGAN 48009

SME Project Number: 075099.01

October 21, 2016



# TABLE OF CONTENTS

<b>1. SUMMARY .....</b>	<b>1</b>
<b>2. INTRODUCTION.....</b>	<b>3</b>
2.1 PURPOSE .....	3
2.2 DETAILED SCOPE OF SERVICES.....	3
2.3 SIGNIFICANT ASSUMPTIONS .....	3
2.4 LIMITING CONDITIONS AND EXCEPTIONS .....	4
2.5 SPECIAL TERMS AND CONDITIONS .....	4
2.6 RELIANCE .....	4
<b>3.0 USER-PROVIDED INFORMATION .....</b>	<b>5</b>
3.1 REASON FOR THE PHASE I ESA .....	5
3.2 RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS (AULs) .....	5
3.3 SPECIALIZED KNOWLEDGE AND EXPERIENCE .....	5
3.4 RELATIONSHIP OF PURCHASE PRICE TO VALUE .....	5
3.5 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION.....	5
3.6 PROCEEDINGS INVOLVING THE PROPERTY .....	5
<b>4. RECORDS REVIEW .....</b>	<b>6</b>
4.1 ENVIRONMENTAL RECORD SOURCES .....	6
4.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES.....	7
4.2.1 COUNTY ENVIRONMENTAL HEALTH DEPARTMENT.....	7
4.2.2 LOCAL FIRE DEPARTMENT .....	7
4.2.3 STATE AGENCY FOR OIL AND GAS WELLS .....	7
4.2.4 OTHER RECORD SOURCES .....	7
4.3 PHYSICAL SETTING SOURCE(S) .....	8
4.3.1 USGS – CURRENT 7.5 MINUTE TOPOGRAPHIC MAP .....	8
4.3.2 OTHER NON-PRACTICE PHYSICAL SETTING SOURCES.....	8
4.4 HISTORICAL USE INFORMATION FOR THE PROPERTY .....	8
4.4.1 STANDARD HISTORICAL SOURCES .....	8
4.4.2 HISTORICAL USE SUMMARY .....	9
4.4.3 HISTORICAL USE INFORMATION ABOUT SURROUNDING AREAS.....	10
<b>5. SITE RECONNAISSANCE .....</b>	<b>11</b>
5.1 METHODOLOGY AND LIMITING CONDITIONS .....	11
5.2 GENERAL PROPERTY SETTING .....	11
5.3 EXTERIOR OBSERVATIONS.....	11
5.3.1 CHEMICAL USE AND STORAGE .....	11



5.3.2 USTs/ASTs.....	11
5.3.3 PCB-CONTAINING EQUIPMENT.....	11
5.3.4 PITS, PONDS, AND LAGOONS.....	11
5.3.5 WASTE GENERATION, TREATMENT, STORAGE, AND DISPOSAL.....	11
5.3.6 OTHER EXTERIOR FEATURES.....	11
5.5 ADJOINING SITES OBSERVATIONS.....	12
<b>6. INTERVIEWS.....</b>	<b>13</b>
6.1 INTERVIEWS WITH OWNER/SITE MANAGER/OCCUPANT.....	13
6.2 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS.....	13
6.3 INTERVIEWS WITH OTHERS.....	13
<b>7. EVALUATION.....</b>	<b>14</b>
7.1 FINDINGS.....	14
7.2 OPINIONS AND CONCLUSIONS.....	14
7.3 DATA GAPS AND LIMITING CONDITIONS.....	15
7.4 STATEMENT AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL.....	15
<b>8. DEVIATIONS.....</b>	<b>16</b>
<b>9. NON-SCOPE SERVICES.....</b>	<b>16</b>
<b>10. REFERENCES.....</b>	<b>16</b>
<b>11. GENERAL COMMENTS.....</b>	<b>17</b>

## **FIGURES**

**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: PROPERTY FEATURES DIAGRAM**

## **APPENDIX A**

**PHOTOGRAPHS**

## **APPENDIX B**

**HISTORICAL RESEARCH DOCUMENTATION**

## **APPENDIX C**

**INTERVIEW DOCUMENTATION**

**USER QUESTIONNAIRE**

**OWNER/OCCUPANT QUESTIONNAIRE**

**APPENDIX D**  
**REGULATORY RECORDS DOCUMENTATION**

**APPENDIX E**  
**QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(S)**



# 1. SUMMARY

SME's project team conducted a Phase I Environmental Site Assessment (ESA) of the property at 35975 Woodward Avenue in Birmingham, Oakland County, Michigan, hereinafter referred to as "the Property," in conformance with the scope and limitations of ASTM International (ASTM) Standard Practice E 1527-13 (Practice). Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. The general Property location is shown in Figure 1. Property features are shown in Figure 2.

The purpose of this Phase I ESA was to satisfy relevant All Appropriate Inquiries (AAI) requirements to qualify August LLC (the User) for applicable Landowner Liability Protections (LLP) under the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA).

This Phase I ESA report is comprised of the following elements: 1) property description, 2) User-provided information, 3) records review, 4) site reconnaissance, 5) interviews, 6) findings, opinions, and conclusions.

## FINDINGS

The Property operated as a gas station, for towing service, and for rental car service between at 1967 and 2012. The Property's structures were demolished and underground storage tanks (USTs) were removed by 2013. The Property is currently used as an asphalt parking lot.

## CONCLUSIONS

This assessment has revealed no evidence of recognized environmental conditions in connection with the Property except for the following:

- The reported contamination as evidenced by the previous assessments and the recorded Restrictive Covenant and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012 (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1)

We identified one data gap in connection with this Phase I ESA. The City of Birmingham Fire Department did not respond to our requests for information. In the EP's opinion, a sufficient Property history was developed using the historical sources documented in this report. This data gap did not impact our ability to identify or evaluate suspect RECs in connection with the Property. We identified no limitations in connection with this Phase I ESA.

The User acquiring the Property is the sole party responsible for complying with AAI requirements for LLP under CERCLA as an Innocent Purchaser, Bona Fide Prospective Purchaser, or Contiguous Property Owner, as applicable. The completion of a Phase I ESA, with statement by an Environmental Professional (EP) that it is compliant with AAI and/or the ASTM E 1527-13 Practice, may not be sufficient to provide CERCLA LLP.

The findings, opinions and conclusions presented above are intended to provide a summary of the pertinent findings of our Phase I ESA investigation. It should be noted that although this section is an

integral part of the report, it should not be substituted in lieu of reading the entire report. The entire report must be read in order to fully understand the potential environmental concerns associated with the Property.

SME's Project Team was as follows:

Preparer:	Christiaan E. Bon
Environmental Professional (EP):	Troy Helmick, CPG
Senior Technical Reviewer:	Daniel R. Cassidy, CPG

## 2. INTRODUCTION

SME's project team conducted a Phase I ESA of the Property at 35975 Woodward Avenue, Birmingham, Oakland County, Michigan (Figure 1). The Phase I ESA was conducted according to the ASTM International (ASTM) Practice E 1527-13 (Practice), which is accepted in the U.S. Environmental Protection Agency regulations as satisfying one component of the requirements of AAI under CERCLA.

At the time of the reconnaissance, the Property consisted of approximately 0.6 acres of land developed with an asphalt parking lot. A current Property Features Diagram (Figure 2) was developed from the observations, field notes, photographs, and/or historical information collected during conduct of this Phase I ESA.

The Property's tax parcel identification number is 08-19-25-179-001, and the property summary sheet is attached in Appendix B. The current Property owner is Simon Land Development Group, LLC.

Satisfying AAI is one component of the requirements for a Prospective Purchaser. For properties known to be contaminated with hazardous substances, the Prospective Purchaser also must comply with the continuing obligations defined in CERCLA to maintain the LLP to CERCLA.

Mr. David P. Larson, on behalf of August LLC (the User), authorized the conduct of this Phase I ESA to identify and evaluate potential environmental concerns associated with the Property prior to purchase. We were retained to conduct this Phase I ESA in accordance with our August 30, 2016 proposal number P02266.16.

### 2.1 PURPOSE

The purpose of this Phase I ESA was to satisfy relevant AAI requirements for qualifying the User of this report for applicable landowner liability protections under CERCLA (42 U.S.C. 9601). One of the primary objectives was to identify RECs in connection with the Property and assess the relative significance of the identified REC(s). The Practice defines a REC as:

*...the presence or likely presence of any hazardous substances<sup>1</sup> or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

### 2.2 DETAILED SCOPE OF SERVICES

This Phase I ESA was conducted in conformance with the ASTM International Standard Practice on Environmental Site Assessments for Commercial Real Estate designation E 1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." This Phase I

### 2.3 SIGNIFICANT ASSUMPTIONS

Pursuant to the Practice, we assume information provided by all sources and parties (including the User), is accurate and complete except where obvious inconsistencies or inaccuracies were identified.

---

<sup>1</sup> For the purposes of this Phase I ESA, a hazardous substance is a substance as defined in the ASTM Practice E 1527-13.

## 2.4 LIMITING CONDITIONS AND EXCEPTIONS

No limiting conditions were encountered during site reconnaissance activities.

## 2.5 SPECIAL TERMS AND CONDITIONS

No special terms or conditions were imposed on the conduct of this Phase I ESA.

## 2.6 RELIANCE

We have prepared this report to be used and relied upon solely and exclusively by August LLC (the User), in accordance with terms and conditions agreed upon for the project. No other party may rely upon our opinions, conclusions or reports unless SME has agreed to such reliance in writing.

According to ASTM E 1527-13, the following components of a Phase I ESA must be conducted within 180 days of the date of acquisition or the date of the intended transaction:

- interview(s) with owners, operators, and occupants
- search for recorded environmental cleanup liens
- review of federal, tribal state and local government records
- visual inspections of the Property and adjoining sites
- declaration by the environmental professional responsible for the assessment

Review of federal, tribal state and local government records was completed on September 28, 2016, the earliest completion date of the required Phase I ESA components. This Phase I ESA report, therefore, is valid until March 27, 2016 (180 days after earliest date of listed components).

## 3.0 USER-PROVIDED INFORMATION

As part of AAI, the User has the responsibility, above and beyond the Phase I ESA conducted under supervision of an EP, to provide information described in the subsections below. Ms. Jaime Rae Turnbull, the User's representative, provided information about the following issues through completion of the **User Questionnaire** in Appendix C.

### 3.1 REASON FOR THE PHASE I ESA

The User's representative reported the reason for this Phase I ESA was to support the User's all appropriate inquiries into environmental conditions of the Property, a component of the User's effort to qualify for one of the landowner liability protections to CERCLA applicable to the planned purchase of the Property.

### 3.2 RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS (AULs)

The User's representative reported that First American Title Company was retained to review recorded land title records on file with the Register of Deeds for Oakland County, Michigan, for the purpose of identifying recorded environmental cleanup liens and AULs related to the Property.

The User identified land use limitations/restrictions recorded with the Oakland County Register of Deeds on March 16, 1998. A copy of the restrictive covenant with a list of the land use and/or resource limitations for the Property is included with the User Questionnaire in Appendix C. The land use limitations/restrictions is a REC in connection with the property.

### 3.3 SPECIALIZED KNOWLEDGE AND EXPERIENCE

The User's representative reported having no specialized knowledge or experience that would indicate, or create suspicion of, the presence of environmental contamination on the Property.

### 3.4 RELATIONSHIP OF PURCHASE PRICE TO VALUE

The User's representative reported that the purchase price of the Property reflected fair market value.

### 3.5 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The User's representative reported that SME had given information on the presence of a former gas station on the Property and a dry cleaner on the south and west-adjointing site. The possible migration of contamination from historical use of the adjoining Property represents a suspect REC in connection with the Property. The possible presence of unreported and/or undetected releases of petroleum products associated with the historical use of the Property represents a suspect REC in connection with the Property.

### 3.6 PROCEEDINGS INVOLVING THE PROPERTY

The User's representative, based on personal knowledge and experience related to the Property, reported no known pending, threatened, or past litigation, administrative proceedings, or violations of environmental laws and regulations related to hazardous substances or petroleum products in, on, or arising from the Property.

## 4. RECORDS REVIEW

### 4.1 ENVIRONMENTAL RECORD SOURCES

We retained Environmental Data Resources, Inc. (EDR) to query the state, federal, and tribal regulatory agency databases described in the Practice to identify regulated and/or environmentally impacted sites within the specified approximate minimum search distances. EDR also queried other readily available regulatory agency databases. The queried databases, associated search radii, and dates the lists were updated are listed in the EDR report (Appendix D). The EDR report also includes maps indicating the locations of these listed sites relative to the Property. Unmapped sites, as identified by EDR, are sites that for various reasons cannot be mapped through the EDR query system. Where possible, we attempted to locate the reported unmapped sites.

A summary of listed sites of concern is presented in the table included in this subsection. Where possible, we attempted to locate the reported unmapped sites. Unmapped sites we determined to be within the applicable approximate minimum search distance(s) and to be suspect RECs are also included in the table. The other listed sites do not appear to represent suspect RECs in connection with the Property, because of the predominately native clay soil profile, lack of groundwater, and distance from the Property limits the likelihood of migration onto the Property from these sites.

SITE NAME AND ADDRESS	APPROXIMATE DISTANCE AND DIRECTION FROM PROPERTY <sup>1</sup>	NAME OF LIST <sup>2</sup>
BP Amoco/Simon Land/A&G Auto Care 35975 Woodward Avenue	The Property	BEA, LUST (open), UST, RGA LUST, RCRA-CESQG
Ghafari Properties Inc. 36101 Woodward Avenue	North-adjointing	LUST (closed), UST

<sup>1</sup>EDR sites are mapped by address. Distances and/or site directions listed above may be adjusted from those reported by EDR to better represent field conditions and potential site boundaries.

<sup>2</sup>Definitions of acronyms and lists are presented in the EDR report.

We reviewed relevant documents provided by the Michigan Department of Environmental Quality (MDEQ) Waste Data System, MDEQ Storage Tank Database, MDEQ Division of Licensing and Regulatory Affairs, and the MDEQ Part 201 Mapper for the listed sites of concern, where available. A summary of our findings is presented in the following paragraphs.

#### The Property

One 6,000-gallon underground storage tank (UST) for storage of diesel fuel and one 8,000-gallon UST and three 6,000-gallon USTs for storage of gasoline were removed from the ground in 1988. One 8,000-gallon UST and three 12,000-gallon USTs for storage of gasoline, as well as two 560-gallon USTs for storage of used oil, were removed from the ground in October 2007. A confirmed release was reported in 1989 and the status is listed as open.

A Baseline Environmental Assessment (BEA) was conducted on the Property in 2007 by SME. SME advanced 15 soil probes and installed 9 monitoring wells. SME concluded that the site was a facility because concentrations of benzene, ethylbenzene, MTBE, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tetrachloroethene, toluene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, tetrahydrofuran, xylenes, flouranthene, arsenic, lead, mercury, and selenium were measured above one or more Michigan Department of Environmental Quality (MDEQ) Part 201 Generic Residential Cleanup Criteria.

The reported soil and groundwater contamination on the Property represents a REC in connection with the Property.

### **Ghafari Properties Inc.**

The north-adjointing Property operated as a gas station from at least 1989 to present day. Six 10,000-gallon and one 12,000-gallon USTs for storage of gasoline were listed as removed from ground in 1990. A gasoline release was reported on the site in 2004 and received closure status by the MDEQ in 2013.

We reviewed the 2012 closure report prepared by Groundwater & Environmental Services, Inc. (GES). GES conducted a remedial excavation and reportedly removed 520 cubic yards of impacted soil and 5,300 gallons of impacted groundwater. A Restrictive Covenant was recorded on the deed and filed with the Oakland County Register of Deeds Office. The Restrictive Covenant restricted land use to nonresidential and prohibited groundwater use at the site. A Tier 1 nonresidential, restricted closure was granted by the MDEQ.

A Mobil gas station continues to operate on the site. The potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the active gas station operations represents a suspect REC in connection with the Property.

## **4.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES**

### **4.2.1 COUNTY ENVIRONMENTAL HEALTH DEPARTMENT**

On September 28, 2016, we contacted the Oakland County Environmental Health Department via telephone and requested all available information pertaining to environmental complaints, concerns or general records associated with the Property and surrounding area, including information on septic systems and water wells, if any, located on the Property. The Oakland County FOIA Center indicated no records were available for the Property.

### **4.2.2 LOCAL FIRE DEPARTMENT**

On September 28, 2016, we contacted the Birmingham Fire Department via facsimile transmission and requested all available records associated with the Property and surrounding area. We did not receive a response from the Birmingham Fire Department. This represents a data gap in connection with the Property.

### **4.2.3 STATE AGENCY FOR OIL AND GAS WELLS**

We queried the MDEQ-Geological Survey Division's (GSD) Oil and Gas Information System. According to the September 28, 2016, query results, no known oil and/or gas well permits were recorded for the Property section number. The information was consistent with the EDR® radius report.

### **4.2.4 OTHER RECORD SOURCES**

No other record sources were accessed as part of this Phase I ESA.



## 4.3 PHYSICAL SETTING SOURCE(S)

### 4.3.1 USGS – CURRENT 7.5 MINUTE TOPOGRAPHIC MAP

We reviewed a United States Geological Survey (USGS) 7.5-minute series Topographic Map Birmingham Quadrangle, Michigan, compiled in 2014. The Property was relatively flat at an elevation of approximately 760 feet above mean sea level (MSL). It was an urban area less than a quarter mile southwest of the intersection of Woodward Avenue and North Old Woodward Avenue. The Sunken Bridge Drain is located a quarter-mile to the west of the Property and the Rouge River is located 100 ft. south of the Property. No other bodies of water were depicted within a one-mile radius.

### 4.3.2 OTHER NON-PRACTICE PHYSICAL SETTING SOURCES

SME previously conducted environmental assessments at the Property and we encountered 2 to 21 feet of sandy clay fill underlain by native lean clay. We noted staining and petroleum odors, and measured elevated levels of VOCs using a photoionization detector (PID). Groundwater was encountered at approximately 16 feet below ground surface. Groundwater flow was estimated to be to the southeast. The presence of staining, petroleum odors, and elevated PID readings represents a suspect REC in connection with the Property.

## 4.4 HISTORICAL USE INFORMATION FOR THE PROPERTY

We consulted historical record sources described in the following subsections to develop a history of the Property's previous uses to help identify the likelihood of past uses having led to RECs in connection with the Property. The information reviewed was from reasonably ascertainable standard sources, defined in the Practice as publicly available, obtainable from its source within reasonable time and cost constraints, and practicably reviewable.

Data failures encountered, as defined by the Practice, are described in the following discussions of the respective historical sources. The Practice requires review of only as many of the standard historical sources as are reasonably ascertainable and likely to be useful.

### 4.4.1 STANDARD HISTORICAL SOURCES

The sources reviewed for this Phase I ESA are summarized below. Copies of source documents are included in Appendix B. A summary of findings from these reviews is presented in section 4.4.2.

- **Aerial Photographs:** We reviewed aerial photographs, obtained from EDR®, dated 1937, 1940, 1949, 1952, 1956, 1967, 1972, 1976, 1983, 1987, 1997, 1999, 2005, 2009, 2010, 2012.
- **Fire Insurance Maps:** Sanborn® Fire Insurance Maps (Sanborn® Maps) are not available for the Property. We reviewed Sanborn® Maps for the area west and south of the Property, obtained from EDR®, dated 1931, 1949, 1960.
- **Property Tax Files:** We visited the Birmingham City Offices to reviewed available records. No records were provided for review. We were able to review property summary sheets.
- **Recorded Land Title Records:** We did not review land title records because information regarding the history of the Property was obtained from other historical sources identified herein. In addition, land title records typically provide information regarding ownership, but not use, of a property.
- **USGS Topographic Maps:** We reviewed the USGS 7.5-minute series Topographic Map Birmingham Quadrangle, Michigan, compiled in 1908, 1936, 1945, 1952, 1968, 1973, 1981, 2014.

- **Local Street Directories:** We reviewed City Directory Images, provided by EDR, for the years 1944, 1951, 1957, 1962, 1967, 1972, 1977, 1982, 1988, 1992, 1995, 1999, 2003, 2008, 2013.
- **Building Department Records:** We visited the Birmingham Building Department and reviewed available records, which were comprised of Demolition Records of the gas station formerly on the Property, fire code violations, inspection records, permits, and cover letters of Phase I and Phase II ESAs.
- **Zoning/Land Use Records:** We reviewed a zoning map. According to The City of Birmingham Zoning Map, the Property was zoned General Business (B-2B).
- **Other Historical Sources:** We did not review other historical sources because sufficient information regarding the Property's history was obtained from the aforementioned historical sources. OR If information is obtained from other sources: We reviewed list other sources (e.g., previous environmental or Phase I ESA reports, RCRA CCRs). AND if the EDR radius report listed historic auto service stations and/or dry cleaners We reviewed the EDR Radius Map Report for listing of historical automobile service stations and/or historical dry cleaners on or in the area of the Property.

#### 4.4.2 HISTORICAL USE SUMMARY

A summary of historical usage of the Property, back to 1931, the date of earliest readily available records as described above, is presented in the following table:

YEAR/PERIOD	IDENTIFIED / INFERRED USE	SOURCE (Date)
1931 - 1960	The Property was depicted as vacant land. No address was listed for the Property	Aerial Photographs (1937 – 1952) Topographic Map (1936 - 1952)
1967 - 1995	The Property was developed with one building on the southwest portion of the Property. Three dispenser islands were visible on the southeast and north portions of the Property. Hunter & Oak Standard service was listed at 905 North Hunter Boulevard.	Aerial Photograph (1967 - 1995) Topographic Map (1968 - 1981) City Directory (1967 - 1995)
1999 - 2012	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Birmingham Amoco, Inc., Birmingham Towing, and National Car Rental were listed at 35975 Woodward Avenue.	Aerial Photograph (1999 - 2012) City Directory (1999 - 2008)
2013- 2016	Structures were demolished and the Property is developed with a parking lot. There was no listing for the Property in the 2013 City Directory.	Topographic Map (2014) City Directory (2013) Building Department Records (2013 - 2016)

We were able to determine the first developed use of the Property as an automotive repair and gas station in 1967. The historical use of the Property as a gas station and for automotive repair represents a suspect REC in connection with the Property.

#### 4.4.3 HISTORICAL USE INFORMATION ABOUT SURROUNDING AREAS

An attempt was made to assess the historical uses of specific proximate sites by reviewing records referenced in Section 4.4. A summary of proximate sites of concern (suspect RECs), as identified only to the extent that this information was revealed in the course of researching the Property itself, is presented in the table below:

YEAR/PERIOD	IDENTIFIED / INFERRED USE (Relationship to Property)	SOURCE (Date)
2001 - present	Douglas Cleaners 900 N Old Woodward Ave Historical Cleaners	EDR® Radius Report (2016)
2001 – present	Ghafari Properties Inc. 36101 Woodward Ave EDR Historical Auto	EDR® Radius Report (2016)
1931 – 1960	Southwest Corner of North Old Woodward Avenue and Oak Avenue	Sanborn® Maps (1931 – 1960)

##### **Douglas Cleaners**

Douglas Cleaners is the west-adjointing site and has operated as a dry cleaner from at least 2001 to the present. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the west adjoining site represents a suspect REC in connection with the Property.

##### **Ghafari Properties Inc.**

A Mobil gas station operated on the north-adjointing site from at least 1989 to the present. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the west adjoining site represents a suspect REC in connection with the Property.

##### **Southwest Corner of North Old Woodward Avenue and Oak Avenue**

In our review of Sanborn® Maps for the property, we noted an auto service station on the southwest corner of Oak Avenue and North Woodward Avenue approximately 200 feet west of the Property. The filling station that was part of the service station included three gasoline tanks. The station was present in the 1931, 1949, and 1960 Sanborn® Maps. The station was not reported in the EDR® Radius Report. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from this site represents a suspect REC in connection with the Property.

## 5. SITE RECONNAISSANCE

A site reconnaissance was conducted to identify evidence indicative of suspect RECs in connection with the Property. Descriptions of the current Property use and conditions, including the use, storage, and/or treatment of hazardous substances and/or petroleum products and the generation, storage/accumulation, and/or disposal of chemical, petroleum or other contaminated wastes are presented in the following sections.

### 5.1 METHODOLOGY AND LIMITING CONDITIONS

On October 6, 2016, Mr. Christiaan Bon, under the guidance of the EP, conducted a reconnaissance to observe Property conditions and features. Mr. Bon was unaccompanied during the reconnaissance. Photographs taken during the reconnaissance, which illustrate observed conditions and surrounding areas, are contained in Appendix A. No limiting conditions were encountered.

### 5.2 GENERAL PROPERTY SETTING

The Property was developed with an asphalt parking lot with landscaped areas on the north and east property boundaries. No buildings were present on the Property. The Property was relatively flat and was located in a commercial area on the west side of Woodward Ave.

### 5.3 EXTERIOR OBSERVATIONS

The Property was developed with an asphalt parking lot in good condition. Mr. Bon observed no evidence of stained soils or pavements, or areas of stressed vegetation, septic systems or water supply wells. No suspect RECs were identified unless indicated in the following subsections.

#### 5.3.1 CHEMICAL USE AND STORAGE

Mr. Bon observed no use and/or storage of chemicals.

#### 5.3.2 USTs/ASTs

Mr. Bon observed no evidence of USTs or ASTs.

#### 5.3.3 PCB-CONTAINING EQUIPMENT

Mr. Bon observed no evidence of equipment containing polychlorinated biphenyl (PCB).

#### 5.3.4 PITS, PONDS, AND LAGOONS

Mr. Bon observed no evidence of pits, ponds, or lagoons.

#### 5.3.5 WASTE GENERATION, TREATMENT, STORAGE, AND DISPOSAL

Mr. Bon observed no evidence of the generation, treatment, storage, or disposal of liquid or solid wastes.

#### 5.3.6 OTHER EXTERIOR FEATURES

Mr. Bon observed no other features indicative of suspect RECs.

## 5.5 ADJOINING SITES OBSERVATIONS

Known current uses of adjoining sites are summarized in the following table:

DIRECTION	NAME ADDRESS	ACTIVITY
North	Mobil gas station and Various Commercial Retail 36101 Woodward Avenue	Gas Station/Commercial
East	Woodward Avenue	Roadway
West	Douglas Cleaners and Associated Vacant Land 900 North Old Woodward Avenue	Dry Cleaners

Mr. Bon walked the perimeter of the Property in a clockwise fashion to observe adjoining sites. No tanks or containers indicating hazardous substances were observed. No RECs were observed except for the following:

- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances from the west-adjointing dry cleaners site on to the Property represents a suspect REC in connection with the Property.
- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products from the north-adjointing gas station site on to the Property represents a suspect REC in connection with the Property.

## 6. INTERVIEWS

As part of the conduct of this Phase I ESA, Mr. Bon interviewed the following pertinent individuals other than the User of this report:

- Current Property representatives – Mssrs. Robert Mardigian, Member, and Craig Sickmiller, Agent, at 35975 Woodward, LLC
- State and/or local government officials – Mr. Thomas Hensel, Contract Compliance Analyst, Oakland County Health Division

### 6.1 INTERVIEWS WITH OWNER/SITE MANAGER/OCCUPANT

We evaluated information provided on an Owner/Occupant Questionnaire by Mssrs. Mardigian and Sickmiller on October 4, 2016. A copy of our Owner/Occupant Questionnaire completed by (Name and title) is included in Appendix C.

Mssrs. Mardigian and Sickmiller had knowledge of the site from 2007 to present. They reported that the site was formerly a gas station and that a dry cleaner was located immediately west of the Property. We identified the following suspect RECs based on the interview and review of the Owner/Occupant Questionnaire:

- the potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances from the west-adjointing dry cleaner site on to the Property;
- the potential for unreported and/or undetected releases of hazardous substances associated with the historical gas station operations on the Property.

### 6.2 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

We interviewed Mr. Hensel and asked whether he knew of any environmental incidents or concerns associated with the Property and surrounding area. Mr. Hensel indicated that he was not aware of environmentally-related incidents having occurred on the Property or surrounding area.

### 6.3 INTERVIEWS WITH OTHERS

No other interviews were performed as part of this Phase I ESA.

## 7. EVALUATION

Findings, opinions and conclusions are presented below.

### 7.1 FINDINGS

The Property operated as a gas station, for towing service, and for rental car service between 1967 and 2012. The Property's structures were demolished and USTs were removed by 2013. The Property was then paved with asphalt and used for parking. During the course of our investigation, we identified the following suspect RECs:

- The reported contamination and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012. SME conducted a BEA in 2007 and concluded that the site was a facility based on multiple analytes which exceeded one or more Part 201 Generic Residential Cleanup Criteria and a Restrictive Covenant limiting/restricting the land use was recorded for the Property (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site. The north-adjointing site has operated as a gas station from at least 1989 to the present. The site was listed as a LUST site based on a release report in 1989. A remedial excavation was conducted by GES to remove contaminated soil and groundwater. A Restrictive Covenant was recorded on the deed restricting land use to nonresidential and prohibiting groundwater use at the site. A Tier 1 nonresidential, restricted closure was granted by the MDEQ in 2013. The site has continued to operate as a gasoline filling station after the closure was granted (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner. The west-adjointing site has operated as a dry cleaner from at least 2001 to the present. Historical dry cleaning operations are often associated with perchloroethylene (PCE) impact to soil and groundwater. (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1).
- In our review of Sanborn® Maps for the property, we noted an auto service station with three 'gasoline tanks' on the southwest corner of Oak Avenue and North Woodward Avenue approximately 200 feet west of the Property. The station was present in the 1931, 1949, and 1960 Sanborn® Maps. The station was not identified in the EDR® Radius Report. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the site represents a suspect REC in connection with the Property (Section 4.4.3).

### 7.2 OPINIONS AND CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E 1527-13 of 35975 Woodward Avenue, Birmingham, Oakland County, Michigan, the Property. Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. In the EP's opinion, this assessment has revealed no evidence of RECs in connection with the Property except for the following.

- The reported contamination as evidenced by the previous assessments and the recorded Restrictive Covenant and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for



gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012 (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);

- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1);

In the EP's opinion, the following suspect REC is not a REC in connection with the Property for the stated reason.

- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the site 200 ft. west of the Property is not a REC because groundwater is estimated to flow southeast, away from the Property (Section 4.4.3).

### 7.3 DATA GAPS AND LIMITING CONDITIONS

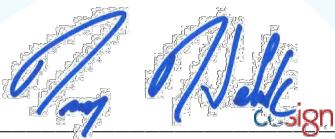
We identified one data gap in connection with this Phase I ESA. The City of Birmingham Fire Department did not respond to our requests for information. In the EP's opinion, a sufficient Property history was developed using the aforementioned historical sources documented in this report. This data gap did not impact our ability to identify or evaluate suspect RECs in connection with the Property. We identified no limitations in connection with this Phase I ESA.

The findings, opinions and conclusions presented above are intended to provide a summary of the pertinent findings of our Phase I ESA investigation. It should be noted that although this section is an integral part of the report, it should not be substituted in lieu of reading the entire report. The entire report must be read in order to fully understand the potential environmental concerns associated with the Property.

### 7.4 STATEMENT AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

The Environmental Professional responsible for the conduct of this Phase I ESA was Mr. Troy Helmick, CPG. His resume is attached in Appendix E.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



---

Troy Helmick, CPG  
Project Consultant

## 8. DEVIATIONS

No deviations occurred as part of this Phase I ESA.

## 9. NON-SCOPE SERVICES

No non-scope services were provided in conjunction with this Phase I ESA.

## 10. REFERENCES

ASTM International, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, November 1, 2013.

Groundwater & Environmental Services, Inc., **Closure Report, Former Mobil #03-KNX, 36101 Woodward Avenue, Birmingham, Oakland County, Michigan**, December 2012.

SME, **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan**, November 16, 2007.

## 11. GENERAL COMMENTS

SME's project team conducted this Phase I ESA to identify RECs in connection with the Property and to assess the relative significance of the identified RECs. The findings, opinions, conclusions, and recommendations presented in this report are based upon observations noted during the site visit, and information obtained during the performance of the scope of services on the dates indicated. In the process of obtaining the field and historical information in preparation of this report, procedures were followed that represent reasonable and accepted environmental practices and principles, in a manner consistent with that level of care and skill ordinarily exercised by members of these professions currently practicing under similar conditions. Records reviewed at various locations as identified within the text of this report, include only those records that were provided to SME by the referenced department on the date indicated. As such, the records provided to SME may not represent all records available at a given source. Appropriate Inquiries was made into the past uses of the Property consistent with good commercial or customary practice. As is typical with Phase I ESAs, SME conducted no testing or subsurface evaluation for this assessment.

Due to unknown or latent conditions on the Property, or on adjacent or nearby properties, which may become evident in the future, SME does not represent the Property is free of contamination or hazardous waste material. It should also be noted the Property conditions may change over time. Should additional surface, subsurface, chemical, or other data become available after the date of issue of this report, the findings, conclusions and recommendations contained in this report may have to be modified. SME should be retained to review the new information and adjust our opinion and recommendations accordingly.

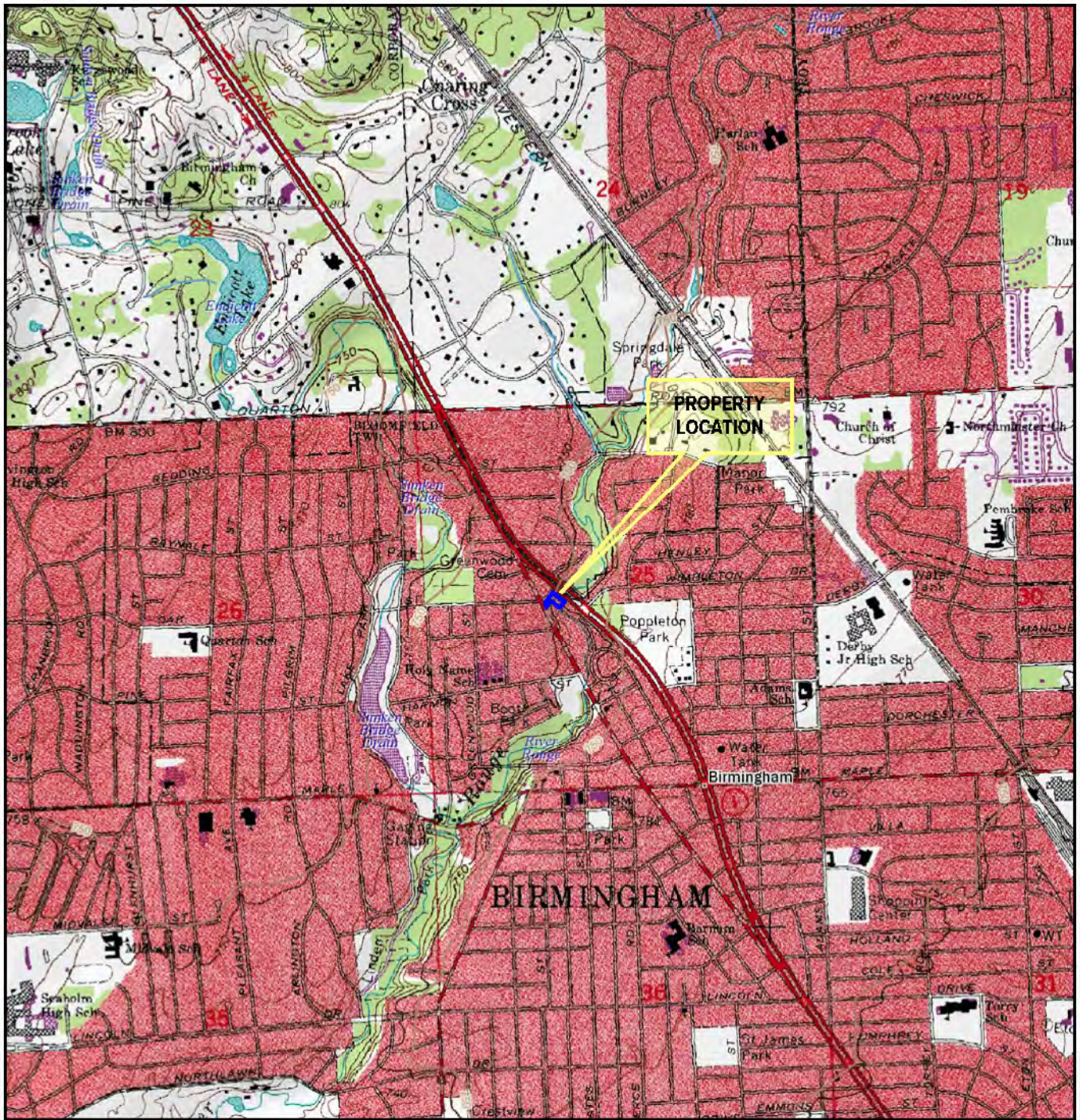
All reports, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by SME as instruments of service are the property of SME. No parties other than those specifically identified in this report may rely upon SME's opinions, conclusions or reports unless SME has agreed to such reliance in writing. In any event, any reliance will be subject to the terms and conditions set forth in the contractual agreement under which this work was performed.

## **FIGURES**

**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: PROPERTY FEATURES DIAGRAM**





Base map obtained from © DeLorme Topo North America™ 10.

**LEGEND**



APPROXIMATE  
PROPERTY LOCATION

USGS QUADRANGLE(S) REFERENCED  
BIRMINGHAM (MI) TOPO QUAD - 1981

No.	Revision Date	Date	10-10-16
		Drawn By	GM
		Designed By	CEB
		Scale	1" = 2000'
		Project	075099.01

**PROPERTY LOCATION MAP**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**

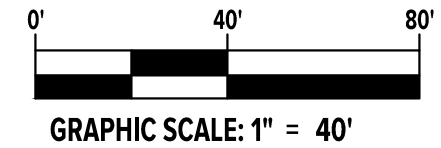
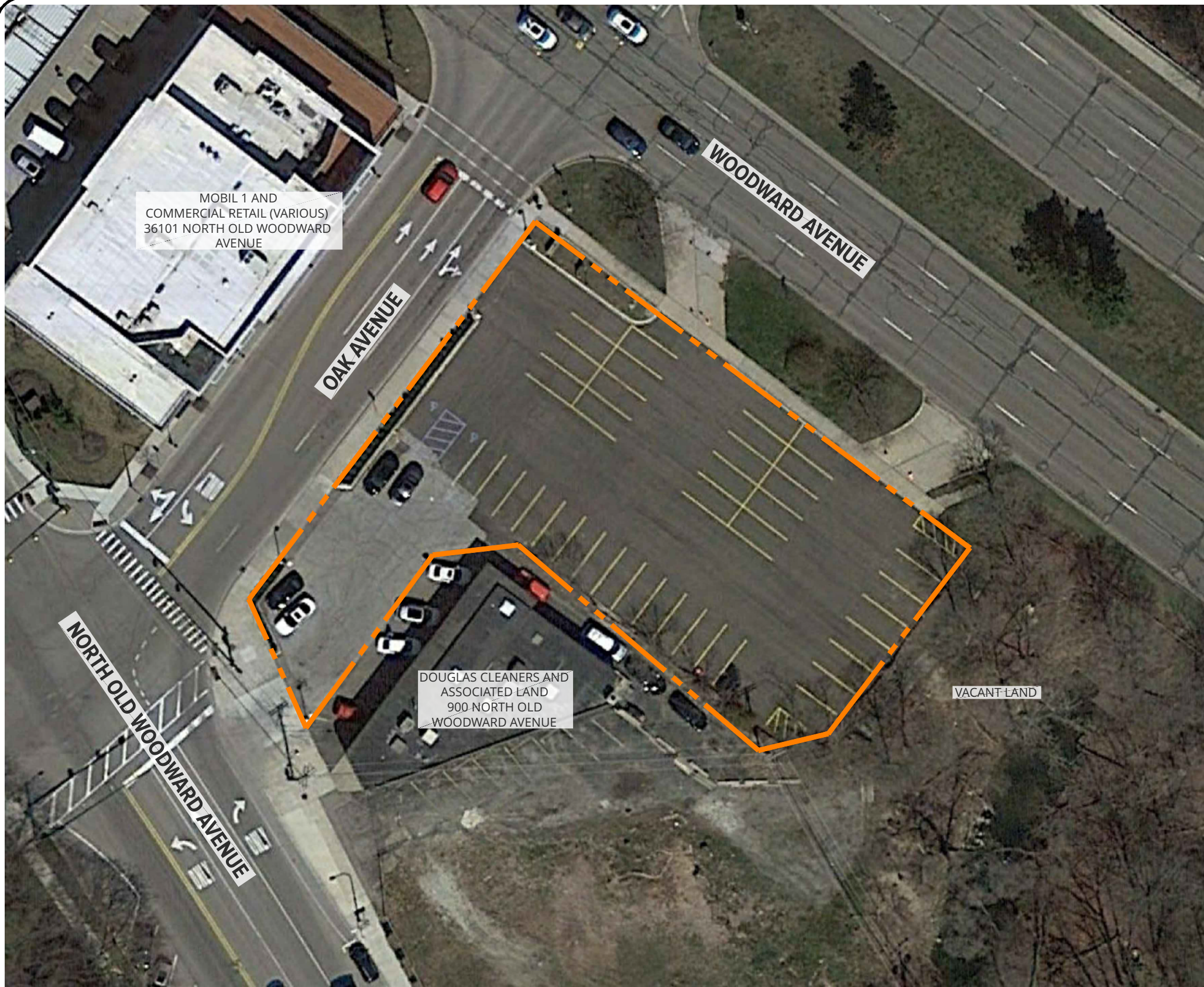


www.sme-usa.com

**Figure No. 1**



Oct 13, 2016 - 12:54pm - MANDRILA - FILE LOCATION: \\sme-inc\p\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg  
 PLOT DATE:



Project  
**35975 WOODWARD AVENUE**

Project Location  
**BIRMINGHAM, MICHIGAN**

Sheet Name  
**PROPERTY FEATURES DIAGRAM**

No.	Revision Date

Date	10-10-16
CADD	GM
Designer	CEB
Scale	1" = 40'
Project	075099.01

Figure No.  
**2**

**LEGEND**

— — — — — APPROXIMATE PROPERTY BOUNDARY

NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO AND SITE RECONNAISSANCE.

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
 © 2015



**APPENDIX A**  
**PHOTOGRAPHS**





PHOTO NO. 1: View of the south portion of the site.



PHOTO NO. 2: View of the north portion of the site.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan



PHOTO NO. 3: View of the north-adjointing commercial retail building and Mobil 1.



PHOTO NO. 4: View of northeast-adjointing Woodward Avenue and commercial offices.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan





PHOTO NO. 5: View of south and west-adjointing Douglas Cleaners.



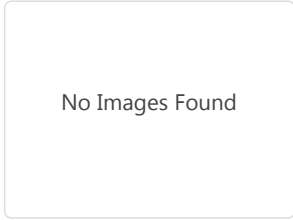
PHOTO NO. 6: View of the south-adjointing vacant land.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan

**APPENDIX B**  
**HISTORICAL RESEARCH DOCUMENTATION**

**35975 WOODWARD AVE** BIRMINGHAM, MI 48009-0940 (Property Address)

Parcel Number: 08-19-25-179-001



**Property Owner: 35975 WOODWARD LLC**

**Summary Information**

- > Assessed Value: \$672,700 | Taxable Value: \$672,700
- > Property Tax Information found
- > 7 Special Assessments found
- > 2 Invoices Found, Amount Due: 0.00

**Parcel is Vacant**

**Owner and Taxpayer Information**

<b>Owner</b>	35975 WOODWARD LLC 35980 WOODWARD AVE STE 210 BLOOMFIELD HILLS, MI 48304	<b>Taxpayer</b>	SEE OWNER INFORMATION
--------------	--	-----------------	-----------------------

**General Information for Tax Year 2016**

<b>Property Class</b>	201 Bus Imp	<b>Unit</b>	08 City of Birmingham
<b>School District</b>	030 Birmingham City Sch	<b>Assessed Value</b>	\$672,700
<b>ITOnly</b>	POST	<b>Taxable Value</b>	\$672,700
<b>PPBusCode</b>	0	<b>State Equalized Value</b>	\$672,700
<b>User Alpha 1</b>	Not Available	<b>Date of Last Name Change</b>	12/08/2007
<b>User Alpha 3</b>	Not Available	<b>Notes</b>	Not Available
<b>Historical District</b>	Not Available	<b>Census Block Group</b>	Not Available
<b>User Alpha 2</b>	Not Available		

**Principal Residence Exemption Information**

**Homestead Date** Not Available

Principal Residence Exemption	June 1st	Final
2016	0.0000 %	-
2015	0.0000 %	0.0000 %

**Previous Year Information**

Year	MBOR Assessed	Final SEV	Final Taxable
2015	\$672,700	\$672,700	\$672,700
2014	\$672,700	\$672,700	\$672,700
2013	\$789,600	\$789,600	\$789,600

**Land Information**

<b>Zoning Code</b>	BI	<b>Total Acres</b>	0.538
<b>Land Value</b>	\$1,345,396	<b>Land Improvements</b>	\$0
<b>Renaissance Zone</b>	No	<b>Renaissance Zone Expiration Date</b>	Not Available
<b>ECF Neighborhood</b>	E.C.F. Table CVL	<b>Mortgage Code</b>	00000
<b>Lot Dimensions/Comments</b>	Not Available	<b>Neighborhood Enterprise Zone</b>	No

Lot(s)	Frontage	Depth
Lot 1	1.00 ft	0.00 ft
<b>Total Frontage: 1.00 ft</b>		<b>Average Depth: 0.00 ft</b>

**Legal Description**

T2N, R10E, SEC 25 PART OF NW 1/4 BEG AT PT DIST N 88-16-00 W 659.12 FT & N 49-21-00 W 120.93 FT FROM CEN OF SEC, TH N 49-21-00 W 200 FT, TH S 40-39-00 W 171.16 FT, TH S 22-50-00 E 49.17 FT, TH N 40-39-00 E 77.11 FT, TH N 85-39-00 E 22.63 FT, TH S 49-21-00 E 113.19 FT, TH S 88-16-00 E 34.45 FT, TH N

Sale Date	Sale Price	Instrument	Grantor	Grantee	Terms of Sale	Liber/Page
-----------	------------	------------	---------	---------	---------------	------------

**Land Division Act Information**

<b>Date of Last Split/Combine</b>	<i>Not Available</i>	<b>Number of Splits Left</b>	0
<b>Date Form Filed</b>	<i>Not Available</i>	<b>Unallocated Div.s of Parent</b>	0
<b>Date Created</b>	<i>Not Available</i>	<b>Unallocated Div.s Transferred</b>	0
<b>Acreage of Parent</b>	0.00	<b>Rights Were Transferred</b>	<i>Not Available</i>
<b>Split Number</b>	0	<b>Courtesy Split</b>	<i>Not Available</i>
<b>Parent Parcel</b>	<i>Not Available</i>		

**Sale History**

Sale Date	Sale Price	Instrument	Grantor	Grantee	Terms of Sale	Liber/Page
10/17/2007	\$1.00	WD	SIMON LAND DEV GROUP	35975 WOODWARD	2-\$1orNoConsideratn	39723:017
03/10/2006	\$350,000.00	WD	ARMADA OIL GAS CO	SIMON LAND DEV GROUP	14-Other	37310:141
05/25/2005	\$300,000.00	PTA	ARMADA OIL & GAS		14-Other	

**\*\*Disclaimer:** BS&A Software provides AccessMyGov.com as a way for municipalities to display information online and is not responsible for the content or accuracy of the data herein. This data is provided for reference only and WITHOUT WARRANTY of any kind, expressed or inferred. Please contact your local municipality if you believe there are errors in the data.

Copyright © 2016 [BS&A Software](#), Inc.



35975 Woodward Avenue

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.9

September 28, 2016

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# EDR Aerial Photo Decade Package

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.9

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

<b>Year</b>	<b>Scale</b>	<b>Details</b>	<b>Source</b>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1999	1"=500'	Acquisition Date: March 28, 1999	USGS/DOQQ
1997	1"=500'	Flight Date: May 04, 1997	DTE
1987	1"=500'	Flight Date: June 17, 1987	USDA
1983	1"=500'	Flight Date: May 05, 1983	USDA
1976	1"=500'	Flight Date: March 25, 1976	USDA
1972	1"=500'	Flight Date: July 01, 1972	USDA
1967	1"=500'	Flight Date: May 12, 1967	DTE
1956	1"=500'	Flight Date: May 07, 1956	DTE
1952	1"=500'	Flight Date: April 25, 1952	DTE
1949	1"=500'	Flight Date: May 03, 1949	DTE
1940	1"=500'	Flight Date: September 05, 1940	USDA
1937	1"=500'	Flight Date: October 15, 1937	USDA

**LEGEND**

APPROXIMATE  
PROPERTY BOUNDARY

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

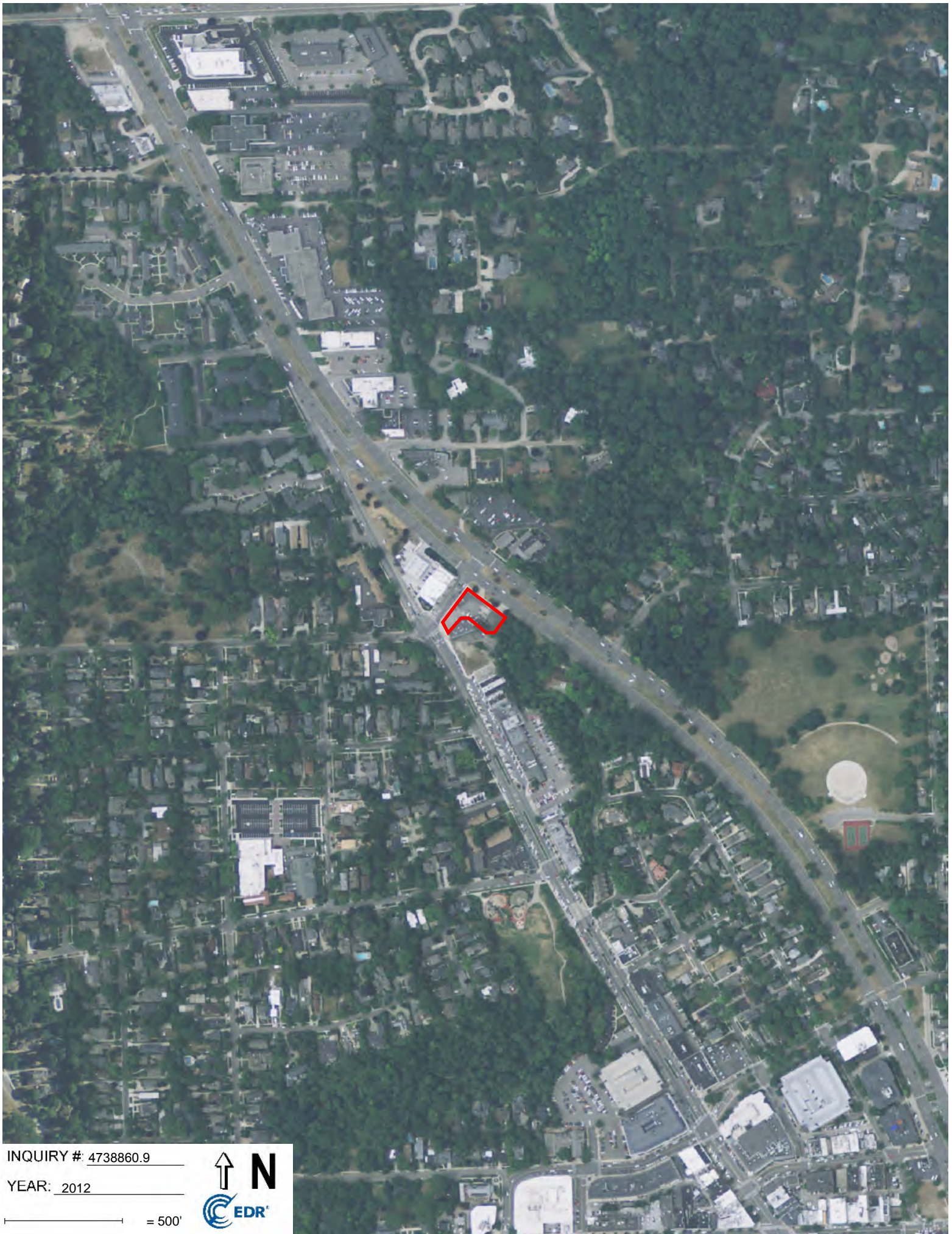
**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.





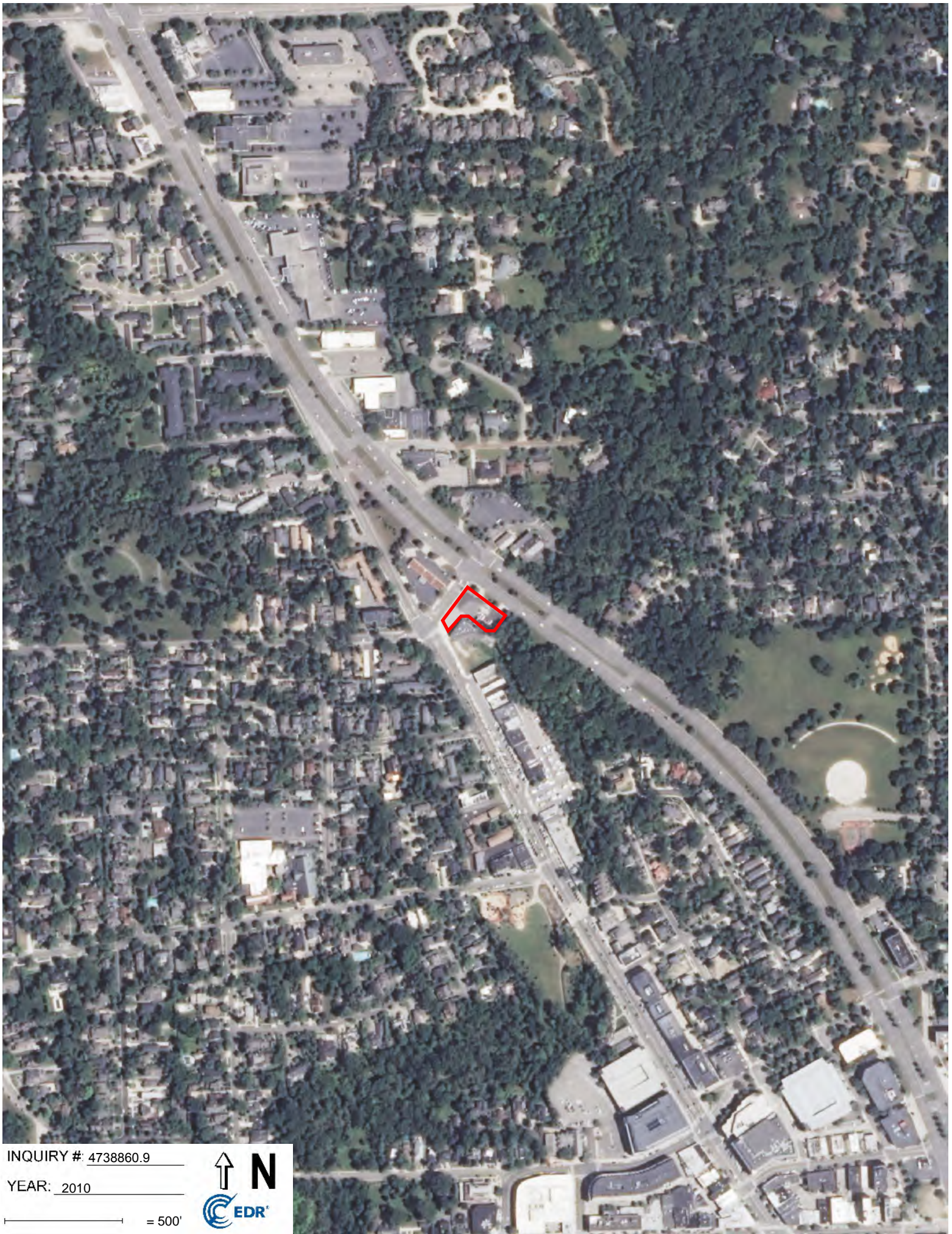
INQUIRY # 4738860.9

YEAR: 2012

— = 500'







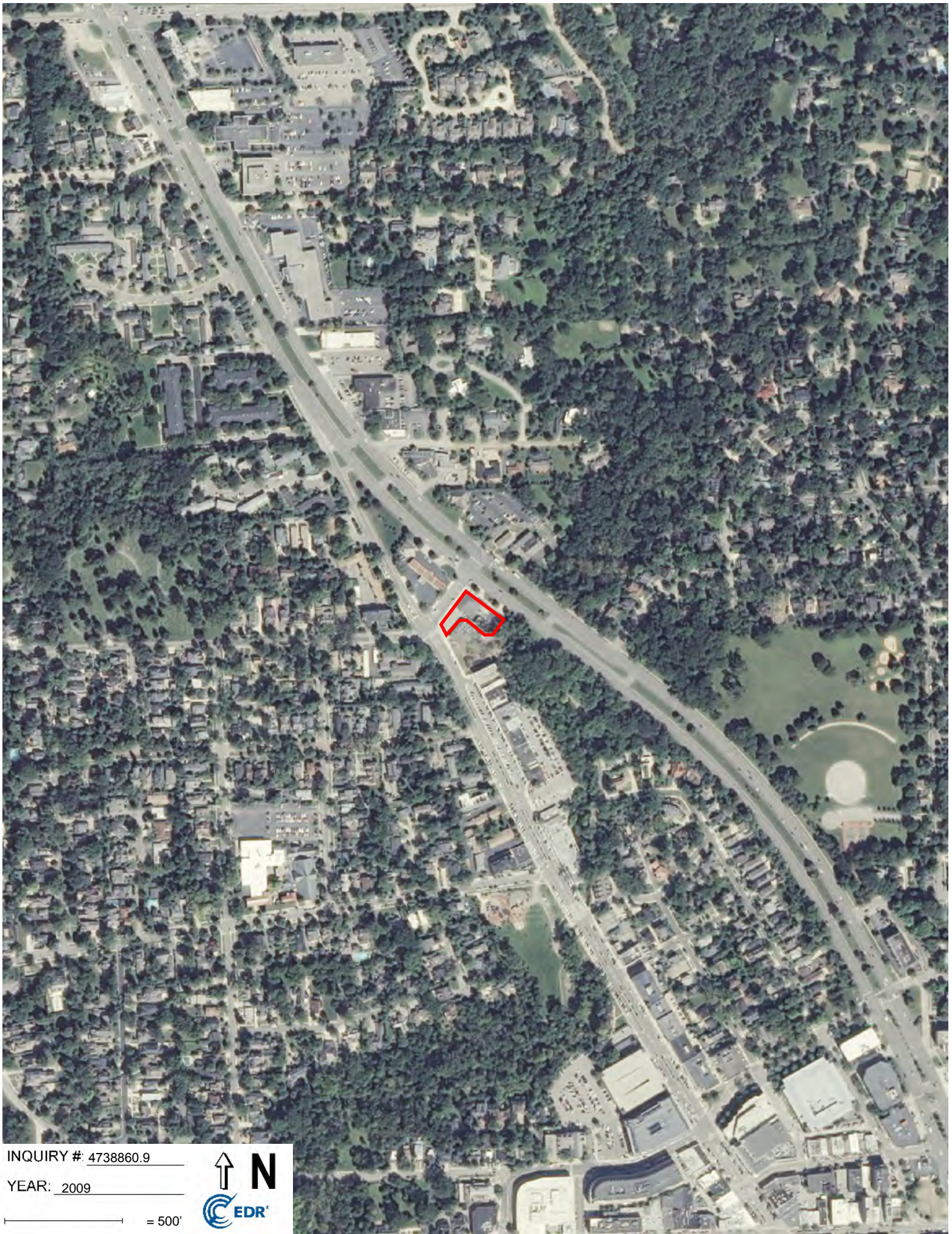
INQUIRY # 4738860.9

YEAR: 2010

— = 500'







INQUIRY # 4738860.9

YEAR: 2009

— = 500'







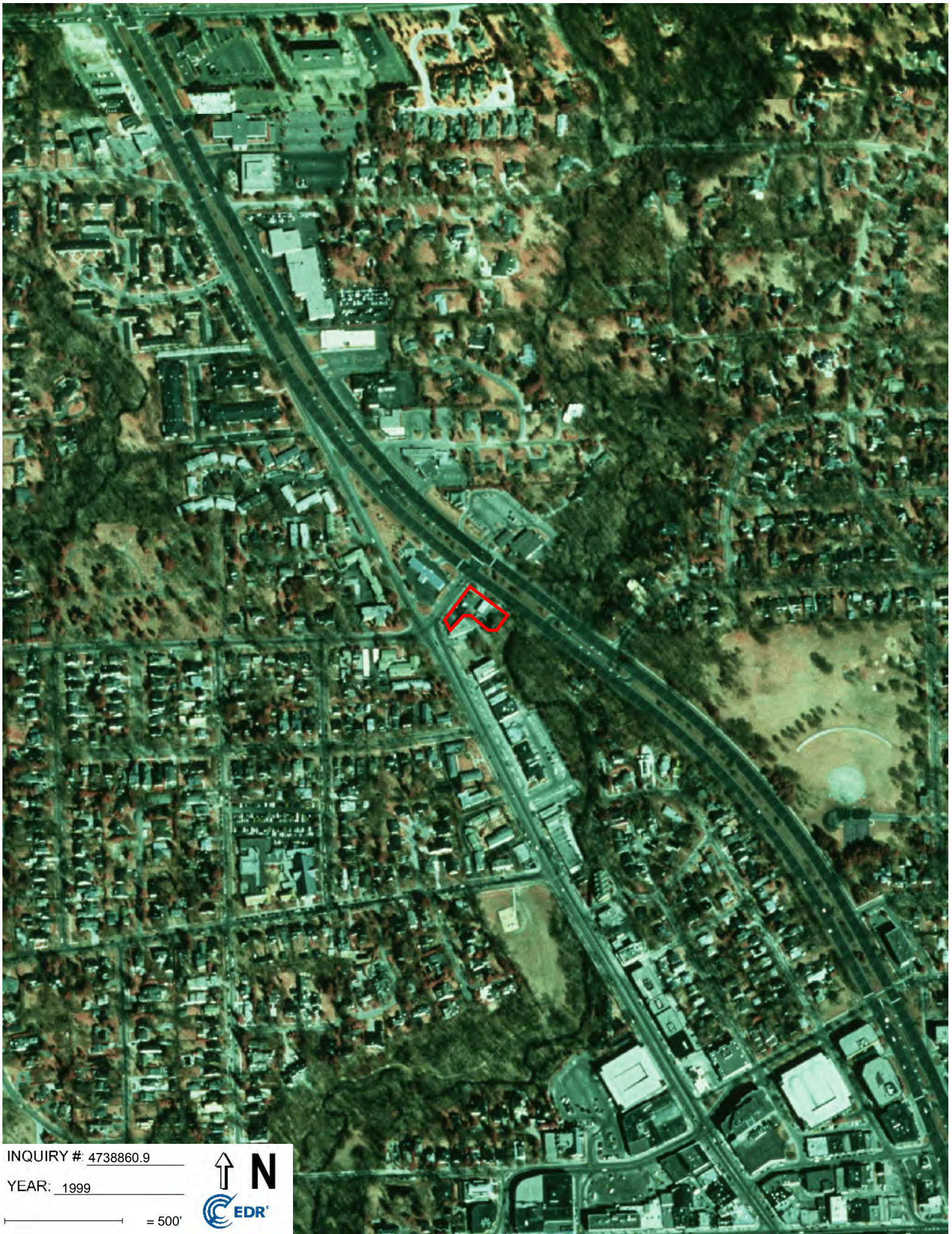
INQUIRY # 4738860.9

YEAR: 2005

— = 500'







INQUIRY #: 4738860.9

YEAR: 1999

— = 500'







INQUIRY # 4738860.9

YEAR: 1997

— = 500'







INQUIRY # 4738860.9

YEAR: 1987

— = 500'







INQUIRY # 4738860.9

YEAR: 1983

— = 500'







INQUIRY # 4738860.9

YEAR: 1976

— = 500'







INQUIRY # 4738860.9

YEAR: 1972

— = 500'







INQUIRY #: 4738860.9

YEAR: 1967

— = 500'







INQUIRY #: 4738860.9

YEAR: 1956

— = 500'







INQUIRY #: 4738860.9

YEAR: 1952

— = 500'







INQUIRY #: 4738860.9

YEAR: 1949

— = 500'







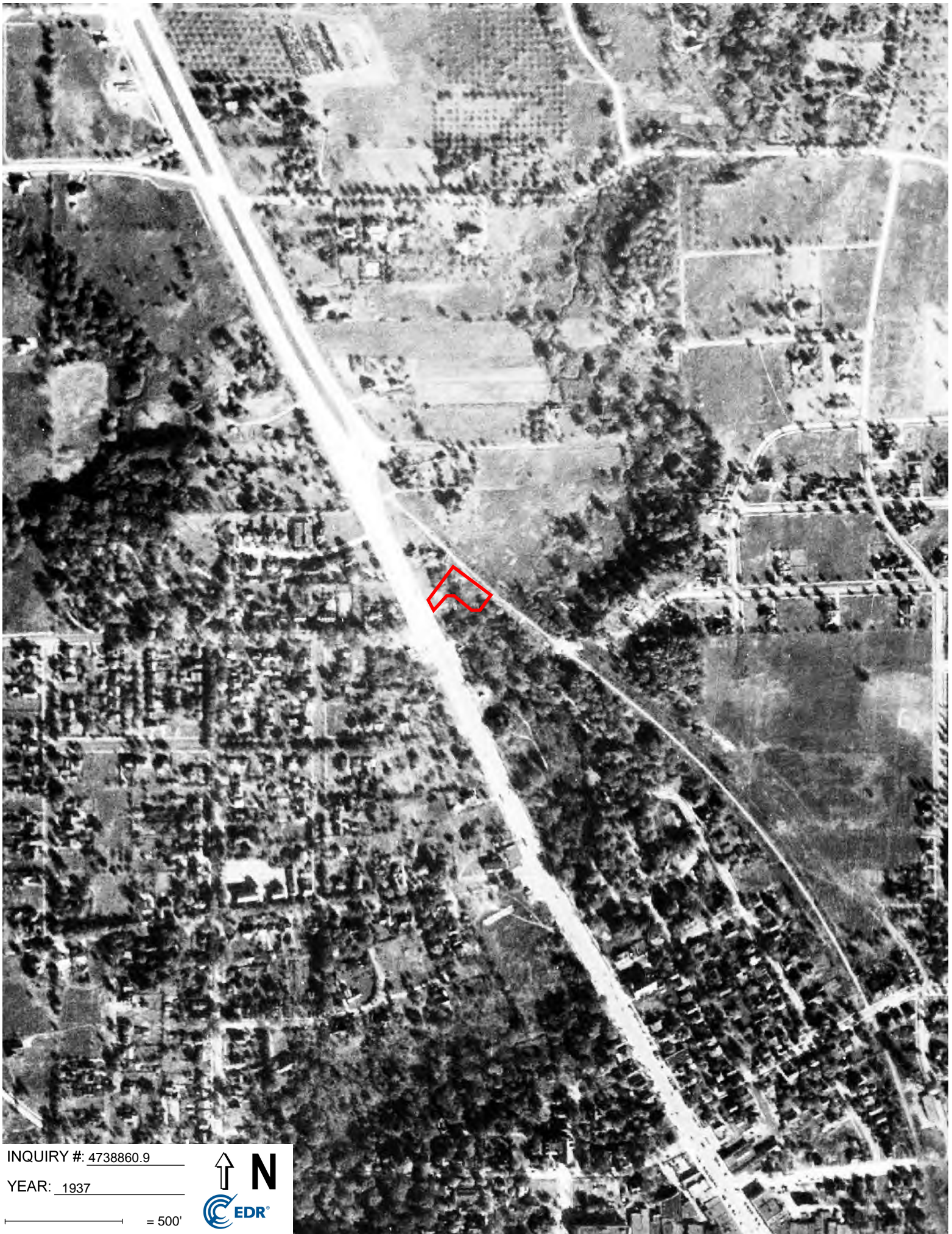
INQUIRY #: 4738860.9

YEAR: 1940

— = 500'







INQUIRY #: 4738860.9

YEAR: 1937

— = 500'





35975 Woodward Avenue

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.3

September 28, 2016

## Certified Sanborn® Map Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# Certified Sanborn® Map Report

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.3

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Soil & Materials Engineers were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## Certified Sanborn Results:

**Certification #** 9BF8-410E-85A2  
**PO #** 075099.01  
**Project** 375099.01 Woodward- 075099.01

**Maps Provided:**

1960  
1949  
1931



Sanborn® Library search results

Certification #: 9BF8-410E-85A2

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

*The Sanborn Library LLC Since 1866™*

## Limited Permission To Make Copies

Soil & Materials Engineers (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.



### 1960 Source Sheets



Volume 1, Sheet 5  
1960



Volume 1, Sheet 23  
1960

### 1949 Source Sheets



Volume 1, Sheet 5  
1949

### 1931 Source Sheets



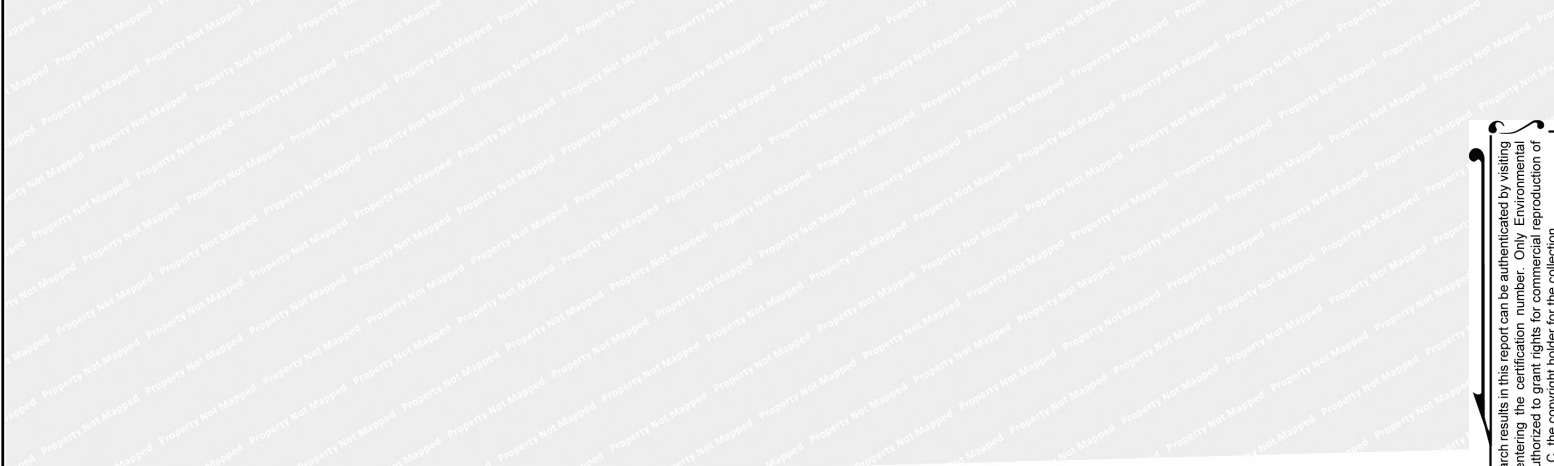
Volume 1, Sheet 5  
1931



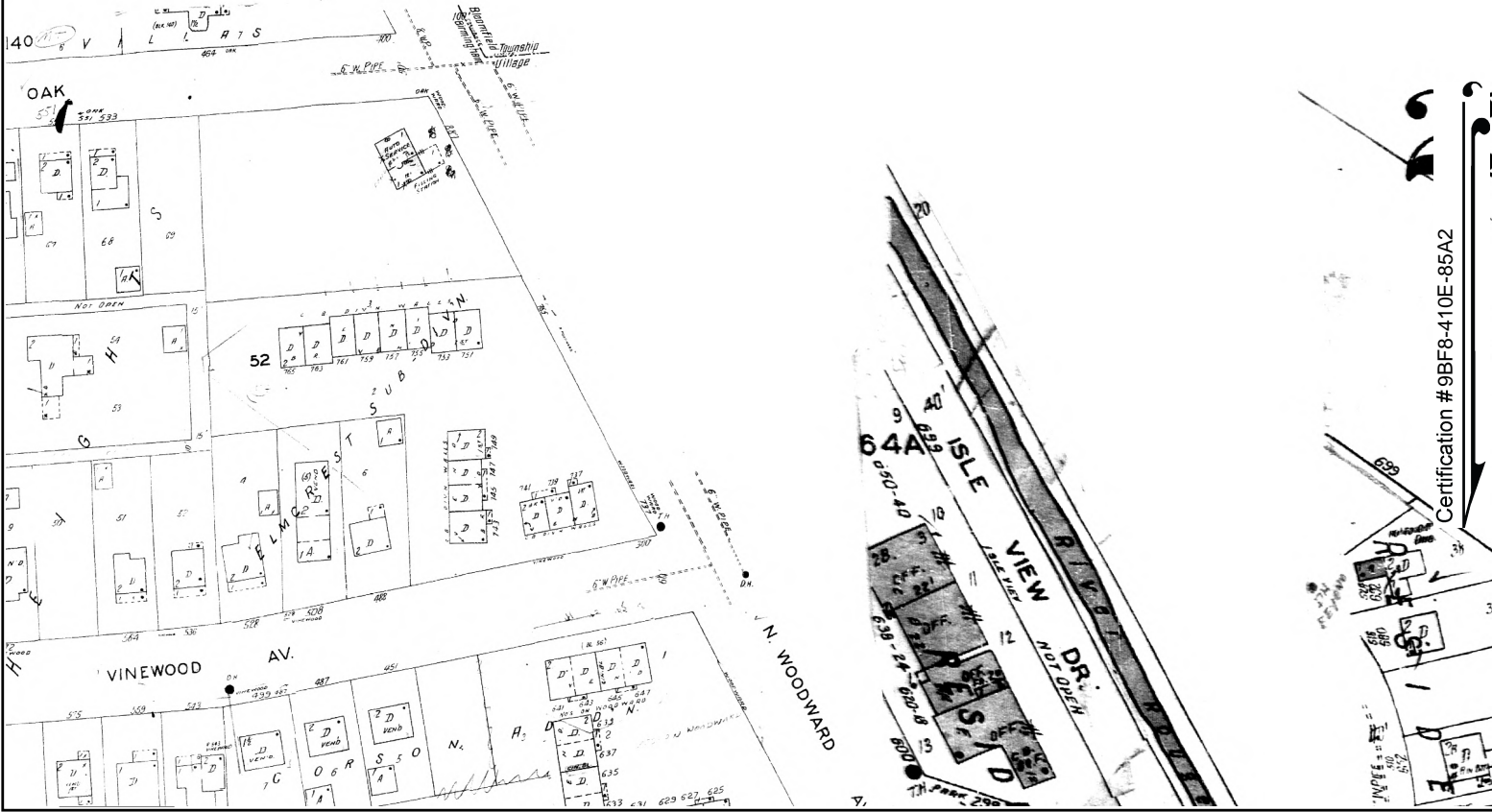
Volume 1, Sheet 23  
1931



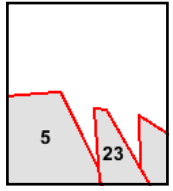
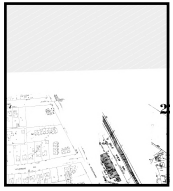
Site Name: 35975 Woodward Avenue  
 Address: 35975 Woodward Ave  
 City, ST, ZIP: Birmingham, MI 48009  
 Client: Soil & Materials Engineers  
 EDR Inquiry: 4738860.3  
 Order Date: 09/28/2016  
 Certification # 9BF8-410E-85A2  
 Copyright: 1960



The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.



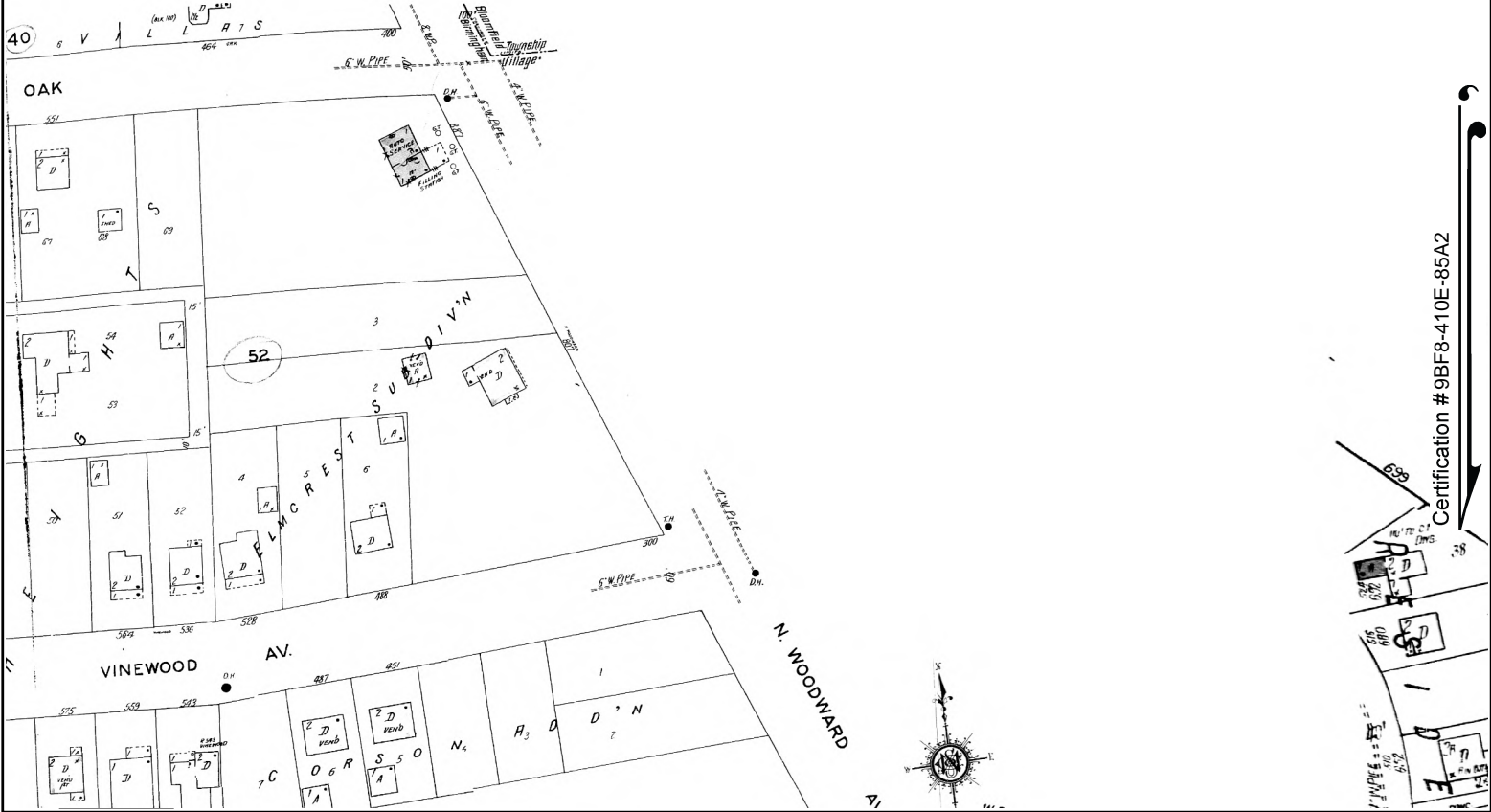
This Certified Sanborn Map combines the following sheets.  
 Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 23  
 Volume 1, Sheet 5

Certification #9BF8-410E-85A2

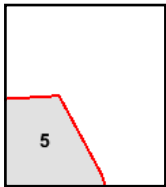
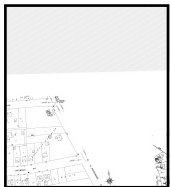
Site Name: 35975 Woodward Avenue  
Address: 35975 Woodward Ave  
City, ST, ZIP: Birmingham, MI 48009  
Client: Soil & Materials Engineers  
EDR Inquiry: 4738860.3  
Order Date: 09/28/2016  
Certification # 9BF8-410E-85A2  
Copyright: 1949



The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.

Certification #9BF8-410E-85A2

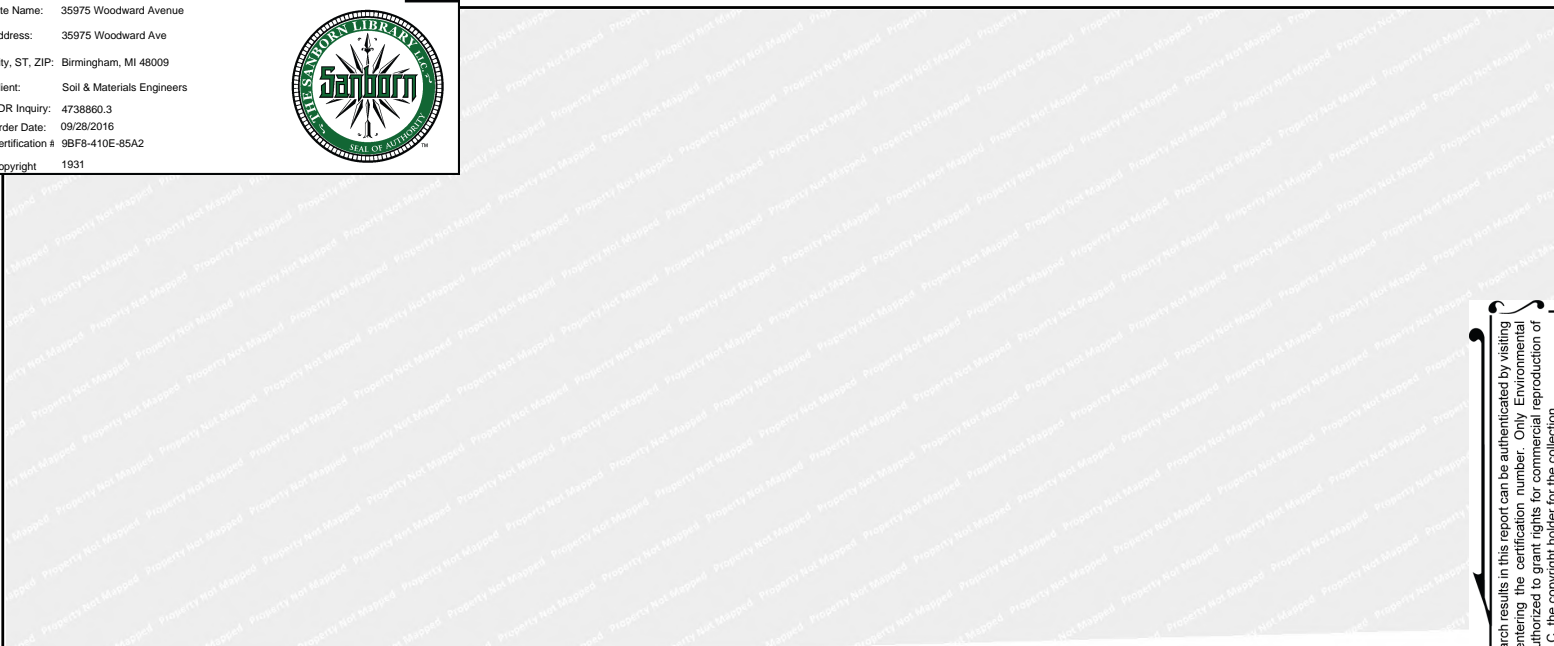
This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



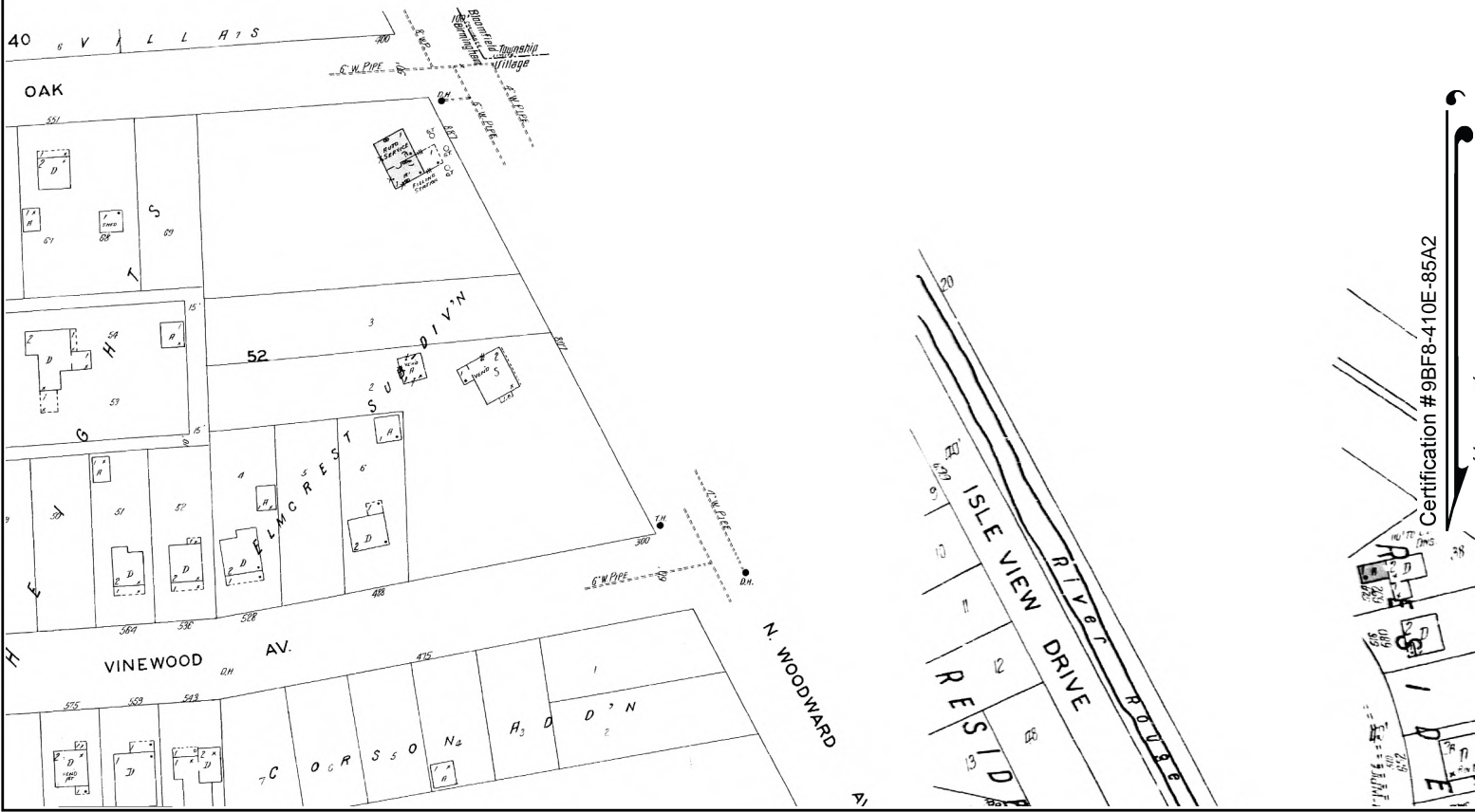
Volume 1, Sheet 5



Site Name: 35975 Woodward Avenue  
Address: 35975 Woodward Ave  
City, ST, ZIP: Birmingham, MI 48009  
Client: Soil & Materials Engineers  
EDR Inquiry: 4738860.3  
Order Date: 09/28/2016  
Certification # 9BF8-410E-85A2  
Copyright 1931

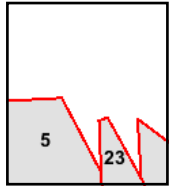


The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.



Certification #9BF8-410E-85A2

This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 23  
Volume 1, Sheet 5

35975 Woodward Avenue

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.4

September 28, 2016

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# EDR Historical Topo Map Report

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.4

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Soil & Materials Engineers were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:**

**Coordinates:**

<b>P.O.#</b>	075099.01	<b>Latitude:</b>	42.55351 42° 33' 13" North
<b>Project:</b>	375099.01 Woodward- 075099	<b>Longitude:</b>	-83.218765 -83° 13' 8" West
		<b>UTM Zone:</b>	Zone 17 North
		<b>UTM X Meters:</b>	317844.22
		<b>UTM Y Meters:</b>	4713620.62
		<b>Elevation:</b>	742.13' above sea level

**Maps Provided:**

2014  
1981  
1973  
1968  
1952  
1945  
1936  
1908

**LEGEND**



APPROXIMATE  
PROPERTY LOCATION

**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.



## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **2014 Source Sheets**



Birmingham  
2014  
7.5-minute, 24000

### **1981 Source Sheets**



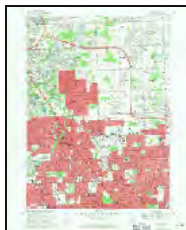
Birmingham  
1981  
7.5-minute, 24000  
Photo Revised 1981  
Aerial Photo Revised 1981

### **1973 Source Sheets**



Birmingham  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973

### **1968 Source Sheets**



Birmingham  
1968  
7.5-minute, 24000  
Aerial Photo Revised 1967



## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **1952 Source Sheets**



Birmingham  
1952  
7.5-minute, 24000

### **1945 Source Sheets**



Birmingham  
1945  
7.5-minute, 24000

### **1936 Source Sheets**

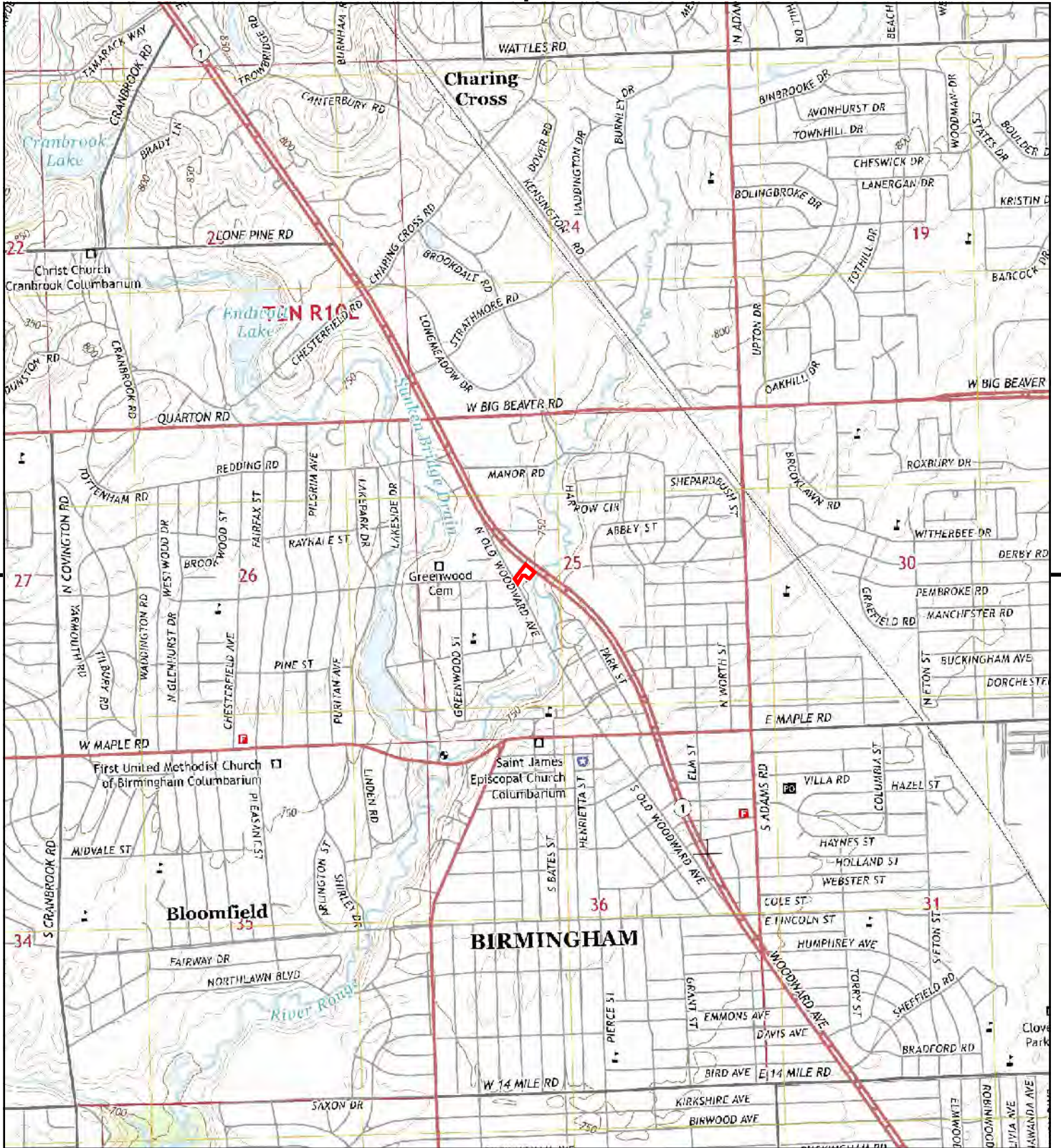


Birmingham  
1936  
7.5-minute, 31680

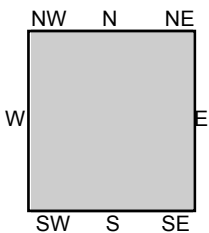
### **1908 Source Sheets**



Rochester  
1908  
15-minute, 62500



This report includes information from the following map sheet(s).



TP, Birmingham, 2014, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

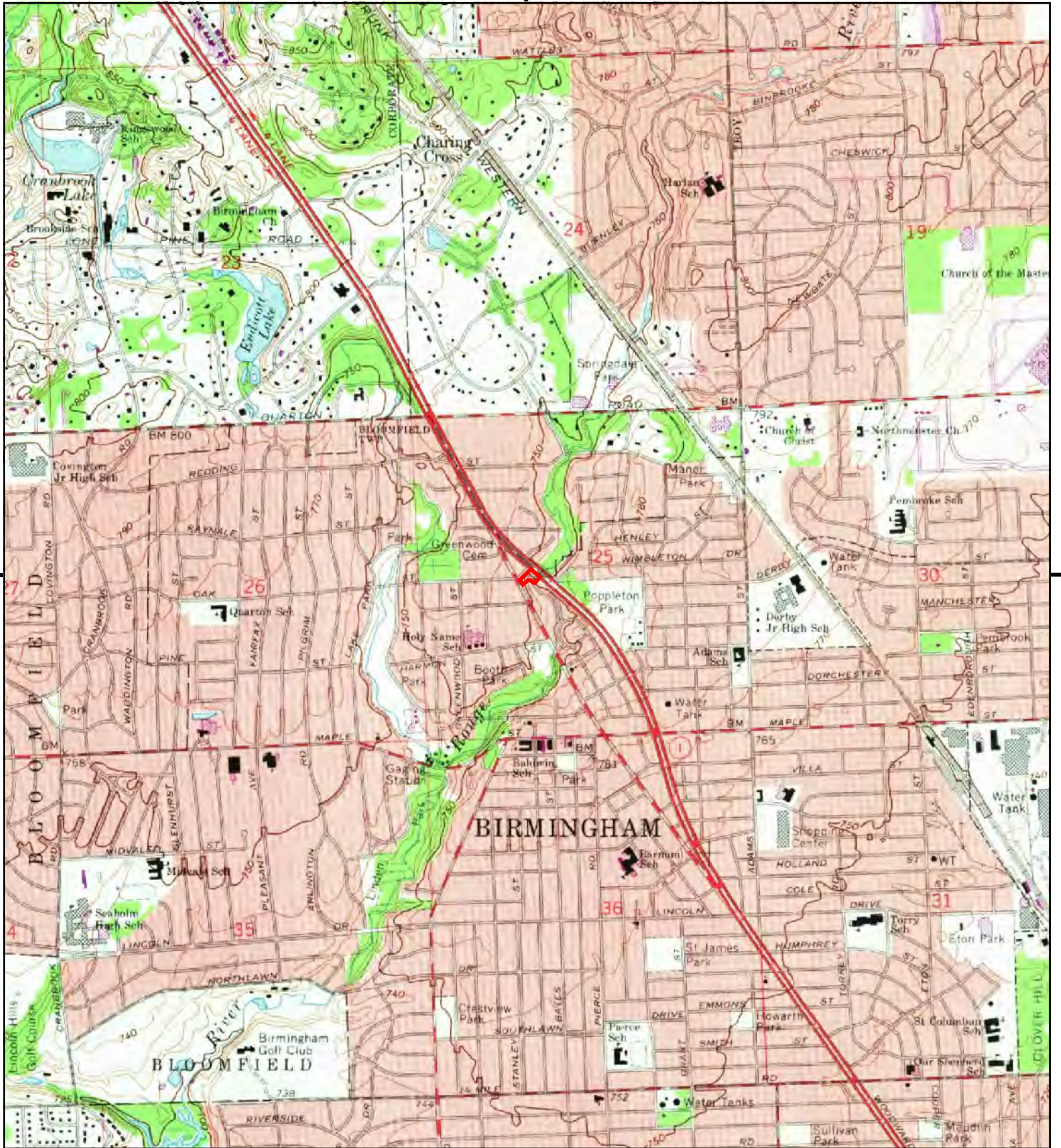


TP, Birmingham, 1981, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

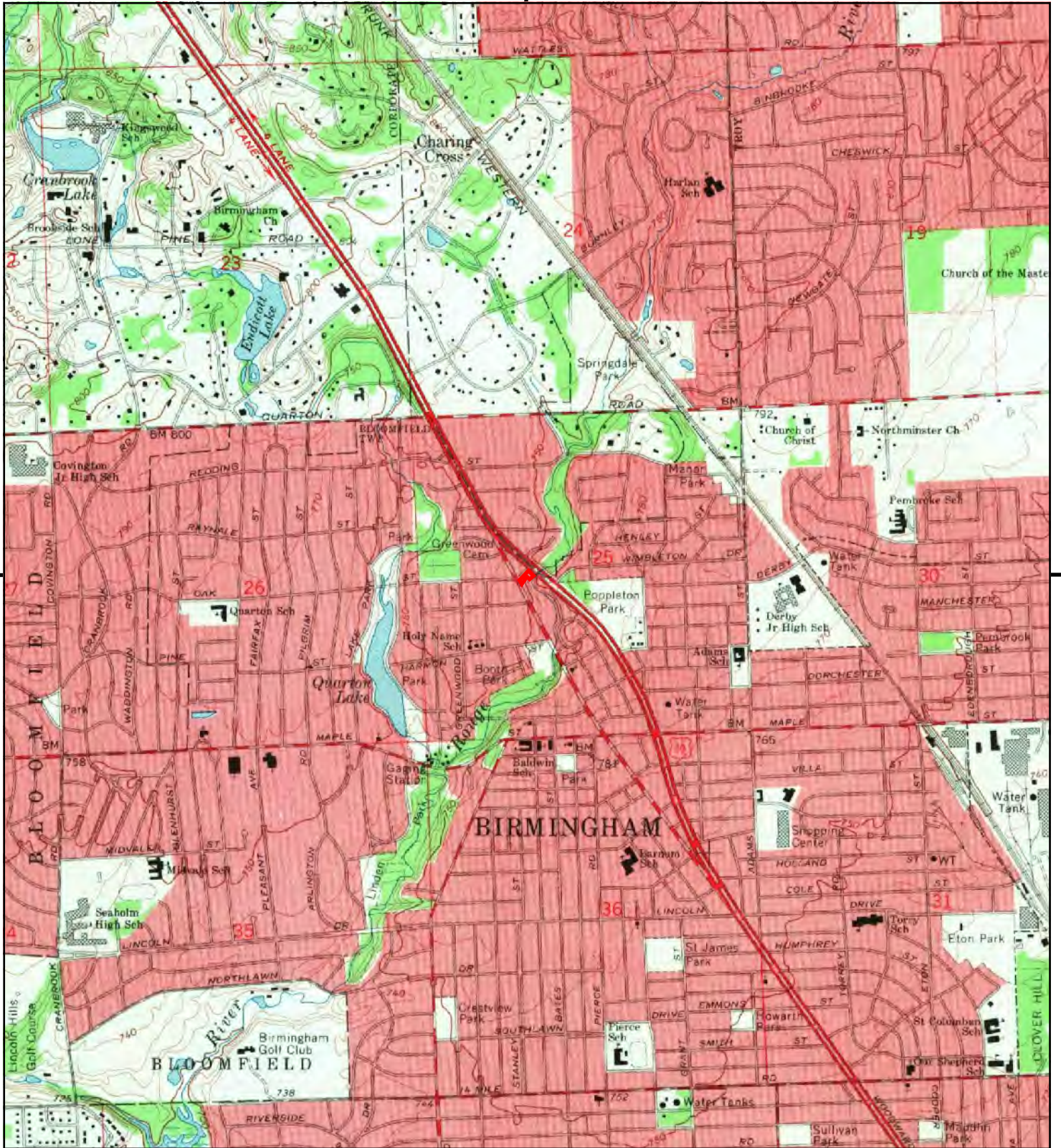


TP, Birmingham, 1973, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

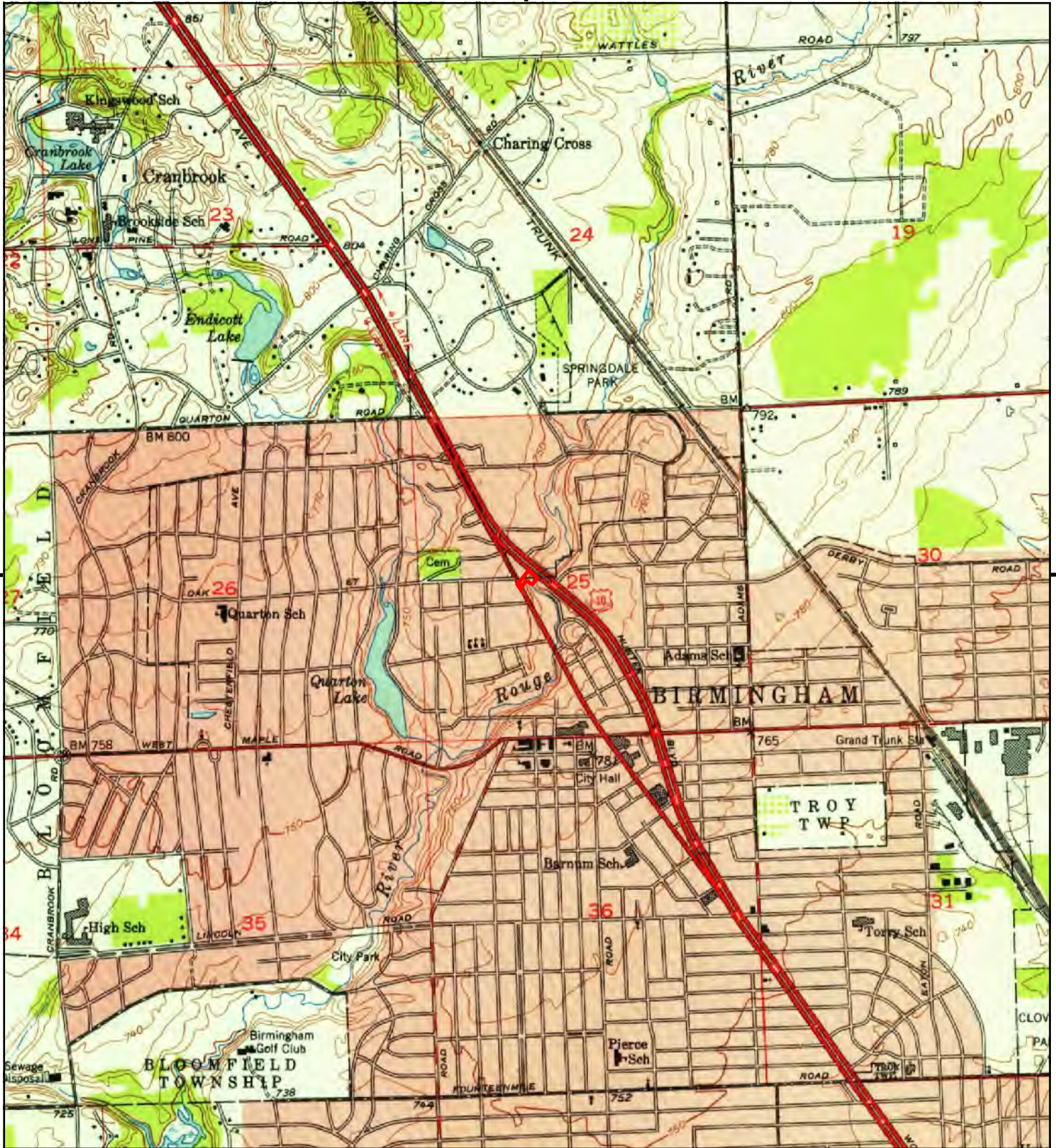


TP, Birmingham, 1968, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

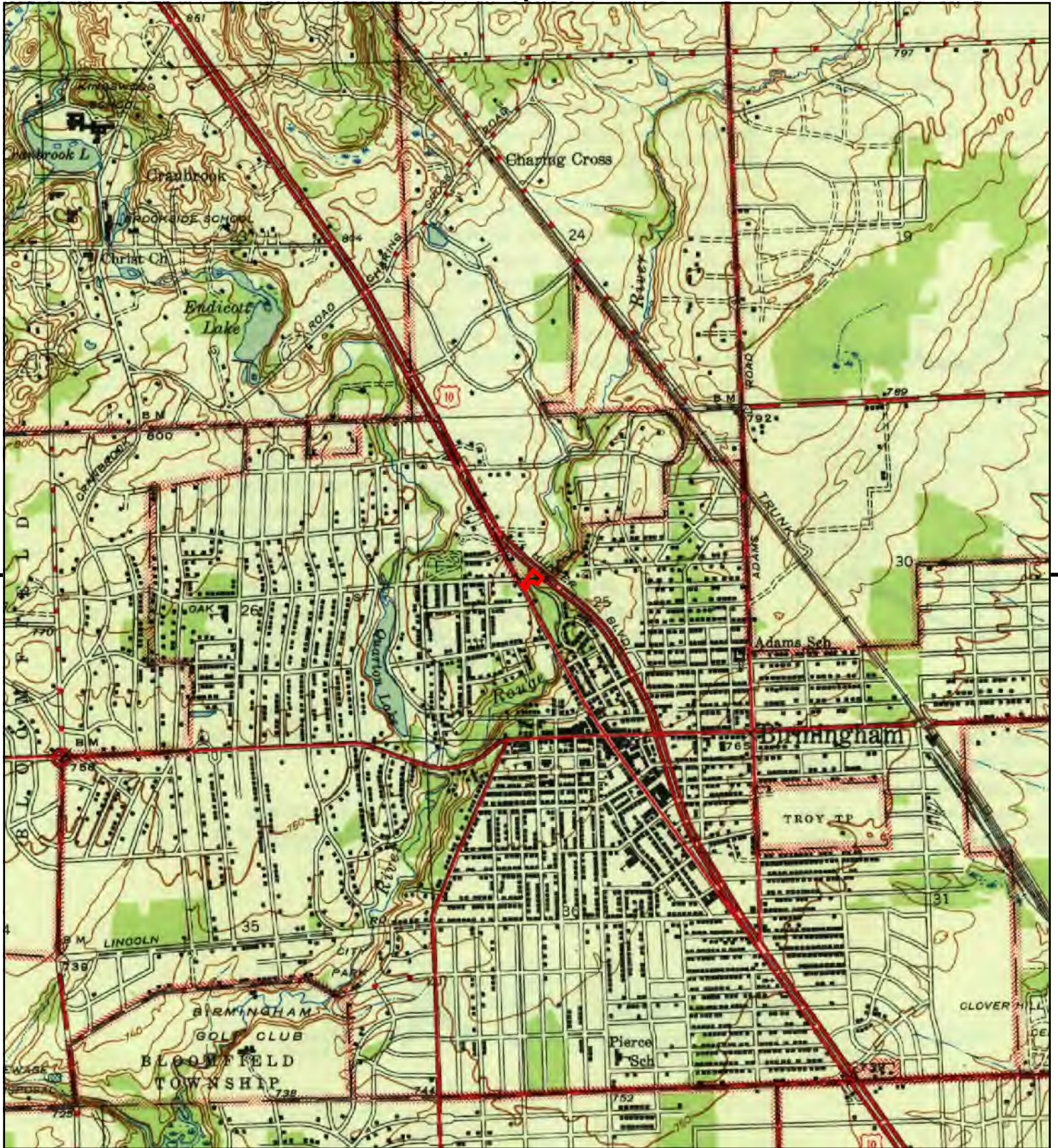


TP, Birmingham, 1952, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).



TP, Birmingham, 1945, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

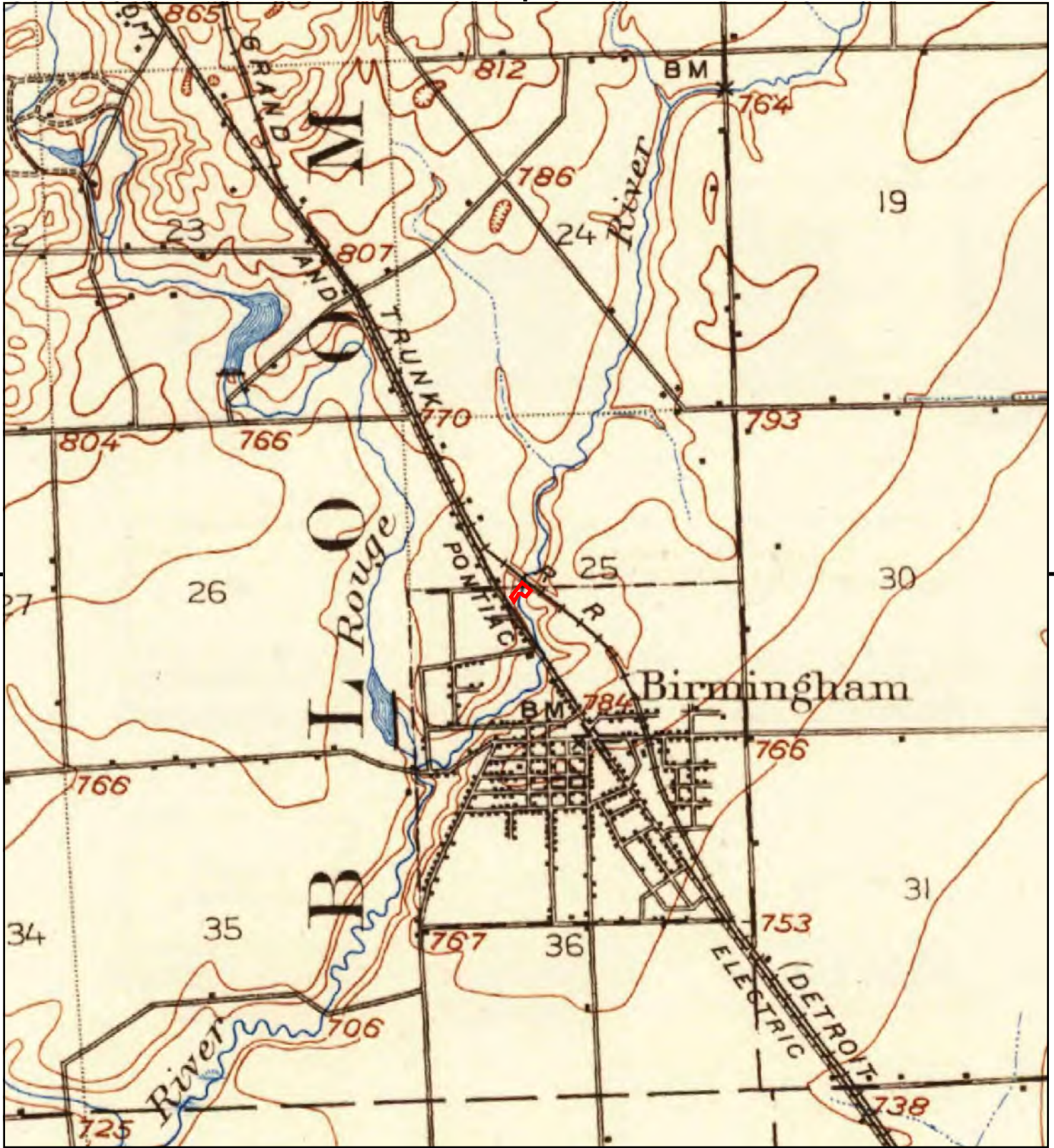


TP, Birmingham, 1936, 7.5-minute

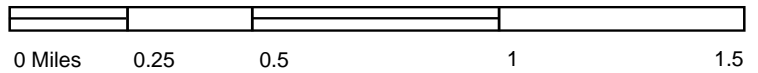
SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).



TP, Rochester, 1908, 15-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers



**35975 Woodward Avenue**

35975 Woodward Ave  
Birmingham, MI 48009

Inquiry Number: 4738860.5  
September 28, 2016

# The EDR-City Directory Image Report

## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

#### **Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bresser's Cross-Index Directory Company
1992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1988	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1982	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1977	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1972	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1967	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1962	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1957	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1951	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1944	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory

### RECORD SOURCES

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.



## FINDINGS

### TARGET PROPERTY STREET

35975 Woodward Ave  
Birmingham, MI 48009

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
<b><u>WOODWARD AVE</u></b>		
2013	pg A2	Cole Information Services
2008	pg A6	Cole Information Services
2003	pg A11	Cole Information Services
1999	pg A16	Cole Information Services
1995	pg A20	Bresser's Cross-Index Directory Company
1992	pg A21	Polk's City Directory
1988	pg A22	Polk's City Directory
1982	pg A23	Polk's City Directory
1982	pg A24	Polk's City Directory
1977	pg A25	Polk's City Directory
1972	pg A26	Polk's City Directory
1972	pg A27	Polk's City Directory
1967	pg A28	Polk's City Directory
1962	pg A29	Polk's City Directory
1957	pg A30	Polk's City Directory
1951	pg A31	Polk's City Directory
1944	pg A32	Polk's City Directory
1944	pg A33	Polk's City Directory

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

## WOODWARD AVE 2013

34750 SPEEDWAY  
34802 AAA  
34952 BARCLAY INN  
34965 PEABODYS RESTAURANT  
34977 CATALYST DEVELOPMENT  
CSM  
FINNEA GROUP  
GREENLEAF CAPITAL INC  
GREENLEAF TRUST  
OGLETREE DEAKINS NASH SMOAK & STEWAR  
ZAZIOS BIRMINGHAM  
35028 FORSTER & LAIDLAW FLORISTS INC  
35032 DAIRY MAT  
35046 BEAUMONT  
GENERATIONS OB GYN  
MOB GENERATIONS  
ORTHO ASSOC  
35075 HUNTER HOUSE HAMBURGERS  
35106 MASTROMATTEO J A DDS  
NORTH HUNTER DENTAL ASSOCIATES PC  
SANSONE MICHAEL A DDS  
35238 FLAGSTAR BANK  
35270 HOLIDAY INN EXPRESS  
HOLIDAY INN EXPRESS DETROITBIRMINGH  
35300 ALAN MCLELLAN  
ALLAN HARRISON  
B SUITES  
BARBARA KLOSNER  
BRIAN SMITH  
BRITTNEY MINOR  
CHRIS FULLER  
CHRISTOPHER WARDLE  
CRAIG SKINNER  
DANIEL KEYES  
DONALD ISAACSEN  
GEORGE FRIEND  
GUSTAVO GAYNETT  
J KLOAIN  
JASON VOGEL  
JOHN SHAW  
JONATHAN LAU  
KASTINE HABIB  
MAHA DERANI  
NANCY CONEFF  
NICHOLAS COHEN  
P FRANK  
POPPELTON PLACE  
STEVEN JAFFE  
T AM MARKETING  
VAUGHN DROBNICH

**WOODWARD AVE 2013 (Cont'd)**

35977 CHARLES RUTHERFORD  
35980 AZD ASSOCIATES  
M C M MANAGEMENT  
MY INSURANCE EXPERT  
RELIABLE ONE STAFFING SERVICES  
36000 JAMES BOERKOEL  
36050 BANK OF AMERICA  
36101 UPTOWN MARKET MOBIL  
36200 BACKYARD BIRDS  
36240 HUNTER ROBERTS HOMES  
PETERSON WIAND BOES & CO  
WELLINGTON CHASE HOMES  
36260 CLOSET INTERIORS OF BLOOMFIELD  
36280 HARDWARE WHOLESALE  
RUSSELL HARDWARE COMPANY  
36300 NATIONAL CITY BANK  
PNC BANK  
36330 ANK ENTERPRISES INC  
CUSTOM SALES INC  
DESROSIERS ARCHITECTS INC  
36360 MARK EPPS FINANACIAL ADVISORY SERVIC  
36400 ALIDADE CAPITAL  
AVESIAN ASSOCIATES INC  
CARMCO INC  
CONCORD INDUSTRIAL CORP  
DARVIN & CO  
DARVIN LUCCI INVESTMENTS  
DIETZ COMMERCIAL REAL ESTATE  
FREEDLAND MICHAEL H MD PLASTIC SURGE  
HOWARD BABCOCK & ASSOCIATES  
KELTER SCHWARTZ DESIGN  
MANOR HOMES  
MJD METAL COMPANY  
OXFORD FINANCIAL CORP  
PRIME CAPITAL MORTGAGE  
ROBERT W LARIN PC  
ROYCE MUSIC  
SALZEIDER INC  
SENTECH SERVICES INC  
SHARE A SMILE  
STAFFING COMPANY THE  
WOODWARD FINANCIAL GROUP  
36509 MERCY BAIDOO  
36521 GARY WELLS  
36527 L LOVE  
36533 JAMES STRANDLOFF  
36539 SCOTT WILSON  
36545 ELAINE KOZAR  
36551 FAITH GENTRY  
36563 OCCUPANT UNKNOWN

-  
**WOODWARD AVE 2013 (Cont'd)**

36600 ENTERPRISE RENTACAR  
 ESTATE MOTORS LTD

36623 DAVID BAXTER

36627 BRIAN CAMERON

36631 ALISON HOFLEY

36635 OCCUPANT UNKNOWN

36639 OCCUPANT UNKNOWN

36643 COLONIAL COURT APT BIRMINGHAM  
 OCCUPANT UNKNOWN

36700 1400 WOODWARD ASSOC LLC  
 ANDERSONMILLER LTD  
 BLOOMFIELD DENTAL ASSOCIATES  
 CHISA NELDAGAE MD  
 DAVID H MILLER PLLC  
 GOETZ & ROGERS PC  
 GREENBRIAR INC  
 HAYNES JACK P PHD  
 HEBER FUGER & WENDLIN INC  
 LAW OFFICES OF ELIAS MUAWAD  
 MIKE KINNA STATE FARM INSURANCE  
 NORTHERN LIGHTS ENTERPRISES  
 P & C INDUSTRIES  
 RAYMOND SALLOUM LAW OFFICES  
 RE MAX  
 REIZEN MARK E ATTORNEY  
 RLACREADING & LANGUAGE ARTS CENTERS  
 SENTECH ENGINEERING SERVICES  
 THOMAS CUNNINGTON  
 THOMAS SEBOLD & ASSOCIATES

36800 HARRIS MORTON E  
 IMAGE PROCESS DESIGN  
 LUCKENBACH ZIEGELMAN ARCHITECTS PLLC  
 M1 CAPITAL MANAGEMENT  
 PLANNING ALTERNATIVES LTD

36880 BODOIN NICHOLAS J PHD  
 BOSLER MARK S  
 DICKERSON GROUP INC  
 ECHO KIMPINTO MS LAC  
 FOCUSED SOLUTIONS HYPNOTHERAPY  
 HANDS ON PHYSICAL THERAPY  
 JOYCE SCHOMER  
 KATHLINE MCCARTHY  
 LAUREL WOMENS MEDICAL GROUP  
 LEITMAN SUSAN PHD  
 MARK BOSLER  
 MASSAGE SYMPHONY STUDIOS  
 MCCARTHY KATHLEEN PHD PC  
 MEDICUS PAIN & SPINE PLC  
 NICHOLA BODOIN  
 NICOLETTI & ASSOCIATES PC



**WOODWARD AVE 2013 (Cont'd)**

36880 NIGHTINGALE & SISTER NURSES  
NORTH AMERICAN PENSION SERVICES LTD  
PURE JOY PEDIATRICS  
SAYEG PLASTIC SURGERY  
SCHOMER JOYCE PHD  
SUSAN LEITMAN  
VISAGE SPA  
WISH UPON A TEEN  
37000 ACE INDUSTRIES  
ADVANTAGE CONSULTING GROUP  
BERGER ROLAND  
BIRMINGHAM EXECUTIVE SUITES  
CHASE  
COCHRAN JACK M  
CYNTHIA OHANIAN INTERIORS  
GREENSTONE FINANCIAL  
INDEPENDENCE ADVISORS INC  
JUSTICE CANCER FOUNDATION  
LACHINE FINANCIAL SERVICES  
LANCOPE  
LEVEL ONE BANK  
LOAN BROKERAGE CENTER  
PARAGON MORTGAGE SERVICES  
PHYLLIS MAZURE  
PRO MANAGE  
SMITH PROFESSIONAL SEARCH  
SOUTHWEST FABRICATIONS  
STEPHEN J TILL  
VINCE TIMPA GROUP  
W B REHABILITATION SERVICES  
37357 BIRMINGHAM MASONIC LODGE NUM 44  
37425 THE CHURCH OF JESUS CHRIST OF LATTER

**WOODWARD AVE 2008**

34750 DIAMOND SHAMROCK REF MARKETING  
TOTAL PETROLEUM INC

34802 AAA  
AAA OF MICHIGAN  
AUTOMOBILE CLUBMICHIGAN  
CLUB TRAVEL AGENCY INC

34901 1ST DISCOUNT MORTGAGE CORP

34952 BARCLAY INN

34953 FINE FURNISHING LIQUIDATORS INC

34965 PEABODY'S OF BIRMINGHAM

35028 FORSTER & LAIDLAW INC

35032 DAIRY MAT

35075 HUNTER HOUSE HAMBURGERS INC

35106 NORTH HUNTER DENTAL  
SANSONE MICHAEL A DDS

35238 INTERNATIONAL HOUSE PANCAKES

35270 HAMILTON HOTEL  
HOLIDAY INN EXPRESS

35300 ADRIENNE BAKER  
ALFRED LISS  
BARBARA KLOSNER  
BRIAN SMITH  
C WELLS  
CLINTOM LAUER  
CRAIG SKINNER  
D HRABAK  
DANIELLE ROGERS  
DEBORAH JALABA  
DEBORAH NIGHTINGALE  
DONALD ISAACSEN  
FRANK CANCRO  
GINA SCOZZAFAVE  
GLORIA MCCUEN  
HUGH MAHLER  
HUNTER HODGSON PRODUCTIONS  
JAY FRIEND  
JOHN SHAW  
JONATHAN LAU  
KASTINE HABIB  
KIMBERLY ROGERS  
LIVIA HUNT  
MEL DROSIS  
NICOLE RICOTTA  
PIERRE WEBSTER  
S TRAVIS  
STANLEY WORTH  
STEVE JOHNSON  
TAM MARKETING

35975 A & G AUTO CARE LLC  
OAKLAND AMOCO

**WOODWARD AVE 2008 (Cont'd)**

35977 CHARLES RUTHERFORD  
35980 BILTMORE BUILDING CO LP  
CARLTON FORREST PROPERTIES  
INTERNATIONAL HEALTH CARE MGMT ASSOC  
ROBERT D HANDELSMAN  
W GROUP  
35990 DECKLEVER LLC  
DESTINATION UNKNOWN LLC  
SHORES OF WALLOON ASSOCIATION  
36000 JAMES BOERKOEL  
36050 STANDARD FEDERAL BANK  
36101 STAFFING ACADEMY LLC  
36200 BACKYARD BIRDS  
KRUCHEN KRAMAR  
36240 WELLINGTON CHASE HOMES  
36260 AGF INC  
CLOSET INTERIORS  
36280 HARDWARE WHOLESALE  
RUSSELL HARDWARE CO  
36300 NATIONAL CITY BANK  
36330 CSI  
CUSTOM SALES INC  
DESROSIERS ARCHITECTS INC  
FIRST ALLIANCE LOGISTICS  
ORION CUSTOM MADE MACHINERY LL  
R BRADLEY LAMBERT PLC  
SALEM FOODS INVESTMENTS LLC  
36400 ALAIMO CAROLYN PHD  
BABCOCK HOWARD A & ASSOCS  
BIRMINGHAM INTERNET GROUP  
CONCORD INDUSTRIAL CORP  
CYCLONE DAVISON LLC  
DALY REAL ESTATE APPRAISERS  
DARVIN & CO  
DIESEL TECHNOLOGIES LLC  
DIETZ COMMERCIAL  
FLAGSTAR MORTGAGE CORP  
G H FORBES ASSOCIATES ARCHITECTS PC  
HERBERT LAWSON INC  
HOME FOR SPORTS LLC  
INVESTMENT TIMING CONSULTANTS  
KATHLEEN MOORE PHD  
LARIN & LEONARD  
LMC FINANCIAL GROUP LLC  
LPP LEASING  
MANOR HOMES  
NEW FINANCIAL CONCEPTS INC  
OXFORD FINANCIAL CORP  
PRIME CAPITAL MORTGAGE  
SENTEK CORP

-  
**WOODWARD AVE 2008 (Cont'd)**

36400 SOUTH OAKLAND ANESTHESIA ASSOCIATES  
 SOUTHWEST FINANCIAL OF MICHIGAN  
 THE WINDHAM GROUP LLC  
 WELLMAN INC

36509 DUANE KOSMOWSKI

36515 OCCUPANT UNKNOWN

36521 ANDREW WEIDENBACH

36527 OCCUPANT UNKNOWN

36533 GRACE SACHS  
 THE WEB ADVISORS LLC

36539 ZIPPORIA SHERROD

36545 ELAINE KOZAR

36551 JOHN ROGERS

36557 ANTOINETTE MAGGIO-JACOB  
 ZAHID SHEIKH

36563 EUI PARK

36600 ESTATE MOTORS LTD  
 MERCEDES BENZ OF BLOOMFIELD HILLS

36623 WYANATTA HILL

36627 MICHAEL MAGDALINA

36631 ALISON HOFLEY

36635 TOM SPRING

36639 OCCUPANT UNKNOWN

36643 COLONIAL COURT TERRACES  
 OCCUPANT UNKNOWN  
 STUART FRANKEL DEVELOPMENT C

36700 ANDERSON FINANCIAL  
 ARTHUR LISS  
 BETH MD MIRAL  
 BRAVEN ENTERPRISES LLC  
 CHILD HEALTH ASSOCIATES PC  
 COMPETITIVE COMPUTER SYSTEMS INC  
 DETROIT RETAIL LLC  
 ERIC C SPENCER  
 HEBER FUGER WENDIN INC  
 JACK P HAYNES PHD  
 JENNIFER CHISA  
 JOHN LYNCH  
 KOUZA & EJBEH PC  
 LYNCH JOHN T III PC  
 MIKE REALTOR LLC  
 MILLER & SHENSKY  
 MYRA KOLIN MD  
 NORTHERN LIGHT ENTERPRISES  
 PRUDENTIAL  
 R E HOLCOMB REAL ESTATE  
 R LAC READING & LANGUAGE ARTS CENTER  
 READING & LANGUAGE  
 REMAX  
 ROY SHECTER

**WOODWARD AVE 2008 (Cont'd)**

36700 ROY SHECTER & VOCHT PC  
SCHMIDT JAMES C PHD  
SIGURD R WENDIN & ASSOCIATES INC  
STATE FARM INSURANCE  
SWAN CREEK PLAZA LLC  
THE ANDERSON FINANCIAL GROUP INC  
THOMAS SEBOLD & ASSOCS  
VENKATARAMON PREETI  
VOCHT LAW FIRM  
WEINSTEIN LEE MD

36800 ALBERT MANAGEMENT CO  
CAPITAL POWER  
COMPREHENSIVE HOME INSPECTION  
DISPOSAL MANAGEMENT  
ESI  
ESI NORTH AMERICA INC  
EVELYN L REDMOND ATTORNEY  
IMAGE PROCESS DESIGN INC  
INTERNATIONAL REHABILITATION CENTERS  
LUCKENBACH ZIEGELMAN & PARTNERS INC  
MICHAEL B GELLIS MD PC  
MICHAEL GELLIS  
REDI PROPERTY MANAGEMENT CO  
ROBERT ZIEGELMAN  
THINK OR SWIM  
THINKORSWIM ADVISORS  
VIBRO ACOUSTIC SCIENCES INC

36880 AGENCY COMPUTER SYSTEMS  
BODOIN NICHOLAS J PHD  
CARMEN BOGDAN  
CENTRAL PARK INSURANCE AGENCY INC  
CLARICA CO  
DAVID A KUZDEK AND  
DEFOE TRAVEL SERVICES  
DICKERSON GROUP INC  
EDUCATIONAL CONSULTATION SERVICE  
JOYCE SCHOMER  
JOYCE SCHOMER PHD  
KATHLINE MCCARTY  
LEITMAN SUSAN PHD  
LITTLE JOHN GROUP  
MCCARTY KATHLINE PHD PC  
MICHAEL FREEDLAND  
MICHAEL H FREEDLAND MD  
NICHOLAS BODOIN  
NORTH AMERICAN PENSION SERVICES LTD  
SILLS FIEDLER & CHARBONEAU PC  
SILLS LAW GILLARY ESSAD FIEDLER & CH  
SOMERSET INSURANCE SERVICES LTD  
SUSAN LEI

**WOODWARD AVE 2008 (Cont'd)**

36880 THB VENTURES INC  
THOMAS R CHARBONEAU JR PC  
VISAGE SPA

37000 A R C SCRAP MANAGEMENT INC  
ACE INDUSTRIES  
ALLERTON FINANCIAL CORP  
AMERICAN CURRENCY EXCHANGE  
AMERICAN MEDICAL PRODUCTION  
ANDREW LAUREN INC  
AUTOMARK INC  
BANK ONE NATIONAL ASSN CHICAGO  
CHANDLER & ASSOCIATES  
CHASE MANHATTAN BANK  
DALLOLMO MAROUGY INSURANCE AG  
FRUSH FINANCIAL GROUP  
GAC DAVID R CPA  
GREENSTONE FINANCIAL  
GUNTOPIA INC  
HANRAHAN COMMUNICATIONS  
HRN STAFFING SOLUTIONS  
INDEPENDENT MORTGAGE CONSULTING  
INNOVATIVE MEDICINE  
INTEGRATED ALARM LLC  
JUNE & ROBERT GURWIN FAMILY FOUNDATI  
KOPPIN JOHN P CPA  
L A R RETAIL INDUSTRIES  
LOIS BLAESING  
LOIS C BLAESING PC  
MARY PANTELY ASSOCIATES  
MICHAEL WOLK & ASSOCIATES  
MIND OVER MATTER  
MJD METAL CO LLC  
PARAGON MORTGAGE SERVICES  
PRO MANAGEMENT  
PURDY DONOVAN & BEAL LLP  
THE WILLITS FINANCIAL GROUP LLC  
W B REHABILITATION SERVICES

37357 BIRMINGHAM MASONIC LODGE NUM 44

37425 CHURCH OF JESUS CHRIST OF LATTER DAY  
FAMILY HISTORY CENTER



**WOODWARD AVE 2003**

34750 TOTAL PETROLEUM INC  
34802 AAA MICHIGAN  
AAAAAA BRANCH OFFICES  
34901 1ST DISCOUNT MORTGAGE CORP  
34952 HOLIDAY INN EXPRESS  
34953 WORKBENCH CONTEMPORARY FRNTR  
34965 OCCUPANT UNKNOWN  
PEABODYS RESTAURANT & BAR  
34977 A & T BIRMINGHAM DEVELOPMENT INC  
OCCUPANT UNKNOWN  
SPEEDZONE INC  
35001 OCCUPANT UNKNOWN  
35028 FORSTER & LAIDLAW FLORISTS INC  
OCCUPANT UNKNOWN  
35046 BOTTLE & BASKET SHOPPE  
35064 ALBANS BOTTLE & BASKET  
OCCUPANT UNKNOWN  
35075 HUNTER HOUSE HAMBURGERS INC  
35106 MICHAEL A SANSONE DDS  
MICHAEL SANSONE  
NORTH HUNTER DENTAL ASSOC  
35270 HAMILTON HOTEL  
OCCUPANT UNKNOWN  
35300 A WHALEN  
AMBER OCONNELL  
ARTHUR OATLEY  
BRITT JACKMAN  
CASSANDRA JOUBERT  
CATHERINE HANCOX  
DANIEL KOPRINCE  
DENNIE DANIELSSON  
DOUGLAS CURRIE  
EDWIN PLACE  
FM CAPITAL CORP  
FRANK MILLER  
H WILLIAMSON  
HUNTER ARMS APARTMENTS  
JAMES RICE  
JAY FRIEND  
JAY WRIGHT  
KIMBERLY JOHNSON  
MARIJO SANTONI  
MARK RAUCHFUSS  
MARY MACKRAIN  
MERLIN MCCORMICK  
MICHAEL MCBREARTY  
OLIVE BRYCE  
POLLACK RONALD I PHD  
RAIGAN OSULLIVAN  
SHARON MCCORMICK INC

**WOODWARD AVE 2003 (Cont'd)**

35300 THEODORE WREESMAN  
35975 BIRMINGHAM AMOCO INC  
NATIONAL CAR RENTAL  
OCCUPANT UNKNOWN  
35977 CHARLES RUTHERFORD  
35980 ERINN DOUGHERTY  
FEENEY KELLETT WIENNER & BUSH  
FNY KLT WNR & BUSCH P C  
GM MOTORS  
HELEN HAMMOND  
JAMES FEENEY  
JERRY JOHNSON  
KATHLEEN KALAHAR  
LENNOX EMANUEL  
MARIAN KELLETT  
THOMAS MANGANELLO  
36000 JAMES BOERKOEL  
36050 STNDRD FDRL BANK MMBR ABN AMRO  
36101 GHAFARI TRADING LTD  
MOBIL MART AT HUNTER & OAK  
36200 BACKYARD BIRDS  
36260 CLOSET INTERIORS  
36280 HARDWARE WHOLESALE  
WILLIAM MCBRIDE  
36300 NATIONAL CITY BANK OF MI IL  
36330 EMDR THERAPY  
FIRST ALLIANCE LOGISTICS  
MARSALESE MICHAEL P ATTY  
MONEY MATTERS INC  
PAUL HENEKS  
36360 DES ROSIERS ARCHITECTS  
36400 AL ROSSI & ASSOCS  
CARMCO INC  
CARMCO INSURANCE  
CONCORD INDUSTRIAL CORP  
DALY REAL ESTATE APPRAISERS  
FLAGSTAR BANK FSB  
GARRETT MORELOCK  
GH FORBES ASSOCS  
JOSEPH M ADAMY & ASSOC  
MANOR HOMES INC  
MONROE ENGINEERING  
MOORE KATHLEEN PHD  
NADHIR INVESTMENTS  
NEW FINANCIAL CONCEPTS  
PMP AUTOMOTIVE ACCESSORIES  
POTTER ROBERT CPA  
PRIME CAPITAL MORTGAGE  
PROMOTOR CAR PRODUCT INC  
ROSSI C F INC

**WOODWARD AVE 2003 (Cont'd)**

36400 SAD TECH LEGISTICS INC  
SENTECH ENGINEERING SERVICES  
SENTECH SERVICES  
SPECIALTY PROTECTIVE COATINGS  
STONE CONSTRUCTION  
VISCON INC  
VISUAL CONSULTING INC  
WOLVERINE WHOLESALE GROCERS INC  
WOODWARD FINANCIAL GROUP  
36440 COMERICA SECURITIES  
DORA CEVETTE  
36509 OCCUPANT UNKNOWN  
36515 J CASHIER  
36521 KATHERINE LARIN  
36527 EVERETT CURRIER  
36533 THOMAS MEYER  
36539 JEROME MORRISSEY  
36545 ELAINE KOZAR  
36551 BRIAN ARNOLD  
36557 ROY CHOMA  
36563 JENNIFER KOVACH  
36600 CHARLES GHESQUIERE  
MRCD BENZ OF BLMFLD HILLS  
36623 ANNE NELSON  
36627 MICHAEL MAGDALINA  
36631 EMIR OZAN  
36635 OWEN TOWNSEND  
36639 SCOTT KEMME  
36643 COLONIAL COURT TERRACES  
OCCUPANT UNKNOWN  
36700 1400 WOODWARD ASSOCS LLC  
ALAN GILES  
ANDERSON FINANCIAL GROUP  
BLOOMFIELD CCS  
CHILD HEALTH ASSOCS PC  
COMPETITIVE COMPUTER SYSTEMS  
COOK GOETZ ROGERS & LUKEY PC  
DAN SCHANOSKI  
FAMILY CTR FOR PSYCHOLOGICAL  
FAMILY HOMESTYLE CAFE  
GERTRUDE MONTGOMERY  
GERTRUDE MONTGOMERY  
GRAND PRIX CLUB OF AMERICA  
HASHEM NAJAH REAL ESTATE  
HAYES JACK P PHD  
HAYNES JACK P PHD  
JACK HAYNES  
JACK MEREWETHER  
JAMES SZALAY  
JOHN LEONE

**WOODWARD AVE 2003 (Cont'd)**

36700 JOHN LYNCH  
JOHN POLASKY  
JOHN S SAFRAN EDD  
JUDY JONES  
KATHERINE SHENSKY-WAINRIGHT  
KATHERINE WAINRIGHT SHENSKY PC  
LAURA J SELL ASSOCS  
LAURA SELL  
LISS ARTHUR Y ATTY  
LYNCH JOHN T III PC  
MICHAEL J KINNA  
MICHAEL KINNA  
MILLER & SHENSKY P L L C  
OAKWOODS PSYCHOLOGICAL CTR  
PEPCO MANAGEMENT INC  
RANDY DEAN  
ROGER WITTRUP  
SIGURD R WENDIN & ASSOC INC  
TELE TRIBUTE INC  
THEODORE SCHNEIDER  
VOCHT LAW FIRM  
WARREN CCS  
WILBUR DIANE L INSURANCE AGENT  
36800 ALPERN ROBERT IRVING PC ATTY  
BBI ENTERPRISES LP  
IMAGE PROCESS DESIGN INC  
IPD  
IPD CANADA HOLDINGS INC  
KATO CONSTRUCTION INC  
MICHAEL GELLIS MD  
NASKA FINANCIAL INC  
ROBERT ALPERN  
ROLLCREST APARTMENTS  
SHOE DEPOT INC  
SRI RAM  
TRIPLE CHECK INCOME TAX SRVC  
36880 BIO MEDIX INC  
BODOIN NICHOLAS J PHD  
CENTRAL PARK INSURANCE AGENCY INC  
DICKERSON GROUP INC  
DONNEL DICKERSON  
F KHERA  
GREAT WEST LF ANNITY INSUR CO  
JOYCE SCHOMER  
JOYCE SCHOMER PHD  
KHERA REKHA MD FACC  
LEITMAN SUSAN PHD  
MICHAEL H FREEDLAND MD  
MICHIGAN MICROSYSTEMS ALLIANCE  
NICHOLAS BODOIN

**WOODWARD AVE 2003 (Cont'd)**

36880 NORTH AMERICAN PENSION SRVC LTD  
RENAISSANCE STRATEGIES LLC  
RYNEARSON SCOTT A ATTY  
SILLS CHRBN FDLR & BRNT PC  
SILLS LAW ESSAD FIEDLER  
SILLS LAW GILLARY ESSAD F  
SOMERSET INSURANCE SERVICES LTD  
SUSAN LEITMAN  
VISAGE LLC

37000 ALLERTON FINANCIAL CORP  
BANNON & ASSOCS ATIMA  
BIRMINGHAM BLMFLD MRKT CTR  
CHANDLER & ASSOCS  
DENTAL CONTACTS INC  
DEVON TITLE CO  
ELISECO INC  
GLADSTONE BENORA  
JACK M COCHRAN  
JAMES BARNES  
JANET CHAMBERLAIN  
JOAN M BARNES  
JOANNE SMITH  
JOHN P KOPPIN LLP  
KOLAR COMMERCIAL GROUP  
LILLY J ALBERT  
MARVIN BANNON  
MARYANN D GREENSTONE  
MICHAEL CONWAY  
MJD METAL CO  
PANTELY MARY & ASSOCS  
PARAGON MORTGAGE SERVICES  
PURDY DONOVAN & BEAL  
VAN VLIET GERALD  
VANNON & ASSOCS

37357 BIRMINGHAM MASONIC LODGE NUM  
LAURENCE HEINTZ

37425 CHRCH OF JESUS CHRST OF LTTR D

## WOODWARD AVE 1999

34750 TOTAL PETROLEUM INCORPORATED  
34802 A A A  
A A A A A BRANCH OFFICES  
34901 1ST DISCOUNT MORTGAGE CORPORATION  
34935 BIRMINGHAM CONEY ISLAND  
34952 HOLIDAY INN EXPRESS  
34953 WORKBENCH CONTEMPORARY FURNITURE  
34965 PEABODYS RESTAURANT & BAR  
34977 BIRMINGHAM SHELL SERVICE  
35001 BIRMINGHAM SUNOCO  
MORTONS BIRMINGHAM SUNOCO  
35028 FORSTER & LAIDLAW FLORISTS INCORPORATED  
35064 ALBANS RESTAURANT & DELICATESSEN  
35075 HUNTER HOUSE HAMBURGERS  
35106 MASTROMATTEO JOSEPH A DDS  
MICHAEL SANSONE  
NORTH HUNTER DENTAL ASSOCIATION PC  
SANSONE MICHAEL A DDS  
35238 INTERNATIONAL HOUSE OF PANCAKES  
35270 HAMILTON HOTEL  
HOTEL HAMILTON  
35300 A CHIPPS  
A LLEWELLYN  
ARTHUR HUDSON  
ARTHUR OATLEY  
B CARROLL  
BRITT JACKAMN  
C HANCOX  
DIANE CREASY  
DOROTHY HRABAK  
E RHEE  
EDWIN PLACE  
ELSIE SERVICE  
EUGENE BONK  
G GOODELL  
HELEN WILLIAMSON  
HUNTER ARMS APARTMENTS  
JAMES WHITAKER  
JAY WRIGHT  
KEIKO YAMAMOTO  
KENNETH BURGESS  
L CORSINI  
LIVIA HUNT  
M BURKHART  
MICHAEL MCBREARTY  
MICHAEL MURZENSKI  
OLIVE BRYCE  
QUENTIN MAI  
STEPHEN HEFFRON  
T WREESMAN



**WOODWARD AVE 1999 (Cont'd)**

35975	HUNTER & OAK AMOCO SERVICE NATIONAL CAR RENTAL INTERRENT
35980	DOUGHERTY ERINN L FEENEY KELLETT WIENNER & BUSH PC HAMMOND HELEN MELIA HANDELSMAN ROBERT D ROBERT HANDELSMAN
36101	MOBIL MART AT HUNTER & OAK
36200	BACKYARD BIRDS
36330	DIGITAL DESIGNS & EDITS EATING DISORDERS PROGRAM EILEEN ORLOFF HENEKS PAUL H M SMALL MONEY MATTERS INCORPORATED ORLOFF EILEEN FREEDLAND ACSW PAUL HENEKS RELATED RETAIL CORPORATION SMALL MARK L PC ATTORNEY
36360	DESROSIERS ARCHITECTS INCORPORATED
36400	ADAMY JOSEPH M & ASSOCIATE INCORPORATED ALLSTATE INSURANCE COMPANIES SALES OFFICES BABCOCK HOWARD A & ASSOCIATES BADEN GROUP INCORPORATED THE BREDESON SALES & ENGINEERING CARMCO INCORPORATED COMPONENTS MARKETING GROUP CONCORD INDUSTRIAL CORPORATION DALY & SIMON REAL ESTATE APPRAISERS FLAGSTAR BANK LOAN CENTER FORBES G H ASSOCIATES ARCHT JACK PARR KATHRYN LARIN-AUGIER KIPP ELESA LARIN ROBERT W ATTORNEY LEONARD EDWIN R ATTORNEY M NURENBERG MITZIS EYE INCORPORATED MONROE ENGINEERING PRODUCTS INCORPORATED MOORE KATHLEEN PHD NEW FINANCIAL CONCEPTS NURENBERG MIKE INS PARR JACK PERRONE T M & ASSOCIATES ROSSI AL & ASSOCIATE REAL ESTATE SIEWEK TOOL COMPANY SPECIALTY PROTECTIVE COATINGS WELLMAN INCORPORATED
36420	BIRMINGHAM GLASS & MIRROR
36509	MATTHEW EDWARDS

-  
**WOODWARD AVE 1999 (Cont'd)**

36515	J CASHIER
36521	FRANK LARIN
36527	RENE BACHOLZKY
36551	SHANNON ARNOLD
36600	ESTATE MOTORS LIMITED
36623	TAMMY ULMAN
36627	OCCUPANT UNKNOWN
36635	ALYSE COHEN M GOLDMAN
36639	C ROONEY
36643	COLONIAL COURT TERRACES WILLIAM DORMAN
36700	1400 WOODWARD ASSOCIATES LLC COOK GOETZ ROGERS & LUKEY PC F SCHOTT FEINBERG DEVELOPMENT COMPANY FOREST DUNES GOLF & COUNTRY CLUB G E CAPITAL GILES ALAN F HALLMANN WILLIAM P CPA PC HASHEM NAJAH REAL ESTATE JONES JUDY MA JUSTICE CONNIE KOHLER MA KLEIN ROBERT M ATTORNEY LISS ARTHUR Y ATTORNEY MCCALLUM EDWARD ASSOCIATES MEIER RICHARD A ATTORNEY METRO DETROIT RELOCATION GUIDE MILLENNIUM MORTGAGE CORPORATION MILLER & SHENSKY PC MIRAL BETH K MD NETMORE REALTY OAKWOODS PSYCHOLOGICAL CENTER PENTZ RONALD A ATTORNEY REMAX IN THE HILLS SELL LAURA J LPC SHENSKY KATHERINE W ATTORNEY SIMON HELENE B ATTORNEY SINGER STANFORD A MD TRIPP WILLIAM H ATTORNEY WILBUR DIANEL INSURANCE AGENT
36800	ALPERN ROBERT IRVING PC ATTORNEY AMERICAN CRIMINAL LAW ASSOCIATION AMERICAN PRINCIPAL GROUP CAPITAL CONSULTING GROUP CHADWICK MARK A ATTORNEY COONEY TRAINER & WAHL PC ATTORNEYS FARMERS INSURANCE AGENT INS GELLIS MICHAEL B MD GOLDBERG GARY A ATTORNEY

**WOODWARD AVE 1999 (Cont'd)**

36800 HODESS SUSAN J CFP  
K BARNHART  
KISTLER REID AGENCY INS  
KOCUR SHIRLEY J MD  
LOWER JOYCE Q ATTORNEY & COUNSELOR AT LAW  
MARSALESE MICHAEL P ATTORNEY  
NATIONAL CATHOLIC RISK RETENTION GROUP INCORPORATED THE  
PREMIER ADVISORS INCORPORATED  
RAM SRI R MD  
TAUBER MARSHALL S ATTORNEY  
WYMAN TIM ATTORNEY

36880 ADAMS ROAD PEDIATRICS ASSOCIATE PC  
AGENCY COMPUTER SYSTEMS  
BODOIN NICHOLAS J PHD  
CENTRAL PARK INSURANCE AGENCY INCORPORATED  
FOX IAN H DO  
IMAD MANSOOR  
LEITMAN SUSAN PHD  
LOCKWITZ TODD  
MANSOOR IMAD MD  
MERCY MEDICAL GROUP  
MULLER PETER T MD  
SARIN SUNITA MD  
SCHOMER JOYCE PHD LICENSED PSYCHOLOGIST  
SILLS JOHN D ATTORNEY  
SILLS LAW ESSAD FIEDLER & CHARBONEAU  
SNAVELY BRENT A ATTORNEY  
SNAVELY BRENT A PC  
SOMERSET INSURANCE SERVICES LIMITED  
STACHECKI MICHAEL MD  
VILLALBA NILDA MD

37000 BARNES JOAN M  
BEITZ DANIEL K ATTORNEY  
BENORA GLADSTONE  
CHANDLER & ASSOCIATES  
COCHRAN JACK M & INSURANCE  
CONWAY & MOSSNER  
GLADSTONE BENORA  
KOLAR COMMERCIAL GROUP  
LEKTROCORP  
LYNCH THANH CONG INTERNATIONAL  
N BD BANK  
PARAGON CAPITAL GROUP INCORPORATED  
RONIE A M & COMPANY  
SHAPPELL DEAN L PHD

## WOODWARD AVE 1995

751	F A Cunningham	83	540-1325
	K Cunningham	83	540-1325
753	K M Breen	73	642-7286
757	E A Kennedy	88	646-3355
759	B L Porter	90	433-3514
761	A J Chrzanowski	78	645-5597
765	Edward M Chung	80	645-9768
	Robert J Gullo	80	645-9788
768	* Birmingham Deli	83	644-4940
790	* Madelinas Antq Shp		
		84	644-2493
794	* Somerset Cleaners	85	644-6667
798	* Birm Prin Shop Bd	85	433-3550
	* Patrck Irla Studio	86	258-8818
	* Mettal Studio Ltd	86	258-8818
	* Cary Stefani Stdio	86	258-8818
800	* Ajour Ltd Fn Jewlr	86	646-0070
	* David Weiss Antqs	92	646-2840
	* D I Katzman Aty	88	258-4800
	* R F Schaden Aty	86	258-4800
	* Schaden & Assocs	92	258-4800
	* Weiss Antq Gallery	92	646-2840
	* B O Wilson Aty	93	258-4800
	* N H Zieglman Arch		
		85	647-5600
885	Oak Manor Apts		350-9500
	16 Units		
	Dan Jacobs Mgr		350-9500
	Kevin Barry	92	644-6272
	M A Bergdahl	68	646-0098
	Patk H Cavanaugh	91	644-5126
	Marc Cohen	93	646-7040
	Shannon Day	85	644-6714
	Jeffrey Fabian	85	644-5771
	K M Fanning	85	644-3019
	Jess N Hollenbeck	85	647-6182
	Philippe Houchois	85	647-5856
	B Miller	91	644-1786
	Mark Wayde	93	258-6974
900	* David J Underdown	88	644-6864
	ALL ODD ADDRESSES		
	FROM 961 TO 975		
	ON WOODWARD N ARE		
	PATRICIAN PL CONDO		
	12 UNITS		
	SHERWOOD & ASSOC		
	540-1454		
961	Charles E Grenier	89	647-7011
963	Barbara Batdorf		646-1635
967	Paul Kircos	82	540-4965
973	Mark S Davis	90	647-1552
	Matthew M Davis	85	647-7321
975	Walter T Bromley	76	644-9161
1000	* Hsp Group Inc		258-9274
	* M Parkins Assoc		642-5656
1003	J N Fulkerson	75	642-2291
1005	Gary K August	85	647-6163
1009	H M Kross	75	642-6143
1011	Dani H Burdick II	77	647-7742
1015	J H Moreau	75	646-6253
1017	William T Sharpe	86	642-2742
1019	B E Travers	85	258-2686
1021	M Himmelspach	89	647-0802
1029	M G Howarn	77	642-0826
1031	Constance W Evans	76	646-1746
	ALL ODD ADDRESSES		
	FROM 1035 TO 1047		
	ON WOODWARD N ARE		
	GLENWOOD TERRACE		
	APARTMENTS		
	35 UNITS		
	MRS L BRAISTED MGR		
	645-2437		
1035	Jack Baum		642-4767
	Dorothy T Cobb	85	646-6646
	George Howard Fox		
		70	644-5398
	L Grabowsky	74	642-5086
	Craig Wilson	85	433-3377
1037	Ralph H Backus	70	646-7822
	Mrs C S Collinson	69	647-8759
	Robert W Collinson	69	647-8759
	Carl Kaltwasser		433-3253
1039	J M Belanger	87	646-0131
	Christina Cash	85	433-1977
	M Gill	93	642-4482
	H Jovanovich	69	646-2298
	D Rossman	93	642-4482
	Barbara A Wauldron		
			642-8004
	* B A Wauldron ASID		
			642-8004
	* Wauldron Design		642-8004
1041	Leroy W Braisted	82	645-2437
	Kristin McAlear		647-7145
	M McAlear		647-6078
1043	Apartments		
	D S Denniston	85	540-9707
	C J Dooley	85	540-2943
	J Floch	89	647-3454
	T Norville Hubbard	73	644-3535
	Edward S McCombe		
		81	646-5281
	Daniel A Nestitt	93	642-5658
1045	J P Peterson		646-2038
	D E Porritt	68	644-6684
1047	Brian L Kaye	88	646-1145

WOODWARD AVE 1992

N WOODWARD AV-Contd

- 101 Baran Dolores J dentist 646-2633
- 830 Bastianelli David dentist
- 102 Holden Harold J dentist
- 201 Krevsky Seymour phys 258-6566
- 202 Getschman George R dentist 646-2040
- 203 Holm-Stewart Travel travel agcy 640-3700
- 301 Milan Mitchell dentist 644-2136
- 302 Vetraino Mark chiropractor 647-2500
- 631\*Crossman Katherine G 644-1721
- 633 Sussex Mildred R 646-8204
- 635 Erickson Arvid G 646-3670
- 637 Beaver R J 258-6346
- 639 Middleton Beatrice M 647-0118
- 640 Office Building
- Suites
- 101 Wong Pluto K phys 646-4646
- 102 Dahl Associates P C 642-2580
- 201 Garwood Robert A psychiatrist 645-9946
- 203 Samalona Clinic 642-5650
- 204 Birmingham Distributor Inc 258-9111
- 204 Birmingham Bloomfield Builder Inc 258-9111
- 204 Birmingham Hauling Ltd hauling co 258-9111
- 301 Pugh & Associates lwyrs 644-7222
- 301 Mooney John G lwyer 647-4380
- 302 Maximum Living counselling 640-0047
- 643 Allan Margt E 642-8273
- 645 Turna-cliff J C 640-6751
- 647\*Goodman K 645-2485
- VINEWOOD AV BEGINS
- 700 Birmingham & Oakland Travel Inc agcy 646-8700
- Joie De Vie 644-8448
- Artful Domain Gallery 646-2030
- Trade Service Corp 642-4750
- 110 Hannett Corporation
- 110 Commonwealth Land Title ins co 433-0890
- 120 Pierce Fred Realtors 647-1414
- 704 Shearlock's Hair Design 640-8644
- 706 Gordon Sue Bridal Salon 642-1112
- 710 Vacant
- 715 Goldsmith Ethel V 258-9282
- 717 Drosge Barbara J 646-0431
- 719 Ford Charlotte 646-0431
- 726 Building
- Rooms
- 201 Knowles W C Inc mfg rep 642-4340
- 202 Vacant
- 205 Sushko John M dentist 644-5735
- 206 Forand Sales Co mfrs rep 644-0087
- 210 Simpson A G Inc mfrs rep 642-6440
- 215 Jackson Tube tube & steel
- 721 No Return
- 722 Claymore Shop the clo 642-7755
- 723 Stephenson Katherine S 647-0257
- 725 Nette Herbert W 644-8739
- 727 Hale Marjorie B 646-0003
- 730 Oscar Does My Hair beauty shop 645-0630
- Golden Pond the art gallery 258-0110
- 742 Thomas Norman A Co Inc jwlr sup 642-7210
- Salerno Ray A optom 644-0644
- 761-765 Hillcrest Apartments
- 761 Wheeler G L 645-0590
- 763 Breen Kathleen M 642-7286
- 766 Larson Robt C 433-1225
- 767 Kennedy Edith A 646-3366
- 769 Porter Barbara L 433-3514
- 761 Chzanowski Alden J 645-6597
- 763 Carron Paul J 646-2075
- 765 Chung Edw M 645-9788
- 768 Birmingham Delicatessen 640-0181
- 790 Madeline's Antique Shop 644-2493
- 794 Somerset Cleaners & Shirt Laundry dry cleaners 644-6667
- Squires Coloring 644-4891
- 796 Freigenson Preston Gallery 644-3955
- 798 Mettal jewelry design 258-8818
- Rear Brown Melissa Mc Gann int dec 640-4307
- 800 Riverview Place ofc bldg
- Floors
- 1stfl Schaden Richd F lwyer 258-4800
- 1stfl Weiss Gallery addl sp
- 1stfl Ajour Limited jewelers 646-0070
- 2dfl Ziegelman Norman H Architects Inc 647-5600
- 2dfl N H Z Continental Construction Corp 647-5600
- 2dfl N H Z Coastal Properties Inc 647-5600
- 2dfl Arkitektura Showrooms Inc furn ret 646-0097
- 850 Vacant
- 885 Oakwood Manor Apartments 646-0949
- 1 Fanning Thomas M 644-3358
- 2\*Morrison Raymond
- 3 Morrassy Jenny
- 6 De Hut Everett
- 7 Flack Jas K 644-7644
- 8 Reason Pamela
- 9 Brennan Marty 647-3874
- 10 Mc Ferren Allison 647-1972
- 11 Bergdahl Frances T 646-0068
- 12\*Varkapich Daniela 647-1848
- 13 Vacant
- 14\*Miller B 644-1788
- 15 Stine Jas C 646-0949
- 16 Gibbs Mary E 642-8589
- 900 Douglas Cleaners Inc 642-6230
- OAK ST INTERSECTS
- 961 Grenier Mildred M 647-7011
- 963\*Hutcheson K 642-7535
- 965 Fredman Donald J 646-0118
- 967 Kircos Paul 646-0118
- 969 Vacant
- 971 Busche Margt M 646-6365
- 973\*Davis Mark S 647-1552
- 975 Ferguson Edw J 644-2077
- BLOOMFIELD CT BEGINS
- 1003-31 Glen Condominiums the 646-9023
- 1003 Fulkerson Jean N 642-2291
- 1005 Vacant
- 1007 Bronco Thomas P 433-1829
- 1009 Kross Helen M 642-6143
- 1011 Burdick Danl H II 647-7742
- 1015 Moreau Helen M 646-8263
- 1017 Sharpe Wm T 642-2742
- 1019 Jones B Mary 642-6084
- 1021 Himmelspach M 647-0803
- 1023\*Weinfield Martin P 646-0118
- 1025 Grombala F T 258-1182
- 1027 No Return
- 1029 Howarn M G 642-0826
- 1031 Evans Constance W 646-1746
- 1036 Glenwood Apartments 646-2437
- 1 Grabowski Lenore H 642-6088
- 2 Badalamenti James P 645-6592
- 3 Rhinehart Donna R
- 4 Green Isabelle M 644-3720
- 5 Fox Katherine G 644-5399
- 6 Vacant
- 7 Cobb Dorothy T 646-6646
- 1037 Glenwood Apartments 645-2437
- 1 Zanbeck Helen A
- 2 Backus Virginia C 646-7822
- 3 Collinson Robt W 647-8759
- 4 Vigellus Wm F
- 1039 Glenwood Apartments 645-2437
- 1 Ciampa Pamela S
- 2 Wallace Marti 647-1489
- 3 Kuzar Elaine E
- 4 Renfrew Chas W 644-0748
- 5 Jovanovich Helen M 646-2398
- 6 Mead Marvin R
- 7 Wauldron Barbara
- 8 Belanger Julie M 646-0131
- 1041 Glenwood Apartments 645-2437
- 1 Braisted Leroy W 645-2437
- 2\*Nimmo Donald D 647-4250
- 1043 Glenwood Apartments 645-2437
- 1 Welsh Merle A 644-2616
- 2 Hubbard Elise 644-3505
- 3 Dooley C J 640-2500
- 4 Nesbitt Daniel A 642-5658
- 5 Hunt Eloise 644-7280
- 6\*Mc Combe Edw S 646-8281
- 7 Floch James 647-3454
- 1045 Glenwood Apartments 645-2437
- 1\*Manson Wm L 647-6553
- 2 Schmidt Mary G
- 3 Porritt Dorothy E 644-6684
- 1047 Glenwood Apartments 645-2437
- 1 Kaye Brian L 646-1145
- 2 Stewart Dorothy L 644-4099
- 3 Quigley Maryellen E 433-1546
- 4 Larin Yvonne 645-9736
- 1051 No Return
- 1053 Schrenk Linda L 640-4025
- N HUNTER BLVD ENDS
- MAYWOOD BEGINS
- 1054 First of America Bank-Southeast Mich N A br 642-6221
- 1055 Mc Woods Arthur 640-4539
- 1059 Johnson Vivian 647-1754
- 1071 Arner Anne D 642-4122
- 1080 Derand Investment Corp 647-0978
- 1073 Vacant
- 1077\*Rea Frank Jr 647-8948
- 1080 Money Matters Inc inv consultant 647-0977
- Pioneer Group inc financial planning serv 647-0979
- De Lorean Properties Corp coml real est 644-3992
- Vacant
- Des Rosiers Architects Inc 642-7771
- Cuttner & Small 258-6070
- Eisenberg Sue Ellen lwyer 258-6080
- Glatzer Sandra D lwyer 646-2500
- 1100 Office Building
- Suites
- 100 Bremer Associates 640-8008
- B1 Bremer Assoc addl space
- B2 Bremer Associate addl sp
- B3 Bremer Associate addl sp
- 102-102 Vacant (2 Suites)
- 108 F A K Enterprises Inc human resource consultants



## WOODWARD AVE 1988

## N WOODWARD AV-Contd

- 633 Edson Ferne  
 635 Erickson Arvid G @ 646-3670  
 637 Beaver Er J @ 258-6346  
 639 Middleton Geo C @ 647-0118  
 640 Office Building  
 102 Dynamedia Incorporated adv reps  
 674-7447  
 Suites  
 101 Wong Pluto K phys 646-4646  
 102 Francisco John W psychologist  
 644-7077  
 201 Michigan Health Care Consultants  
 540-2262  
 202 Maximum Living counselling 645-2347  
 203 Samalona Clinic 642-5650  
 204 Pierce Fred Inc real est 647-1414  
 301 Pugh & Associates lwyrs 644-7222  
 641 No Return  
 643 Allan Margt E @ 642-8273  
 645★Turnacliff J C 540-5751  
 647 Snypp Roy M @ 642-9334  
 VINEWOOD AV BEGINS  
 704 Shearlock's Hair Design 540-8644  
 708 Gordon Sue Bridal Salon 642-1112  
 715 Goldsmith Ethel V @ 258-9262  
 717 Droege Barbara Mrs @ 646-0431  
 719 Nighbor Archie F @ 642-7714  
 720 Building  
 Rooms  
 201 Knowles W C Inc mfg rep 642-4340  
 202 Seven Twenty Answering Service  
 642-3880  
 205 Deer Edwin W dentist 644-5735  
 205 Sushko John dentist 644-5735  
 206 Forand Sales Co electronic equip &  
 sups 644-0087  
 210 Simpson A G Inc mfrs rep 642-6440  
 215 National Machinery Co 647-3456  
 721 Vacant  
 722 Claymore Shop The clo 642-7755  
 723★Stephenson Charles J @ 646-4906  
 725 Nette Herbert W @ 644-8739  
 727 Hale Marjorie B Mrs @ 646-0003  
 730 Birmingham & Oakland Travel Inc  
 646-8700  
 Oscar Does My Hair beauty shop  
 645-0630  
 Golden Pond The 258-0110  
 742 Thomas Norman A Co Inc jwlr sup  
 642-7210  
 Wallace Edw L optom 644-0644  
 Salerno Ray A optom 644-0644  
 751-765 Hillcrest Apartments  
 751 Wheeler G L 645-0596  
 753 Breen Kathleen M 642-7286  
 755★Larson Robt C 433-1225  
 757 Kennedy Eidth A 646-3355  
 759 Herbst Eleanor M Mrs 642-4831  
 761 Chzanoowski Alden J 645-5597  
 763 Carron Paul J 646-2075  
 765 Chung Edw M 645-9768  
 768 Birmingham Deli 540-0182  
 790 Madeline's Antique Shop 644-2493  
 794 Somerset Cleaners dry cleaners 644-6667  
 796 Gauzeling Gallery & Wearable Art  
 644-2320  
 798 Mettal jewelry design 258-8818  
 Rear Brown Melissa Mc Gann int dec  
 540-4307  
 800 Riverview Place (Ofc Bldg)  
 Floors  
 1stfl Schaden & Heldman lwyrs 258-4800  
 1stfl Brava Incorporated boutique 645-0311  
 1stfl Ajour Limited jewelers 646-0070  
 2dfl Ziegelman Norman H Architects Inc  
 647-5600  
 2dfl N H Z Continental Construction Corp  
 647-5600  
 2dfl N H Z Coastal Properties Inc  
 647-5600  
 2dfl Arkitektura Showrooms Inc furn ret  
 646-0097  
 856 House Of Carrie Lee's restr 644-7576  
 885 Oakwood Manor Apartments  
 1★Lamb Joseph 644-4982  
 2 Vacant  
 3 Salinski T 642-1752  
 4 Kaufman Nora 258-3420  
 5 Muehl Ellen Mrs 642-2537  
 6 Kendricks Mabel 644-5575  
 7 Poepscul M E 467-7135  
 8 Thomas G Ernest Rev 644-1473  
 9 Connell Kathleen 645-0398  
 10 No Return  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Stern Susan 645-6652  
 13 No Return  
 14★Poyle R 642-4645  
 15 Coons Michl 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 OAK ST INTERSECTS  
 961 Grenier Charles E Jr 647-7011  
 963★Conti Chris 433-3705  
 965 Fredman Donald J 644-0145  
 967 Kircos Paul 540-4965  
 969 No Return  
 971 Busche Margt M 646-6365  
 973 No Return  
 975 Ferguson Edw J 644-2377  
 BLOOMFIELD CT BEGINS  
 1003-31 Glen Condominiums The 646-9023  
 1003 Fulkerson Jean N 642-2291  
 1005 Vacant  
 1007 Pickard Terry F 540-7962  
 1009 Kross Helen M 642-6143  
 1011 Burdick Danl H II @ 647-7742  
 1015 Moreau Helen M 646-8253  
 1017 Sharpe Wm 642-2742  
 1019 Jones B Mary Mrs @ 642-5984  
 1021★O'Berg Greg 647-3107  
 1023 Rundquist James 646-2636  
 1025 Troccio Thos 540-2823  
 1027 Vacant  
 1029 Howarn Margt G Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Apartments apts 645-2437  
 1 Grabowsky Lenore 642-5086  
 2 Herrick B 646-1785  
 3 Vacant  
 4★Johnson Roy W 642-0833  
 5 Fox Geo H 644-5399  
 6 Gass Janet C 642-6024  
 7 Cobb Dorothy 646-6646  
 1037 Glenwood Apts 645-2437  
 1 Kinsman Clare D 540-2787  
 2 Backus Virginia Mrs 646-7822  
 3 Collinson Robt W 647-8759  
 4 Nimmo Barbara 647-4250  
 1039 Glenwood Apts 645-2437  
 1★Belanger J 646-0131



## WOODWARD AVE 1982

643\*Allan Margt E 642-8273  
 645\*Kindred Ruth M 644-3310  
 647\*Snypp Roy M 642-9334  
 VINEWOOD AV BEGINS  
 704 New Hair Inc (Addn Space)  
 New Hair Inc unisex hair piece work  
 642-9449  
 706 Hairem The beauty shop 644-2257  
 708 Gordon Sue Bridal Salon bridal  
 accessories 642-1112  
 715 De Board Mae Mrs 642-9128  
 717 Droege Barbara Mrs 646-0431  
 719 Nighbor Archie F 642-7714  
 720 Building  
 Jackson Tube mfrs rep 644-6776  
 Rooms  
 201 Knowles W C Inc mfg rep 642-4340  
 202 Seven Twenty Answering Service  
 642-3880  
 202 Mather Jim Associates Ltd mfr rep  
 646-6215  
 205 Deer Edwin W dentist 644-5735  
 205 Sushko John dentist 644-5735  
 205 Forand Sales Co electronic equip &  
 sups 644-0087  
 206 I T T General Controls mfg rep  
 642-1830  
 210 Simpson A G & Company mfrs rep  
 642-6440  
 215 National Machinery Co 647-3456  
 Corrosion Control Systems 642-4890  
 Group Services Inc ins 642-6161  
 Hudson Arth S mtge broker 642-4048  
 721 Echlin Helen Mrs 644-6073  
 722 Claymore Shop The men's clo 642-7755  
 723 Ricketts Lillian Mrs 647-8621  
 725 Restrck Minnie H Mrs 646-6084  
 726 Berry Leonard-Gordon Greek Antiques  
 646-1996  
 727 Hale Marjorie B Mrs 646-0003  
 730 Birmingham & Oakland Travel & Glenn  
 Travel Inc 646-8700  
 Oscar Does My Hair beauty shop  
 645-0630  
 742 Thomas Norman A Co Inc jwlr sup  
 642-7210  
 751 Wheeler G L 645-0596  
 753 Breen Kathleen M 642-7286  
 755 Hatch Viola Mrs 647-1185  
 757 Kennedy Edith 646-3355  
 759 Herbst Eleanor M Mrs © 642-4831  
 761 Chzanoowski Alden J © 645-5597  
 763 Carron Paul J 646-2075  
 765 No Return  
 768 Birmingham Deli delicatessen 540-0181  
 790 Underground Collector Ltd The antiques  
 644-3982  
 794 Audio Dimensions audio splts 642-6383  
 798 Percussion World Inc 644-6636  
 856 House Of Carrie Lee's restr 644-7576  
 885 Oakwood Manor Apartments  
 1 Rattner Joseph 642-2604  
 2 Hospitality Suite (Oakwood Apt Assn)  
 3 Salinski T 642-1752  
 4 Kendrick James A 644-5575  
 5 Muehl Ellen Mrs 642-2537  
 6 Drozdowski Donna C Mrs 642-0184  
 7 Blackwood Caroline T Mrs 647-6195  
 8 Thomas G Ernest Rev 644-1473  
 9 Connell Kathleen 645-0398  
 10 Frank Esther W Mrs 642-4555

## WOODWARD AVE 1982

N WOODWARD AV—Contd  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Sipe Ronelva M 644-1245  
 13 Foadich  
 14 Cohen S  
 15 Coon M 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 OAK ST BEGINS  
 961 Vacant  
 963 Hecker Edwin W 646-9232  
 965 Fredman Donald J 644-0145  
 967★Kircos Paul 540-4965  
 969★Silver Sue  
 971 Busche Margt M @ 646-6365  
 973★Kroph Bill  
 975 Ferguson Edw J 644-2377  
 BLOOMFIELD CT BEGINS  
 1003 Glen Terrace Apartments 646-9023  
 Fulkerson Jean N 642-2291  
 1005 Bjorkman Harry @ 642-0795  
 1007★Friedman Richd @ 540-3883  
 1009 Kross Helen 642-6143  
 1011 Burdick Dani H II 647-7742  
 1015 Moreau Helen M 646-8253  
 1017 Basile Teresa M Mrs @ 642-1817  
 1019 Jones Mary Mrs @ 642-5984  
 1021★Nawrot Ken 644-5546  
 1023★Cliff Cathy 646-1530  
 1025 Adams Martha 642-9244  
 1027 Chapin  
 1029 Howarn Margt Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Terrace apts 645-2437  
 1 Grabowsky Lenore 642-5086  
 2 Wickersham Nancy 644-2859  
 3 Rhinehart John E  
 4 Green Isabel M Mrs  
 5★Fox Geo 644-5399  
 6 Gass Janet C 642-6024  
 7 Boyle John D 644-8690  
 1037 Apartments  
 1★Kinsman Clare 540-2787  
 2 Backus Virginia Mrs 646-7822  
 3 Collinson Robt W 647-8759  
 4 Nimmo Barbara 647-4250  
 1039 Apartments  
 1 Mc Guire Norman 644-1969  
 2 Hilde Helen 642-1647  
 3 Geldart Wilfred A 644-4325  
 4 Renfrew Charles 644-0749  
 5 Jovanovich Helen M Mrs 646-2298  
 6 Mead Marvin  
 7 Mac Creadie Jeanne M Mrs 647-3870  
 8 No Return  
 1041★Braisted Charlotte 645-2437  
 ★Ingold Margt Mrs 644-7922  
 1043 Apartments  
 1 Welsh Marvin A  
 2★Hubbard Rex  
 3 Mc Clear Robt D 645-9327  
 4 Smith Jean Mrs 646-3158  
 5 Hunt Eloise Mrs 644-7280  
 6 Le Moyne Frances C Mrs  
 7 Ferguson Frances B 642-9372  
 1045 Apartments  
 1 Leyton Dorothy 645-5217  
 2 Schmidt Mary G  
 3 Porritt Dorothy E 644-6684  
 1047 Apartments  
 1 Kay Bryan 646-1145



## WOODWARD AVE 1977

## N WOODWARD AV—Contd

- 717★Droege Paul F 646-0431  
 719 Nighbor Archie F 642-7714  
 720 Building  
 Rooms  
 201 Vacant  
 202 Stevens Valerie Interiors Co int dec  
 646-2665  
 205 Deer Edwin W dentist 644-5735  
 205 Deer Edwin W Jr dentist  
 206 Sharbach Terry Graphic Design coml  
 artist 647-3850  
 207 Vacant  
 210 Simpson A G & Company mfrs rep  
 642-6440  
 215 Vacant  
 721 Echlin Helen Mrs 644-6073  
 722 Claymore Shop The men's clo 642-7755  
 723 Ricketts Lillian Mrs 647-8621  
 725 Restrict Wm C 646-5084  
 726 Berry Leonard Gordon Greek Antiques  
 646-1996  
 727 Hale Marjorie B Mrs 646-0003  
 730 Birmingham & Oakland Travel Inc  
 646-8700  
 Alexander Salon beauty shop 642-2250  
 742 Thomas Norman A Company jwlr sup  
 642-7210  
 751 Wheeler G L 645-0596  
 753 Breen K M 642-7286  
 755 Hatch Fred J 647-1185  
 757 Kennedy Edythe A Mrs 646-3355  
 759 Herbst Eleanor M Mrs © 642-4831  
 761 Chzanoowski Alden J © 645-5597  
 763★Carron Paul J 646-2075  
 765 Cornfoot Henry  
 768 Michael's beer-wine 647-3030  
 790 Underground Collector Ltd The antiques  
 644-3982  
 794 Audio Dimensions audio splts 642-6383  
 798 Percussion World Inc 644-6636  
 856 House Of Carrie Lee's 644-7576  
 885 Oakwood Manor Apartments  
 1 Scolaro Joseph R 647-6998  
 2 Anderson H A C 646-8508  
 3★Salinski T 642-1752  
 4★Cowan John J 642-9123  
 5 Muehl Ellen Mrs 642-2537  
 6 Drozdowski Donna C Mrs 642-0184  
 7 Blackwood Caroline T Mrs 647-6195  
 8 Gilleran Nancy A  
 9 Usas Vytautas J 642-9247  
 10 Frank Philip B 642-4555  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Sipe Ronelva M 644-1245  
 13 Seaborn Arth J 642-8977  
 14★Covert Alf D 644-1543  
 15★Coon M 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 910 Vacant  
 OAK ST BEGINS  
 961 Green J Donald © 646-4553  
 963 Hecker Edwin W 646-9232  
 965★Cobb Robt A 642-8475  
 967★Bush Wm R Jr 642-3081  
 969 Fairbanks Betty 645-0867  
 971★Snodgrass Robt T 644-1848  
 973 Nickel Jack S 642-0699  
 975 No Return  
 BLOOMFIELD CT BEGINS  
 1003 Glen Terrace Apartments 646-9023  
 Fulkerson Jean N 642-2291  
 1005★Bjorkman Harry © 642-0795  
 1007 Gloff Richd C 647-7073  
 1009 Kross Helen 642-6143  
 1011★Burdick Danl H II 647-7742  
 1015 Moreau Helen 646-8253  
 1017 Basile Teresa M Mrs © 642-1817  
 1019 Jones Mary Mrs © 642-5984  
 1021 Cook J R 646-2763  
 1023 Runnells Martha 222-3487  
 1025 Scott Wm H 644-3386  
 1027 Coughlin Sylvania P 645-0652  
 1029★Howarn Margt Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Terrace apts 646-9023  
 1 Grabonsky Lenore 642-5086  
 2 Wiggins Olive 646-4286  
 3 Rhinehart John E  
 4 Green Isabel 644-3720  
 5 Fox Kath Mrs 644-5399  
 6 Oakley Mabel M Mrs 646-5669  
 7 Carson Howard 647-1731  
 1037 Apartments  
 1 Schaefer Genevieve 642-5446  
 2 Backus Virginia Mrs  
 3 Collinson Robt W 647-8759  
 Nimmo Barbara 647-4250  
 1039 Apartments  
 1 Gregory Thelma Mrs 645-1069  
 2 Tedesco Wm A 642-3763  
 3 Geldart Wilfred A 644-4325  
 4★Renfrew Charles  
 5 Jovanovich Helen M Mrs 646-2298  
 6 Mc Donald Paul E 642-7774  
 7 Mac Creadie Jeanne M Mrs 647-3870  
 8 Hubbard Elise Mrs 644-3535  
 1041 Swats Sarah D Mrs 646-1254  
 Smith Charlotte P Mrs 646-9023  
 1043 Apartments  
 1 Bee Wm C 644-0862  
 2 Moran Leona M Mrs 646-6416  
 3 Mc Clear Robt D 645-9327  
 4 Smith Jean Mrs 646-3158  
 5 Hunt Eloise Mrs MI4-7280  
 6 Le Moyne Frances C Mrs 644-0715  
 7 Ferguson Edgar S 642-9372  
 1045 Apartments  
 1 Leyton Dorothy 645-5217  
 2 Schmidt M G  
 3 Porritt Dorothy E 644-6684  
 1047 Apartments  
 1 Erickson Geo C 644-0368  
 2 Stewart Dorothy L 644-4099  
 3 Saunders Marie J Mrs 644-4813  
 4★Larin Yvonne 645-9738  
 1051 Ryan Arth W 642-1495  
 1053 Frons G  
 1054 Parsons childrens clo 644-7118  
 N HUNTER BLVD ENDS  
 1055 Crawford Nancy C 647-1541  
 1057 No Return  
 1059 Valliere Barbara M 646-6925  
 1061 Kritsch Michl L 646-6598  
 1063 Potter Pauline Mrs MI4-5260  
 1065★Whitson James A 642-6844  
 1067 Krejci Mary G Mrs 646-7807  
 1069 Sheppard Ann L 642-6535  
 1071 Spicer J 645-0790  
 1073★Cotran Sharon  
 1075★Aylward Karen Mrs 646-3791

## WOODWARD AVE 1972

650 Pugh Moehlman & Pugh lwyr 644-7222  
VINEWOOD AV BEGINS

704 Mobile Home Materials Inc 644-4400  
Birmingham Bloomfield Bd Of Realtors  
(Ofcs) 646-7793

706 Spata IV Rivard beauty shop MI4-5166

708 Claymore Shop The men's clothing  
642-7755

715 De Board Elmer B 642-9128

717 Nette Herbert W 646-7826

719 Jaynes Bernice R Mrs 646-2168

720 Building  
Rooms  
201 Oakland Phototype  
202 Stevens Valerie Interiors Co int dec  
646-2665  
205 Deer Edwin W dentist 644-5735  
206 Earthen Arts Gallery jeweler sup  
642-7210  
206 Thomas Norman A Co jeweler sup  
642-7210  
207 Jacquie Ltd Import-Export 645-0225  
210 Boyd Donald A mfg rep automotive  
parts 642-6440  
215 Gonzales R Manuel phys MI7-7224

721 Echlin Helen Mrs 644-6073

722 Claymore Shop The (addn space)  
642-7755

723 Ricketts Lillian Mrs 647-8621

725 Restrick Wm C 646-5084

726 Lewanes Coiffures Inc 644-2257

727 Hale Marjorie B Mrs 646-0003

730 Birmingham & Oakland Travel Inc  
646-8700  
Beauty Shop Of Birmingham The  
642-2250

742 First Of Michigan Corp (Br) stock  
brokerage 647-1400

751 Plumbly Arnold

753 Whiting Raymond W Mrs 644-4546

755 Nighbor Archie F 642-7714

757 Kennedy Edythe A Mrs 646-3355

759 Beaver Ralph J 646-1451

761 Coote Harold M 646-4592

763 Sweeney Charles F Jr 642-2956

765 Vacant

768 Michael's beer-wine 647-3030

790 Horizons Of Birmingham 646-1873

794 Tower Of Pizza 644-4890  
Northland-Oakland Medical Laboratories  
laby 644-7720

798 Pool Edson K dentist 644-3635  
Madorsky Erwin I dentist 642-8130

856 Lee's Carrie Restaurant 644-7576

885 Oakwood Manor Apartments  
1 Scolaro Joseph R 647-6998  
2 Murphy Dorothy J Mrs 642-4078  
3 Montgomery Gladys D Mrs 642-5029  
4 Walrad Hazel D Mrs 646-7106  
5 Costello Anne M Mrs 642-2475  
6 Griskevich E R 642-0063  
7 Blackwood Caroline T Mrs 647-6195  
8 Taylor Margt E Mrs 644-4081  
9 Hause Emily 647-1796



## WOODWARD AVE 1972

**N WOODWARD AV—Contd**  
 10 Frank Philip B 642-4555  
 11 Vacant  
 12 Bergdahl Frances T Mrs 646-0098  
 13 Seaborn Arth J 642-8977  
 14 Phillips Dexter  
 15 Hendricks Fred  
 16 Gibbs Mary E  
 900 Douglas Cleaners Inc 642-6230  
 910 Mobil Friendly Service 644-9713  
**OAK ST BEGINS**  
 961 Green J Donald 646-4553  
 963 Hecker Edwin W 646-9232  
 965 Nelson Robt D 647-3242  
 967 Greene Hilda M 645-9656  
 969 Fairbanks Betty 645-0867  
 971 Mantell Margt S Mrs 644-6683  
 973 Antrobus W Frank 645-9289  
 975 Greenleaf Joy L Mrs 642-6968  
**BLOOMFIELD CT BEGINS**  
 1003 Glen Terrace Apartments 646-9023  
     Hubbard Margt W Mrs 644-2045  
 1005 Wheelock Juanita Mrs 642-2147  
 1007 Conlan Mariane Mrs  
 1009 No Return  
 1011 Koser Wayne L 647-4580  
 1015 Meyers Thos  
 1017 Millard Mary I Mrs 647-0149  
 1019 Gauntt Julia E Mrs 644-8517  
 1021 Erickson Geo C 644-0368  
 1023 Laufer Anson E Mrs 647-1597  
 1025 Scott Wm H 644-3386  
 1027 Noble Frank W 646-7107  
 1029 Cavanaugh Thos J 642-4855  
 1031 Schmittiel Rudolph H real est 646-5072  
 1035 Glenwood Terrace apts 646-9023  
     1 Hawke Leonard 646-7475  
     2 Skimin Doris 646-4286  
     3 Schumaker Geo B 645-2191  
     4 Craig Clarence J 642-5492  
     5 Fox Kath Mrs MI4-5399  
     6 Oakley Mabel M Mrs 646-5669  
     7 Miller Roger E 646-7563  
 1037 Apartments  
     1 Schaefer Genevieve 642-5446  
     2 Backus Virginia Mrs  
     3 Collinson Ethel M Mrs 647-8759  
     4 Roby Glenn A 646-2144  
 1039 Apartments  
     1 Gregory Thelma Mrs 645-1069  
     2 Milliken Logan 645-1253  
     3 Bay Donald W MI4-5017  
     4 Nichols Harry Mrs 644-7036  
     5 Jovanovich Helen M Mrs 646-2298  
     6 Morrison Merle J 642-2817  
     7 Mac Creadie Alex G 647-3870  
     8 Hubbard Elise Mrs 644-3535  
 1041 Swats Sarah D Mrs 646-1254  
     Smith Charlotte P Mrs 646-9023  
 1043 Apartments  
     1 Bee Wm C 644-0862  
     2 Moran Leona M Mrs 646-6416  
     3 Saltarelli Frank L 644-6062  
     4 Smith Jean Mrs 646-3158

## WOODWARD AVE 1967

WOODWARD AV N--CONTD	
634 HOLDEN HAROLD J DENTIST 644-6688 RILEY JAMES M DENTIST 644-2136	910 MOBIL FRIENDLY SERVICE GAS STA 644-9713 ---OAK ST BEGINS
635 MUESSEL GERALD K 646-6111	961 FISHER MAPEL C MRS 647-2374
637 GREEN CHARLES * 646-9711	963 RISDON MARY A MRS 646-0936
638 DEER EDWIN W DENTIST 644-5735	965 HERMAN VINCENT L 646-7510
639 MIDDLETON GEO C 647-0118	967 KOENIG WILBUR M 644-8107
640 DUSTIN ROBT W PHYS 644-6422 STOLPMAN A KENNETH PHYS 644-6422 WATSON THOS Y PHYS 644-1966	969 LA FOND EMMA E MRS 646-9624
641 EADE DONALD G 644-6397	971 MANTELL MARGT S MRS 644-6683
642 NO RETURN	973 SULLIVAN KATHRYN M MRS 644-2354
643 STERRITT CHARLES R 647-4608	975 GOODMAN JULIA A 646-4114
645 HALE MARJORIE B MRS 646-0003	---BLOOMFIELD CT BEGINS
646 ALDERISIO JAMES P DENTIST 646-2964 MARIN GEO E DENTIST 644-3131 SCHOENFELD ROBT J DENTIST 644-3131	1003 GLEN TERRACE APARTMENTS 646-9023 HUBBARD MARGT W MRS 644-2045
647 VACANT	1005 BLAKE ROSEMARY MRS 646-2722
648 CAMPBELL FREDK W PHYS 646-5644	1007 HUBERT ETHEL M 644-5696
650 HEIB FRANK B PUBL REP 647-1655	1009 GAUNTT JULIA MRS 644-8517
---VINEWOOD AV BEGINS	1011 LE DUC ALYCE H MRS 644-7168
704 ADAMS W G & ASSOCIATES STEEL BROKER 647-1152 VICTORIA CUSTOM HAIRPIECES WIG MAKEPS 647-1538 1 BROWN BETTY M 642-7803	1015 POTTS D M MI7-1560
706 NINO SALON BEAUTY SHOP 644-5166	1072 MILLAPD IRWIN W 647-0149
708 HELSIGAN MARY INC WOMEN'S CLO 646-4420	1019 CLARA MAY B 644-9145
715 DE GUEPE PHILIP L 647-3060	1021 ERICKSON GEO C 644-0368
717 NETTE HERBEPT W 646-7826	1023 LAUFER ANSON E MRS 567-1597
719 JEYNES BERNICE R MRS 646-2168	1025 SCOTT WM H 644-3386
721 EGBERT DONALD C 644-5097	1027 NOBLE FRANK W 646-7107
722 CLAYMORE SHOP THE MENS CLO 642-7755	1029 MEAD MAURICE 647-5786
723 WESEBAUM CARL	1031 SCHMUTT RUDOLPH H REAL EST 646-5072
725 RESTRICK WM C 646-5084	1035 GLENWOOD TERRACE APTS 646-9023 APARTMENTS
727 MURRAY BARBARA MRS 646-0890	1 SMITH WM W 646-4059
730 BIRMINGHAM & OAKLAND TRAVEL INC 646-8700	2 SKIMIN DORIS 646-4286
742 FIRST OF MICHIGAN COOP (BO) STOCK BROKERAGE 647-1400	3 KALTWASSER ELEANOR R MRS MI6-8681
751 HILLCREST TERRACE 644-7410 BURKE EUGENIA R	5 HARTLE RICHD H 647-2674
753 KNUDSEN NELSE S 646-1968	6 OAKLEY MABEL M MRS 646-5669
755 CHASE MAY M MRS 646-8866	7 MILLER ROGER E 646-7563
757 KENNEDY W ALEX 646-3355	1037 APARTMENTS
759 STAHL CATH M 646-1451	1 THOMPSON EVERETT L 644-7249
761 COOTE HAROLD M 646-4592	2 PLANCON HENRIETTE MRS 644-0133
763 FREYER FRANCES MRS 646-3677	3 SCHMIDT ELVIRA M MRS 644-6836
765 RAUBE REINHOLD H 644-5336	4 ROBY GLENN A 646-2144
768 MICHAEL'S BEER-WINE 647-3030	1039 APARTMENTS
790 VILLAGE BOOKSHELF THE 646-8887	1 CARROLL A PETER REV 644-8074
794 WIG SHOPPE 642-6777	3 BAY DONALD W MI4-5017
798 POOL EDSON K DENTIST 644-3635 WALMOTH RAYMOND W DENTIST 646-7644	4 KELLY LEONA MRS 644-7193
856 LEE'S CARRIE RESTAURANT 644-7576	5 JOVANOVICH HELEN M MRS 646-2298
	6 NO RETURN
	7 MAC CPEADIE ALEX G 647-3870
	8 KLEIN HAROLD F 646-0929
	1041 SWATS ROBT L 646-1254 SMITH PAYMOND H 646-9023
	1043 APARTMENTS
	1 BEE WM C 644-0862
	2 SOUTER GEO 644-9278
	3 SALTARELLI FRANK L
	4 SMITH JOHN M 646-3158
	5 BURLEY ELSIE MRS 647-5785
	6 TUCKER MILDRED MRS 647-6065
	7 CROOKER EDITH M MRS 646-8132



## WOODWARD AVE 1962

## WOODWARD AV N—Contd

626 Scott Stewart C dentist  
MI6-2040

628 McCain French H phys  
MI4-7944

630 Bemister Dental Laby  
MI6-4010  
Noonan Melvin A dentist  
MI4-4118

634 Riley Jas M dentist  
MI4-2136  
Holden Harold J dentist  
MI4-6688

638 Deer Edwin W dentist MI4-5735

640 Watson Thos Y phys  
MI4-1966  
Dustin Robt W phys MI4-6422  
Stolpman A Kenneth phys  
MI4-6422

642 Valpey Grant R Co mfrs agt  
MI6-5440

644 Vacant

646 Hair Designs by John beauty  
shop 647-1020

648 Renniks Co auto parts MI7-2224

650 Richarson R M Co mfrs agt  
MI6-2500  
Angove R L Co mfrs agts  
MI6-7870

Street continued

615 Duncan S Jas @ MI4-5860

625-47 Elm Court Terrace Apart-  
ments

625 Knisely Marie C Mrs  
MI4-8130

627 Bonds Cora S Mrs MI4-8063

629 Langstrom Frank MI4-8563

631 Chittenden Maude Mrs  
MI6-6520

633 Engelgau Irwin G MI4-7106

635 Muessel Gerald K MI6-6111

637 Jones Walter S MI6-3695

639 Middleton Geo C MI7-0118

641 Eade Donald G MI4-6397

643 Bartlett Georgia Mrs  
MI6-7350

645 Hale Marjorie B Mrs MI6-0003

647 Minto Maud C Mrs MI4-1780

Vinewood av begins

704 Nino Salon beauty shop  
MI4-5166

708 Helsigan Mary Inc clo  
MI6-4420

715 Davidson Nolan V MI6-3493

717 Helsigan Mary A

719 Nolan Mary E Mrs MI6-3790

721 Woolson Bessie V Mrs MI6-6218

723 Chickering Wm E MI6-6795

725 Cloonan Ethel Mrs MI6-3850

727 Jackson Myrta A Mrs MI6-7008

730 Oakland Travel Inc agcy  
MI6-8700

742 Lowery Furn Studios  
MI6-7660

751-65 Hillcrest Terraces Apart-  
ments MI4-7410

751 Burke Jean

753 Knudsen Nelse S 646-1968

755 Baldwin Robt J MI6-1938

757 Vacant

759 Vacant

761 Zacharias Gertrude W Mrs  
MI7-0061

763 Gray Otis MI6-9262

765 Baker Helen C Mrs MI4-5336

768 Michael's beer MI7-3032

768 Michaels beer MI7-3032

790 Village Bookshelf The books  
MI6-8887

794 Torgerson Thos S dentist  
MI7-1422  
Schoenfeld Robt J dentist  
MI6-9597  
Small Irwin A phys MI7-1422

798 Link Oscar N dentist MI6-8871  
Wamoth Raymond W dentist  
MI6-7644

856 Carrie Lee's Chinese Tea  
Room MI4-7576

887 Williams Car Wash MI6-4210

910 Mobil Friendly Serv gas sta  
MI4-9713

## Oak begins

961 Cavanaugh Geo A MI7-1970

963 Risdon Mary A Mrs MI6-0936

965 Herman Vincent L MI6-7810

967 Foster G Scott MI7-0235

969 LaFond Emma M MI6-9624

971 Mantell Margt S Mrs MI4-6683

973 Vacant

975 Wilson Otis J @

Bloomfield ct begins

1003-31 Glen Terrace Apartments  
MI6-9023

1003 Cludius Ella G Mrs MI6-0332

1005 Blake Rosemary Mrs 646-2722

1007 Hubert Ethel M MI4-5696

1009 Hinkley Ora L MI7-2442

1011 D'Andrea Dan MI6-5260

1015 Potts Dorothy M Mrs

1017 Moore Eug A 647-0417

1019 Clara May B MI4-8145

1021 Erickson Geo C

1023 Burt Marian R Mrs MI7-0629

1025 Scott Wm H MI4-3886

1027 Noble Francis W MI6-7107

1029 Pino Maude W MI6-8715

1031 Schmittdiel Rudolph H real  
est MI6-5072

1035-47 Glenwood Terrace MI6-9023  
Apartments:

- 1 Smith Mabel Mrs 646-4059
- 2 Moody Romaine Mrs  
MI7-1130
- 3 Shinnick Fred M MI4-1135
- 4 Marchard Rheo C MI6-6126
- 5 Office Gerald S 646-2670
- 6 Oakley Mabel M Mrs  
MI6-5669
- 7 Wetstein Sarah C

## Street continued

1037 Apartments

- 1 Thompson Everett L MI4-7249
- 2 Plancon Henriette Mrs 644-0133
- 3 Schmidt Elvira M Mrs  
MI4-6836
- 4 Roby Glenn

Street continued



## WOODWARD AVE 1957

## WOODWARD AV N—Contd

631△Chittenden Maude Mrs ◎  
 633△Shone Harold K  
 635△McGraw Agnes M Mrs  
 637△Breivogel Helen  
 639△Middleton Geo C  
 641△Eade Donald G  
 643△Schluchter Charlotte R Mrs  
 645△Hale Marjorie B Mrs  
 647△Minto Maud C Mrs

## Street continued

618△Mason Robt J phys  
 620△Hasberger John B phys  
   △Alderisio Jas P dentist  
   △Jeffers Fredk A dentist  
 624-38 Reid Building  
 624△Prescription Center druggists  
 626△Scott Stewart C dentist  
 628△McCain French H phys  
 630△Bemister Dental Laby  
   △Noonan Melvin A dentist  
 632 Vacant  
 634△Riley Jas M dentist  
   △Deer Edwin N dentist  
   △Holden Harold J dentist  
 640△Watson Thos Y phys  
   △Dustin Robt W phys  
   △Stolpman A Kenneth phys  
 642△Birmingham Optical Co  
 644△Olfs A C & Associates mfrs  
   agt  
   Bristol Brass Co mfrs agt  
 646△Fortune J R & Son mfrs  
   agt  
 647△Minto Maude C Mrs  
 648△Fox Ralph M phys  
   △Cutler Wm N phys  
 650△Richardson R M Co mfrs agt  
   △Corduroy Rubber Co (sls ofc)  
   △Lambrecht Realty Co (br)

## Vinewood av begins

715△Davidson Nola  
 717△Helsigan Mary  
 719△Nolan Mary E Mrs  
 721△Woolson Bessie V Mrs  
 723△Logan Frank G  
 725△Cloonan Ethel Mrs  
 727△Black Wm J ◎  
 751-65 Hillcrest Terraces  
 751△Pinner Walter L ◎  
 753△Ingram Lewis  
 755△Sackett Ray C  
 757△Morgan Howard K  
 759△Raube Ronald H  
 761△Zacharias Allen H

763△Parker Lillian C Mrs  
 765△Sloan Paul E  
 856△Lee's Carrie Chinese Tea  
   Room restr  
   △Lee Frank ◎  
 887△Williams Car Wash  
 910△Socony-Mobil Friendly Serv  
   gas sta

## Oak begins

961△Blanton Chester E  
 963△Young Robt  
 965△Costello Bernard P jr  
 967△Foster G Scott  
 969△Edlefsen Niels E  
 971△Wentworth Saml C  
 973△Hardin Beth H  
 975△Wilson Otis

Bloomfield ct begins  
Hunter blvd ends

1003-91 Glen Terrace Apts  
 1003△Claudius Ella G Mrs  
 1005△Hedgcock Mervyn  
 1007△Hubert Kathryn  
 1009△List Cora B Mrs  
 1011△Stratton Richd  
 1015△Stein Jean Mrs  
 1017△Krause John J contr bldg  
   genl  
 1019△Clara Maybelle  
 1021△Koett Albert C  
 1023△Steward John H  
 1025△Scott Wm H  
 1027△Noble Frank W ◎  
 1029△Waldorf Arth E  
 1031△Schmittiel Rudolph H real  
   'est  
 1051△Goss Marvin C  
 1053△Cottrell Sylvester V  
 1054△Pollock Ethel M Infants &  
   Children's Shop clo  
 1055△Low Wm C  
 1057△Chapman Janet Mrs  
 1059△Atkinson Genevieve C  
 1061△Moore Martha Mrs  
   △Bird Harrie W  
 1063 Vacant  
 1065△Norgren Henry R  
 1067 Vacant  
 1069△Marshall Eliz Mrs  
 1071△Baker Kath W Mrs  
 1073△Wheelock Hugo H  
 1075 French Walter G  
 1077△McKenney Lana B Mrs



## WOODWARD AVE 1951

571△Bachus Arth A  
 573△Pioch Wm  
 575△Morley Walter G  
 577△Leach Ernest C  
 583△Adams Merrill C  
 585△Hoenecke Edw C  
 593△Kiefer Harold D ①  
 595△Curtis Edna T Mrs  
 615-47 Elm Court Terrace  
 615△Duncan S Jas  
 625 Vacant  
 627 Vacant  
 629△Langstrom Frank  
 631△Smith Reginald A  
 633△Rogers Jas D  
 635△Cartier Harry J  
 637△Breivogel Helen  
 639△Groton Marshall T  
 641△Eade Donald G  
 643△Spreen Wm F ①  
 645△Armstrong Harold M  
 647△Minto Mrs  
   **Vinewood av begins**  
 720 Vacant  
 807△Bigge Donald M  
 856△Carrie Lee's Tea Room restr  
       △Lee Carrie ①  
 887△Green Art Service fill sta  
   **Oak begins**  
 981△McGaffey Donald ①  
   **Bloomfield Court begins**  
   **Hunter blvd ends**  
 1003△Roach Sylvia S Mrs ①  
 1005△Clara May Belle  
 1007△Hilliard Eliz Mrs  
 1009△List Cora B Mrs  
 1011△Wicklund Willard W  
 1015△Clark Mary J Mrs ①  
 1017△Krause John G  
 1019△McKenny Keith  
 1020 Diffrient Niles  
 1021△Braisted LeRoy  
 1023△Sheldon Sherwood M  
 1025△Stapchinskas Jos P ①  
 1027△McClanathan Jos W  
 1029△Brown Earl A jr  
 1031△Tucker Frances C Mrs  
 1051△Tate Jean L Mrs  
 1053△Whalley Geo E  
 1054△Pollock Ethel M children's clo  
 1055 Vacant  
 1057△MacDonald Anna F Mrs  
 1059△Gray Nicholas  
 1061△Parsons Emma A Mrs  
 1063△White A Raymond  
 1065△Bonnett E Grace  
 1067△Lahodny John A  
 1069△Marshall Eliz Mrs  
 1071△Walstrom Wilfred J ①  
 1073△Royal Herbert  
 1075 Vacant

## WOODWARD AVE 1944

380 First Presbyterian Ch

387<sup>△</sup>Griffiths Charlotte I

Mrs

Conwell Harry S

**Euclid av begins**

408<sup>△</sup>Beasecker Frank W

460<sup>△</sup>Wickman Carl R

462<sup>△</sup>Stareck Jesse E

**Ravine rd begins**

485 Vacant

**Harmon av begins**

511<sup>△</sup>Murphy John C filling  
sta

527-535<sup>△</sup>Wieland Furniture  
Shop furn repr

551<sup>△</sup>Rounds Geo M <sup>⊙</sup>

615<sup>△</sup>Reineke Frances M Mrs  
<sup>⊙</sup>

**Vinewood av begins**

720<sup>△</sup>Mother & Son Shop  
antiques

Jones Edith J Mrs

807 Reaney Thos A

Tacy Allen A



## WOODWARD AVE 1944

856<sup>△</sup>Wooton Giftcraft  
Studio

Wooton Clifford G ©

889<sup>△</sup>Stevens Jerry Service  
filling sta

**Oak begins**

**Bloomfield ct begins**

**Hunter blvd ends**

**Maywood rd begins**

1120<sup>△</sup>Williams Eva M  
antiques

1145<sup>△</sup>Perry Robt L

1166 Berz Milton H box mkr

1169<sup>△</sup>McKenzie Leo E

**Redding rd begins**

1180<sup>△</sup>Hutchinson Ross A

**Manor rd begins**

1450<sup>△</sup>McGraw Augustus C ©  
Gravlin Hugh E

1521<sup>△</sup>Gasow Fred H vet

Greenwalt Clarence A

1595<sup>△</sup>Standard Oil Co filling  
sta

**Quarton rd begins**

**APPENDIX C**  
**INTERVIEW DOCUMENTATION**  
**USER QUESTIONNAIRE**  
**OWNER/OCCUPANT QUESTIONNAIRE**





SME Project No. \_\_\_\_\_

## PHASE I ENVIRONMENTAL ASSESSMENT (ESA) PROPERTY OWNER/OCCUPANT QUESTIONNAIRE

This questionnaire concerns the current and historical uses and conditions of the referenced property and will be included within the Phase I ESA report. Questionnaire answers should be based upon the owner/occupant's reasonable knowledge of current and historical use and activities at the property.

Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: \_\_\_\_\_

Property Location: \_\_\_\_\_

County: \_\_\_\_\_ State: \_\_\_\_\_

Questionnaire Completed By/Title: \_\_\_\_\_

Company/ Phone Number: \_\_\_\_\_

On Behalf Of (if applicable): \_\_\_\_\_

Year of Purchase/~~XXXXXXXXXX~~Lease (circle one): \_\_\_\_\_

Time Period of Site Knowledge: \_\_\_\_\_

Names/Phone Numbers of Former Owners/Occupants:

Owners: \_\_\_\_\_

Occupants: \_\_\_\_\_

Names/Phone Numbers of other persons who have knowledge of property history: \_\_\_\_\_

\_\_\_\_\_

### PROPERTY DESCRIPTION AND USE

1. Provide a general description of the property:

Undeveloped  Vacant  Wooded  Buildings  Other  Paved lot

2. Describe the structures present on the property (number, size, and construction date): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



SME Project No. \_\_\_\_\_

3. Identify utilities available to the property (check box and indicate provider):

- Electric: \_\_\_\_\_
- Gas: \_\_\_\_\_
- Sanitary Sewer: \_\_\_\_\_
- Storm Sewer: \_\_\_\_\_
- Municipal Water: \_\_\_\_\_

4. Are there any easements at the property?:

- Yes     No

If yes, where are the easements located?: \_\_\_\_\_

5. To the best of your knowledge, identify if the following were formerly (F) or are currently (C) present on the property. Select NA if not applicable to the property.

- |   |   |    |  |
|---|---|----|--|
| F | C | NA | On-site water supply wells                     |
| F | C | NA | Septic fields, drain fields, or dry wells      |
| F | C | NA | Abandoned wells                                |
| F | C | NA | Lagoons, settling ponds                        |
| F | C | NA | Monitoring wells                               |
| F | C | NA | Underground sumps, lines, basins, or tanks     |
| F | C | NA | Aboveground storage tanks (ASTs)               |
| F | C | NA | Transformers or capacitors                     |
| F | C | NA | Other PCB containing equipment                 |
| F | C | NA | Mines or pits                                  |
| F | C | NA | Hidden chemical materials or wastes            |
| F | C | NA | Dumps or landfills                             |
| F | C | NA | Oil or gas wells or test holes                 |
| F | C | NA | Unusual fill areas, such as foundry sand, etc. |
| F | C | NA | Barrel or drum storage areas                   |

6. What is the general use of property:

- Industrial     Commercial     Residential     Other
- Currently empty

7. What products/services are produced/provided at the property?: \_\_\_\_\_

8. What type of on-site processes are used at the property?: \_\_\_\_\_

9. What types of equipment are used at the property?: \_\_\_\_\_

10. What raw materials are used at the property?: \_\_\_\_\_



SME Project No. \_\_\_\_\_

11. Are there any environmental permits (e.g. solid waste disposal, hazardous waste disposal, wastewater, NPDES, etc.) associated with the property?:

- Yes
- No
- None known

If yes, list the applicable permit(s): \_\_\_\_\_

### PROPERTY AND ADJOINING PROPERTIES - CURRENT AND HISTORICAL USE

12. Are there any liquid or solid wastes generated at the property?

- Yes
- No
- Unknown

If yes, please list the monthly volume generated and explain disposal method: \_\_\_\_\_

13. Is the property or any adjoining property currently used for an industrial use?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_

14. Is the property or any adjoining property currently used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_

Please complete the current land use table below:

	Name/Owner	Land Use
Property		
North adjoining properties		
South adjoining properties		
East adjoining properties		
West adjoining properties		

For Items 15 through 32, SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

15. Has the property or any adjoining property been used for an industrial use in the past?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_



SME Project No. \_\_\_\_\_

16. Has the property or any adjoining property historically been used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes                       No                       Unknown
- Property    Adjoining

If yes, explain briefly: \_\_\_\_\_

Please complete the historical land use table below:

	Owner	Use	Dates
Previous use of Property			
Previous use of properties to north			
Previous use of properties to south			
Previous use of properties to east			
Previous use of properties to west			

### CURRENT AND HISTORICAL PROPERTY CONDITIONS

17. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals (individual containers greater than 5 gallons or greater than 50 gallons total) stored on or used at the property or at the facility?

- Yes                       No                       Unknown

If yes, explain briefly: \_\_\_\_\_

18. Are there currently, or have there been previously, any industrial drums (typically 55-gallon) or sacks of chemicals stored on the property or at the facility?

- Yes                       No                       Unknown

If yes, describe the chemicals stored on the property (volume, contents and dates of storage): \_\_\_\_\_

19. Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned/incinerated on the property?

- Yes                       No                       Unknown

If yes, identify the location and date(s): \_\_\_\_\_



SME Project No. \_\_\_\_\_

20. Are there currently, or have there been previously, any registered or unregistered storage tanks (aboveground or underground) located on the property?

- Yes                       No                       Unknown

**If yes**, identify the location, date(s) of use, and date(s) of removal (if applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

21. Are there currently, or have there been previously, any vent pipes, fill pipes protruding from the ground, areas of patched concrete or asphalt, or access ways indicating an underground storage tank on the property?

- Yes                       No                       Unknown

**If yes**, identify the location: \_\_\_\_\_  
\_\_\_\_\_

22. Are there transformers, capacitors, or hydraulic equipment on the property?

- Yes                       No                       Unknown

**If yes**, are there any records indicating the presence of PCBs?: \_\_\_\_\_  
\_\_\_\_\_

23. Is there currently, or has there been previously, any stained soil on the property?

- Yes                       No                       Unknown

**If yes**, identify the location of the stained soil and date(s) it was present on the property: \_\_\_\_\_  
\_\_\_\_\_

24. Has fill dirt been brought onto the property that is of unknown origin? Has fill dirt been brought onto the property that originated from a contaminated site?

- Yes                       No                       Unknown

**If yes**, identify the date and location of fill placement: \_\_\_\_\_  
\_\_\_\_\_

25. Are there currently, or have there been previously, any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?

- Yes                       No                       Unknown

**If yes**, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

26. Are there currently, or have there been previously, any pits, ponds, or lagoons associated with waste treatment or disposal located on the property?

- Yes       No       Unknown

**If yes**, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

27. Excluding storm water and sanitary waste discharge into an existing storm/sanitary sewer, does the property discharge wastewater on or adjacent to the property?

- Yes       No       Unknown

**If yes**, describe the type of wastewater and identify discharge location: \_\_\_\_\_  
\_\_\_\_\_

28. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed applicable guidelines? Has the well been designated as contaminated by any government environmental/health agency?

- Yes       No       Unknown

**If yes**, identify the contaminants and dates of exceedances: \_\_\_\_\_  
\_\_\_\_\_

## PREVIOUSLY IDENTIFIED ENVIRONMENTAL CONDITIONS

29. Have you been informed of the current or past existence of hazardous substances, petroleum products, or environmental violations with respect to the property or any facility located on the property?

- Yes       No       Unknown

**If yes**, briefly explain: \_\_\_\_\_  
\_\_\_\_\_

30. Do you have knowledge of any environmental site assessment(s) of the property (e.g., Phase I ESA, Phase II ESA) that indicated / did not indicate the presence of hazardous substances or petroleum products on, or contamination of, the property?

- Yes       No       Unknown

**If yes**, briefly explain: \_\_\_\_\_  
\_\_\_\_\_





SME Project No. \_\_\_\_\_

31.

- a) If the property is in Michigan, has a Baseline Environmental Assessment (BEA) been prepared for the property? **OR**
- b) If the property is in Indiana, has a Comfort/Site Status Letter been prepared for the property? **OR**
- c) If the property is in Ohio, has a Covenant Not to Sue been prepared for the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

\_\_\_\_\_

32. Are you aware of the existence of environmental reports and permits; UST, AST, and underground injection system registrations; material safety data sheets; community right-to-know plans; safety and spill prevention plans; hydrogeologic reports; notices of past or current violations of environmental laws; hazardous waste generator notices or reports; geotechnical studies; risk assessments; and, recorded activity and use limitations.

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

\_\_\_\_\_

33. Do you know of any pending, threatened, or past lawsuits or administrative proceedings concerning the release of any hazardous substances or petroleum products involving the property or any facility located on the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

\_\_\_\_\_

34. Do you have any knowledge of environmental liens or government notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

\_\_\_\_\_

35. Are you aware of any activity and land use limitations (engineering controls or institutional controls/land use restrictions) that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes                       No                       Unknown

If yes, identify limitation/restriction: \_\_\_\_\_

\_\_\_\_\_



SME Project No. \_\_\_\_\_

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



SME Project No. \_\_\_\_\_

## PHASE I ENVIRONMENTAL ASSESSMENT (ESA) PROPERTY OWNER/OCCUPANT QUESTIONNAIRE

This questionnaire concerns the current and historical uses and conditions of the referenced property and will be included within the Phase I ESA report. Questionnaire answers should be based upon the owner/occupant's reasonable knowledge of current and historical use and activities at the property.

Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: 35975 Woodward Avenue

Property Location: Southwest corner of Woodward Avenue and Oak Street

County: Oakland State: Michigan

Questionnaire Completed By/Title: Robert Mardigian, Member and Craig Sickmiller, Agent

Company/ Phone Number: 248.932.9600

On Behalf Of (if applicable): \_\_\_\_\_

Year of Purchase/Lease (circle one): 2007

Time Period of Site Knowledge: 2007 to present

Names/Phone Numbers of Former Owners/Occupants:

Owners: Simon Land Development Group, LLC

Occupants: Not known

Names/Phone Numbers of other persons who have knowledge of property history: \_\_\_\_\_

SME

### PROPERTY DESCRIPTION AND USE

1. Provide a general description of the property:

Undeveloped  Vacant  Wooded  Buildings  Other  Paved lot

2. Describe the structures present on the property (number, size, and construction date): \_\_\_\_\_

N/A  
\_\_\_\_\_  
\_\_\_\_\_



SME Project No. \_\_\_\_\_

3. Identify utilities available to the property (check box and indicate provider):

- Electric: No current provider
- Gas: No current provider
- Sanitary Sewer: City of Birmingham
- Storm Sewer: City of Birmingham
- Municipal Water: City of Birmingham

4. Are there any easements at the property?:

- Yes       No

If yes, where are the easements located?: See title work.

5. To the best of your knowledge, identify if the following were formerly (F) or are currently (C) present on the property. Select NA if not applicable to the property.

- |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | On-site water supply wells                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Septic fields, drain fields, or dry wells      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Abandoned wells                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Lagoons, settling ponds                        |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Monitoring wells                               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Underground sumps, lines, basins, or tanks     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Aboveground storage tanks (ASTs)               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Transformers or capacitors                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Other PCB containing equipment                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mines or pits                                  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hidden chemical materials or wastes            |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dumps or landfills                             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Oil or gas wells or test holes                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unusual fill areas, such as foundry sand, etc. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Barrel or drum storage areas.                  |

SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

6. What is the general use of property:

- Industrial    Commercial    Residential    Other

Currently empty

7. What products/services are produced/provided at the property?: n/a

8. What type of on-site processes are used at the property?: n/a

9. What types of equipment are used at the property?: n/a

10. What raw materials are used at the property?: n/a





SME Project No. \_\_\_\_\_

11. Are there any environmental permits (e.g. solid waste disposal, hazardous waste disposal, wastewater, NPDES, etc.) associated with the property?:

- Yes  No
- None known

If yes, list the applicable permit(s): \_\_\_\_\_

### PROPERTY AND ADJOINING PROPERTIES - CURRENT AND HISTORICAL USE

12. Are there any liquid or solid wastes generated at the property?

- Yes  No  Unknown

If yes, please list the monthly volume generated and explain disposal method: \_\_\_\_\_

13. Is the property or any adjoining property currently used for an industrial use?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_

14. Is the property or any adjoining property currently used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: There is a dry cleaner located immediately to the west of the property

Please complete the current land use table below:

	Name/Owner	Land Use
Property		
North adjoining properties		
South adjoining properties		
East adjoining properties		
West adjoining properties		

For Items 15 through 32, SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

15. Has the property or any adjoining property been used for an industrial use in the past?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_



SME Project No. \_\_\_\_\_

16. Has the property or any adjoining property historically been used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes       No       Unknown
- Property    Adjoining

If yes, explain briefly: Gas station

Please complete the historical land use table below:

	Owner	Use	Dates
Previous use of Property			
Previous use of properties to north			
Previous use of properties to south			
Previous use of properties to east			
Previous use of properties to west			

### CURRENT AND HISTORICAL PROPERTY CONDITIONS

17. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals (individual containers greater than 5 gallons or greater than 50 gallons total) stored on or used at the property or at the facility?

- Yes       No       Unknown

If yes, explain briefly: \_\_\_\_\_

18. Are there currently, or have there been previously, any industrial drums (typically 55-gallon) or sacks of chemicals stored on the property or at the facility?

- Yes       No       Unknown

If yes, describe the chemicals stored on the property (volume, contents and dates of storage): \_\_\_\_\_

19. Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned/incinerated on the property?

- Yes       No       Unknown

If yes, identify the location and date(s): \_\_\_\_\_





SME Project No. \_\_\_\_\_

20. Are there currently, or have there been previously, any registered or unregistered storage tanks (aboveground or underground) located on the property?

- Yes       No       Unknown

If yes, identify the location, date(s) of use, and date(s) of removal (if applicable): \_\_\_\_\_

\_\_\_\_\_

21. Are there currently, or have there been previously, any vent pipes, fill pipes protruding from the ground, areas of patched concrete or asphalt, or access ways indicating an underground storage tank on the property?

- Yes       No       Unknown

If yes, identify the location: \_\_\_\_\_

\_\_\_\_\_

22. Are there transformers, capacitors, or hydraulic equipment on the property?

- Yes       No       Unknown

If yes, are there any records indicating the presence of PCBs?: \_\_\_\_\_

\_\_\_\_\_

23. Is there currently, or has there been previously, any stained soil on the property?

- Yes       No       Unknown

If yes, identify the location of the stained soil and date(s) it was present on the property: \_\_\_\_\_

\_\_\_\_\_

24. Has fill dirt been brought onto the property that is of unknown origin? Has fill dirt been brought onto the property that originated from a contaminated site?

- Yes       No       Unknown

If yes, identify the date and location of fill placement: \_\_\_\_\_

\_\_\_\_\_

25. Are there currently, or have there been previously, any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?

- Yes       No       Unknown

If yes, identify the location and dates: \_\_\_\_\_

\_\_\_\_\_



SME Project No. \_\_\_\_\_

26. Are there currently, or have there been previously, any pits, ponds, or lagoons associated with waste treatment or disposal located on the property?

- Yes  No  Unknown

If yes, identify the location and dates: \_\_\_\_\_

27. Excluding storm water and sanitary waste discharge into an existing storm/sanitary sewer, does the property discharge wastewater on or adjacent to the property?

- Yes  No  Unknown

If yes, describe the type of wastewater and identify discharge location: \_\_\_\_\_

28. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed applicable guidelines? Has the well been designated as contaminated by any government environmental/health agency?

- Yes  No  Unknown

If yes, identify the contaminants and dates of exceedances: \_\_\_\_\_

**PREVIOUSLY IDENTIFIED ENVIRONMENTAL CONDITIONS**

29. Have you been informed of the current or past existence of hazardous substances, petroleum products, or environmental violations with respect to the property or any facility located on the property?

- Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

30. Do you have knowledge of any environmental site assessment(s) of the property (e.g., Phase I ESA, Phase II ESA) that indicated / did not indicate the presence of hazardous substances or petroleum products on, or contamination of, the property?

- Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_



SME Project No. \_\_\_\_\_

31.

- a) If the property is in Michigan, has a Baseline Environmental Assessment (BEA) been prepared for the property? **OR**
- b) If the property is in Indiana, has a Comfort/Site Status Letter been prepared for the property? **OR**
- c) If the property is in Ohio, has a Covenant Not to Sue been prepared for the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

32. Are you aware of the existence of environmental reports and permits; UST, AST, and underground injection system registrations; material safety data sheets; community right-to-know plans; safety and spill prevention plans; hydrogeologic reports; notices of past or current violations of environmental laws; hazardous waste generator notices or reports; geotechnical studies; risk assessments; and, recorded activity and use limitations.

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

33. Do you know of any pending, threatened, or past lawsuits or administrative proceedings concerning the release of any hazardous substances or petroleum products involving the property or any facility located on the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

34. Do you have any knowledge of environmental liens or government notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

35. Are you aware of any activity and land use limitations (engineering controls or institutional controls/land use restrictions) that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes       No       Unknown

If yes, identify limitation/restriction: \_\_\_\_\_





SME Project No. \_\_\_\_\_

Robert Mardigian  
Printed Name

35975 Woodward, LLC  
Company

October 4 2016  
Date

  
Signature

Member  
Title



## PHASE I ENVIRONMENTAL ASSESSMENT – ALL APPROPRIATE INQUIRY USER QUESTIONNAIRE

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the Brownfields Amendments to CERCLA), the User of a Phase I Environmental Site Assessment (ESA) must consider the issues discussed below as part of the User's All Appropriate Inquiry (AAI) to identify Recognized Environmental Conditions (RECs) associated with the Property. This information should be provided to the Environmental Professional conducting the Phase I ESA so that a complete report can be issued.

The User may decide not to provide this information to the Environmental Professional; however, the absence of the information will be noted in the Phase I ESA report and may affect assessment conclusions. Under these circumstances, it will be the User's responsibility to determine if the Phase I ESA results, combined with results from the tasks described below, is sufficient to satisfy the requirements of All Appropriate Inquiry as defined by federal statute and regulation.

### Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: 35975 Woodward Ave., Birmingham MI

Property Location: Southwest corner of Woodward Avenue and Oak Street

County: Oakland State: Michigan

Questionnaire Completed By/Title: Jaime Jamie Rae Turnbull, owner's representative of August LLC

Company/ Phone Number: 248-672-2020

On Behalf Of (if applicable): \_\_\_\_\_

Planned Date of Purchase/Lease (circle one): October 2016

Time Period of Site Knowledge: Three months

### 1. REASON FOR PHASE I ESA

The User of the requested Phase I ESA must make the reason for the Phase I ESA known to the Environmental Professional. Otherwise, it must be assumed that the reason is to qualify for an LLP to CERCLA liability. Please indicate the reason for this Phase I ESA of the Property.

- Due diligence/liability protection for purchase of the Property
- Due diligence/liability protection for lease of the Property
- Mortgage loan or refinance
- Foreclosure
- Other; explain \_\_\_\_\_



SME Project No. \_\_\_\_\_

## 2. RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY/USE LIMITATIONS

The User is responsible to ascertain, through personal knowledge and/or a review of reasonably ascertainable recorded land and judicial records, if any environmental liens have been filed on the Property and if any activity or use limitations (AULs) have been placed on the Property because of environmental impact. You may engage a title company or other capable professional to undertake the review of reasonably ascertainable records on your behalf.

Have you conducted, or arranged to have conducted, a review of land title records in which recorded liens and activity/use restrictions would be revealed?

Yes       No

If yes, please specify who conducted the review: First American Title Company

If yes, please specify the types and locations of records reviewed: Oakland County Register of Deeds

Based on your personal knowledge and/or reviews of title records, are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?

Yes       No

If yes, explain briefly: \_\_\_\_\_

Based on your personal knowledge and/or reviews of title records, are you aware of any activity and/or use limitations, such as engineering controls, land use restrictions, or institutional controls, that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes       No

If yes, identify the land use limitations/restrictions: A restrictive covenant was filed by AMOCO in 1998, a copy of which is attached for SME to interpret and describe.

## 3. SPECIALIZED KNOWLEDGE AND EXPERIENCE

Any specialized knowledge or experience of the User that could indicate, or create suspicion of, the presence environmental contamination on the Property must be considered as part of the AAI process. Specialized knowledge or experience includes familiarity with historic activities on the Property that could result in environmental impact, personal knowledge or experience that would indicate a risk of environmental impact associated with past Property uses, knowledge of the environmental history of the Property, and any other information that could indicate environmental impact or threat of environmental impact on the Property.





SME Project No. \_\_\_\_\_

As the User of this environmental site assessment, do you have any specialized knowledge or experience related to the Property or adjoining properties?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. RELATIONSHIP OF PURCHASE PRICE TO VALUE**

Historically, environmentally contaminated properties often have been sold at prices below market value to entice buyers to acquire the property, contamination, and resultant liabilities; therefore, if a property's sale price is significantly below market value without any obvious impairments or reasons for the reduced price, the potential for environmental impact as a cause of the reduced price must be evaluated.

Does the purchase price being paid for this Property reflect the fair market value of the Property?

Yes       No

If there is a significant negative difference, can you identify the reason for the reduced price versus value? If "No" the Property may be assumed to be contaminated.

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

**5. COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION**

Have you become aware, through conversations, rumor, etc., of any commonly known or reasonably ascertainable information within the local community that would indicate the Property could be contaminated (e.g. types of past uses, presence of storage tanks, use of chemicals, environmental cleanups, etc.) or that any past event (e.g. fire, chemical spill, accident, etc.) could have resulted in environmental impact of the Property or adjoining properties.

Yes       No

If yes, explain briefly: the only information is that which SME provided and so SME should  
describe.



SME Project No. \_\_\_\_\_

### 6. PROCEEDINGS INVOLVING THE PROPERTY

Do you, the User of this environmental site assessment, based on your knowledge and experience related to the property, have any knowledge of any of the following:

- Pending, threatened, or past litigation related to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

- Pending, threatened, or past administrative proceedings related to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

- Notices from any governmental entity regarding any possible violation of environmental laws or regulations or possible liability relating to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

*Jaimie*

Jaimie Rae Turnbull

Printed Name

October 4, 2016

Date

*Jaimie Rae Turnbull*  
Signature

HR:16 98 076100

LIB: 18211 238

\$ 17.00 MISCELLANEOUS RECORDING  
\$ 2.00 REAFFIRMATION  
16 MAR 98 8:16 A.M. RECEIPT# 107A  
PAID RECORDED - OAKLAND COUNTY  
LYNN D. ALLEN, CLERK/REGISTER OF DEEDS

**RESTRICTIVE COVENANT**

**DEPT.** MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - UNDERGROUND STORAGE TANK DIVISION

*This information and form is required under Sections 21310a(2) and 21316 of Part 213, Leaking Underground Storage Tanks (LUST), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Failure to comply with the provisions of this Act may result in civil fines not to exceed \$10,000 for each day the violation continues or failure to comply continues.*

**INSTRUCTIONS:** Use this form for filing the restrictive covenant with the register of deeds. This form is needed when the corrective action is based on a restrictive covenant for institutional controls. This form is not needed if an alternate mechanism is approved by the Department of Environmental Quality (Department) pursuant to Section 21310a(3) and 21310(4) of Part 213. If corrective action is based on the use of institutional controls regarding off-site migration of regulated substances, wait for USTD approval before recording the Restrictive Covenant with the register of deeds for contamination that has migrated or will migrate off-site. If the institutional controls are for on-site contamination, the owner/operator may proceed with recording the Restrictive Covenant with the register of deeds. In all cases, submit a copy of the Restrictive Covenant and proof of recording with the Closure Report (EQP 3843) to the appropriate USTD District Office listed on the back of the Closure Report Cover Sheet. **This form must be completed in its entirety.**

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs).

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following, and more fully described in Attachment A, attached. *(Attach a legal property description as Attachment A for the land where the restrictive covenant would apply, and a survey map of the areas addressed by this restrictive covenant.)* The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resource limitations. The survey defining the areas addressed by the corrective action plan is attached. *(Describe the scope of any land use or resource use limitations.)*

Please Refer to Attachment B

The restrictive covenant is being filed by the below listed legal titleholder or with the express written permission of the legal titleholder. *(Attach permission statement from the legal titleholder if he/she is not signing this document.)*

Owner/Operator implementing the corrective action plan: Amoco

17.00  
2.00

Release Date(s): January 13, 1989

County where deed is registered: Oakland County

Common description of land, township/city, County: 905 North Hunter Boulevard, Birmingham, Oakland County, Michigan

O.K. - ML

REF: 18211 239

Now Therefore (Legal Titleholder Name and Address) Amoco Oil Company, 38705 Seven Mile Road  
Suite 360, Livonia, Michigan 48152-1056

(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.
2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.
3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.
4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.
5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.
6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

M. E. McDermet  
Legal Titleholder or Authorized Representative's Signature

Feb. 23, 1998  
Date

M. E. McDermet - Amoco  
Print Legal Titleholder or Authorized Representative's Name

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 23 day of February, 1998.

18211 210

Signed in the presence of:

Lori Sanchez  
Witness

[Signature]  
Witness

LORI Sanchez  
Print Witness' Name

T. STEBNER  
Print Witness' Name

Subscribed and sworn to me before this 23<sup>rd</sup> day of February, 1998, M. Azalia Abney  
Cook County, IL Michigan  
(Insert County) Notary Public

My Commission Expires: \_\_\_\_\_

Drafted by:

\*\*\*\*\*  
"OFFICIAL SEAL"  
M. AZALIA ABNEY  
NOTARY PUBLIC, STATE OF ILLINOIS  
By Commission Expires Mar. 31, 2000  
\*\*\*\*\*

Amoco Marketing Environmental Services  
Company Name

Marilyn A. DeWitt  
Print Name of Drafter

38705 Seven Mile Road, Suite 360, Livonia, Michigan 48152  
Company Address

18211 211

Attachment A

0.452 Acres parcel in part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as beginning at a point in the Westerly line of 200 foot Hunter Boulevard, said point located North 88 degrees 16 minutes West 659.12 feet and North 49 degrees 21 minutes West 120.93 feet from Center of said Section 25; thence North 49 degrees 21 minutes West along Westerly line of 200 foot Hunter Boulevard 200 feet to Southerly line of 60 foot Oak Street; thence South 40 degrees 39 minutes West along said Southerly line 100 feet; thence South 49 degrees 21 minutes East 173.19 feet; thence South 88 degrees 16 minutes East along a line parallel to and 15 feet Northerly of the East and West 1/4 Section line and the north line of Assessors Plat No. 29, a distance of 34.45 feet; thence North 40 degrees 39 minutes East 78.36 feet to the point of beginning. Containing 0.452 acres more or less.

pt 19-25-179-001



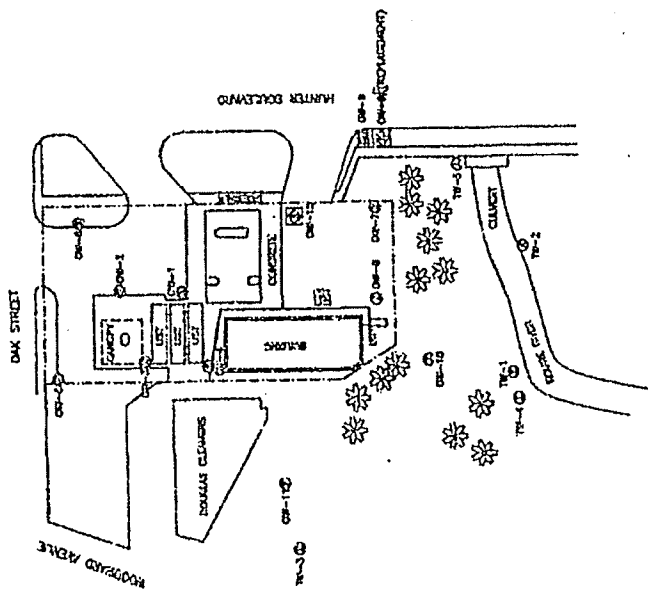
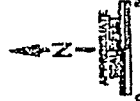
Attachment B

- NO WATER WELLS MAY BE CONSTRUCTED AT THE PROPERTY FOR EITHER POTABLE OR OTHER USE (EXCLUDING WELLS RELATED TO ACTIVITIES OUTLINED IN THE RESTRICTIVE COVENANT).
- THE PROPERTY MUST REMAIN COVERED AND IN GOOD CONDITION WITH AN IMPERMEABLE MATERIAL (ASPHALT, CONCRETE OR OTHER COMPARABLE SURFACE).
- THE PROPERTY USE MUST REMAIN A MINIMUM OF COMMERCIAL SUBCATEGORY III (PER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL RESPONSE DIVISION OPERATIONAL MEMORANDUM #14 (REV. 2), DATED JUNE 6, 1995).
- NO ACTIVITIES PROHIBITED BY OR HINDERING IMPLEMENTATION OR MAINTENANCE OF ACTIONS PROPOSED IN THIS RESTRICTIVE COVENANT SHALL BE PERFORMED. ADDITIONAL ASSESSMENT CAN BE CONDUCTED TO DETERMINE IMPACT OF PROPOSED ACTIVITIES AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ACTIVITIES.
- ANY ADDITIONS OR ALTERATIONS TO CURRENT BUILDINGS OR STRUCTURES MUST FIRST BE ASSESSED FOR ENVIRONMENTAL IMPACT AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ADDITIONS OR ALTERATIONS.
- COSTS INCURRED FROM EXCAVATION, CHARACTERIZATION, AND DISPOSAL OF SOILS OR GROUND WATER REMOVED FROM THE PROPERTY AS A RESULT OF ADDITIONAL SITE CONSTRUCTION ACTIVITIES OR IMPROVEMENTS WILL BE AT THE EXPENSE OF THE OWNER AT THE TIME OF SOILS EXCAVATION OR GROUND WATER REMOVAL.
- AMOCO AND IT'S REPRESENTATIVES RETAIN RIGHT OF ACCESS TO THE PROPERTY TO CONDUCT ACTIVITIES RELATED TO THOSE DESCRIBED IN THIS RESTRICTIVE COVENANT.

USER 18211 213

- CONSTRUCTION WELL
- DETACHED OBSERVATION WELL
- PUMP STATION
- WASTEWATER STORAGE TANK
- MAIN CONSTRUCTION WELL LOCATOR

FIGURE 2  
MONITOR WELL LOCATIONS  
905 N. HUNTER BLVD.  
BIRMINGHAM, MICHIGAN



ADAPTED FROM EST. MAP (SCALE, 1945)

**APPENDIX D**  
**REGULATORY RECORDS DOCUMENTATION**

**35975 Woodward Avenue**

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.2s

September 28, 2016

## The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)

# TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary .....	ES1
Overview Map .....	2
Detail Map .....	3
Map Findings Summary .....	4
Map Findings .....	8
Orphan Summary .....	35
Government Records Searched/Data Currency Tracking .....	GR-1
 <b><u>GEOCHECK ADDENDUM</u></b>	
Physical Setting Source Addendum .....	A-1
Physical Setting Source Summary .....	A-2
Physical Setting SSURGO Soil Map .....	A-5
Physical Setting Source Map .....	A-13
Physical Setting Source Map Findings .....	A-15
Physical Setting Source Records Searched .....	PSGR-1

***Thank you for your business.***  
 Please contact EDR at 1-800-352-0050  
 with any questions or comments.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission. EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

#### COORDINATES

Latitude (North): 42.5535100 - 42° 33' 12.63"  
Longitude (West): 83.2187650 - 83° 13' 7.55"  
Universal Transverse Mercator: Zone 17  
UTM X (Meters): 317839.1  
UTM Y (Meters): 4713406.5  
Elevation: 740 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 6066350 BIRMINGHAM, MI  
Version Date: 2014

### AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140721, 20140628  
Source: USDA



MAPPED SITES SUMMARY

Target Property Address:  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	BP / AMOCO #15913	35975 WOODWARD	RGA LUST		TP
A2	SIMON LAND DEVELOPME	35975 WOODWARD AVE	LUST, UST, INVENTORY, BEA, WDS		TP
A3	SIMON LAND DEVELOPME	35975 WOODWARD	RGA LUST		TP
A4	A & G AUTO CARE	35975 WOODWARD AVE	RCRA-CESQG, FINDS, ECHO		TP
A5	AMOCO STATION #5791	35975 WOODWARD AVENU	INVENTORY		TP
A6	SIMON LAND DEVELOPME	35975 WOODWARD AVE	RGA LUST		TP
A7	GASOLINE STATION	35975 WOODWARD AVENU	INVENTORY		TP
A8	BP / AMOCO #15913	35975 WOODWARD / OAK	RGA LUST		TP
A9	AMOCO OIL #5791	35975 WOODWARD	RGA LUST		TP
A10		35975 WOODWARD AVE	EDR Hist Auto		TP
A11		900 N OLD WOODWARD A	EDR Hist Cleaner	Higher	68, 0.013, SSW
A12	DOUGLAS CLEANERS INC	900 N OLD WOODWARD A	DRYCLEANERS, WDS	Higher	68, 0.013, SSW
A13	DOUGLAS CLEANERS INC	900 N OLD WOODWARD A	RCRA-CESQG, FINDS, ECHO	Higher	68, 0.013, SSW
B14	FLS PROPERTIES #5, L	856 NORTH OLD WOODWA	INVENTORY	Higher	199, 0.038, SSW
B15	CHINESE RESTAURANT	856 NORTH OLD WOODWA	INVENTORY	Higher	199, 0.038, SSW
B16	CHINESE RESTAURANT	856 NORTH OLD WOODWA	BEA	Higher	199, 0.038, SSW
C17	GHAFARI PROPERTIES I	36101 WOODWARD AVE	LUST, UST, AUL, INVENTORY	Higher	287, 0.054, NW
18		794 N OLD WOODWARD A	EDR Hist Cleaner	Lower	300, 0.057, SSE
C19		36101 WOODWARD AVE	EDR Hist Auto	Higher	346, 0.066, NW
20	MOBIL OIL CORP	910 N HUNTER BLVD &	RCRA NonGen / NLR, FINDS, ECHO	Higher	383, 0.073, ESE
21	MICHIGAN NATIONAL CO	36050 WOODWARD AVE	RCRA NonGen / NLR, FINDS, ECHO	Higher	464, 0.088, North
22	DAKOTA	280 HARMON ST	RCRA NonGen / NLR	Lower	1005, 0.190, South
23	GHEEN RESIDENCE	272 RAVINE ROAD	INVENTORY, WDS	Higher	1368, 0.259, SE
24	COMERICA BANK BIRMIN	322 N. OLD WOODWARD	INVENTORY	Higher	2061, 0.390, SSE
25	FIRST CHURCH OF CHRI	191 N. CHESTER ST.	INVENTORY	Higher	2300, 0.436, South

## EXECUTIVE SUMMARY

### TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
BP / AMOCO #15913 35975 WOODWARD BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
SIMON LAND DEVELOPME 35975 WOODWARD AVE BIRMINGHAM, MI 48084	LUST Release Status: Open Facility Id: 00005681  UST Database: UST, Date of Government Version: 04/13/2016 Tank Status: Removed from Ground Facility Type: CLOSED Facility Id: 00005681  INVENTORY Facility ID: 00005681  BEA WDS WMD Id: 404537 Site Id: MID985606458	N/A
SIMON LAND DEVELOPME 35975 WOODWARD BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
A & G AUTO CARE 35975 WOODWARD AVE BIRMINGHAM, MI 48009	RCRA-CESQG EPA ID:: MID985606458  FINDS Registry ID:: 110003653056  ECHO	MID985606458
AMOCO STATION #5791 35975 WOODWARD AVENU OAKLAND (County), MI	INVENTORY	N/A
SIMON LAND DEVELOPME 35975 WOODWARD AVE BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
GASOLINE STATION 35975 WOODWARD AVENU OAKLAND (County), MI 48009	INVENTORY	N/A
BP / AMOCO #15913 35975 WOODWARD / OAK BIRMINGHAM, MI	RGA LUST	N/A

## EXECUTIVE SUMMARY

Facility ID: 00005681  
Facility ID: 5681

AMOCO OIL #5791  
35975 WOODWARD  
BIRMINGHAM, MI

RGA LUST  
Facility ID: 0-005681

N/A

35975 WOODWARD AVE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

EDR Hist Auto

N/A

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

### STANDARD ENVIRONMENTAL RECORDS

#### ***Federal NPL site list***

NPL..... National Priority List  
Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

#### ***Federal Delisted NPL site list***

Delisted NPL..... National Priority List Deletions

#### ***Federal CERCLIS list***

FEDERAL FACILITY..... Federal Facility Site Information listing  
SEMS..... Superfund Enterprise Management System

#### ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

#### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

#### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

## EXECUTIVE SUMMARY

### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators

### ***Federal institutional controls / engineering controls registries***

LUCIS..... Land Use Control Information System  
US ENG CONTROLS..... Engineering Controls Sites List  
US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent CERCLIS***

SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

### ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF..... Solid Waste Facilities Database

### ***State and tribal leaking storage tank lists***

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### ***State and tribal registered storage tank lists***

FEMA UST..... Underground Storage Tank Listing  
AST..... Aboveground Tanks  
INDIAN UST..... Underground Storage Tanks on Indian Land

### ***State and tribal voluntary cleanup sites***

INDIAN VCP..... Voluntary Cleanup Priority Listing

### ***State and tribal Brownfields sites***

BROWNFIELDS..... Brownfields and UST Site Database

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### ***Local Brownfield lists***

US BROWNFIELDS..... A Listing of Brownfields Sites

#### ***Local Lists of Landfill / Solid Waste Disposal Sites***

HIST LF..... Inactive Solid Waste Facilities  
SWRCY..... Recycling Facilities  
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

## EXECUTIVE SUMMARY

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations  
ODI..... Open Dump Inventory

### **Local Lists of Hazardous waste / Contaminated Sites**

US HIST CDL..... Delisted National Clandestine Laboratory Register  
PART 201..... Part 201 Site List  
CDL..... Clandestine Drug Lab Listing  
DEL PART 201..... Delisted List of Contaminated Sites  
US CDL..... National Clandestine Laboratory Register

### **Local Land Records**

LIENS..... Lien List  
LIENS 2..... CERCLA Lien Information

### **Records of Emergency Release Reports**

HMIRS..... Hazardous Materials Information Reporting System  
SPILLS..... Pollution Emergency Alerting System

### **Other Ascertainable Records**

FUDS..... Formerly Used Defense Sites  
DOD..... Department of Defense Sites  
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing  
US FIN ASSUR..... Financial Assurance Information  
EPA WATCH LIST..... EPA WATCH LIST  
2020 COR ACTION..... 2020 Corrective Action Program List  
TSCA..... Toxic Substances Control Act  
TRIS..... Toxic Chemical Release Inventory System  
SSTS..... Section 7 Tracking Systems  
ROD..... Records Of Decision  
RMP..... Risk Management Plans  
RAATS..... RCRA Administrative Action Tracking System  
PRP..... Potentially Responsible Parties  
PADS..... PCB Activity Database System  
ICIS..... Integrated Compliance Information System  
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
MLTS..... Material Licensing Tracking System  
COAL ASH DOE..... Steam-Electric Plant Operation Data  
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List  
PCB TRANSFORMER..... PCB Transformer Registration Database  
RADINFO..... Radiation Information Database  
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing  
DOT OPS..... Incident and Accident Data  
CONSENT..... Superfund (CERCLA) Consent Decrees  
INDIAN RESERV..... Indian Reservations  
FUSRAP..... Formerly Utilized Sites Remedial Action Program  
UMTRA..... Uranium Mill Tailings Sites  
LEAD SMELTERS..... Lead Smelter Sites  
US AIRS..... Aerometric Information Retrieval System Facility Subsystem  
US MINES..... Mines Master Index File  
DOCKET HWC..... Hazardous Waste Compliance Docket Listing

## EXECUTIVE SUMMARY

UXO.....	Unexploded Ordnance Sites
AIRS.....	Permit and Emissions Inventory Data
COAL ASH.....	Coal Ash Disposal Sites
LEAD.....	Lead Safe Housing Registry
NPDES.....	List of Active NPDES Permits
UIC.....	Underground Injection Wells Database
FUELS PROGRAM.....	EPA Fuels Program Registered Listing

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP..... EDR Proprietary Manufactured Gas Plants

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA PART 201..... Recovered Government Archive State Hazardous Waste Facilities List  
RGA LF..... Recovered Government Archive Solid Waste Facilities List

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### STANDARD ENVIRONMENTAL RECORDS

#### ***Federal RCRA generators list***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/21/2016 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>DOUGLAS CLEANERS INC</i></b>	<b><i>900 N OLD WOODWARD A</i></b>	<b><i>SSW 0 - 1/8 (0.013 mi.)</i></b>	<b><i>A13</i></b>	<b><i>18</i></b>



## EXECUTIVE SUMMARY

### ***State and tribal leaking storage tank lists***

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Quality's Leaking Underground Storage Tank (LUST) Database.

A review of the LUST list, as provided by EDR, and dated 04/27/2016 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>GHAFARI PROPERTIES I</i></b> Release Status: Closed Substance Release: Gasoline,Gasoline,Gasoline,Gasoline Facility Id: 00034940	<b><i>36101 WOODWARD AVE</i></b>	<b><i>NW 0 - 1/8 (0.054 mi.)</i></b>	<b><i>C17</i></b>	<b><i>23</i></b>

### ***State and tribal registered storage tank lists***

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Quality's Michigan UST database.

A review of the UST list, as provided by EDR, has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>GHAFARI PROPERTIES I</i></b> Database: UST, Date of Government Version: 04/13/2016 Tank Status: Removed from Ground Tank Status: Currently In Use Facility Type: ACTIVE Facility Id: 00034940	<b><i>36101 WOODWARD AVE</i></b>	<b><i>NW 0 - 1/8 (0.054 mi.)</i></b>	<b><i>C17</i></b>	<b><i>23</i></b>

### ***State and tribal institutional control / engineering control registries***

AUL: A listing of sites with institutional and/or engineering controls in place.

A review of the AUL list, as provided by EDR, and dated 06/09/2016 has revealed that there is 1 AUL site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>GHAFARI PROPERTIES I</i></b> Facility ID: 00034940	<b><i>36101 WOODWARD AVE</i></b>	<b><i>NW 0 - 1/8 (0.054 mi.)</i></b>	<b><i>C17</i></b>	<b><i>23</i></b>

# EXECUTIVE SUMMARY

## ADDITIONAL ENVIRONMENTAL RECORDS

### **Local Lists of Hazardous waste / Contaminated Sites**

INVENTORY: The Inventory of Facilities has three data sources: Facilities under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) identified through state funded or private party response activities (Projects); Facilities under Part 213, Leaking Underground Storage Tanks of the NREPA; and Facilities identified through submittals of Baseline Environmental Assessments (BEA) submitted pursuant to Part 201 or Part 213 of the NREPA. The Part 201 Projects Inventory does not include all of the facilities that are subject to regulation under Part 201 because owners are not required to inform the Department of Environmental Quality (DEQ) about the facilities and can pursue cleanup independently. Facilities that are not known to DEQ are not on the Inventory, nor are locations with releases that resulted in low environmental impact. Part 213 facilities listed here may have more than one release; a list of releases for which corrective actions have been completed and list of releases for which corrective action has not been completed is located on the Leaking Underground Storage Tanks Site Search webpage. The DEQ may or may not have reviewed and concurred with the conclusion that the corrective actions described in a closure report meets criteria. A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

A review of the INVENTORY list, as provided by EDR, and dated 07/26/2016 has revealed that there are 6 INVENTORY sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
FLS PROPERTIES #5, L CHINESE RESTAURANT	856 NORTH OLD WOODWA	SSW 0 - 1/8 (0.038 mi.)	B14	22
<b>GHAFARI PROPERTIES I</b> Facility ID: 00034940	<b>36101 WOODWARD AVE</b>	<b>NW 0 - 1/8 (0.054 mi.)</b>	<b>C17</b>	<b>23</b>
<b>GHEEN RESIDENCE</b> Facility ID: 63006037	<b>272 RAVINE ROAD</b>	<b>SE 1/4 - 1/2 (0.259 mi.)</b>	<b>23</b>	<b>33</b>
COMERICA BANK BIRMIN Facility ID: 63005254	322 N. OLD WOODWARD	SSE 1/4 - 1/2 (0.390 mi.)	24	33
FIRST CHURCH OF CHRI Facility ID: 63005278	191 N. CHESTER ST.	S 1/4 - 1/2 (0.436 mi.)	25	34

### **Other Ascertainable Records**

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/21/2016 has revealed that there are 3 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>MOBIL OIL CORP</b>	<b>910 N HUNTER BLVD &amp;</b>	<b>ESE 0 - 1/8 (0.073 mi.)</b>	<b>20</b>	<b>28</b>
<b>MICHIGAN NATIONAL CO</b>	<b>36050 WOODWARD AVE</b>	<b>N 0 - 1/8 (0.088 mi.)</b>	<b>21</b>	<b>30</b>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
DAKOTA	280 HARMON ST	S 1/8 - 1/4 (0.190 mi.)	22	32

## EXECUTIVE SUMMARY

BEA: A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

A review of the BEA list, as provided by EDR, and dated 08/21/2013 has revealed that there is 1 BEA site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CHINESE RESTAURANT	856 NORTH OLD WOODWA	SSW 0 - 1/8 (0.038 mi.)	B16	23

DRYCLEANERS: A listing of drycleaning facilities in Michigan.

A review of the DRYCLEANERS list, as provided by EDR, and dated 07/20/2016 has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>DOUGLAS CLEANERS INC</b> Establishment#: 6300081	<b>900 N OLD WOODWARD A</b>	<b>SSW 0 - 1/8 (0.013 mi.)</b>	<b>A12</b>	<b>17</b>

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	36101 WOODWARD AVE	NW 0 - 1/8 (0.066 mi.)	C19	27

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 2 EDR Hist

## EXECUTIVE SUMMARY

Cleaner sites within approximately 0.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	900 N OLD WOODWARD A	SSW 0 - 1/8 (0.013 mi.)	A11	17

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	794 N OLD WOODWARD A	SSE 0 - 1/8 (0.057 mi.)	18	27

## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

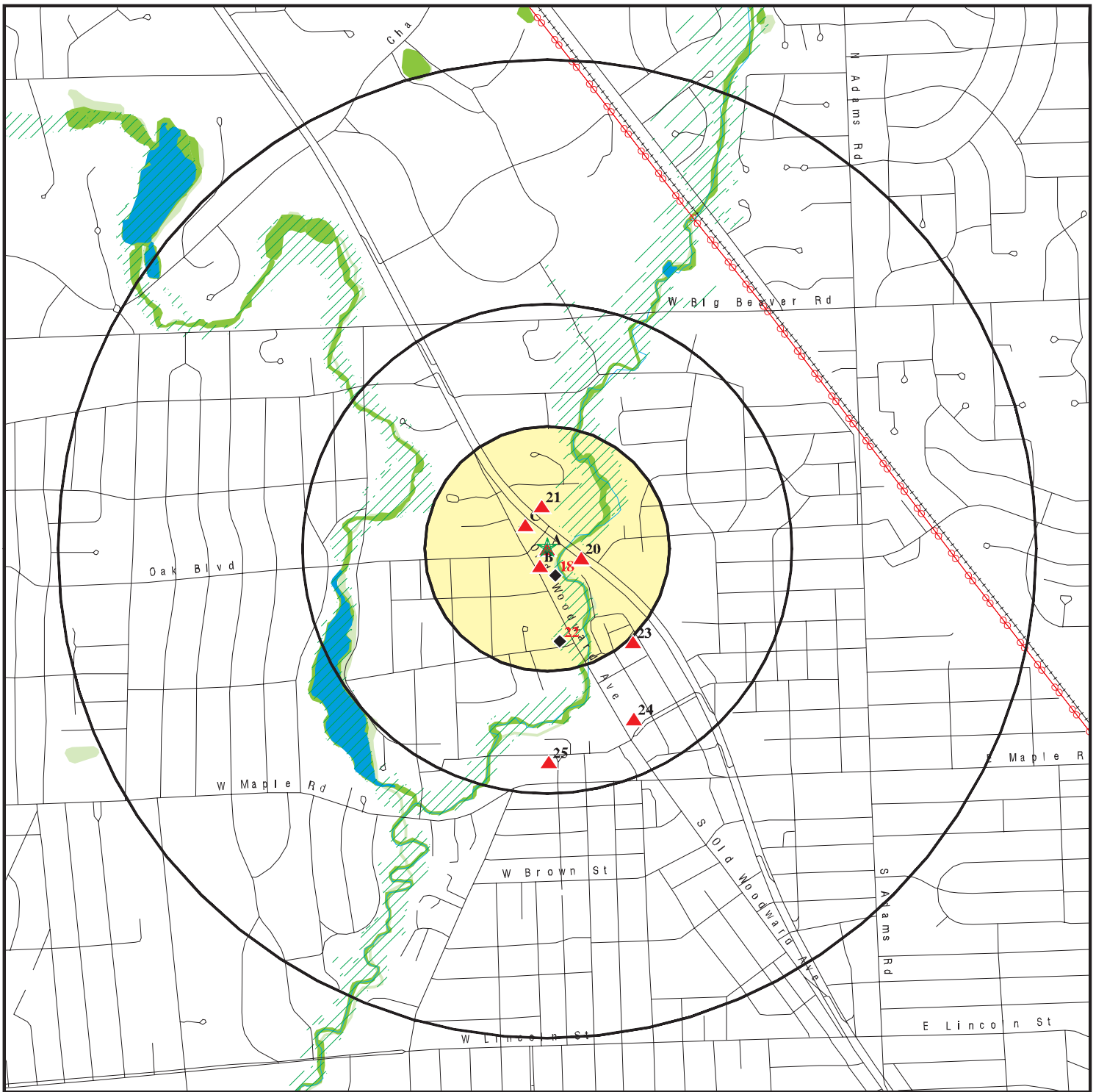
Site Name

TIFFANY FLORIST

Database(s)

LUST, UST, INVENTORY

# OVERVIEW MAP - 4738860.2S



★ Target Property

▲ Sites at elevations higher than or equal to the target property

◆ Sites at elevations lower than the target property

▲ Manufactured Gas Plants

■ National Priority List Sites

■ Dept. Defense Sites

■ Indian Reservations BIA

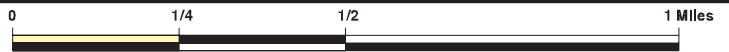
▲ Power transmission lines

■ 100-year flood zone

■ 500-year flood zone

■ National Wetland Inventory

■ State Wetlands



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham MI 48009  
 LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
 CONTACT: Christiaan Bon  
 INQUIRY #: 4738860.2s  
 DATE: September 28, 2016 11:59 am



# DETAIL MAP - 4738860.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

<p>SITE NAME: 35975 Woodward Avenue          ADDRESS: 35975 Woodward Ave          Birmingham MI 48009          LAT/LONG: 42.55351 / 83.218765</p>	<p>CLIENT: Soil &amp; Materials Engineers          CONTACT: Christiaan Bon          INQUIRY #: 4738860.2s          DATE: September 28, 2016 12:01 pm</p>
---	--

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<b><i>Federal CERCLIS NFRAP site list</i></b>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250	1	1	0	NR	NR	NR	2
<b><i>Federal institutional controls / engineering controls registries</i></b>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent CERCLIS</i></b>								
SHWS	1.000		0	0	0	0	NR	0
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500	1	1	0	0	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
<b><i>State and tribal registered storage tank lists</i></b>								
FEMA UST	0.250		0	0	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250	1	1	0	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
<b>State and tribal institutional control / engineering control registries</b>								
AUL	0.500		1	0	0	NR	NR	1
<b>State and tribal voluntary cleanup sites</b>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
<b>State and tribal Brownfields sites</b>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<b>Local Brownfield lists</b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Landfill / Solid Waste Disposal Sites</b>								
HIST LF	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
<b>Local Lists of Hazardous waste / Contaminated Sites</b>								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
PART 201 INVENTORY	1.000		0	0	0	0	NR	0
CDL	0.500	3	3	0	3	NR	NR	9
DEL PART 201	TP		NR	NR	NR	NR	NR	0
US CDL	1.000		0	0	0	0	NR	0
	TP		NR	NR	NR	NR	NR	0
<b>Local Land Records</b>								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		2	1	NR	NR	NR	3
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
BEA	0.500	1	1	0	0	NR	NR	2
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		1	0	NR	NR	NR	1
LEAD	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WDS	TP	1	NR	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125	1	1	NR	NR	NR	NR	2
EDR Hist Cleaner	0.125		2	NR	NR	NR	NR	2

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA PART 201	TP		NR	NR	NR	NR	NR	0
--------------	----	--	----	----	----	----	----	---

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP	5	NR	NR	NR	NR	NR	5
- Totals --		16	14	1	3	0	0	34

**NOTES:**

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Site

Database(s)

EDR ID Number  
EPA ID Number

**A1**  
**Target**  
**Property**

**BP / AMOCO #15913**  
**35975 WOODWARD**  
**BIRMINGHAM, MI**

**RGALUST**

**S115667409**  
**N/A**

**Site 1 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGALUST: 2005 BP / AMOCO #15913 35975 WOODWARD

**A2**  
**Target**  
**Property**

**SIMON LAND DEVELOPMENT GROUP LLC**  
**35975 WOODWARD AVE**  
**BIRMINGHAM, MI 48084**

**LUST**  
**UST**  
**INVENTORY**  
**BEA**  
**WDS**

**U003320634**  
**N/A**

**Site 2 of 13 in cluster A**

**Actual:**  
**740 ft.**

LUST:  
 Facility ID: 00005681  
 Source: STATE OF MICHIGAN  
 Owner Name: Simon Land Development Group LLC  
 Owner Address: 1826 Northwood Dr  
 Owner City,St,Zip: Troy, MI 48084  
 Owner Contact: Fawzi Simon  
 Owner Phone: (248) 688-9625  
 Country: USA  
 District: Region 1 - SE Michigan District Office  
 Site Name: Amoco #5791  
 Latitude: 42.55354  
 Longitude: -83.21935  
 Date of Collection: 01/11/2001  
 Method of Collection: Address Matching-House Number  
 Accuracy: 100  
 Accuracy Value Unit: FEET  
 Horizontal Data: NAD83  
 Point Line Area: POINT  
 Desc Category: Plant Entrance (Freight)

Leak Number: C-0008-89  
 Release Date: 01/13/1989  
 Substance Released: Not reported  
 Release Status: Open  
 Release Closed Date: Not reported

UST:  
 Facility ID: 00005681  
 Facility Type: CLOSED  
 Owner Name: SIMON LAND DEVELOPMENT GROUP LLC  
 Owner Address: 1826 NORTHWOOD DR  
 Owner City,St,Zip: TROY, MI 48084  
 Owner Country: USA  
 Owner Contact: Fawzi Simon  
 Owner Phone: (248) 688-9625  
 Contact: Faiz Simon  
 Contact Phone: (313) 292-5500  
 Date of Collection: 01/11/2001  
 Accuracy: 100  
 Accuracy Value Unit: FEET  
 Horizontal Datum: NAD83  
 Source: STATE OF MICHIGAN



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)  
Method of Collection: Address Matching-House Number  
Latitude: 42.55354  
Longitude: -83.21935

Tank ID: 1  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Diesel  
Install Date: 04/26/1962  
Remove Date: 02/09/1989  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 2  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 3  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 4  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 5  
**Tank Status: Removed from Ground**  
Capacity: 8000  
Product: Gasoline  
Install Date: 04/26/1970  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 6  
**Tank Status: Removed from Ground**  
Capacity: 560  
Product: Used Oil  
Install Date: 04/27/1959  
Remove Date: 11/10/1989  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel  
Impressed Device: No

Tank ID: 7  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 8  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 9  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 10  
**Tank Status: Removed from Ground**  
Capacity: 560  
Product: Used Oil  
Install Date: 11/10/1989  
Remove Date: 11/01/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic, Vent.  
Piping Type: Not reported  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

**INVENTORY:**

Bea Number: Not reported  
Township: Not reported  
District: Southeast MI  
Data Source: Part 213  
Latitude: 42.55355  
Longitude: -83.21936

**BEA:**

Secondary Address: Not reported  
BEA Number: 3735  
District: Southeast MI  
Date Received: 11/21/2007  
Submitter Name: 35975 Woodward, LLC  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: No Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: mitchelf  
Division Assigned: Storage Tank Division

Secondary Address: Not reported  
BEA Number: 3161  
District: Southeast MI  
Date Received: 05/31/2006

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Submitter Name: Simon Land Development Group, LLC  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: Same Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: schlaufj  
Division Assigned: Storage Tank Division

WDS:

Site Id: MID985606458  
WMD Id: 404537  
Site Specific Name: A & G AUTO CARE  
Mailing Address: 35975 WOODWARD AVE  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

**A3  
Target  
Property**

**SIMON LAND DEVELOPMENT GROUP LLC  
35975 WOODWARD  
BIRMINGHAM, MI**

**RGA LUST S115694086  
N/A**

**Site 3 of 13 in cluster A**

**Actual:  
740 ft.**

RGA LUST:

2007 SIMON LAND DEVELOPMENT GROUP LLC 35975 WOODWARD  
2006 SIMON LAND DEVELOPMENT GROUP LLC 35975 WOODWARD

**A4  
Target  
Property**

**A & G AUTO CARE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009**

**RCRA-CESQG 1000704668  
FINDS MID985606458  
ECHO**

**Site 4 of 13 in cluster A**

**Actual:  
740 ft.**

RCRA-CESQG:

Date form received by agency: 01/24/2005  
Facility name: A & G AUTO CARE  
Facility address: 35975 WOODWARD AVE  
BIRMINGHAM, MI 48009  
EPA ID: MID985606458  
Contact: ASLAM GARBOWAI  
Contact address: 35975 WOODWARD AVE  
BIRMINGHAM, MI 48009  
Contact country: US  
Contact telephone: (248) 203-7866  
Contact email: Not reported  
EPA Region: 05  
Land type: Private  
Classification: Conditionally Exempt Small Quantity Generator  
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A & G AUTO CARE (Continued)**

**1000704668**

time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: ASLAM GARBOWAI  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 01/20/2003  
Owner/Op end date: Not reported

Owner/operator name: ASLAM GARBOWAI  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: 01/20/2003  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 09/08/1997  
Site name: A & G AUTO CARE  
Classification: Not a generator, verified

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 02/20/1991  
Site name: A & G AUTO CARE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A & G AUTO CARE (Continued)**

**1000704668**

Classification: Small Quantity Generator  
. Waste code: D001  
. Waste name: IGNITABLE WASTE

Facility Has Received Notices of Violations:

Regulation violated: Not reported  
Area of violation: Generators - General  
Date violation determined: 02/20/2004  
Date achieved compliance: 01/24/2005  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 02/20/2004  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 02/20/2004  
Evaluation: NON-FINANCIAL RECORD REVIEW  
Area of violation: Generators - General  
Date achieved compliance: 01/24/2005  
Evaluation lead agency: State

FINDS:

Registry ID: 110003653056

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid: 1000704668  
Registry ID: 110003653056  
DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003653056](http://echo.epa.gov/detailed_facility_report?fid=110003653056)

**A5 AMOCO STATION #5791 (FORMER)  
Target 35975 WOODWARD AVENUE  
Property OAKLAND (County), MI**

**INVENTORY S114032539  
N/A**

**Site 5 of 13 in cluster A**

**Actual:  
740 ft.**

INVENTORY:  
Bea Number: 200603161LV  
Township: Birmingham  
District: Southeast MI  
Data Source: BEA  
Latitude: Not reported



Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**AMOCO STATION #5791 (FORMER) (Continued)**

**S114032539**

Longitude: Not reported

**A6**            **SIMON LAND DEVELOPMENT GROUP LLC**  
**Target**       **35975 WOODWARD AVE**  
**Property**    **BIRMINGHAM, MI**

**RGA LUST**    **S115694085**  
**N/A**

**Site 6 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2012	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2011	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2010	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2009	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2008	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE

**A7**            **GASOLINE STATION**  
**Target**       **35975 WOODWARD AVENUE**  
**Property**    **OAKLAND (County), MI 48009**

**INVENTORY**    **S114035253**  
**N/A**

**Site 7 of 13 in cluster A**

**Actual:**  
**740 ft.**

INVENTORY:

Bea Number: 200703735LV  
 Township: Birmingham  
 District: Southeast MI  
 Data Source: BEA  
 Latitude: Not reported  
 Longitude: Not reported

**A8**            **BP / AMOCO #15913**  
**Target**       **35975 WOODWARD / OAK**  
**Property**    **BIRMINGHAM, MI**

**RGA LUST**    **S115667408**  
**N/A**

**Site 8 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2004	BP / AMOCO #15913	35975 WOODWARD / OAK
2003	BP / AMOCO #15913	35975 WOODWARD / OAK

**A9**            **AMOCO OIL #5791**  
**Target**       **35975 WOODWARD**  
**Property**    **BIRMINGHAM, MI**

**RGA LUST**    **S115664621**  
**N/A**

**Site 9 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2001	AMOCO OIL #5791	35975 WOODWARD
2000	AMOCO OIL #5791	35975 WOODWARD
1999	AMOCO OIL #5791	35975 WOODWARD
1998	AMOCO OIL #5791	35975 WOODWARD

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A10**  
**Target**  
**Property**

**35975 WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**EDR Hist Auto**    **1015447540**  
**N/A**

**Site 10 of 13 in cluster A**

**Actual:**  
**740 ft.**

EDR Historical Auto Stations:

Name: HUNTER & OAK AMOCO SERVICE  
Year: 1999  
Address: 35975 WOODWARD AVE

Name: HUNTER & OAK AMOCO SERVICE  
Year: 2000  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2001  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2002  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2003  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2004  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2005  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2006  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2007  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2008  
Address: 35975 WOODWARD AVE

Name: OAKLAND AMOCO  
Year: 2009  
Address: 35975 WOODWARD AVE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

A11  
SSW  
< 1/8  
0.013 mi.  
68 ft.

900 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009

Site 11 of 13 in cluster A

EDR Hist Cleaner 1015104182  
N/A

Relative:  
Higher

EDR Historical Cleaners:

Name: DOUGLAS CLEANERS  
Year: 2001  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2005  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2006  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2010  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2011  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2012  
Address: 900 N OLD WOODWARD AVE

Actual:  
742 ft.

A12  
SSW  
< 1/8  
0.013 mi.  
68 ft.

DOUGLAS CLEANERS INC  
900 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009

Site 12 of 13 in cluster A

DRYCLEANERS S106439647  
WDS N/A

Relative:  
Higher

DRYCLEANERS:

fadd2: Not reported  
Facility Status: Open  
Establishment#: 6300081  
DCM #: 1  
DCM Type: Perc  
Total lb: 60  
Inspector: joejaskowski  
Last Insp Date: 12/23/2015

Actual:  
742 ft.

WDS:

Site Id: MID049263031  
WMD Id: 395883  
Site Specific Name: DOUGLAS CLEANERS I  
Mailing Address: 900 N OLD WOODWARD AVE  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

A13  
SSW  
< 1/8  
0.013 mi.  
68 ft.

**DOUGLAS CLEANERS INC**  
**900 N OLD WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**RCRA-CESQG** 1000235644  
**FINDS** MID049263031  
**ECHO**

**Site 13 of 13 in cluster A**

**Relative:**  
**Higher**

RCRA-CESQG:

Date form received by agency: 09/30/2003

Facility name: DOUGLAS CLEANERS INC

Facility address: 900 N OLD WOODWARD AVE

BIRMINGHAM, MI 48009

EPA ID: MID049263031

Contact: DAVID UNDERDOWN

Contact address: 900 N OLD WOODWARD AVE

BIRMINGHAM, MI 48009

Contact country: US

Contact telephone: (248) 642-6231

Contact email: Not reported

EPA Region: 05

Land type: Private

Classification: Conditionally Exempt Small Quantity Generator

Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: UNDERDOWN DAVID

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Owner

Owner/Op start date: 09/16/1986

Owner/Op end date: Not reported

Owner/operator name: UNDERDOWN DAVID

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Operator

Owner/Op start date: 09/16/1986

Owner/Op end date: Not reported

Handler Activities Summary:

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 04/30/2003  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 10/14/1998  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 09/16/1986  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Facility Has Received Notices of Violations:

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: Not reported  
Enforcement action date: 04/27/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Regulation violated: Not reported  
Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 03/13/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - General  
Date violation determined: 11/22/2002  
Date achieved compliance: 03/14/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 04/24/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 04/24/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 03/13/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Evaluation Action Summary:  
Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - Pre-transport  
Date achieved compliance: 07/11/2003  
Evaluation lead agency: State

Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - Manifest  
Date achieved compliance: 04/28/2003  
Evaluation lead agency: State

Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - General

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Date achieved compliance: 03/14/2003  
 Evaluation lead agency: State

**FINDS:**

Registry ID: 110003595547

**Environmental Interest/Information System**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**ECHO:**

Envid: 1000235644  
 Registry ID: 110003595547  
 DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003595547](http://echo.epa.gov/detailed_facility_report?fid=110003595547)

**B14**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**FLS PROPERTIES #5, LLC**  
**856 NORTH OLD WOODWARD AVENUE**  
**OAKLAND (County), MI 48009**

**INVENTORY S118188653**  
**N/A**

**Site 1 of 3 in cluster B**

**Relative:**  
**Higher**

**INVENTORY:**

Bea Number: 201506712LV  
 Township: Birmingham  
 District: Southeast MI  
 Data Source: BEA  
 Latitude: Not reported  
 Longitude: Not reported

**Actual:**  
**750 ft.**

**B15**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**CHINESE RESTAURANT**  
**856 NORTH OLD WOODWARD AVENUE**  
**OAKLAND (County), MI 48009**

**INVENTORY S114033310**  
**N/A**

**Site 2 of 3 in cluster B**

**Relative:**  
**Higher**

**INVENTORY:**

Bea Number: 200603364LV  
 Township: Birmingham  
 District: Southeast MI  
 Data Source: BEA  
 Latitude: Not reported  
 Longitude: Not reported

**Actual:**  
**750 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**B16**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**CHINESE RESTAURANT**  
**856 NORTH OLD WOODWARD AVENUE**  
**BIRMINGHAM, MI 48009**

**Site 3 of 3 in cluster B**

**BEA** **S108236717**  
**N/A**

**Relative:**  
**Higher**

BEA:  
Secondary Address: Not reported  
BEA Number: 3364  
District: Southeast MI  
Date Received: 11/17/2006  
Submitter Name: Grant Perry Development Company  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: No Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: mitchelf  
Division Assigned: Storage Tank Division

**Actual:**  
**750 ft.**

**C17**  
**NW**  
**< 1/8**  
**0.054 mi.**  
**287 ft.**

**GHAFARI PROPERTIES INC**  
**36101 WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**Site 1 of 2 in cluster C**

**LUST** **U003426133**  
**UST** **N/A**  
**AUL**  
**INVENTORY**

**Relative:**  
**Higher**

LUST:  
Facility ID: 00034940  
Source: STATE OF MICHIGAN  
Owner Name: Ghafari Properties LLC  
Owner Address: 36101 Woodward Ave  
Owner City,St,Zip: Birmingham, MI 48009  
Owner Contact: Not reported  
Owner Phone: (248) 647-0020  
Country: USA  
District: Region 1 - SE Michigan District Office  
Site Name: Mobil #03-kxn  
Latitude: 42.55429  
Longitude: -83.21976  
Date of Collection: 01/05/2007  
Method of Collection: GPS Code Meas. Standard Positioning Service SA Off  
Accuracy: 100  
Accuracy Value Unit: FEET  
Horizontal Data: NAD83  
Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)

**Actual:**  
**757 ft.**

Leak Number: C-0276-89  
Release Date: 06/29/1989  
Substance Released: Not reported  
Release Status: Closed  
Release Closed Date: 06/12/1996

Leak Number: C-0301-90  
Release Date: 02/21/1990  
Substance Released: Not reported  
Release Status: Closed  
Release Closed Date: 04/04/1996

Leak Number: C-0323-04  
Release Date: 07/15/2004

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Substance Released: Gasoline,Gasoline,Gasoline,Gasoline  
Release Status: Closed  
Release Closed Date: 01/02/2013

UST:

Facility ID: 00034940  
Facility Type: ACTIVE  
Owner Name: GHAFARI PROPERTIES LLC  
Owner Address: 36101 WOODWARD AVE  
Owner City,St,Zip: BIRMINGHAM, MI 48009  
Owner Country: USA  
Owner Contact: Not reported  
Owner Phone: (248) 647-0020  
Contact: Sejaan Ghafari  
Contact Phone: (248) 647-0020  
Date of Collection: 01/05/2007  
Accuracy: 100  
Accuracy Value Unit: FEET  
Horizontal Datum: NAD83  
Source: STATE OF MICHIGAN  
Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)  
Method of Collection: GPS Code Meas. Standard Positioning Service SA Off  
Latitude: 42.55429  
Longitude: -83.21976

Tank ID: 1  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 2  
**Tank Status: Removed from Ground**  
Capacity: 10000  
Product: Gasoline  
Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 3  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Release Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 4  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Pressure, Pressure, Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 5  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Fiberglass Reinforced Plastic  
Piping Type: Pressure  
Construction Material: Lined Interior, Double Walled  
Impressed Device: No

Tank ID: 6  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 7  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Gravity Fed?, Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 8  
**Tank Status: Currently In Use**  
Capacity: 6000  
Product: Water  
Install Date: 11/22/2011  
Remove Date: Not reported  
Tank Release Detection: Not reported  
Pipe Release Detection: Automatic Line Leak Detectors  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced Plastic, Double Walled  
Impressed Device: No

**AUL:**

Status: Recorded  
Site Name: Not reported  
Property: On-Site  
Land Use Restriction Type: RC  
Program Type: Part 213  
Program Support Assigned User: Nicholas Ekel  
Program Support Assigned Date: 03/24/2015  
Legal Description Of Property: Not reported  
Based On The Deq Ref #: 11121306053  
MDEQ Reference Number: RC-RRD-213-06-053  
Property Or Description Restricted Area: Not reported  
Lead Division: RRD  
File Name Of Hyperlinked Legal Doc: U:\KERMIT\11121306053.PDF  
Mapped Polygons Area In Acres: 1.0281  
Mapped Polygons Area In Square Miles: 1.6000000000000001E-3  
Date Data Entry Started: 04/02/2015  
Date Data Entry Finished: 04/02/2015  
Individual Or Staff Assoc With The Mapping: Nicholas Ekel  
Program Used To Map Restricted Features: ArcGIS 10.1  
Date Legal Paperwork Stamped/Filed/Register Of Deeds: 09/07/2006  
Commercial I Land Use Restriction: 1  
Commercial Ii Land Use Restriction: 1  
Commercial Iii Land Use Restriction: 0  
Commercial Iv Land Use Restriction: 0  
Industrial Land Use Restriction: 0  
Residential Land Use Restriction: 1  
Recreational Land Use Restriction: 1  
Multiple Land-Use Restrictions: 0  
Site Specific Restrictions: 1  
Groundwater Consumption Restrictions: 1  
Groundwater Contact Restrictions: 0  
Special Well Construction Requirements: 0  
Special Building Restrictions: 1  
Excavation And Soil Movement Restrictions: 1



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Soil Movement Requirements: 1  
There Is A Restriction On All Construction: 0  
Monitoring Well Protected, No Tampering Or Removal: 1  
There Is An Exposure Barrier In Place: 1  
There Is A Health And Safety Plan: 1  
There Is A Permanent Marker On The Site: 0  
Map Comments: 20150324 - LRUR is NOT mapped in KERMIT - Nick Ekel  
mapped in KERMIT - Nick Ekel  
Comment: 20150324 - LRUR was sent in by the Oakland County Health Department -  
Nick Ekel

INVENTORY:

Bea Number: Not reported  
Township: Not reported  
District: Southeast MI  
Data Source: Part 213  
Latitude: 42.5543  
Longitude: -83.21976

18  
SSE  
< 1/8  
0.057 mi.  
300 ft.

**794 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009**

**EDR Hist Cleaner 1015096107  
N/A**

**Relative:  
Lower  
Actual:  
734 ft.**

EDR Historical Cleaners:

Name: SOMERSET CLEANERS & SHIRT LAUNDRY  
Year: 1999  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQ CLEANERS  
Year: 2009  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQUIRE CLEANERS  
Year: 2011  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQUIRE CLEANERS  
Year: 2012  
Address: 794 N OLD WOODWARD AVE

C19  
NW  
< 1/8  
0.066 mi.  
346 ft.

**36101 WOODWARD AVE  
BIRMINGHAM, MI 48009**

**EDR Hist Auto 1015449268  
N/A**

**Site 2 of 2 in cluster C**

**Relative:  
Higher  
Actual:  
757 ft.**

EDR Historical Auto Stations:

Name: MOBIL MART AT HUNTER & OAK  
Year: 2001  
Address: 36101 WOODWARD AVE  
  
Name: MOBIL MART AT HUNTER & OAK  
Year: 2002  
Address: 36101 WOODWARD AVE

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**(Continued)**

**1015449268**

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2003  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2004  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2005  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK INC  
 Year: 2006  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBIL MART  
 Year: 2007  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE  
 Year: 2009  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBIL 1  
 Year: 2010  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE 1  
 Year: 2011  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE 1  
 Year: 2012  
 Address: 36101 WOODWARD AVE

**20  
 ESE  
 < 1/8  
 0.073 mi.  
 383 ft.**

**MOBIL OIL CORP  
 910 N HUNTER BLVD & OAK  
 BIRMINGHAM, MI 48009**

**RCRA NonGen / NLR 1000529096  
 FINDS MID985615293  
 ECHO**

**Relative:  
 Higher**

RCRA NonGen / NLR:  
 Date form received by agency: 03/10/2008  
 Facility name: MOBIL OIL CORP  
 Facility address: 910 N HUNTER BLVD & OAK  
 BIRMINGHAM, MI 48009  
 EPA ID: MID985615293  
 Mailing address: 12265 W BAYAUD AVE  
 LAKEWOOD, CO 80228  
 Contact: JOHN HOOVER  
 Contact address: 910 N HUNTER BLVD & OAK  
 BIRMINGHAM, MI 48009  
 Contact country: US  
 Contact telephone: (303) 986-8011  
 Contact email: Not reported  
 EPA Region: 05  
 Classification: Non-Generator

**Actual:  
 748 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MOBIL OIL CORP (Continued)**

**1000529096**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name: NO ACTIVE O/OP AS NOT GENERATING WASTE  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 07/01/2004  
Owner/Op end date: Not reported

Owner/operator name: NO ACTIVE O/OP AS NOT GENERATING WASTE  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: 07/01/2004  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 09/18/2001  
Site name: MOBIL OIL CORP  
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 06/05/1991  
Site name: MOBIL OIL CORP  
Classification: Small Quantity Generator

. Waste code: D001

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**MOBIL OIL CORP (Continued)**

**1000529096**

Waste name: IGNITABLE WASTE

Violation Status: No violations found

**FINDS:**

Registry ID: 110007577728

**Environmental Interest/Information System**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**ECHO:**

Envid: 1000529096  
 Registry ID: 110007577728  
 DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110007577728](http://echo.epa.gov/detailed_facility_report?fid=110007577728)

21  
 North  
 < 1/8  
 0.088 mi.  
 464 ft.

**MICHIGAN NATIONAL CORP**  
**36050 WOODWARD AVE**  
**BLOOMFIELD TOWNSHIP, MI 48304**

**RCRA NonGen / NLR**  
**FINDS**  
**ECHO**

**1000451544**  
**MID985583228**

**Relative:**  
**Higher**

**RCRA NonGen / NLR:**

Date form received by agency: 10/14/1998  
 Facility name: MICHIGAN NATIONAL CORP  
 Facility address: 36050 WOODWARD AVE  
 BLOOMFIELD TOWNSHIP, MI 48304  
 EPA ID: MID985583228  
 Mailing address: 27777 INKSTER RD  
 FARMINGTON HILLS, MI 48334  
 Contact: KELLY HILLEN  
 Contact address: 36050 WOODWARD AVE  
 BLOOMFIELD TOWNSHIP, MI 48304  
 Contact country: US  
 Contact telephone: (313) 473-3694  
 Contact email: Not reported  
 EPA Region: 05  
 Classification: Non-Generator  
 Description: Handler: Non-Generators do not presently generate hazardous waste

**Actual:**  
**754 ft.**

**Owner/Operator Summary:**

Owner/operator name: MICHIGAN NATIONAL BANK  
 Owner/operator address: Not reported  
 Not reported  
 Owner/operator country: Not reported  
 Owner/operator telephone: Not reported  
 Legal status: Private  
 Owner/Operator Type: Operator  
 Owner/Op start date: 01/01/1901  
 Owner/Op end date: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MICHIGAN NATIONAL CORP (Continued)**

**1000451544**

Owner/operator name: MICHIGAN NATIONAL BANK  
Owner/operator address: Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 01/01/1901  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 07/19/1990  
Site name: MICHIGAN NATIONAL CORP  
Classification: Not a generator, verified

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110003642808

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid: 1000451544  
Registry ID: 110003642808

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MICHIGAN NATIONAL CORP (Continued)**

**1000451544**

DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003642808](http://echo.epa.gov/detailed_facility_report?fid=110003642808)

**22**  
**South**  
**1/8-1/4**  
**0.190 mi.**  
**1005 ft.**

**DAKOTA**  
**280 HARMON ST**  
**BIRMINGHAM, MI 48009**

**RCRA NonGen / NLR**

**1007099707**  
**MIK718658982**

**Relative:**  
**Lower**

RCRA NonGen / NLR:

Date form received by agency: 06/19/2001

Facility name: DAKOTA

Facility address: 280 HARMON ST  
BIRMINGHAM, MI 48009

EPA ID: MIK718658982

Contact: JOE TRIBUZIO

Contact address: 280 HARMON ST  
BIRMINGHAM, MI 48009

Contact country: US

Contact telephone: (248) 594-6380

Contact email: Not reported

EPA Region: 05

Classification: Non-Generator

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name: DAKOTA

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Operator

Owner/Op start date: 06/19/2001

Owner/Op end date: Not reported

Owner/operator name: DAKOTA

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Owner

Owner/Op start date: 06/19/2001

Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No

Mixed waste (haz. and radioactive): No

Recycler of hazardous waste: No

Transporter of hazardous waste: No

Treater, storer or disposer of HW: No

Underground injection activity: No

On-site burner exemption: No

Furnace exemption: No

Used oil fuel burner: No

Used oil processor: No

User oil refiner: No



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DAKOTA (Continued)**

**1007099707**

Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

Waste code: D001  
Waste name: IGNITABLE WASTE

Violation Status: No violations found

**23**  
**SE**  
**1/4-1/2**  
**0.259 mi.**  
**1368 ft.**

**GHEEN RESIDENCE**  
**272 RAVINE ROAD**  
**BIRMINGHAM, MI 48009**

**INVENTORY** **S117057927**  
**WDS** **N/A**

**Relative:**  
**Higher**  
  
**Actual:**  
**758 ft.**

INVENTORY:  
Bea Number: Not reported  
Township: Birmingham  
District: Southeast MI  
Data Source: Part 201  
Latitude: Not reported  
Longitude: Not reported

WDS:  
Site Id: MIK407668698  
WMD Id: 493758  
Site Specific Name: LOCAL HOME CLEANUP  
Mailing Address: 272 RAVINE RD  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

**24**  
**SSE**  
**1/4-1/2**  
**0.390 mi.**  
**2061 ft.**

**COMERICA BANK BIRMINGHAM**  
**322 N. OLD WOODWARD**  
**BIRMINGHAM, MI 48009**

**INVENTORY** **S114028625**  
**WDS** **N/A**

**Relative:**  
**Higher**  
  
**Actual:**  
**773 ft.**

INVENTORY:  
Bea Number: Not reported  
Township: Birmingham  
District: Southeast MI  
Data Source: Part 201  
Latitude: 42.54826  
Longitude: -83.2162

MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Site

Database(s)

EDR ID Number  
EPA ID Number

**25**  
**South**  
**1/4-1/2**  
**0.436 mi.**  
**2300 ft.**

**FIRST CHURCH OF CHRIST**  
**191 N. CHESTER ST.**  
**BIRMINGHAM, MI 48009**

**INVENTORY**    **S114028648**  
**N/A**

**Relative:**  
**Higher**

**INVENTORY:**

Bea Number:    Not reported  
Township:      Birmingham  
District:       Southeast MI  
Data Source:    Part 201  
Latitude:       42.54709  
Longitude:      -83.21811

**Actual:**  
**780 ft.**

Count: 1 records.

ORPHAN SUMMARY

<u>City</u>	<u>EDR ID</u>	<u>Site Name</u>	<u>Site Address</u>	<u>Zip</u>	<u>Database(s)</u>
BIRMINGHAM	U004123610	TIFFANY FLORIST	772-784 S OLD WOODWARD	48009	LUST, UST, INVENTORY

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/13/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/06/2016	Telephone: 703-603-8704
Date Made Active in Reports: 05/20/2016	Last EDR Contact: 07/06/2016
Number of Days to Update: 135	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: 800-424-9346
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Quarterly

## ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: 800-424-9346
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/27/2016	Source: EPA
Date Data Arrived at EDR: 06/30/2016	Telephone: 800-424-9346
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/10/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Varies

## ***Federal institutional controls / engineering controls registries***

### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015	Source: Department of the Navy
Date Data Arrived at EDR: 05/29/2015	Telephone: 843-820-7326
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 08/12/2016
Number of Days to Update: 13	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: Varies

### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/09/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/01/2016	Telephone: 703-603-0695
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/31/2016
Number of Days to Update: 93	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

### US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/09/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/01/2016	Telephone: 703-603-0695
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/31/2016
Number of Days to Update: 93	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **Federal ERNS list**

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/28/2016

Source: National Response Center, United States Coast Guard

Date Data Arrived at EDR: 03/30/2016

Telephone: 202-267-2180

Date Made Active in Reports: 05/20/2016

Last EDR Contact: 09/26/2016

Number of Days to Update: 51

Next Scheduled EDR Contact: 01/09/2017

Data Release Frequency: Annually

## **State- and tribal - equivalent CERCLIS**

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

Date of Government Version: N/A

Source: Dept of Environmental Quality

Date Data Arrived at EDR: 10/31/2013

Telephone: 517-284-5103

Date Made Active in Reports: 11/20/2013

Last EDR Contact: 07/22/2016

Number of Days to Update: 20

Next Scheduled EDR Contact: 11/07/2016

Data Release Frequency: No Update Planned

## **State and tribal landfill and/or solid waste disposal site lists**

SWF/LF: Solid Waste Facilities Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/27/2016

Source: Dept of Environmental Quality

Date Data Arrived at EDR: 06/30/2016

Telephone: 517-335-4035

Date Made Active in Reports: 09/01/2016

Last EDR Contact: 09/27/2016

Number of Days to Update: 63

Next Scheduled EDR Contact: 01/09/2017

Data Release Frequency: Semi-Annually

## **State and tribal leaking storage tank lists**

LUST: Leaking Underground Storage Tank Sites

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/27/2016

Source: Dept of Environmental Quality

Date Data Arrived at EDR: 05/18/2016

Telephone: 517-373-9837

Date Made Active in Reports: 07/05/2016

Last EDR Contact: 08/17/2016

Number of Days to Update: 48

Next Scheduled EDR Contact: 11/28/2016

Data Release Frequency: Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016

Source: EPA, Region 5

Date Data Arrived at EDR: 04/27/2016

Telephone: 312-886-7439

Date Made Active in Reports: 06/03/2016

Last EDR Contact: 07/27/2016

Number of Days to Update: 37

Next Scheduled EDR Contact: 11/07/2016

Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/07/2016  
Date Data Arrived at EDR: 01/08/2016  
Date Made Active in Reports: 02/18/2016  
Number of Days to Update: 41

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016  
Date Data Arrived at EDR: 04/27/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 37

Source: Environmental Protection Agency  
Telephone: 415-972-3372  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015  
Date Data Arrived at EDR: 10/23/2015  
Date Made Active in Reports: 02/18/2016  
Number of Days to Update: 118

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015  
Date Data Arrived at EDR: 02/12/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 112

Source: EPA Region 7  
Telephone: 913-551-7003  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

**INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015  
Date Data Arrived at EDR: 02/19/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 105

Source: EPA Region 6  
Telephone: 214-665-6597  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

**INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016  
Date Data Arrived at EDR: 04/29/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 35

Source: EPA Region 4  
Telephone: 404-562-8677  
Last EDR Contact: 07/26/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Semi-Annually

**INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land**  
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015  
Date Data Arrived at EDR: 10/29/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 67

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 07/29/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

***State and tribal registered storage tank lists***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/07/2016
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Varies

## UST: Underground Storage Tank Facility List

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 04/13/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 05/18/2016	Telephone: 517-241-8847
Date Made Active in Reports: 07/05/2016	Last EDR Contact: 08/17/2016
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: Annually

## UST 2: Underground Storage Tank Listing

A listing of underground storage tank site locations that have unknown owner information.

Date of Government Version: 07/19/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 07/25/2016	Telephone: 517-241-8847
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 07/15/2016
Number of Days to Update: 38	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Annually

## AST: Aboveground Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 05/02/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 05/18/2016	Telephone: 517-241-8847
Date Made Active in Reports: 07/05/2016	Last EDR Contact: 09/12/2016
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: No Update Planned

## INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 10/29/2015	Telephone: 617-918-1313
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 07/29/2016
Number of Days to Update: 67	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016	Source: EPA Region 8
Date Data Arrived at EDR: 02/05/2016	Telephone: 303-312-6137
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 119	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014	Source: EPA Region 7
Date Data Arrived at EDR: 11/25/2014	Telephone: 913-551-7003
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 07/27/2016
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015	Source: EPA Region 6
Date Data Arrived at EDR: 02/04/2016	Telephone: 214-665-7591
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 120	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Semi-Annually

## INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015	Source: EPA Region 5
Date Data Arrived at EDR: 11/13/2015	Telephone: 312-886-6136
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 52	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016	Source: EPA Region 9
Date Data Arrived at EDR: 04/27/2016	Telephone: 415-972-3368
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 37	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly

## INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/08/2016	Telephone: 206-553-2857
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly

## INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016	Source: EPA Region 4
Date Data Arrived at EDR: 04/29/2016	Telephone: 404-562-9424
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/26/2016
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***State and tribal institutional control / engineering control registries***

### **AUL: Engineering and Institutional Controls**

A listing of sites with institutional and/or engineering controls in place.

Date of Government Version: 06/09/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 06/13/2016	Telephone: 517-373-4828
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 08/26/2016
Number of Days to Update: 80	Next Scheduled EDR Contact: 11/14/2016
	Data Release Frequency: Varies

## ***State and tribal voluntary cleanup sites***

### **INDIAN VCP R7: Voluntary Cleanup Priority Listing**

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

### **INDIAN VCP R1: Voluntary Cleanup Priority Listing**

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 09/26/2016
Number of Days to Update: 142	Next Scheduled EDR Contact: 01/09/2017
	Data Release Frequency: Varies

## ***State and tribal Brownfields sites***

### **BROWNFIELDS: Brownfields and USTfield Site Database**

All state funded Part 201 and 213 sites, as well as LUST sites that have been redeveloped by private entities using the BEA process. Be aware that this is not a list of all of the potential brownfield sites in Michigan.

Date of Government Version: 01/15/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 02/02/2016	Telephone: 517-373-4805
Date Made Active in Reports: 04/04/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 62	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

### **BROWNFIELDS 2: Brownfields Building and Land Site Locations**

A listing of brownfield building and land site locations. The listing is a collaborative effort of Michigan Economic Development Corporation, Michigan Economic Developers Association, Detroit Edison, Detroit Area Commercial Board of Realtors

Date of Government Version: 04/09/2007	Source: Economic Development Corporation
Date Data Arrived at EDR: 04/10/2007	Telephone: 888-522-0103
Date Made Active in Reports: 05/01/2007	Last EDR Contact: 08/26/2016
Number of Days to Update: 21	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## **ADDITIONAL ENVIRONMENTAL RECORDS**

### ***Local Brownfield lists***

#### **US BROWNFIELDS: A Listing of Brownfields Sites**

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/21/2016  
Date Data Arrived at EDR: 06/22/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 72

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 09/21/2016  
Next Scheduled EDR Contact: 01/02/2017  
Data Release Frequency: Semi-Annually

## **Local Lists of Landfill / Solid Waste Disposal Sites**

### SWRCY: Recycling Facilities

A listing of recycling center locations.

Date of Government Version: 07/07/2016  
Date Data Arrived at EDR: 07/11/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 52

Source: Dept of Environmental Quality  
Telephone: 517-241-5719  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Varies

### HIST LF: Inactive Solid Waste Facilities

The database contains historical information and is no longer updated.

Date of Government Version: 03/01/1997  
Date Data Arrived at EDR: 02/28/2003  
Date Made Active in Reports: 03/06/2003  
Number of Days to Update: 6

Source: Dept of Environmental Quality  
Telephone: 517-335-4034  
Last EDR Contact: 02/28/2003  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 08/05/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Varies

### ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 07/20/2016  
Next Scheduled EDR Contact: 10/07/2016  
Data Release Frequency: No Update Planned

## **Local Lists of Hazardous waste / Contaminated Sites**

### US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/31/2016  
Date Data Arrived at EDR: 09/06/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 17

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 08/31/2016  
Next Scheduled EDR Contact: 10/10/2016  
Data Release Frequency: No Update Planned

## INVENTORY: Inventory of Facilities

The Inventory of Facilities has three data sources: Facilities under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) identified through state funded or private party response activities (Projects); Facilities under Part 213, Leaking Underground Storage Tanks of the NREPA; and Facilities identified through submittals of Baseline Environmental Assessments (BEA) submitted pursuant to Part 201 or Part 213 of the NREPA. The Part 201 Projects Inventory does not include all of the facilities that are subject to regulation under Part 201 because owners are not required to inform the Department of Environmental Quality (DEQ) about the facilities and can pursue cleanup independently. Facilities that are not known to DEQ are not on the Inventory, nor are locations with releases that resulted in low environmental impact. Part 213 facilities listed here may have more than one release; a list of releases for which corrective actions have been completed and list of releases for which corrective action has not been completed is located on the Leaking Underground Storage Tanks Site Search webpage. The DEQ may or may not have reviewed and concurred with the conclusion that the corrective actions described in a closure report meets criteria. A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

Date of Government Version: 07/26/2016  
Date Data Arrived at EDR: 07/27/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 36

Source: Department of Environmental Quality  
Telephone: 517-284-5136  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

## PART 201: Part 201 Site List

A Part 201 Listed site is a location that has been evaluated and scored by the DEQ using the Part 201 scoring model. The location is or includes a "facility" as defined by Part 201, where there has been a release of a hazardous substance(s) in excess of the Part 201 residential criteria, and/or where corrective actions have not been completed under Part 201 to meet the applicable cleanup criteria for unrestricted residential use. The Part 201 List does not include all of the sites of contamination that are subject to regulation under Part 201 because owners are not required to inform the DEQ about the sites and can pursue cleanup independently. Sites of environmental contamination that are not known to DEQ are not on the list, nor are sites with releases that resulted in low environmental impact.

Date of Government Version: 10/01/2013  
Date Data Arrived at EDR: 10/03/2014  
Date Made Active in Reports: 10/03/2014  
Number of Days to Update: 0

Source: Department of Environmental Quality  
Telephone: 517-284-5103  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: No Update Planned

## CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab locations.

Date of Government Version: 05/11/2016  
Date Data Arrived at EDR: 05/24/2016  
Date Made Active in Reports: 07/05/2016  
Number of Days to Update: 42

Source: Department of Community Health  
Telephone: 517-373-3740  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## DEL PART 201: Delisted List of Contaminated Sites

A deleted site has been removed from the Part 201 List because information known to the DEQ at the time of the evaluation does not support inclusion on the Part 201 List. This designation is often applied to sites where changes in cleanup criteria resulted in a determination that the site no longer exceeds any applicable cleanup criterion. A delisted site has been removed from the Part 201 List because response actions have reduced the levels of contaminants to concentrations which meet or are below the criteria for unrestricted residential use.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/01/2013  
Date Data Arrived at EDR: 08/01/2013  
Date Made Active in Reports: 09/11/2013  
Number of Days to Update: 41

Source: Dept of Environmental Quality  
Telephone: 517-373-9541  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016  
Date Data Arrived at EDR: 09/06/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 17

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 08/31/2016  
Next Scheduled EDR Contact: 12/12/2016  
Data Release Frequency: Quarterly

## Local Land Records

### LIENS: Lien List

An Environmental Lien is a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon a property, including (but not limited to) liens imposed pursuant to CERCLA 42 USC \* 9607(1) and similar state or local laws. In other words: a lien placed upon a property's title due to an environmental condition

Date of Government Version: 07/07/2015  
Date Data Arrived at EDR: 07/24/2015  
Date Made Active in Reports: 08/05/2015  
Number of Days to Update: 12

Source: Dept of Environmental Quality  
Telephone: 517-241-7603  
Last EDR Contact: 04/22/2016  
Next Scheduled EDR Contact: 08/01/2016  
Data Release Frequency: Varies

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014  
Date Data Arrived at EDR: 03/18/2014  
Date Made Active in Reports: 04/24/2014  
Number of Days to Update: 37

Source: Environmental Protection Agency  
Telephone: 202-564-6023  
Last EDR Contact: 07/29/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## Records of Emergency Release Reports

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/27/2016  
Date Data Arrived at EDR: 06/28/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 87

Source: U.S. Department of Transportation  
Telephone: 202-366-4555  
Last EDR Contact: 09/27/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

### PEAS: Pollution Emergency Alerting System

Environmental pollution emergencies reported to the Department of Environmental Quality such as tanker accidents, pipeline breaks, and release of reportable quantities of hazardous substances.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2016  
Date Data Arrived at EDR: 07/29/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 34

Source: Dept of Environmental Quality  
Telephone: 517-373-8427  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

## **Other Ascertainable Records**

### **RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/21/2016  
Date Data Arrived at EDR: 06/30/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 64

Source: Environmental Protection Agency  
Telephone: 312-886-6186  
Last EDR Contact: 06/30/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

### **FUDS: Formerly Used Defense Sites**

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015  
Date Data Arrived at EDR: 07/08/2015  
Date Made Active in Reports: 10/13/2015  
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers  
Telephone: 202-528-4285  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/19/2016  
Data Release Frequency: Varies

### **DOD: Department of Defense Sites**

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 11/10/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 62

Source: USGS  
Telephone: 888-275-8747  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Semi-Annually

### **FEDLAND: Federal and Indian Lands**

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/06/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 339

Source: U.S. Geological Survey  
Telephone: 888-275-8747  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: N/A

### **SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing**

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/07/2011      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/09/2011      Telephone: 615-532-8599  
Date Made Active in Reports: 05/02/2011      Last EDR Contact: 08/15/2016  
Number of Days to Update: 54      Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: Varies

## US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/08/2016      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 05/18/2016      Telephone: 202-566-1917  
Date Made Active in Reports: 09/02/2016      Last EDR Contact: 08/17/2016  
Number of Days to Update: 107      Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: Quarterly

## EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/21/2014      Telephone: 617-520-3000  
Date Made Active in Reports: 06/17/2014      Last EDR Contact: 08/08/2016  
Number of Days to Update: 88      Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Quarterly

## 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/03/2015      Telephone: 703-308-4044  
Date Made Active in Reports: 03/09/2015      Last EDR Contact: 09/06/2016  
Number of Days to Update: 6      Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Varies

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012      Source: EPA  
Date Data Arrived at EDR: 01/15/2015      Telephone: 202-260-5521  
Date Made Active in Reports: 01/29/2015      Last EDR Contact: 09/23/2016  
Number of Days to Update: 14      Next Scheduled EDR Contact: 01/02/2017  
Data Release Frequency: Every 4 Years

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 11/24/2015  
Date Made Active in Reports: 04/05/2016  
Number of Days to Update: 133

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 08/26/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Annually

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 12/10/2010  
Date Made Active in Reports: 02/25/2011  
Number of Days to Update: 77

Source: EPA  
Telephone: 202-564-4203  
Last EDR Contact: 07/25/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Annually

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013  
Date Data Arrived at EDR: 12/12/2013  
Date Made Active in Reports: 02/24/2014  
Number of Days to Update: 74

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/19/2016  
Data Release Frequency: Annually

## RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/01/2016  
Date Data Arrived at EDR: 05/26/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 99

Source: Environmental Protection Agency  
Telephone: 202-564-8600  
Last EDR Contact: 07/25/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995  
Date Data Arrived at EDR: 07/03/1995  
Date Made Active in Reports: 08/07/1995  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4104  
Last EDR Contact: 06/02/2008  
Next Scheduled EDR Contact: 09/01/2008  
Data Release Frequency: No Update Planned



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 08/12/2016
Number of Days to Update: 3	Next Scheduled EDR Contact: 11/21/2016
	Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016	Source: EPA
Date Data Arrived at EDR: 04/28/2016	Telephone: 202-566-0500
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 07/15/2016
Number of Days to Update: 127	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Annually

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/06/2015	Telephone: 202-564-5088
Date Made Active in Reports: 03/09/2015	Last EDR Contact: 07/07/2016
Number of Days to Update: 31	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Quarterly

## FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/17/2016
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/17/2016
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/07/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 03/18/2016	Telephone: 301-415-7169
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 09/05/2016
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/21/2016
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 09/09/2016
Number of Days to Update: 76	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Varies

## COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 09/06/2016
Number of Days to Update: 40	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Varies

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/29/2016
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/09/2015	Telephone: 202-343-9775
Date Made Active in Reports: 09/16/2015	Last EDR Contact: 07/07/2016
Number of Days to Update: 69	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2008  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012  
Date Data Arrived at EDR: 08/07/2012  
Date Made Active in Reports: 09/18/2012  
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety  
Telephone: 202-366-4595  
Last EDR Contact: 08/02/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Varies

## CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2016  
Date Data Arrived at EDR: 08/01/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 53

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Varies

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 02/24/2015  
Date Made Active in Reports: 09/30/2015  
Number of Days to Update: 218

Source: EPA/NTIS  
Telephone: 800-424-9346  
Last EDR Contact: 08/26/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Biennially

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 12/08/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 34

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Semi-Annually

## FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016  
Date Data Arrived at EDR: 07/26/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 59

Source: Department of Energy  
Telephone: 202-586-3559  
Last EDR Contact: 07/26/2016  
Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Varies

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010  
Date Data Arrived at EDR: 10/07/2011  
Date Made Active in Reports: 03/01/2012  
Number of Days to Update: 146

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Varies

## LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016  
Date Data Arrived at EDR: 04/07/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 148

Source: Environmental Protection Agency  
Telephone: 703-603-8787  
Last EDR Contact: 07/08/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001  
Date Data Arrived at EDR: 10/27/2010  
Date Made Active in Reports: 12/02/2010  
Number of Days to Update: 36

Source: American Journal of Public Health  
Telephone: 703-305-6451  
Last EDR Contact: 12/02/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/20/2015  
Date Data Arrived at EDR: 10/27/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 69

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

## US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/20/2015  
Date Data Arrived at EDR: 10/27/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 69

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

## US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016  
Date Data Arrived at EDR: 09/01/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959  
Last EDR Contact: 09/01/2016  
Next Scheduled EDR Contact: 12/12/2016  
Data Release Frequency: Semi-Annually

## US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005	Source: USGS
Date Data Arrived at EDR: 02/29/2008	Telephone: 703-648-7709
Date Made Active in Reports: 04/18/2008	Last EDR Contact: 09/02/2016
Number of Days to Update: 49	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 09/02/2016
Number of Days to Update: 97	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/20/2015	Source: EPA
Date Data Arrived at EDR: 09/09/2015	Telephone: (312) 353-2000
Date Made Active in Reports: 11/03/2015	Last EDR Contact: 09/07/2016
Number of Days to Update: 55	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Quarterly

## UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015	Source: Department of Defense
Date Data Arrived at EDR: 01/29/2016	Telephone: 571-373-0407
Date Made Active in Reports: 04/05/2016	Last EDR Contact: 09/19/2016
Number of Days to Update: 67	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Varies

## DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/03/2016	Telephone: 202-564-0527
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/24/2016
Number of Days to Update: 91	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## AIRS: Permit and Emissions Inventory Data

Permit and emissions inventory data.

Date of Government Version: 06/21/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 06/24/2016	Telephone: 517-373-7074
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 09/19/2016
Number of Days to Update: 69	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Varies

## BEA: Baseline Environmental Assessment Database

A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/21/2013  
Date Data Arrived at EDR: 08/23/2013  
Date Made Active in Reports: 09/12/2013  
Number of Days to Update: 20

Source: Dept of Environmental Quality  
Telephone: 517-373-9541  
Last EDR Contact: 08/10/2016  
Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: No Update Planned

## COAL ASH: Coal Ash Disposal Sites

Coal fired power plants in Southeast Michigan that have coal ash handling on site.

Date of Government Version: 07/07/2016  
Date Data Arrived at EDR: 07/18/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 45

Source: Dept of Environmental Quality  
Telephone: 586-753-3754  
Last EDR Contact: 06/30/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## DRYCLEANERS: Drycleaning Establishments

A listing of drycleaning facilities in Michigan.

Date of Government Version: 07/20/2016  
Date Data Arrived at EDR: 07/25/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 38

Source: Dept of Environmental Quality  
Telephone: 517-335-4586  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/31/2016  
Data Release Frequency: Annually

## LEAD CERT: Lead Safe Housing Registry

A listing of Michigan properties included in the Lead Safe Housing Registry.

Date of Government Version: 09/15/2015  
Date Data Arrived at EDR: 09/16/2015  
Date Made Active in Reports: 09/30/2015  
Number of Days to Update: 14

Source: Department of Community Health  
Telephone: 517-335-9699  
Last EDR Contact: 09/06/2016  
Next Scheduled EDR Contact: 09/19/2016  
Data Release Frequency: Quarterly

## NPDES: List of Active NPDES Permits

General information regarding NPDES (National Pollutant Discharge Elimination System) permits and NPDES Storm Water permits.

Date of Government Version: 05/04/2016  
Date Data Arrived at EDR: 07/07/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 56

Source: Dept of Environmental Quality  
Telephone: 517-241-1300  
Last EDR Contact: 07/07/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## UIC: Underground Injection Wells Database

A listing of underground injection well locations. The UIC Program is responsible for regulating the construction, operation, permitting, and closure of injection wells that place fluids underground for storage or disposal.

Date of Government Version: 05/09/2016  
Date Data Arrived at EDR: 05/11/2016  
Date Made Active in Reports: 08/02/2016  
Number of Days to Update: 83

Source: Dept of Environmental Quality  
Telephone: 517-241-1515  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## WDS: Waste Data System

The Waste Data System (WDS) tracks activities at facilities regulated by the Solid Waste, Scrap Tire, Hazardous Waste, and Liquid Industrial Waste programs.

Date of Government Version: 05/25/2016  
Date Data Arrived at EDR: 05/27/2016  
Date Made Active in Reports: 07/05/2016  
Number of Days to Update: 39

Source: Dept of Environmental Quality  
Telephone: 517-284-6562  
Last EDR Contact: 08/19/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Quarterly



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/24/2016	Source: EPA
Date Data Arrived at EDR: 05/25/2016	Telephone: 800-385-6164
Date Made Active in Reports: 07/13/2016	Last EDR Contact: 08/23/2016
Number of Days to Update: 49	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/20/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/23/2015	Telephone: 202-564-2280
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 09/20/2016
Number of Days to Update: 103	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Quarterly

## EDR HIGH RISK HISTORICAL RECORDS

### *EDR Exclusive Records*

#### EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

#### EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

#### EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## EDR RECOVERED GOVERNMENT ARCHIVES

### *Exclusive Recovered Govt. Archives*

#### RGA PART 201: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 12/24/2013  
Number of Days to Update: 176

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/13/2014  
Number of Days to Update: 196

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 12/24/2013  
Number of Days to Update: 176

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

#### CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013  
Date Data Arrived at EDR: 08/19/2013  
Date Made Active in Reports: 10/03/2013  
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection  
Telephone: 860-424-3375  
Last EDR Contact: 08/10/2016  
Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 07/17/2015  
Date Made Active in Reports: 08/12/2015  
Number of Days to Update: 26

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 07/11/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Annually

## NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2016  
Date Data Arrived at EDR: 08/03/2016  
Date Made Active in Reports: 09/09/2016  
Number of Days to Update: 37

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 08/03/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Annually

## PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 07/24/2015  
Date Made Active in Reports: 08/18/2015  
Number of Days to Update: 25

Source: Department of Environmental Protection  
Telephone: 717-783-8990  
Last EDR Contact: 07/18/2016  
Next Scheduled EDR Contact: 10/31/2016  
Data Release Frequency: Annually

## RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 06/19/2015  
Date Made Active in Reports: 07/15/2015  
Number of Days to Update: 26

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 09/20/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Annually

## WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015  
Date Data Arrived at EDR: 04/14/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 50

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 09/12/2016  
Next Scheduled EDR Contact: 12/26/2016  
Data Release Frequency: Annually

## Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

## Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

## Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

## Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

## Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## Daycare Centers: Day Care Centers, Group & Family Homes

Source: Bureau of REgulatory Services

Telephone: 517-373-8300

**Flood Zone Data:** This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

## State Wetlands Data: Wetlands Inventory

Source: Department of Natural Resources

Telephone: 517-241-2254

## Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## **STREET AND ADDRESS INFORMATION**

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

## **GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM**

### **TARGET PROPERTY ADDRESS**

35975 WOODWARD AVENUE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

### **TARGET PROPERTY COORDINATES**

Latitude (North):	42.55351 - 42° 33' 12.64"
Longitude (West):	83.218765 - 83° 13' 7.55"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	317839.1
UTM Y (Meters):	4713406.5
Elevation:	740 ft. above sea level

### **USGS TOPOGRAPHIC MAP**

Target Property Map:	6066350 BIRMINGHAM, MI
Version Date:	2014

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

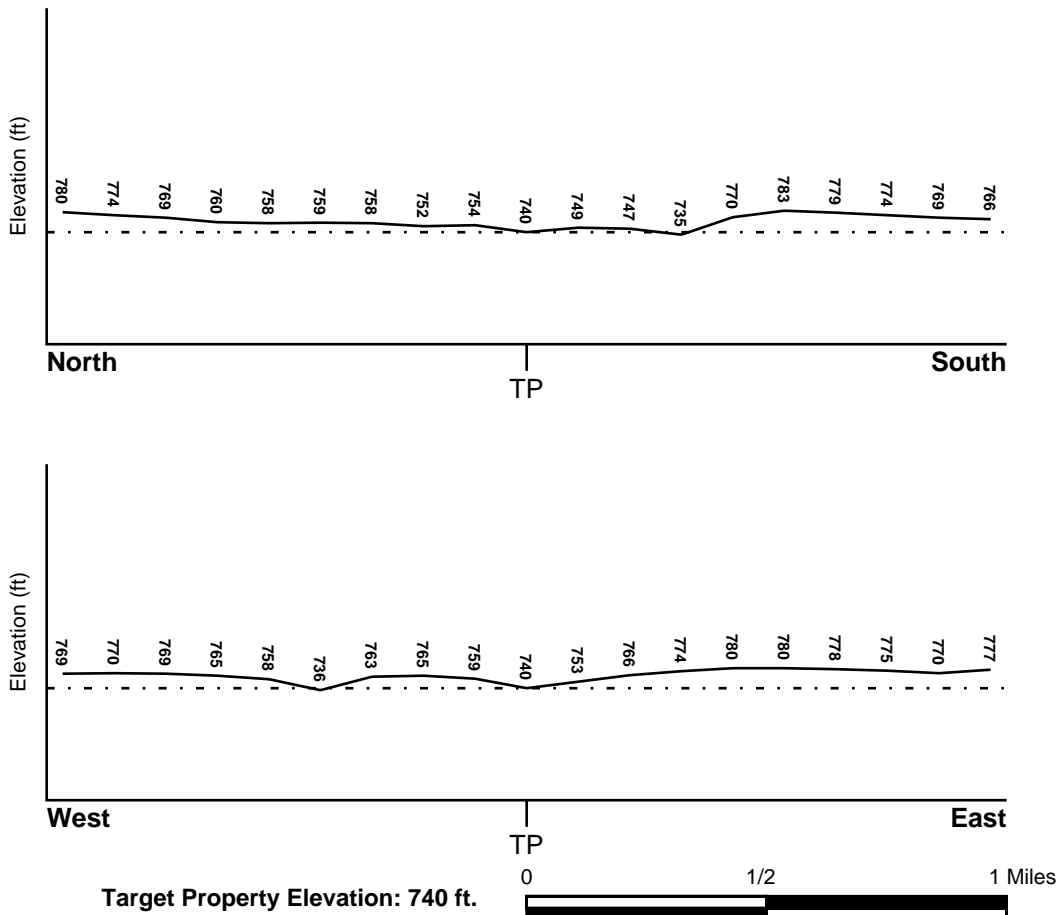
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.



# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
26125C0536F	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
26125C0528F	FEMA FIRM Flood data
26125C0529F	FEMA FIRM Flood data
26125C0537F	FEMA FIRM Flood data

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
BIRMINGHAM	YES - refer to the Overview Map and Detail Map

## **HYDROGEOLOGIC INFORMATION**

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### ***Site-Specific Hydrogeological Data\*:***

Search Radius:	1.25 miles
Status:	Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## **GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY**

### **GROUNDWATER FLOW VELOCITY INFORMATION**

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### **GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY**

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

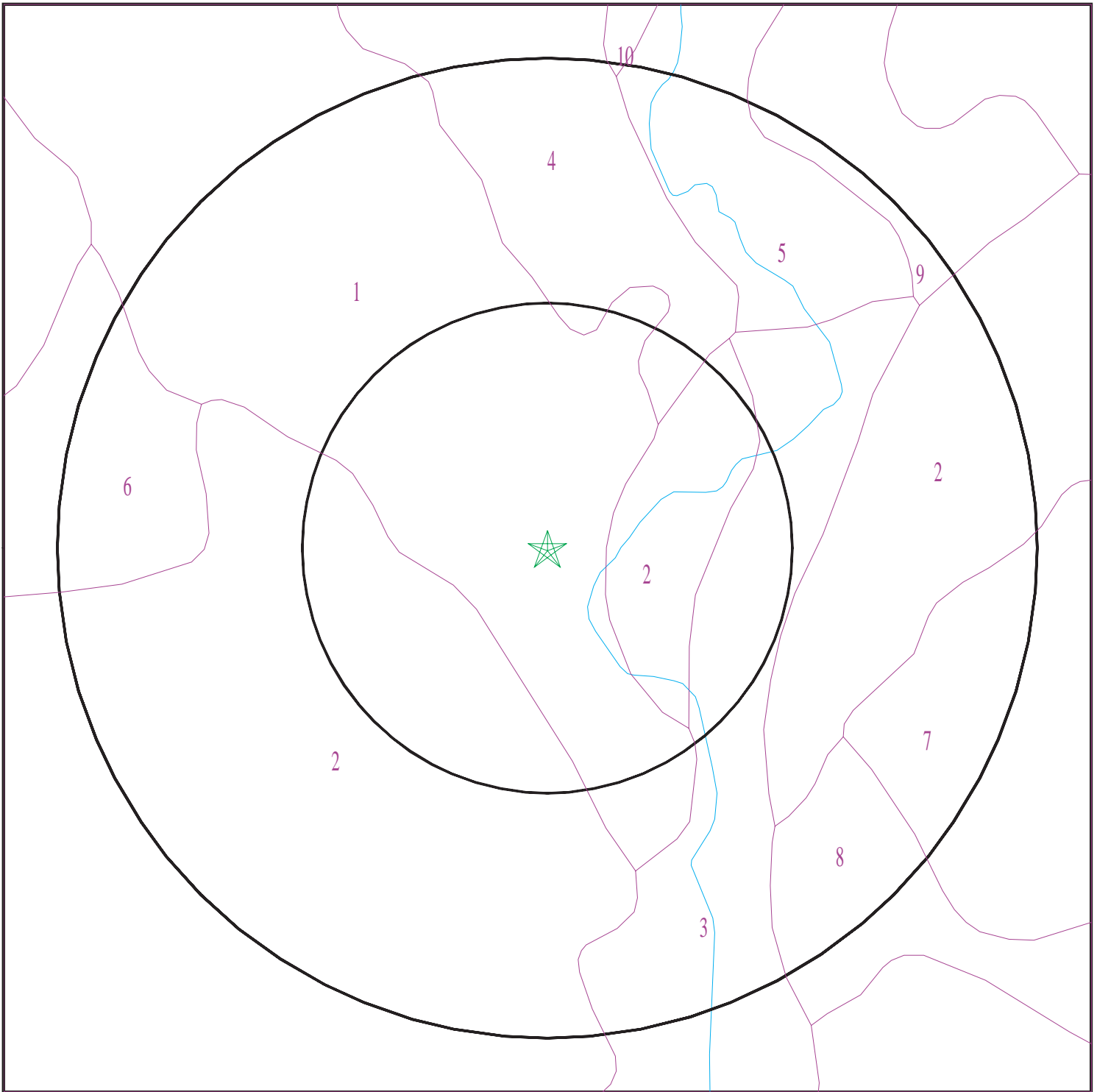
Era:	Paleozoic
System:	Devonian
Series:	Upper Devonian
Code:	D3 ( <i>decoded above as Era, System &amp; Series</i> )

#### **GEOLOGIC AGE IDENTIFICATION**

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 4738860.2s



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: 35975 Woodward Avenue  
ADDRESS: 35975 Woodward Ave  
Birmingham MI 48009  
LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
CONTACT: Christiaan Bon  
INQUIRY #: 4738860.2s  
DATE: September 28, 2016 12:01 pm

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

#### Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

---

#### Soil Map ID: 2

Soil Component Name: Urban land

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

---

#### Soil Map ID: 3

Soil Component Name: Cohoctah

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	11 inches	48 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.1
3	48 inches	59 inches	gravelly sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

### Soil Map ID: 4

Soil Component Name: Urban land

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 130 inches

No Layer Information available.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 5**

Soil Component Name: Cohoctah

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	11 inches	48 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.1
3	48 inches	59 inches	gravelly sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

**Soil Map ID: 6**

Soil Component Name: Spinks

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.1
2	9 inches	25 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 14	Max: 7.3 Min: 5.6
3	25 inches	59 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

**Soil Map ID: 7**

Soil Component Name: Aquents

Soil Surface Texture: variable

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Very poorly drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

### Soil Map ID: 8

Soil Component Name: Urban land

Soil Surface Texture: variable

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:  
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

No Layer Information available.

### Soil Map ID: 9

Soil Component Name: Capac

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
2	7 inches	31 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.3 Min: 5.6
3	31 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

### Soil Map ID: 10

Soil Component Name: Dixboro

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
2	7 inches	35 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 6.6
3	35 inches	59 inches	stratified fine sand to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
10	USGS40000482207	1/2 - 1 Mile NW
11	USGS40000482179	1/2 - 1 Mile SSW
12	USGS40000482170	1/2 - 1 Mile SSW

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

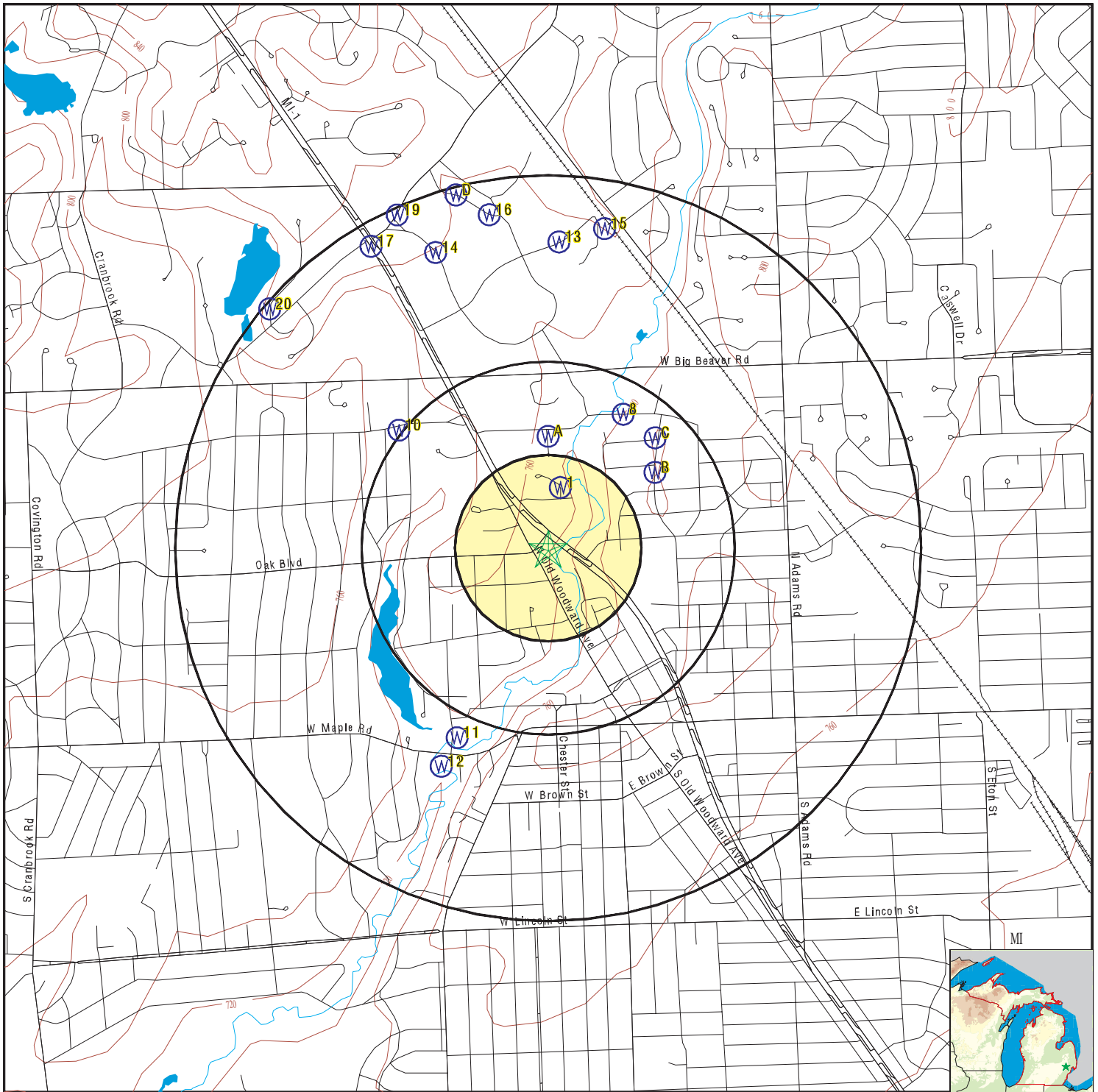
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

## STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	MI3000000095906	1/8 - 1/4 Mile NNE
A2	MI3000000096235	1/4 - 1/2 Mile North
A3	MI3000000096406	1/4 - 1/2 Mile North
A4	MI3000000096414	1/4 - 1/2 Mile North
B5	MI3000000095936	1/4 - 1/2 Mile ENE
B6	MI3000000096148	1/4 - 1/2 Mile NE
C7	MI3000000096323	1/4 - 1/2 Mile NE
8	MI3000000096524	1/4 - 1/2 Mile NNE
C9	MI3000000096345	1/4 - 1/2 Mile NE
13	MI3000000098009	1/2 - 1 Mile North
14	MI3000000097920	1/2 - 1 Mile NNW
15	MI3000000098137	1/2 - 1 Mile North
16	MI3000000098262	1/2 - 1 Mile North
17	MI3000000097970	1/2 - 1 Mile NNW
D18	MI3000000098423	1/2 - 1 Mile NNW
19	MI3000000098260	1/2 - 1 Mile NNW
20	MI3000000097415	1/2 - 1 Mile NW
D21	MI3000000098474	1/2 - 1 Mile NNW

# PHYSICAL SETTING SOURCE MAP - 4738860.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham MI 48009  
 LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
 CONTACT: Christiaan Bon  
 INQUIRY #: 4738860.2s  
 DATE: September 28, 2016 12:01 pm



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**1**  
**NNE**  
**1/8 - 1/4 Mile**  
**Higher**

**MI WELLS      MI300000095906**

Wellid:	63000004238	Import id:	63028025002
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	SCOTT J SELIGMAN TR		
Well addr:	73 JUDY		
Well depth:	150		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	131
Const date:	1967-12-26 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	146		
Screen frm:	146		
Screen to:	150		
Swl:	10		
Test depth:	144		
Test hours:	3		
Test rate:	40	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55586365		
Longitude:	-83.21811452		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	748	Elev dif:	0
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	31		
Pct aq d:	31	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	27
Pct cm d:	27	Pct cm r:	0
Pct pcm:	43	Pct pcm d:	43
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	40	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	140	A pct aq2:	29
A pct maq2:	0	A pct pcm2:	46
A pct cm2:	26	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	30
Pct maq 1:	0	Pct cm 1:	70
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	30
Pct pcm 3:	70	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	60	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	40
Pct na 6:	0	Pct aq 7:	100
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	140		
Horiz Conduct:	7.1488		
Vert Conduct:	.00035		
T2:	1000.8326		
D50plek:	243.77624		

**A2  
North  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096235**

Wellid:	63000004241	Import id:	63028025005
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	RICHARD J PERRY		
Well addr:	94 MANOR CT		
Well depth:	70		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1984-06-03 00:00:00.000	Case type:	Unknown
Case dia:	4		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	68.5		
Screen frm:	68.5		
Screen to:	70		
Swl:	0		
Test depth:	30		
Test hours:	1.5		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55732465		
Longitude:	-83.21866952		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	SWL = 0		
Elev dem:	751	Elev dif:	3
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	3		
Pct aq d:	3	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	81
Pct cm d:	81	Pct cm r:	0
Pct pcm:	16	Pct pcm d:	16
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	3	A pct aq:	80
A pct maq:	0	A pct pcm:	0
A pct cm:	20	A pct na:	0
A thickns2:	70	A pct aq2:	3
A pct maq2:	0	A pct pcm2:	16
A pct cm2:	81	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	67	A sc lith2:	Clay
A sc lmod2:	Not Reported	A sc lmaq2:	CM
A sc lpct2:	33	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	45
Pct pcm 3:	55	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	70		
Horiz Conduct:	.02907		
Vert Conduct:	.00012		
T2:	2.0347		
D50plek:	.37006		

**A3  
North  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096406**

Wellid:	63000004239	Import id:	63028025003
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	STEPHEN E GLAZEK		
Well addr:	85 MANOR RD		
Well depth:	98		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1967-05-24 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	95.9		
Screen frm:	93		
Screen to:	98		
Swl:	14		
Test depth:	88		
Test hours:	5		
Test rate:	12	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55809805		
Longitude:	-83.21941132		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	758	Elev dif:	10
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	23		
Pct aq d:	23	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	57

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	57	Pct cm r:	0
Pct pcm:	11	Pct pcm d:	11
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	30	A pct aq:	70
A pct maq:	0	A pct pcm:	0
A pct cm:	10	A pct na:	20
A thickns2:	84	A pct aq2:	27
A pct maq2:	0	A pct pcm2:	13
A pct cm2:	52	A pct na2:	7
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	80	A sc lith2:	Clay
A sc lmod2:	Not Reported	A sc lmaq2:	CM
A sc lpct2:	20	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	90
Pct pcm 1:	0	Pct na 1:	10
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	10
Pct maq 3:	0	Pct cm 3:	75
Pct pcm 3:	15	Pct na 3:	0
Pct aq 4:	50	Pct maq 4:	0
Pct cm 4:	10	Pct pcm 4:	40
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**A4**  
**North**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS      MI300000096414**

Wellid:	63000004240	Import id:	63028025004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	SHERYL RYAN		
Well addr:	86 MANOR RD		
Well depth:	255		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1979-01-08 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	203.8		
Screen frm:	0		
Screen to:	0		
Swl:	25		
Test depth:	150		
Test hours:	9		
Test rate:	11	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55813405		
Longitude:	-83.21818952		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	748	Elev dif:	0
Elev miv:	748	Aq code:	Rock Well
Aq flag:	Not Reported		
Pct aq:	27		
Pct aq d:	9	Pct aq r:	68
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	64
Pct cm d:	78	Pct cm r:	32
Pct pcm:	9	Pct pcm d:	13
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	179
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	15	Pct maq 4:	0
Pct cm 4:	85	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	30
Pct maq 5:	0	Pct cm 5:	70
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	100	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	24
Pct maq 7:	0	Pct cm 7:	76
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Horiz Conduct:	.56644		
Vert Conduct:	.00019		
T2:	90.06332		
D50plek:	28.58307		

**B5  
ENE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000095936**

Wellid:	63000004244	Import id:	63028025008
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	DR SAMIR M RAGHEB		
Well addr:	1130 OXFORD		
Well depth:	116		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1969-02-05 00:00:00.000	Case type:	Unknown
Case dia:	6		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	113.3		
Screen frm:	111		
Screen to:	116		
Swl:	48		
Test depth:	100		
Test hours:	5		
Test rate:	55	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55599085		
Longitude:	-83.21317482		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	29
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	20		
Pct aq d:	20	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	43
Pct cm d:	43	Pct cm r:	0
Pct pcm:	37	Pct pcm d:	37
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	6	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	68	A pct aq2:	9
A pct maq2:	0	A pct pcm2:	35
A pct cm2:	56	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine To Medium	A sc lmaq1:	AQ
A sc lpct1:	80	A sc lith2:	Gravel
A sc lmod2:	Not Reported	A sc lmaq2:	AQ
A sc lpct2:	20	Pct aq 1:	85
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	15	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	20	Pct pcm 2:	80
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	100	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	30
Pct pcm 5:	70	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	68		
Horiz Conduct:	1.50359		
Vert Conduct:	.00018		
T2:	102.2438		
D50plek:	13.77063		

**B6  
NE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096148**

Wellid:	63000004243	Import id:	63028025007
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	ANDREW P TRESTRAIL		
Well addr:	1250 OXFORD		
Well depth:	118		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1988-03-16 00:00:00.000	Case type:	Steel-black
Case dia:	4		
Case depth:	118		
Screen frm:	113		
Screen to:	118		
Swl:	34		
Test depth:	52		
Test hours:	4		
Test rate:	35	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.55690875		
Longitude:	-83.21311792		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	781	Elev dif:	33
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	45		
Pct aq d:	45	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	42

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	42	Pct cm r:	0
Pct pcm:	13	Pct pcm d:	13
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	16	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	84	A pct aq2:	24
A pct maq2:	0	A pct pcm2:	18
A pct cm2:	58	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	65	Pct maq 2:	0
Pct cm 2:	35	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	20	Pct maq 4:	0
Pct cm 4:	80	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	35
Pct pcm 5:	65	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	84		
Horiz Conduct:	2.57327		
Vert Conduct:	.00017		
T2:	216.1549		
D50plek:	34.39996		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**C7**  
**NE**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS      MI300000096323**

Wellid:	63000004237	Import id:	63028025001
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	THOMAS A HILBORN		
Well addr:	290 HARROW		
Well depth:	147		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1976-03-01 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	136		
Screen frm:	136		
Screen to:	147		
Swl:	24		
Test depth:	133		
Test hours:	3		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55772835		
Longitude:	-83.21330562		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	29
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	13		
Pct aq d:	13	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	76
Pct cm d:	76	Pct cm r:	0
Pct pcm:	8	Pct pcm d:	8
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	11	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	123	A pct aq2:	15
A pct maq2:	0	A pct pcm2:	10
A pct cm2:	75	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	64	A sc lith2:	Sand
A sc lmod2:	Very Fine	A sc lmaq2:	AQ
A sc lpct2:	36	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	75
Pct pcm 1:	0	Pct na 1:	25

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	40	Pct maq 4:	0
Pct cm 4:	60	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	100
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	96	Pct pcm 6:	4
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	123		
Horiz Conduct:	.11019		
Vert Conduct:	.0002		
T2:	13.5536		
D50plek:	3.7634		

8

**NNE**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS**

**MI300000096524**

Wellid:	63000004242	Import id:	63028025006
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	MASAT IZU		
Well addr:	265 MANOR RD		
Well depth:	94		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1976-05-21 00:00:00.000	Case type:	Unknown
Case dia:	6		



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	87.7		
Screen frm:	88		
Screen to:	93		
Swl:	18		
Test depth:	50		
Test hours:	4		
Test rate:	80	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55870845		
Longitude:	-83.21481572		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	751	Elev dif:	3
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	19		
Pct aq d:	19	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	39
Pct cm d:	39	Pct cm r:	0
Pct pcm:	32	Pct pcm d:	32
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	15	A pct aq:	47
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	53
A thickns2:	75	A pct aq2:	9
A pct maq2:	0	A pct pcm2:	31
A pct cm2:	49	A pct na2:	11
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Lithology Unknown
A sc lmod1:	Not Reported	A sc lmaq1:	NA
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	55
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	45	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	100
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	95
Pct pcm 3:	5	Pct na 3:	0
Pct aq 4:	10	Pct maq 4:	0
Pct cm 4:	90	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**C9  
NE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096345**

Wellid:	63000004245	Import id:	63028025009
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	BETTIANN ALESSANDRI		
Well addr:	1360 OXFORD		
Well depth:	124		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1997-05-10 00:00:00.000	Case type:	Steel-black
Case dia:	5		
Case depth:	116		
Screen frm:	116		
Screen to:	124		
Swl:	25		
Test depth:	110		
Test hours:	2		
Test rate:	12	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.55785745		
Longitude:	-83.21296502		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	781	Elev dif:	33
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	32

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	32	Pct cm r:	0
Pct pcm:	17	Pct pcm d:	17
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	46	A pct aq:	30
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	70
A thickns2:	99	A pct aq2:	14
A pct maq2:	0	A pct pcm2:	21
A pct cm2:	32	A pct na2:	32
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	15
Pct pcm 1:	0	Pct na 1:	85
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	85
Pct pcm 3:	15	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	90
Pct na 4:	10	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	100
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**10**  
**NW**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS      USGS40000482207**

Org. Identifier:	USGS-MI		
Formal name:	USGS Michigan Water Science Center		
Monloc Identifier:	USGS-423329083133601		
Monloc name:	02N 10E 26AADA 01		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	04090004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	42.5580898
Longitude:	-83.2265978	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	745
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Sand and gravel aquifers (glaciated regions)		
Formation type:	Pleistocene Series		
Aquifer type:	Not Reported		
Construction date:	19290101	Welldepth:	81
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel
-----		
1929-03-01	6.00	

**11**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000482179**

Org. Identifier:	USGS-MI		
Formal name:	USGS Michigan Water Science Center		
Monloc Identifier:	USGS-423246083132501		
Monloc name:	02N 10E 36BBBA 01		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	04090004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	42.5461456
Longitude:	-83.2235418	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	725
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Sand and gravel aquifers (glaciated regions)		
Formation type:	Pleistocene Series		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	96
Construction date:	19210101	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1921-01-01	20.00	

**12**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS USGS40000482170**

Org. Identifier:	USGS-MI		
Formal name:	USGS Michigan Water Science Center		
Monloc Identifier:	USGS-423242083132801		
Monloc name:	02N 10E 36BBBC 01		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	04090004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	42.5450345
Longitude:	-83.2243751	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	725
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	207
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**13**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS MI300000098009**

Wellid:	63000004236	Import id:	63028024012
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	MICHAEL & MARY SCHNEIDER		
Well addr:	251 STRATHMORE		
Well depth:	127		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1981-10-26 00:00:00.000	Case type:	Unknown
Case dia:	4		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	117.4		
Screen frm:	116.4		
Screen to:	127		
Swl:	12		
Test depth:	45		
Test hours:	1		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56540145		
Longitude:	-83.21819022		
Methd coll:	Address Matching-House Number		
Elevation:	758		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	771	Elev dif:	13
Elev miv:	758	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	29		
Pct aq d:	29	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	20
Pct cm d:	20	Pct cm r:	0
Pct pcm:	51	Pct pcm d:	51
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	32	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	115	A pct aq2:	32
A pct maq2:	0	A pct pcm2:	46
A pct cm2:	22	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	53	A sc lith2:	Sand
A sc lmod2:	Wet/Moist	A sc lmaq2:	AQ
A sc lpct2:	47	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	25
Pct pcm 1:	75	Pct na 1:	0
Pct aq 2:	25	Pct maq 2:	0
Pct cm 2:	75	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	100	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	25
Pct maq 5:	0	Pct cm 5:	25
Pct pcm 5:	50	Pct na 5:	0
Pct aq 6:	100	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	115		
Horiz Conduct:	11.95779		
Vert Conduct:	.00039		
T2:	1375.1455		
D50plek:	270.55453		

**14  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097920**

Wellid:	63000024654	Import id:	Not Reported
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	RODD KASMIKHA		
Well addr:	5150 LONGMEADOW DRIVE		
Well depth:	47		
Well type:	Irrigation		
Wssn:	0		
Well num:	Not Reported	Driller id:	1924
Const date:	2004-06-08 00:00:00.000	Case type:	PVC Plastic
Case dia:	5		
Case depth:	42		
Screen frm:	42		
Screen to:	47		
Swl:	15		
Test depth:	15		
Test hours:	2		
Test rate:	20	Test methd:	Air
Grouted:	1	Pmp cpcity:	20
Latitude:	42.564991		
Longitude:	-83.224665		
Methd coll:	Address Matching-House Number		
Elevation:	761		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	16
Elev miv:	761	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	89

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	89	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	5	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	32	A pct aq2:	16
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	84	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	32		
Horiz Conduct:	7.81258		
Vert Conduct:	.00012		
T2:	250.0027		
D50plek:	15.02991		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**15**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI3000000098137**

Wellid:	63000016101	Import id:	63028024401
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	SPRINGDALE GOLF CLUB		
Well addr:	316 STRATHMORE		
Well depth:	168		
Well type:	Type II public		
Wssn:	2196863		
Well num:	Not Reported	Driller id:	1580
Const date:	1992-02-18 00:00:00.000	Case type:	Steel-black
Case dia:	6		
Case depth:	158		
Screen frm:	158		
Screen to:	168		
Swl:	8		
Test depth:	0		
Test hours:	0		
Test rate:	150	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	80
Latitude:	42.5659222149		
Longitude:	-83.2157900499		
Methd coll:	Interpolation-Map		
Elevation:	770		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	784	Elev dif:	14
Elev miv:	770	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	0		
Pct aq d:	0	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	?	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	35	A pct aq:	54
A pct maq:	0	A pct pcm:	46
A pct cm:	0	A pct na:	0
A thickns2:	161	A pct aq2:	14
A pct maq2:	6	A pct pcm2:	12
A pct cm2:	68	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	13	Pct maq 4:	0
Pct cm 4:	70	Pct pcm 4:	17
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	100
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	28
Pct cm 6:	72	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	4
Pct maq 7:	8	Pct cm 7:	24
Pct pcm 7:	64	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**16**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098262**

Wellid:	63000004230	Import id:	63028024006
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	R MICHAEL HAGGERSON		
Well addr:	5070 BROOKDALE		
Well depth:	134		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1984-11-21 00:00:00.000	Case type:	Unknown
Case dia:	4		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	123.4		
Screen frm:	123		
Screen to:	134		
Swl:	25		
Test depth:	105		
Test hours:	2		
Test rate:	18	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56645905		
Longitude:	-83.22184622		
Methd coll:	Address Matching-House Number		
Elevation:	764		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	768	Elev dif:	4
Elev miv:	764	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	10		
Pct aq d:	10	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	25
Pct cm d:	25	Pct cm r:	0
Pct pcm:	64	Pct pcm d:	64
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	14	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	109	A pct aq2:	13
A pct maq2:	0	A pct pcm2:	79
A pct cm2:	8	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	70	Pct pcm 2:	30
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	100	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	20	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	80
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	109		
Horiz Conduct:	3.24616		
Vert Conduct:	.00114		
T2:	353.8309		
D50plek:	71.03735		

**17  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097970**

Wellid:	63000004106	Import id:	63028015013
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	15
Owner name:	FRED MATTHAEI JR		
Well addr:	1945 WOODWARD		
Well depth:	207		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1979-08-13 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	207		
Screen frm:	202		
Screen to:	207		
Swl:	68		
Test depth:	95		
Test hours:	2		
Test rate:	40	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56523285		
Longitude:	-83.22805762		
Methd coll:	Address Matching-House Number		
Elevation:	758		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	787	Elev dif:	29
Elev miv:	758	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	26		
Pct aq d:	26	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	2



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	2	Pct cm r:	0
Pct pcm:	72	Pct pcm d:	72
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	22	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	139	A pct aq2:	18
A pct maq2:	0	A pct pcm2:	82
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Coarse	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	65
Pct maq 1:	0	Pct cm 1:	25
Pct pcm 1:	10	Pct na 1:	0
Pct aq 2:	40	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	60
Pct na 2:	0	Pct aq 3:	35
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	65	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	12	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	88
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	100	Pct na 7:	0
Pct aq 8:	39	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	61
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	N	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**D18**  
**NNW**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098423**

Wellid:	63000004229	Import id:	63028024005
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	ANTHONY & SARAH EARLEY JR		
Well addr:	5000 BROOKDALE		
Well depth:	164		
Well type:	Public		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1981-10-09 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	160.7		
Screen frm:	158.92		
Screen to:	164		
Swl:	15		
Test depth:	115		
Test hours:	2.5		
Test rate:	50	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56715245		
Longitude:	-83.22324672		
Methd coll:	Address Matching-House Number		
Elevation:	774		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	3
Elev miv:	774	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	14
Pct cm d:	14	Pct cm r:	0
Pct pcm:	38	Pct pcm d:	38
Pct pcm r:	0	Pct na:	1
Pct na d:	1	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	17	A pct aq:	18
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	82
A thickns2:	149	A pct aq2:	12
A pct maq2:	0	A pct pcm2:	42
A pct cm2:	6	A pct na2:	40
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	59	A sc lith2:	Lithology Unknown
A sc lmod2:	Not Reported	A sc lmaq2:	NA
A sc lpct2:	41	Pct aq 1:	10
Pct maq 1:	0	Pct cm 1:	85
Pct pcm 1:	0	Pct na 1:	5

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	10	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	90
Pct na 2:	0	Pct aq 3:	5
Pct maq 3:	0	Pct cm 3:	30
Pct pcm 3:	65	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	35
Pct na 4:	65	Pct aq 5:	50
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	50
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	12
Pct na 6:	88	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	88	Pct na 7:	12
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**19  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS MI300000098260**

Wellid:	63000004232	Import id:	63028024008
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	EDWARD S HURWITZ		
Well addr:	5045 CHARING CROSS		
Well depth:	160		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	27
Const date:	1968-12-12 00:00:00.000	Case type:	Unknown
Case dia:	6		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	160		
Screen frm:	154		
Screen to:	160		
Swl:	60		
Test depth:	65		
Test hours:	4		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56645115		
Longitude:	-83.22668152		
Methd coll:	Address Matching-House Number		
Elevation:	771		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	790	Elev dif:	19
Elev miv:	771	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	76		
Pct aq d:	76	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	24
Pct cm d:	24	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	74	A pct aq:	92
A pct maq:	0	A pct pcm:	0
A pct cm:	8	A pct na:	0
A thickns2:	100	A pct aq2:	72
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	28	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	83	A sc lith2:	Gravel
A sc lmod2:	Coarse	A sc lmaq2:	AQ
A sc lpct2:	17	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	45
Pct maq 3:	0	Pct cm 3:	55
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	20	Pct maq 4:	0
Pct cm 4:	80	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	70
Pct maq 5:	0	Pct cm 5:	30
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	76	Pct maq 6:	0
Pct cm 6:	24	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	100
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	100		
Horiz Conduct:	81.00024		
Vert Conduct:	.00156		
T2:	8100.0244		
D50plek:	1267.92872		

**20  
NW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097415**

Wellid:	63000004218	Import id:	63028023004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	23
Owner name:	NATHAN SCHLAFER		
Well addr:	228 LAKEWOOD		
Well depth:	102		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1968-03-11 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	97.3		
Screen frm:	0		
Screen to:	0		
Swl:	25		
Test depth:	81		
Test hours:	2.5		
Test rate:	60	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56280165		
Longitude:	-83.23338532		
Methd coll:	Address Matching-House Number		
Elevation:	764		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	784	Elev dif:	20
Elev miv:	764	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	10		
Pct aq d:	10	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	25

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	25	Pct cm r:	0
Pct pcm:	40	Pct pcm d:	40
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	100
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	20	Pct pcm 2:	50
Pct na 2:	30	Pct aq 3:	15
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	85	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	30	Pct pcm 4:	70
Pct na 4:	0	Pct aq 5:	25
Pct maq 5:	0	Pct cm 5:	75
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**D21**  
**NNW**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098474**

Wellid:	63000004228	Import id:	63028024004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	ALFONSO MARTINEZ		
Well addr:	4970 BROOKDALE		
Well depth:	48		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1990-08-09 00:00:00.000	Case type:	Steel-black
Case dia:	6		
Case depth:	43		
Screen frm:	43		
Screen to:	45		
Swl:	17		
Test depth:	20		
Test hours:	1		
Test rate:	20	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.56730265		
Longitude:	-83.22394112		
Methd coll:	Address Matching-House Number		
Elevation:	774		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	3
Elev miv:	774	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	69		
Pct aq d:	69	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	28	A pct aq:	46
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	54
A thickns2:	28	A pct aq2:	46
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	54
A hit swl:	T	A hit top:	F
A hit rock:	F	A sc lith1:	Gravel & Sand
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	25	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	75	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: MI Radon

### Radon Test Results

Zipcode	Test Date	LT Sign	Result
48009	4/21/2007		1.5
48009	1/14/2008		1.5
48009	7/14/2004		1.5
48009	4/7/2006		1.5
48009	4/12/2002		1.4
48009	7/29/2004		1.4
48009	7/27/2009		1.5
48009	10/19/2009		1.5
48009	5/29/2001		1.4
48009	1/29/2009		1.4
48009	4/7/2006		1.4
48009	12/4/2006		1.4
48009	5/28/2003		1.3
48009	1/24/2009		1.3
48009	1/6/1997		1.2
48009	8/22/2002		1.2
48009	5/24/2002		1.2
48009	3/26/2004		1.2
48009	3/26/2004		1.2
48009	3/26/2004		1.2
48009	2/8/2005		1.2
48009	10/13/1995		1.1
48009	7/1/1998		1.1
48009	5/10/2002		1.1
48009	5/31/2002		1.1
48009	2/24/2003		1.1
48009	1/27/2009		1.2
48009	1/24/2009		1.2
48009	2/17/2009		1.2
48009	2/14/2009		1.2
48009	2/2/2009		1.1
48009	3/22/2004		1.1
48009	3/7/2008		1.1
48009	6/8/2002		1.0
48009	2/2/2009		1.1
48009	7/3/1995		1.0
48009	2/26/1999		1.0
48009	2/16/2005		1.9
48009	2/2/2006		1.9
48009	11/15/2001		1.9
48009	4/20/1998		1.9
48009	3/11/2003		1.8
48009	10/13/2008		1.9
48009	10/27/2000		1.9
48009	2/27/2009		1.9
48009	4/3/2009		1.9
48009			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	1/13/1996		1.8
48009	2/21/1995		1.8
48009	11/20/2007		1.8
48009	10/13/1995		1.7
48009	7/29/2003		1.7
48009	4/29/2002		1.7
48009	10/31/2002		1.7
48009	1/18/2003		1.7
48009	1/28/2003		1.7
48009	11/22/2003		1.6
48009	12/30/2003		1.6
48009	2/7/2009		1.7
48009	1/29/2009		1.7
48009	5/11/2007	<	0.3
48009	5/7/2005		0.5
48009	3/8/2004		0.5
48009	1/29/2004	<	0.3
48009	1/12/2004	<	0.3
48009	4/7/2006	<	0.3
48009	6/2/2004	<	0.3
48009	3/21/2007		0.5
48009	8/30/1999		0.5
48009	11/16/2004	<	0.3
48009	3/18/1994		0.5
48009	3/18/1994		0.5
48009	9/26/1998	<	0.3
48009	2/18/1999	<	0.3
48009	1/22/2008	<	0.3
48009	5/20/2003	<	0.3
48009	5/10/2002	<	0.3
48009	5/23/2002	<	0.3
48009	4/15/2002	<	0.3
48009	1/15/2007	<	0.3
48009	1/20/1998		0.8
48009	7/3/1995		0.8
48009	3/15/2004		0.7
48009	3/19/2003		0.8
48009	3/29/2004		0.8
48009	4/17/2004		0.6
48009	3/24/2006		0.8
48009	10/9/2004		0.9
48009	2/9/2004		0.9
48009	2/21/2004		0.9
48009	11/10/2006		0.9
48009	1/21/2008		0.6
48009	1/15/2008		0.6
48009	1/29/2009		0.6
48009	3/13/2009		0.7
48009	2/20/2009		0.6
48009	1/24/2009		0.8
48009	2/7/2009		0.8
48009	1/24/2009		0.6
48009	2/3/2009		0.9
48009	7/1/1998		0.7
48009	3/19/2003		0.6
48009	4/13/2002		0.6
48009			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	4/1/2002		0.6
48009	1/26/2009		0.9
48009	4/24/2002		0.5
48009	4/22/2003		0.6
48009	1/26/2009		2.6
48009	1/22/2009		2.8
48009	1/7/2002		2.5
48009	11/23/2007		2.4
48009	11/9/2007		2.4
48009	9/28/1999		2.4
48009	10/30/2006		2.2
48009	3/23/2009		2.4
48009	1/26/2009		2.3
48009	12/3/1994		2.2
48009	4/23/2002		2.2
48009	4/29/2002		2.2
48009	2/7/2003		2.2
48009	1/8/2007		2.3
48009	2/25/2002		2.1
48009	12/2/2002		2.7
48009	11/14/2003		2.6
48009	6/10/2002		2.7
48009	1/13/2006		2.6
48009	10/31/2009		3.0
48009	1/3/2004		2.8
48009	11/3/2007		2.7
48009	11/7/2007		3.8
48009	7/28/2008		3.6
48009	5/21/2004		3.5
48009	4/28/2003		3.5
48009	1/2/2010		3.5
48009	9/8/2009		3.5
48009	11/6/2008		3.4
48009	2/25/2004		3.2
48009	4/9/2004		3.3
48009	11/10/2007		3.2
48009	1/24/2009	<	0.3
48009	11/11/2003		3.7
48009	1/25/2010	<	0.3
48009	1/4/1997		3.8
48009	1/14/2002		3.8
48009	6/9/2003		3.8
48009	11/22/1997		3.6
48009	7/16/2007		5.6
48009	7/16/1999		5.5
48009	1/24/2009		5.9
48009	6/12/2004		4.7
48009	10/20/2008		5.0
48009	9/29/2007		5.0
48009	3/13/2002		4.6
48009	5/27/2002		4.6
48009	6/9/2008		6.7
48009	7/6/2007		7.7
48009	4/12/2002		2.0
48009	5/8/2002		2.0
48009	9/17/2001		22.4
48009			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	3/5/2009	14.4
48009	2/7/2009	12.6
48009	5/27/2002	8.0
48009	6/24/2002	10.8
48009	7/24/1999	8.6
48009	1/24/2009	2.1
48009	11/7/2008	4.2
48009	10/10/2006	4.2
48009	8/19/2008	4.1
48009	2/1/2008	4.5
48009	10/23/2007	4.5

Federal EPA Radon Zone for OAKLAND County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for Zip Code: 48009

Number of sites tested: 5

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.780 pCi/L	100%	0%	0%



# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

### State Wetlands Data: Wetlands Inventory

Source: Department of Natural Resources

Telephone: 517-241-2254

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Water Well Data

Source: Department of Environmental Quality

Telephone: 517-335-9218

The data in this file was obtained from Wellogis, the Michigan Department of Environmental Quality Statewide Groundwater Database (SGWD). Wellogis contains approximately 425,000 water well records found within the State of Michigan, and although it represents the best available data, it cannot be considered a complete database of all the wells or well records in existence.

## OTHER STATE DATABASE INFORMATION

#### Michigan Oil and Gas Wells

Source: Department of Environmental Quality

Telephone: 517-241-1528

Locations of oil and gas wells are compiled from permit records on file at the Geological Survey Division (GSD), Michigan Department of Natural Resources.

### RADON

#### State Database: MI Radon

Source: Department of Environmental Quality

Telephone: 517-335-9551

Radon Test Results

#### Michigan Radon Test Results

Source: Department of Environmental Quality

Telephone: 517-335-8037

These results are from test kits distributed by the local health departments and used by Michigan residents. There is no way of knowing whether the devices were used properly, whether there are duplicates (or repeat verification) test (i.e., more than one sample per home), etc.

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

### OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

### STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

## **APPENDIX E**

### **QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(S)**



## TROY D. HELMICK, CPG

PROJECT CONSULTANT

(248) 982-5149 [helmick@sme-usa.com](mailto:helmick@sme-usa.com)

- Environmental Services
- Regulatory Compliance and Due Diligence
- Site Assessments and Audits
- Project Management

### BACKGROUND

Troy is a Project Consultant and Certified Professional Geologist (CPG) in SME's Plymouth office. As a member of our Environmental Services group, he manages a variety of projects including environmental due diligence, compliance and regulatory requirements associated with petroleum remediation and emergency response activities, underground and aboveground storage tank (UST/AST) assessments and removals, and groundwater and soil contaminant investigations. Troy joined SME in 2016 with 18 years of experience providing comprehensive environmental consulting. His expertise includes onsite vapor, groundwater and soil contaminant investigations.

### RELATED PROJECT EXPERIENCE

Consultant and Project Manager responsible for preparing detailed site assessment and remediation models for client sites regarding environmental regulatory compliance and regulatory closure; and maintaining ongoing relationships with regulatory officers to facilitate regulatory compliance and gain a thorough understanding of the current regulatory climate.

Consultant and Project Manager for diverse oil and gas clients. Responsible for regulatory body compliance reporting; environmental compliance auditing, site inspections and audits; contractor oversight; and safety performance monitoring and reporting. Corrective action experience includes working with soil vapor extraction, air sparge, pump and treat, product skimmers and multi-phase recovery systems.

Due Diligence Manager on ten Part 201 and Part 213 releases. Successfully developed and implemented activities to achieve regulatory No Further Action or Closure.

Project manager for environmental emergency response/remediation modeling projects. Supervised, coordinated and performed environmental spill emergency response activities for multiple petroleum pipeline and toxic chemical releases throughout the country. Provided oversight and coordination of subcontractors during various environmental remedial activities such as remediation system and monitoring well installations, and UST/AST removals, excavations and site decommissioning.

### EDUCATION

B.A., Geological Sciences, Albion College

### REGISTRATIONS AND CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists



## **PROFESSIONAL DEVELOPMENT**

American Petroleum Institute WorkSafe Certified  
Hazard Recognition Plus™

HAZWOPER 40-Hour Training Course

HAZWOPER 8-Hour Refresher Training Course

First Aid/CPR/AED Certified – American Heart Association





*Passionate People Building  
and Revitalizing our World*



**APPENDIX C**  
**HISTORICAL ENVIRONMENTAL RESULTS**

above ground storage tank  
air quality  
asbestos/lead-based paint  
baseline environmental assessment  
brownfield redevelopment  
building/infrastructure restoration  
caisson/piles  
coatings  
concrete  
construction materials services  
corrosion  
dewatering  
drilling  
due care analysis  
earth retention system  
environmental compliance  
environmental site assessment  
facility asset management  
failure analyses  
forensic engineering  
foundation engineering  
geodynamic/vibration  
geophysical survey  
geosynthetic  
greyfield redevelopment  
ground modification  
hydrogeologic evaluation  
industrial hygiene  
indoor air quality/mold  
instrumentation  
masonry/stone  
metals  
nondestructive testing  
pavement evaluation/design  
property condition assessment  
regulatory compliance  
remediation  
risk assessment  
roof system management  
sealants/waterproofing  
settlement analysis  
slope stability  
storm water management  
structural steel/welding  
underground storage tank

**TECHNICAL MEMORANDUM  
MARCH 2007  
ENVIRONMENTAL ASSESSMENT**

**35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

**SME PROJECT NUMBER: PE54816**

**November 1, 2007**



© 2007 soil and materials engineers, inc.

Soil and Materials Engineers, Inc.

## TABLE OF CONTENTS

1.	<b>INTRODUCTION .....</b>	<b>1</b>
2.	<b>PROCEDURES.....</b>	<b>1</b>
3.	<b>EXPOSURE PATHWAY CHARACTERIZATION.....</b>	<b>7</b>
4.	<b>RESULTS AND FINDINGS.....</b>	<b>8</b>

### APPENDICES:

#### **Appendix A: Figures**

Figure 1 - Property Location Map

Figure 2 –Boring Location Diagram

#### **Appendix B: Soil Probe and Well Construction Logs**

#### **Appendix C: Analytical Results Tables**

Table 1- SME Soil Analytical Results

Table 2- SME Groundwater Analytical Results

Table 3- SME UST Assessment Soil Analytical Results

#### **Appendix D: Laboratory Data Reports**

## 1.0 INTRODUCTION

Soil and Materials Engineers (SME) of Plymouth, Michigan prepared this Technical Memorandum to document environmental assessment activities conducted in March 2007, at 35975 Woodward Avenue in Birmingham, Michigan (Figure 1, Appendix A). SME conducted the assessment in accordance with our Sampling and Analysis Plan (SAP) dated February 27, 2007. The SAP was approved by USEPA Region 5 prior to implementation.

SME designed the scope of services for this assessment to evaluate current conditions at the property for the purpose of designing environmental response activities necessary to facilitate redevelopment of the property. The property is currently listed as an open Leaking Underground Storage Tank (LUST) site and the property meets the definition of the “facility” as defined by Part 201 of the Natural Resources Environmental Protection Act (NREPA), as amended.

SME prepared this Technical Memorandum to document sampling procedures, discuss exposure pathways at the property, and present assessment findings and results. Assessment procedures, findings, and conclusions are presented in the following sections.

## 2.0 PROCEDURES

Procedures for soil probe sampling, groundwater monitoring well installation, monitoring well sampling, UST assessment sampling, equipment decontamination, and chemical analyses are discussed below. Soil probe and groundwater monitoring well locations are shown on Figure 2, Appendix A. Soil probe and monitoring well construction logs are provided in Appendix B. SME advanced 15 soil probes at the property from March 7 through 9, 2007, and March 12, 2007, for collection of soil and groundwater samples. SME installed nine monitoring wells at the property on March 7, 8 and 9, 2007, and sampled the new monitoring wells and existing monitoring wells on March 13, 14 and 15, 2007. SME collected soil samples following removal of three 12,000-gallon gasoline USTs at the site on October 12, 2007.

### **Soil Probing Activities**

SME advanced 15 soil probes, labeled SP1 through SP15, to evaluate soil and groundwater impact on the property. SME advanced soil probes at the following locations:

- SP1, SP3, and SP15 in the vicinity of the UST basin and the areas of the fuel dispensers to evaluate soil and groundwater conditions and the potential presence of free product;
- SP2, SP4, and SP5 on the northwest portion of the property between the northwest property boundary and the former fuel dispensers to evaluate soil conditions in areas with insufficient previous data coverage;
- SP6, SP10, and SP11 along the northwest property boundary to evaluate the potential presence of a petroleum plume migrating onto the property from the northwest adjoining LUST property;
- SP7 and SP8 along the southwest property boundary to evaluate the potential presence of a petroleum plume migrating off the property or a plume migrating onto the property from the southwest adjoining dry cleaning property;
- SP9 along the southeast property boundary in an area that contained the highest levels of groundwater contamination according to previous assessment reports;
- SP12 and SP13 adjacent to the northeast property boundary to evaluate the potential off-property migration of a petroleum plume and/or the presence of contamination migrating on to the property from off-property sources; and
- SP14 adjacent to the 550-gallon used oil UST to evaluate the existing soil and groundwater conditions.

Soil probes were advanced using a truck-mounted, hydraulically driven, direct-push sampling unit. The depths of the soil probes ranged from approximately 10 feet to 30 feet below ground surface. Soil samples from the direct-push coring device were collected using a 48-inch long, two-inch outside diameter (OD), Geoprobe<sup>®</sup> Macro Sampler fitted with a single-use, disposable, acetate liner. Soil samples were collected continuously from ground surface to the explored depth of each soil probe and were visually classified in the field by the SME field representative. SME collected soil samples from the Macro Sampler by cutting open the acetate liner with a utility knife and transferring the soil to pre-cleaned sample containers. The soil samples were visually classified in general accordance with the Unified Soil Classification System (USCS). A portion of each soil sample collected was used for field screening of volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) with a 10.2 eV lamp. Field screening consisted of placing a portion of the sample in a glass jar and allowing the sample to warm. The results of the field screening were recorded on the soil probe logs.

Based on the current and historical property use and the available soil and groundwater data for the property, the soil samples were analyzed for gasoline and used oil indicator



parameters including volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals (cadmium, chromium, and lead). In addition, four of the soil samples were also analyzed for arsenic, barium, mercury, selenium, and silver to help facilitate excavation and soil disposal planning.

The amount of soil collected from the acetate liner was dependent on chemical analyses requirements. Samples for VOCs were removed from the acetate liner and preserved in the field according to USEPA Method 5035A, High Concentration Method (MDEQ-RRD *Operational Memorandum No. 2, Attachment 6*). Soil sufficient for analyses of other parameters were removed from the acetate liner and homogenized prior to transfer to the sample jar. Sample containers were provided by the analytical laboratory. Samples were preserved as specified in MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

A groundwater sample was collected from soil probe SP15 on March 12, 2007, using a five-foot long PVC temporary slotted screen and peristaltic pump. The screen was set to straddle the water table. Approximately three casing volumes of groundwater were purged from the temporary well until the development water was judged to be sufficiently clear prior to sampling. After sampling, the purge water was returned to the soil probe location. The groundwater sample was placed in pre-preserved, laboratory-supplied jars in accordance with MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

Containers of soil and groundwater samples for analyses of organic constituents were maintained at less than or equal to 6°C, and above freezing during storage and transport to the laboratory prior to analyses.

### **Monitoring Well Installation**

SME installed nine groundwater monitoring wells, labeled MW101 through MW109, at the property between March 7, 2007 and March 9, 2007. The following paragraphs describe procedures followed during well installation.

The monitoring wells were constructed of 0.75-inch outside diameter (OD), Schedule 40 PVC riser, with factory-installed 0.010-inch slot PVC screen and 20/40 mesh silica sand pack. The length of riser at each well varied; the well screens were five feet in length. The monitoring wells were installed using a truck-mounted, hydraulic, direct push coring device, equipped with a three-inch diameter Macro Sampler to accommodate the diameter of the well and sand pack. The wells, equipped with driving tip, were inserted into the Macro Sampler and driven to the desired depth in the probe hole created during the previous soil boring. The driving tip of the well,

tapered to slightly larger than the sampler, separated from the sampler during extraction of the sampler unit, setting the well in place.

Monitoring wells were installed such that the well screen straddled the uppermost saturated zone encountered. Annular space, beyond the factory sand pack, was filled with washed silica sand to a level of approximately one foot above the top of the screen. A hydrated bentonite pellet seal was installed above the sand pack to approximately one foot below ground surface. The well casings were sealed with a locking, watertight, riser plug supplied with the well from the factory. The wells were completed with a 12-inch diameter, flush to grade, steel, protective cover.

The monitoring wells were developed by pumping with a peristaltic pump. The monitoring wells were allowed to recharge, and the pumping was continued until approximately six casing volumes of water were removed and/or the clarity of the purged groundwater visually stabilized. Monitoring well construction and final completion depths were verified and documented by the SME field staff.

### **Monitoring Well Sampling**

Groundwater sampling activities were conducted at the property on March 13, 14 and 15, 2007. The following paragraphs describe procedures followed during well sampling activities.

SME purged and sampled the newly installed monitoring wells, MW102 through MW104, MW106 through MW109, and existing monitoring wells, OW1, OW4, and OW7, and MW201. SME was unable to locate existing monitoring wells OW-3, OW-5, OW-8, OW-9, OW-10, and MW101, MW105, OW-11 and OW-2 were dry. Prior to conducting monitoring well purging and sampling, well caps at the monitoring wells were removed to allow the water level within the well casing to equilibrate with respect to atmospheric pressure for a minimum of 15 minutes prior to any measurement or sampling. Each well also was evaluated for the presence of non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) prior to purging and sampling. This evaluation of potential free product was conducted at the water table and screen bottom with an electronic interface probe. No free product was encountered in any of the wells sampled. The depth to water and total well depth was gauged referenced to the top-of-casing using an electronic water level meter incremented to 0.01 feet.

After gauging the depth to water and total well depth, each monitoring well was purged using a variable flow rate, portable peristaltic pump fitted with 3/8-inch ID silicone tubing at a low flow pumping rate between approximately 90 milliliters (ml)/minute and 120 ml/minute. During purging and groundwater sampling activities, groundwater at each well was monitored for the following field parameters: temperature, pH, oxygen reducing potential (ORP), specific conductivity, dissolved oxygen (DO) and turbidity, with an in-line flow cell. Purging continued until measured field parameters indicated the stability criteria presented below:

- Temperature: +/- 0.2 ° Celsius
- pH: +/- 0.1 pH units
- ORP: +/- 10 millivolts (mV)
- Specific Conductivity: +/- 3%
- Dissolved Oxygen: +/- 10%
- Turbidity: +/- 10%,

The depth to groundwater also was periodically gauged during purging activities to verify water column drawdown. The use of the field instruments for temperature, pH, ORP, specific conductivity, DO and turbidity were in general accordance with the manufacturer's recommendations.

After purging was completed, groundwater samples were collected from each well at the same flow rate. Groundwater samples were collected from the pump discharge into the appropriate pre-cleaned, laboratory-supplied containers. Each sample container was selected and preserved in accordance with the SAP. Groundwater samples were not collected from monitoring wells MW101 and MW105 due to insufficient groundwater recharge in the wells.

### **UST Assessment Samples**

SME collected 6 soil assessment samples from the floor of the excavation following removal of three 12,000-gallon gasoline USTs at the site on October 12, 2007. The samples were collected at approximately 12 feet below grade, from locations beneath the north and south ends of each former UST. The samples were collected directly into sample containers supplied by the analytical laboratory. Samples were preserved as specified in MDEQ-RRD *Operational Memorandum No. 2, Attachment 4*.

### **QA/QC**

Collection of quality assurance/quality control (QA/QC) samples conformed with the requirements and specifications of the SAP.

### **Decontamination**

Drilling equipment used during this assessment was decontaminated using a high pressure, high temperature water wash before each use. Sample collection equipment was cleaned before each use with a laboratory grade detergent and rinsed with distilled water prior to each use. A new pair of disposable nitrile sampling gloves was used for collection of each sample.

### **Chemical Analyses**

Soil and groundwater samples collected during soil probe, and monitoring well sampling activities were submitted to Fibertec Environmental Services in Holt, Michigan (Fibertec) for laboratory analyses of parameters specified in the SAP. SME submitted 36 soil samples (including 3 QA/QC samples) and 25 groundwater samples (including 11 QA/QC samples) for chemical analyses. Soil and groundwater samples were analyzed for constituents of concern selected on the basis of historical use of the property. Soil and groundwater samples were analyzed for VOCs, PAHs, cadmium, chromium (total), and lead. SME also analyzed four of the soil samples for arsenic, barium, mercury, selenium, and silver. Fibertec analyzed the samples using the following referenced methods:

- VOCs – Method 5035/8260B (soil); SW846 Method 5030B/8260B (GW)
- PAHs – Method 3550/8270C (soil); SW846 Method 3510/8270C (GW)
- Metals – Method 3050B/6010B/6020/7471A, Method 3060A/7196A (soil); SW846 Method 3005A/6010B/6020/7470A, Method 3060A/7196A (GW)

The analysis method reporting limits (MRLs), QA/QC procedures and reporting protocols used by Fibertec conformed with requirements and specifications of the SAP.

Soil assessment samples collected following UST excavation activities were submitted to Quantum Laboratories, Inc. in Wixom, Michigan (Quantum) for laboratory analyses of benzene, ethylbenzene, toluene, and xylenes (total). SME submitted 6 soil samples for chemical analyses. Quantum analyzed the samples using the following referenced methods:

- VOCs – Method 8260B (soil)

### 3.0 EXPOSURE PATHWAY CHARACTERIZATION

SME evaluated the relevancy and applicability of potential exposure pathways and receptors susceptible to a release from the property. Pathways are relevant if exposures to contaminated media could occur under current or reasonably foreseeable property conditions and uses. The pathways are relevant when hazardous substances, which may pose a risk via the respective pathway, are known or suspected to have been present or released on the property, and no barriers to exposure are known. Exposure pathways to be considered for protection of human health and the environment, and relevant property-specific conditions judged to be applicable to each, are summarized below:

Consumption/use of groundwater – Groundwater is present beneath the property in perched conditions located in the fill materials overlying native clay soils. Although no potential human receptors are reasonably expected to be impacted, current MDEQ policy requires that the drinking water pathway be considered relevant at the property under Part 201 of the Natural Resources and environmental Protection Act, 1994 PA 451, as amended.

Groundwater to surface water interface (GSI) pathway – The nearest surface water body to the property is the Rouge River adjoining the southeast boundary of the property. Therefore, the GSI pathway is a relevant at the property.

Direct contact with groundwater – Perched groundwater has been observed on the property at depths of 7 feet to 28 feet below the ground surface. Human contact with groundwater at the property is not likely to occur during future use of the property, but is likely to occur during redevelopment of the property; therefore, the groundwater direct contact pathway is relevant at the property.

Direct contact with soil – Human occupation of the property is anticipated to be consistent with commercial use. Because human exposure to impacted soil is possible during construction, the soil direct contact pathway is relevant for areas of the property not covered by impervious materials (e.g. concrete foundations, pavement, etc.).

Inhalation of contamination released from soil or groundwater – Use of the property involves human occupation consistent with commercial operations. Exposure to volatile compounds released from soil or groundwater on the property or contaminated particulate matter released from soils on the property is possible. Therefore, this pathway is relevant.

Aesthetic impacts – Petroleum chemicals whose presence or release could cause aesthetic impacts are known or suspected to have been present on the property. Therefore, aesthetic impact issues on the property are relevant.

Based on current information, no other risk issues, such as acute toxic, or ecological risks, are believe to be applicable to soil or groundwater on the property, now or in the future.

#### **4.0 RESULTS AND FINDINGS**

Results of the property assessment activities, including subsurface conditions, and chemical analyses of samples collected at the property are described below.

##### **Subsurface Conditions**

The following paragraphs describe subsurface conditions encountered at the soil probe and monitoring well locations. The soil probe and monitoring well locations are shown in Figure 2, Appendix A. Soil probe and monitoring well construction logs are provided in Appendix B. SME encountered the following subsurface conditions during soil probe and monitoring well installation activities.

The surface materials encountered at the property consisted of approximately 4 to 8 inches of concrete, 3 to 6 inches of asphalt, 1 inch of mulch and crushed brick, and/or 12 to 18 inches of sand fill. Beneath surface materials, SME generally encountered sand and clay fill extending to depths ranging from approximately 2.5 foot at SP6 on the north end of the property to 29 feet below ground surface at SP9 on the south end of the property. In general, the depth of the fill increased from north to south, toward the Rouge River. The fill contained trace to some amounts of slag, crushed brick, gravel, coal, glass, metal fragments, and wood fragments. SME encountered native clays beneath the fill material at 10 of 15 locations. The native clay was encountered to depths between 10 feet and 30 feet below ground surface, the termination depths of the soil probes. SME terminated soil probes SP1, SP4, SP8, SP12, SP15 in fill. SME encountered native silt at SP7 below the native clay at a depth of 23 feet below grade, extending to the completion depth of the soil probe at 24 feet.

Groundwater was encountered at 10 of the 15 soil probe locations. The depth to groundwater ranged from 7 feet to 28 feet below ground surface. Groundwater was generally encountered in perched conditions in the fill overlying the native clay.



Staining and/or odors were encountered 10 of the 15 soil probes at a variety of depths. No staining or odors were encountered at SP1, SP4, SP5, SP6, SP10, all advanced on the west end of the site. SME measured PID readings greater than 1 mg/kg in 12 of 15 soil probes. PID readings in the soil probe samples ranged from 3 mg/kg to 2,858 mg/kg. PID readings at SP4, SP5, and SP10 were measured below 1 mg/kg.

### **Analytical Results**

Results of the property assessment and chemical testing of samples collected at the property are described in this section. Analytical results were compared to Part 201 Generic Cleanup Criteria judged by SME to be relevant at the property. Based on the results, the property meets the definition of the “facility” as defined by Part 201 of the Natural Resources Environmental Protection Act (NREPA), as amended. Results of chemical analyses performed on soil and groundwater samples are summarized below. Tabulated analytical results for soil probe soil sample analysis (Table 1) and groundwater sample analysis (Table 2) are provided in Appendix C. Tabulated analytical results for UST assessment soil sample analysis (Table 3) are also provided in Appendix C. Copies of the laboratory analytical results are included in Appendix D.

### **Results of Soil Sample Analyses**

#### **VOCs**

The following VOCs were measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Groundwater Contact Protection Criterion, Direct Contact Criterion, and Soil Saturation Concentration Screening Levels:

- 1,2,4-trimethylbenzene
- toluene
- xylenes

The following VOCs were also measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Volatilization to Indoor Air Inhalation Criterion:

- benzene\*
- 1,2,4-trimethylbenzene
- toluene
- xylenes

\*Benzene was also measured in SP15 (10-11 feet) at a concentration above MDEQ Part 201 Generic Residential and Industrial Ambient Air Volatile Soil Inhalation Criteria.

The following VOC constituents were also measured in soil samples at concentrations above MDEQ Part 201 Generic Residential Drinking Water Protection Criteria and/or Groundwater Surface Water Interface (GSI) Protection Criteria:

- |                    |                          |
|--------------------|--------------------------|
| • benzene          | • tetrachloroethene      |
| • ethylbenzene     | • toluene                |
| • naphthalene      | • 1,2,4-trimethylbenzene |
| • n-butylbenzene   | • 1,3,5-trimethylbenzene |
| • n-propylbenzene  | • xylenes                |
| • sec-butylbenzene |                          |

No other analyzed VOCs were measured in soil samples at a concentration above applicable generic residential use criteria.

### **PAHs**

Fluoranthene was measured at SP8-S1 (0.5 to 1.5 feet) at a concentration above Part 201 GSI Protection Criterion. No other analyzed PAHs were measured in soil samples at a concentration above applicable generic residential use criteria.

### **Metals**

Arsenic was measured in soil samples at SP9-S5 (9-10') at a concentration above MDEQ Part 201 Generic Residential Direct Contact and Drinking Water Protection Criteria. Lead was measured in soil sample SP9-S5 (9-10') at a concentration above Part 201 Generic Residential and Industrial Drinking Water Protection Criteria and Direct Contact Criteria. Selenium was measured in soil sample SP2-S2 (3-4') at a concentration exceeding the Part 201 GSI Protection Criterion. Mercury and selenium were measured in soil sample SP9-S5 (9-10') at concentrations above the Part 201 GSI Protection Criteria. No other analyzed metal constituents were measured in soil samples at a concentration above applicable generic residential use criteria.

## **Results of Groundwater Sample Analyses**

### **VOCs**

Benzene was measured in the groundwater samples collected from SP15 and MW109 at concentrations above MDEQ Part 201 Generic Residential Groundwater Volatilization to Indoor Air Inhalation Criteria.

The following VOCs were measured in groundwater samples collected from each monitoring well at concentrations exceeding Part 201 Drinking Water Criteria and/or GSI Criteria with the exception of the groundwater samples collected from MW201 and OW4:

- benzene
- ethylbenzene
- MTBE
- naphthalene
- n-propylbenzene
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- xylenes

No other analyzed VOCs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **PAHs**

Fluoranthene was measured in the groundwater sample collected from MW104 at a concentration above Part 201 GSI Criterion. No other analyzed PAHs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **Metals**

Lead was measured in groundwater samples collected from MW102, MW106 (duplicate), MW107, and MW108 at concentrations above the Part 201 Generic Residential Drinking Water Criterion. No other analyzed metals were measured in groundwater samples at a concentration above applicable generic residential use criteria.

**Quality Assurance/Quality Control**

Results for analyses of quality control samples indicated that sample reproducibility and the sampling and laboratory analysis functions were in control.

## **Results of Groundwater Sample Analyses**

### **VOCs**

Benzene was measured in the groundwater samples collected from SP15 and MW109 at concentrations above MDEQ Part 201 Generic Residential Groundwater Volatilization to Indoor Air Inhalation Criteria.

The following VOCs were measured in groundwater samples collected from each monitoring well at concentrations exceeding Part 201 Drinking Water Criteria and/or GSI Criteria with the exception of the groundwater samples collected from MW201 and OW4:

- benzene
- ethylbenzene
- MTBE
- naphthalene
- n-propylbenzene
- toluene
- 1,2,4-trimethylbenzene
- 1,3,5-trimethylbenzene
- xylenes

No other analyzed VOCs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **PAHs**

Fluoranthene was measured in the groundwater sample collected from MW104 at a concentration above Part 201 GSI Criterion. No other analyzed PAHs were measured in groundwater samples at a concentration above applicable generic residential use criteria.

### **Metals**

Lead was measured in groundwater samples collected from MW102, MW106 (duplicate), MW107, and MW108 at concentrations above the Part 201 Generic Residential Drinking Water Criterion. No other analyzed metals were measured in groundwater samples at a concentration above applicable generic residential use criteria.

**Quality Assurance/Quality Control**

Results for analyses of quality control samples indicated that sample reproducibility and the sampling and laboratory analysis functions were in control.

**APPENDIX A**

**FIGURES**

**Figure 1-Property Location Map**  
**Figure 2- Boring Location Diagram**





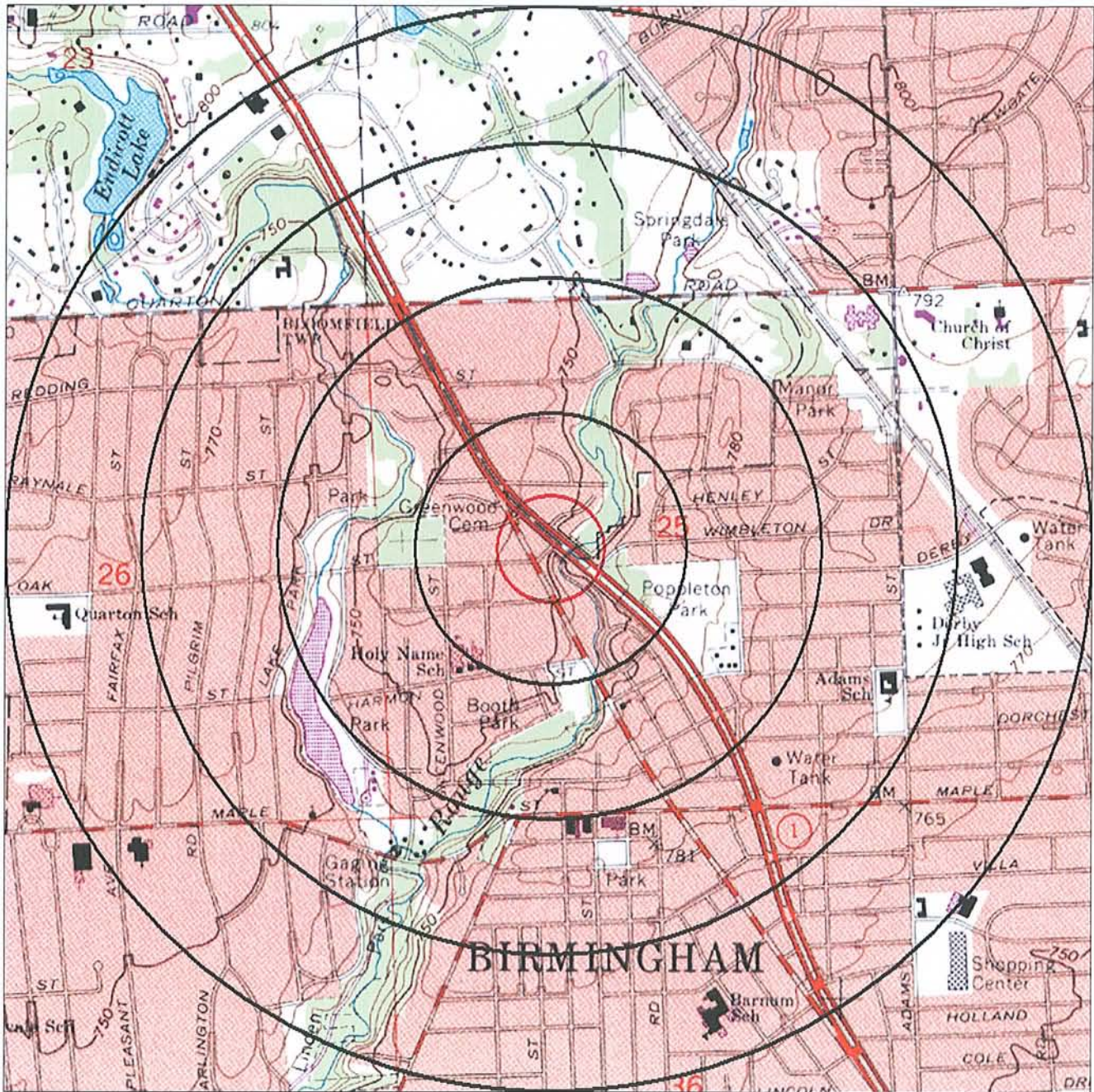
# Environmental FirstSearch

Topo : Current Map 1 Mile Radius

Current Topo Map



## 35975 WOODWARD AVE, BIRMINGHAM MI 48009



### Source:

Target Site (Latitude: 42.553677 Longitude: -83.218798)

Identified Site, Multiple Sites, Receptor

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Tribal Land

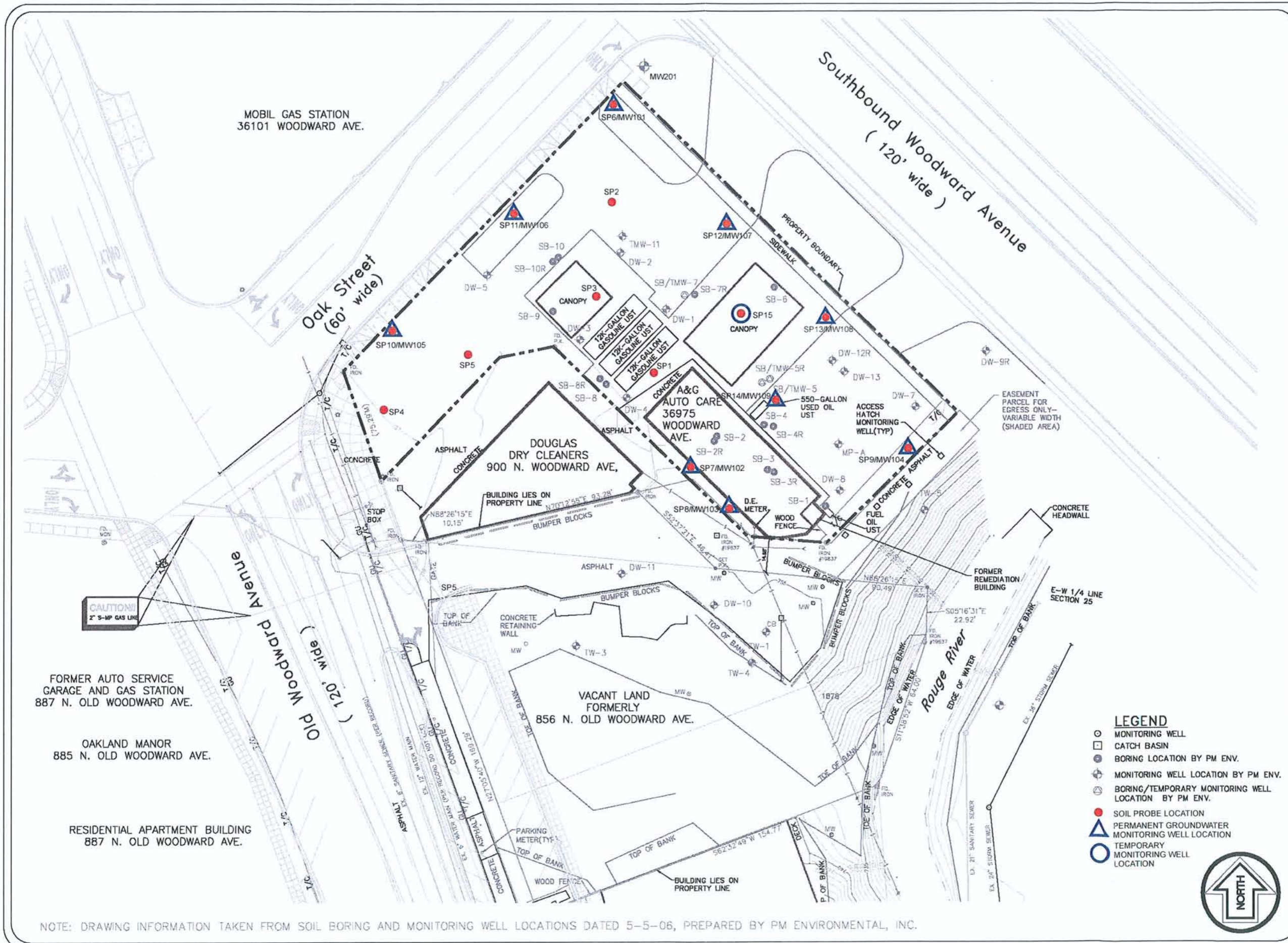
Map Name: BIRMINGHAM Date Created: 1968-- Date Revised: 1981--

Map Reference Code: 42083-E2-TF-024

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius







SOIL BORING, SOIL PROBE AND  
 MONITORING WELL LOCATION DIAGRAM  
 35975 WOODWARD AVENUE  
 BIRMINGHAM, MICHIGAN

DATE: 2-21-07  
 SCALE: 1" = 40'  
 DRAFTER: JAB  
 JOB: PE54494C

- LEGEND**
- MONITORING WELL
  - CATCH BASIN
  - BORING LOCATION BY PM ENV.
  - ⊕ MONITORING WELL LOCATION BY PM ENV.
  - ⊙ BORING/TEMPORARY MONITORING WELL LOCATION BY PM ENV.
  - SOIL PROBE LOCATION
  - ▲ PERMANENT GROUNDWATER MONITORING WELL LOCATION
  - TEMPORARY MONITORING WELL LOCATION

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

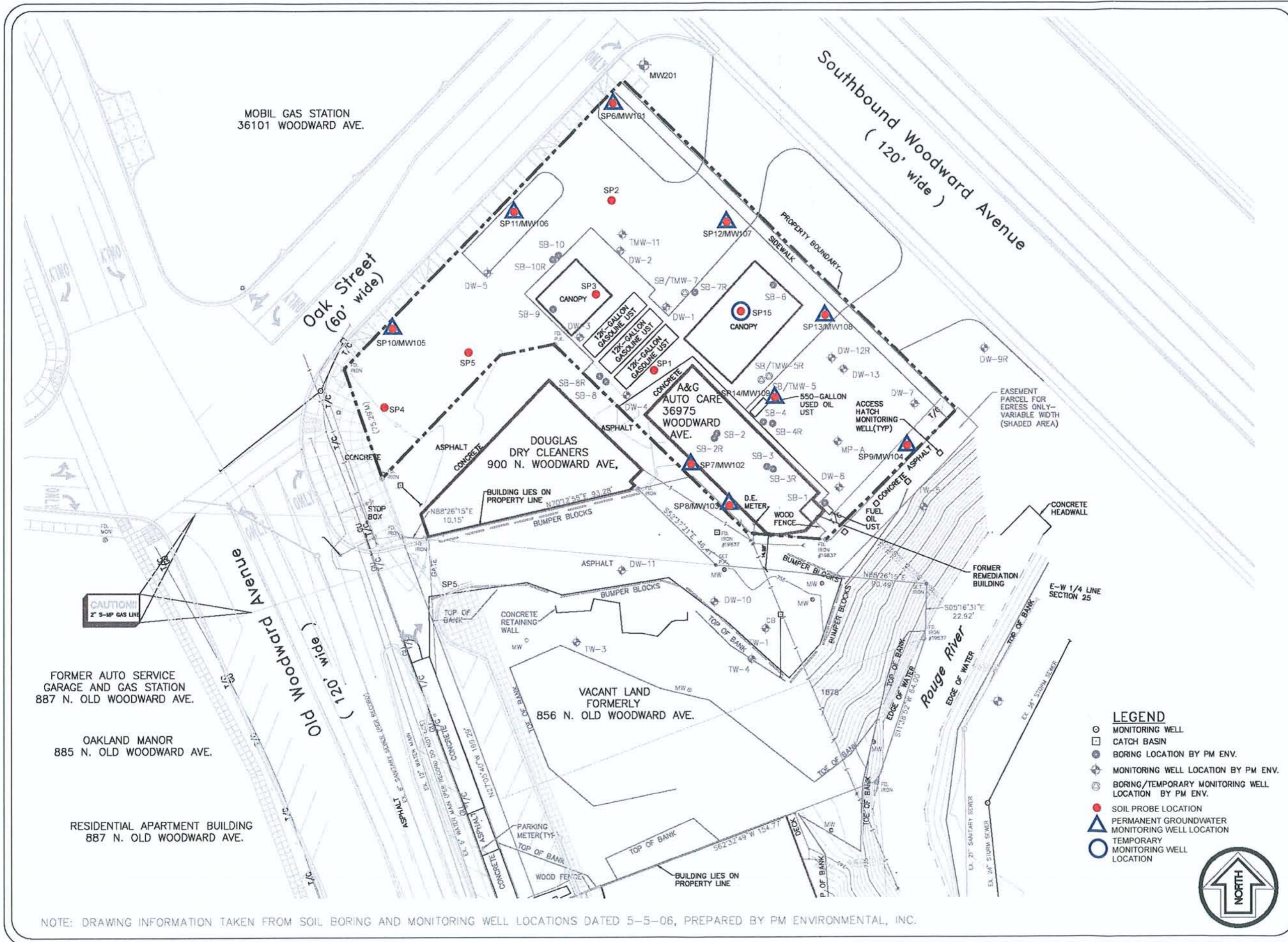
DUE TO ELECTRONIC DATA TRANSFER QUALITY, SITE "OW" MONITORING WELLS APPEAR AS "DW" (DW=OW). MONITORING WELLS ARE REFERRED TO AS OW IN REPORT TEXTS.

Figure No. 2

**Streets**  
 PLYMOUTH - BAY CITY - GRAND RAPIDS  
 KALAMAZOO - LANSING - SHELBY TWP.  
 TOLEDO - TRAVERSE CITY

Feb 21, 2007 - 12:45PM - jblake  
 R:\Plymouth\_dwg\PE54494C\54494C.dwg





SOIL BORING, SOIL PROBE AND  
MONITORING WELL LOCATION DIAGRAM

35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN

DATE: 2-21-07  
SCALE: 1" = 40'  
DRAFTER: JAB  
JOB: PE54494C

Smead

PLYMOUTH - BAY CITY - GRAND RAPIDS  
ANN ARBOR - LANSING - SHELBY TWP.  
TOLEDO - TREVISE CITY

Feb 21, 2007 - 12:45PM - jblake  
R:\Plymouth\_dwg\PE54494C\54494C.dwg

DUE TO ELECTRONIC DATA TRANSFER QUALITY, SITE "OW" MONITORING WELLS APPEAR AS "DW" (DW=OW). MONITORING WELLS ARE REFERRED TO AS OW IN REPORT TEXTS.

Figure No. 2

**APPENDIX B**  
**SOIL PROBE AND WELL CONSTRUCTION LOGS**





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 8 Inches of Concrete																
0		Fine to Medium Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	18	<1													
0			S2	24	<1													
5		Clayey Sand- Some Silt- Trace Gravel and Root Fibers- Occasional Sand Seams- Black- Moist (SC/Fill)	S3	24	<1													
5			S4	24	204													
10		Silty Clay- Trace to Some Sand- Trace Gravel- Dark Gray (CL/Fill)	S5	0	1,509													
10			S6	12	1,626													
15		Fine to Coarse Sand- Trace to Some Silt- Trace Gravel and concrete Fragments- Black- Wet (SP/Fill)	S7	12	1,049													
15			S8	12	1,970													
15		END OF SOIL PROBE AT 16 FEET (REFUSAL AT 16 FEET)																
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**

- ☒ GROUNDWATER ENCOUNTERED DURING DRILLING
- ☒ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. NO STAINING OR ODOR WERE ENCOUNTERED.

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: 12 FEET

DRILL NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
		Driller Reported 4 Inches of Asphalt																
		Fine to Medium Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	24		<1	X											
		Clayey Fine to Medium Sand- Some Silt- Trace Gravel- Black- Moist (SP/Fill))	S2	24		23.2	X											
5		Silt- Trace Sand- Gray- Moist (SM/Fill)	S3	12		22.1												
		Sandy Clay- Trace to Some Silt- Trace Gravel- Brown (SL/Fill)	S4	24		6.3												
		Silty Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Wet (SM/Fill)	S5	24		<1												
10		Silty Clay- Trace Sand and Gravel- Brown (CL)	S6	24		<1												
		END OF SOIL PROBE AT 12 FEET																
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**

- ☒ GROUNDWATER ENCOUNTERED DURING DRILLING
- ☒ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 6 FEET.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 8 FEET  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 6 Inches of Concrete																
0			S1	12		<1												
0			S2	24		<1												
5		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist to Wet (SP/Fill)	S3	12		<1												
5			S4	24		<1												
5			S5	24		<1												
10			S6	24		<1												
10		Sandy Clay- Trace to Some Silt- Trace Gravel- Black (CL)	S7	24		95.2												
10			S8	12														
15		Silty Clay- Trace Sand and Gravel- Brown (CL)																
15		END OF SOIL PROBE AT 15 FEET																
20																		
25																		
30																		
35																		

WATER LEVEL OBSERVATIONS  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

Notes: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 12 TO 14 FEET.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 7 FEET  
 WATER LEVEL UPON COMPLETION:





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 3 Inches of Asphalt																
		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1												
		Silty Clay- Trace to Some Sand- Trace Gravel- Dark Brown- Moist (CL/Fill)																
			S2	24		<1												
5		Silty Clay- Trace to Some Sand- Trace Gravel- Occasional Sand Seams- Brown (CL/Fill)	S3	24		<1												
			S4	24		<1												
10		Silty Sand- Brown- Moist to Wet (SM/Fill)	S5	24		<1												
			S6	24		<1												
		END OF SOIL PROBE AT 12 FEET																
15																		
20																		
25																		
30																		
35																		

WATER LEVEL OBSERVATIONS  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

Notes: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. NO STAINING OR ODORS ENCOUNTERED.

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: 7 FEET  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Asphalt																
0		Fine to Coarse Sand- Trace to Some Silt- Brown- Moist (SP/Fill)	S1	24		<1												
0		Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Brown- Gray (CL)	S2	24		<1												
5			S3	24		<1												
5		Silty Clay- Trace Sand and Gravel- Gray and Brown (CL)	S4	24		<1												
10		END OF SOIL PROBE AT 10 FEET	S5	24		<1												
15																		
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.  
 3. NO STAINING OR ODORS ENCOUNTERED.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING:  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Mulch and Crushed Brick (SP/Fill)																
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1	X											
0			S2	24		<1												
5		Silty Clay- Trace Sand and Gravel- Occasional Sand Seams- Brown (CL)	S3	12		<1												
5			S4	12		95.2	X											
5			S5	24		<1												
10		Silty Clay- Trace Sand and Gravel- Brown (CL)	S6	24		<1												
10			S7	24		95.2												
15			S8	24														
16		END OF SOIL PROBE AT 16 FEET																

**WATER LEVEL OBSERVATIONS**

- ☒ GROUNDWATER ENCOUNTERED DURING DRILLING
- ☒ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.  
 3. NO STAINING OR ODORS ENCOUNTERED.

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING:

DRILL NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
		GROUND SURFACE ELEVATION= NOT MEASURED																
0	[Cross-hatched pattern]	Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	S1	24	<1													
		Fine to Medium Sand- Trace Silt, Root Fibers and Slag- Crushed Brick and Gravel (SP/Fill)	S2	24	<1													
5		Silty Clay- Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	S3	24	<1													
				S4	12	105												
			Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	S5	12	105												
10				S6	12	131												
				S7	12	68.9												
15			Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	S8	12	1,317												
				S9	12	1,642												
20				S10	12	2,858												
				S11	24	<1												
			Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Dark Gray (CL)	S12	24	<1												
		Silt- Trace to Some Sand- Trace Root Fibers- Gray- Wet (SM)																
25		END OF SOIL PROBE AT 24 FEET																
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 [Symbol] GROUNDWATER ENCOUNTERED DURING DRILLING  
 [Symbol] GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 6 TO 24 FEET.



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Fine to Medium Sand- Some Topsoil- Trace Silt and Root Fibers- Dark Brown- Moist (SP/Fill)	S1	24	<1	X												
		Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	S2	24	<1													
5		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	S3	24	<1													
		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	S4	24	<1													
		Silty Clay- Trace to Some Sand- Trace Gravel, Root Fibers, Glass, and Slag- Brown and Gray (CL/Fill)	S5	18	<1													
10			S6	24	1,892	X												
			S7	24	104													
15			S8	0														
		Fine to Medium Sand- Trace to Some Gravel- Trace Silt, Crushed Brick, Concrete Fragments, Wood Fragments and Glass- Dark Gray and Black- Moist (SP/ Fill)	S9	24	316													
			S19	12	315													
20			S11	24	239	X												
			S12	12	272													
25		END OF SOIL PROBE AT 25 FEET	S13	12	1,325													

WATER LEVEL OBSERVATIONS	
	GROUNDWATER ENCOUNTERED DURING DRILLING
	GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 8 TO 25 FEET.

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: 21 FEET  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Concrete																
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18		<1												
0			S2	24		12.4												
0			S3	24		<1												
0			S4	24		28.6												
0		Sandy Clay- Trace to Some Silt- Trace Gravel, Slag, Glass, and Crushed Brick- Occasional Sand Seams- Brown and Black (CL/Fill)	S5	12		102												
0			S6	24		78.4												
0			S7	12		25.5												
0			S8	24		16.0												
0		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	S9	24		<1												
0			S19	24		<1												
0			S11	24		<1												
0		Sandy Clay- Some Silt- Trace Root Fibers- Gravel- Dark Gray (CL/Fill)	S12	24		<1												
0			S13	24		<1												
0		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	S13	24		<1												
0			S14	24		20.4												
0		Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Dark Gray (CL/Fill)	S14	24		20.4												
0		Fine to Medium Sand- Some Silt- Greenish Gray- Wet (SP/Fill)	S15	24		<1												
0		Silty Clay- Trace Sand- Gravel- Gray (CL)	S15	24		<1												
0		END OF SOIL PROBE AT 30 FEET																

**WATER LEVEL OBSERVATIONS**  
 ▽ GROUNDWATER ENCOUNTERED DURING DRILLING  
 ▽ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 6 TO 16 FEET AND 26 TO 30 FEET.



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)							
								0	10	20	30	40	50		
0		GROUND SURFACE ELEVATION= NOT MEASURED													
0		Driller Reported 3 Inches of Asphalt													
0		Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	S1	12		<1									
0			S2	24		<1									
5			S3	24		<1									
5		Silty Clay- Trace Sand and Gravel- Brown (CL)	S4	24		<1									
5			S5	24		<1									
10			S6	24		<1									
10		END OF SOIL PROBE AT 12 FEET													
15															
20															
25															
30															
35															

WATER LEVEL OBSERVATIONS  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

Notes: 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.  
 3. NO STAINING OR ODORS ENCOUNTERED.

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING:  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:





# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
0		GROUND SURFACE ELEVATION= NOT MEASURED																
0		Driller Reported 4 Inches of Concrete																
0		Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	S1	18		72.4	X											
5		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	S2	24		574												
5			S3	12		964												
8		Silty Clay- Trace to Some Sand- Trace Gravel- Gray (CL/Fill)	S4	24		980	X											
8		Fine to Coarse Sand- Some Gravel- Trace Silt- Brown- Wet (SP/Fill)																
10		Silty Clay- Trace Sand and Gravel and Wood Fragments- Gray and Brown (CL)	S5	24		<1												
10		END OF SOIL PROBE AT 10 FEET																

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 8 FEET.

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: 7 FEET  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)														
								0	10	20	30	40	50									
0		GROUND SURFACE ELEVATION= NOT MEASURED																				
0		Driller Reported 3 Inches of Asphalt																				
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown to Black (SP/ Fill)	S1	18		<1																
			S2	24		<1																
5			S3	24		<1																
			S4	24		30.5																
			S5	12		35.8																
10			Silty Clay- Trace to Some Sand- Trace Gravel and Wood Fragments- Occasional Sand Seams- Gray and Dark Gray (CL/Fill)	S6	24		1,655															
				S7	24		1,628															
15				S8	12		16.3															
				S9	24		24.5															
18		END OF SOIL PROBE AT 18 FEET																				
20																						
25																						
30																						
35																						

WATER LEVEL OBSERVATIONS	
	GROUNDWATER ENCOUNTERED DURING DRILLING
	GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.  
 3. STAINING AND/OR ODORS ENCOUNTERED 4 TO 18 FEET.

DRILLER: BJM DRILL METHOD: DIRECT PUSH WATER LEVEL DURING DRILLING: None  
 RIG NO.: BACKFILL METHOD: SOIL CUTTINGS WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)										
								0	10	20	30	40	50					
		GROUND SURFACE ELEVATION= NOT MEASURED																
0	XXXX	Driller Reported 6 Inches of Asphalt																
		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Brown to Black- Moist (SP/Fill)	S1	18		370	X											
		Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Gray- Moist (CL/Fill)	S2	24		1,653												
5			S3	24		1,763												
		Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Occasional Sand Seams- Gray and Black (CL)	S4	24		1,831	X											
10			S5	12		1,582												
			S6	12		1,140												
		Organic Clay- Trace to Some Silt- Trace Root Fibers and Sand- Black (CL)	S7	24		75.2	X											
15		END OF SOIL PROBE AT 14 FEET																
20																		
25																		
30																		
35																		

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED AT 0 TO 14 FEET.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING:  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)												
								0	10	20	30	40	50							
0		GROUND SURFACE ELEVATION= NOT MEASURED																		
0		Driller Reported 3 Inches of Asphalt																		
0		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	S1	18	<1		X													
			S2	24	<1															
5			S3	24	506															
			S4	24	385															
			S5	24	1,250															
10			S6	24	2,533		X													
			S7	18	2,722															
15		Sandy Clay- Trace to Some Silt- Trace Gravel- Occasional Sand Seams- Gray and Black (CL/Fill)	S8	24	75.0															
			S9	12	1,820															
			S10	12	83.1															
			S11	12	903															
			S12	12	703															
25		Silty Clay- Trace Sand and Gravel- Brown (CL)	S13	12	14.2															
		END OF SOIL PROBE AT 28 FEET	S14	12	<1		X													
30																				
35																				

**WATER LEVEL OBSERVATIONS**  
 GROUNDWATER ENCOUNTERED DURING DRILLING  
 GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED 4 TO 24 FEET.  
 3. EVIDENCE OF FREE PRODUCT AT 10.5 TO 11 FEET.

DRILLER: BJM  
 RIG NO.:

DRILL METHOD: DIRECT PUSH  
 BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL DURING DRILLING: 24 FEET  
 WATER LEVEL UPON COMPLETION:



# soil and materials engineers, inc.

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

A/E:  
 BY: JCL/JSL START: 03/07/07 END: 03/07/07  
 PROJECT NUMBER: PE54816 SHEET: 1

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NUMBER INTERVAL	INCHES OF RECOVERY	BLOWS PER SIX INCHES	PID READINGS	ANALYTICAL SAMPLE	STANDARD PENETRATION TEST RESISTANCES (N-values)												
								0	10	20	30	40	50							
0		GROUND SURFACE ELEVATION= NOT MEASURED																		
0		Driller Reported 4 Inches of Concrete																		
0		Fine to Medium Sand- Trace Silt, Gravel, and Coal Fragments- Brown- Moist (SP/Fill)	S1	16		5														
5		Sandy Clay- Trace to Some Sand- Trace Gravel- Occasional Fine to Medium Sand Seams- Brown to Black (CL/Fill)	S2	16		1,106														
5			S3	18		1,406														
10		Silty Clay- Trace to Some Sand- Trace Gravel- Occasional Fine to Medium Sand Seams- Brown to Black (CL/Fill)	S4	18		1,387														
10			S5	16		1,816														
10		Concrete and Sandy Clay Fill- Wet (CL/ Fill)	S6	8		1,870														
15			S7	18		1,922														
15		Silty Clay- Trace to Some Sand- Trace Gravel- Brown (CL/Fill)	S8	18		176														
20			S9	18		19														
20			S19	18		5														
20			S11	20		3														
22		END OF SOIL PROBE AT 22 FEET																		
25																				
30																				
35																				

**WATER LEVEL OBSERVATIONS**

- ☞ GROUNDWATER ENCOUNTERED DURING DRILLING
- ☞ GROUNDWATER ENCOUNTERED UPON COMPLETION OF DRILLING

**Notes:** 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. STAINING AND ODORS ENCOUNTERED 0 TO 18 FEET.

DRILLER: BJM

DRILL METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: 9 Feet

RIG NO.:

BACKFILL METHOD: SOIL CUTTINGS

WATER LEVEL UPON COMPLETION:



**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (Ft.)	WELL DIAGRAM	DEPTH (Ft.)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
		0		GROUND SURFACE ELEVATION= NOT MEASURED		
				Mulch and Crushed Brick (SP/Fill)		
					Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED
			5		Silty Clay- Trace Sand and Gravel- Occasional Sand Seams- Brown (CL)	Well Screen Tip Elevation: NOT MEASURED  Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
			10		Silty Clay- Trace Sand and Gravel- Brown (CL)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:  <u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		15		END OF SOIL PROBE AT 16 FEET	<u>Protective Casing</u> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL  <u>Well Cap</u> Type: EXPANDABLE PLUG  Northing: Easting:	
		20				
		25				
		30				
		35				

WELL TYPE:  
 DRILLER: BJM  
 RIG NUMBER OR  
 CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)





## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL.)	WELL DIAGRAM	DEPTH (FL.)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
		0		GROUND SURFACE ELEVATION= NOT MEASURED		
				Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED	
				Fine to Medium Sand- Trace Silt, Root Fibers and Slag- Crushed Brick and Gravel (SP)	Well Screen Tip Elevation: NOT MEASURED	
			5		Silty Clay- Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
					Fine to Medium Sand- Some Silt- Trace Gravel, Coal, Glass and Metal Fragments- Black- Moist (SP/Fill)	Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
			10			Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
					Fine to Medium Sand- Some Silt- Trace Gravel and Crushed Brick- Dark Gray- Moist to Wet (SP/Fill)	Protective Casing Total Length: 12 INCH Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL
			15			Well Cap Type: EXPANDABLE PLUG
					Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Dark Gray (CL) Silt- Trace to Some Sand- Trace Root Fibers- Gray- Wet (SM)	
			25		END OF SOIL PROBE AT 24 FEET	Northing: Easting:
		30				
		35				

WELL TYPE: DRILLING METHODS: DIRECT PUSH  
DRILLER: BJM  
RIG NUMBER OR CONTRACTOR:

**Notes:**  
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)
	19 FEET	



**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
				GROUND SURFACE ELEVATION= NOT MEASURED		
		0		Fine to Medium Sand- Some Topsoil- Trace Silt and Root Fibers- Dark Brown- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED	
				Fine to Medium Sand- Trace to Some Silt- Trace Root Fibers- Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED	
		5		Silty Clay- Trace to Some Sand- Trace Root Fibers and Gravel- Brown (CL/Fill)	Borehole Diameter: 3 INCHES	
				Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	Filter Pack Type: 2 NS SAND	
			10	Silty Clay- Trace to Some Sand- Trace Gravel, Root Fibers, Glass, and Slag- Brown and Gray (CL/Fill)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:	
			15	Fine to Medium Sand- Trace to Some Gravel- Trace Silt, Crushed Brick, Concrete Fragments, Wood Fragments and Glass- Dark Gray and Black- Moist (SP/ Fill)	<u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y	
			20		<u>Protective Casing</u> Total Length: 12 INCH Length Above Ground: FLUSH Diameter: 12 INCH Type: STEEL	
			25		END OF SOIL PROBE AT 25 FEET	<u>Well Cap</u> Type: EXPANDABLE PLUG
			30			Nothing: Easting:
		35				

WELL TYPE:			DRILLING METHODS: DIRECT PUSH		
DRILLER: BJM					
RIG NUMBER OR CONTRACTOR:					
WATER LEVEL DATA			<b>Notes:</b> 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.		
DATE	DEPTH (Feet)	ELEVATION (Feet)			
	21 FEET				



# soil and materials engineers, inc.

Monitoring Well

MW104

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
				GROUND SURFACE ELEVATION= NOT MEASURED		
		0		Driller Reported 4 Inches of Concrete	Top of Casing Elevation: NOT MEASURED	
				Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED	
			5		Sandy Clay- Trace to Some Silt- Trace Gravel, Slag, Glass, and Crushed Brick- Occasional Sand Seams- Brown and Black (CL/Fill)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
			10			<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:
			15			<u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
			20		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	<u>Protective Casing</u> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
			25		Sandy Clay- Some Silt- Trace Root Fibers- Gravel- Dark Gray (CL/Fill)	<u>Well Cap</u> Type: EXPANDABLE PLUG
			25		Clayey Sand- Some Silt- Trace Root Fibers and Gravel- Dark Gray- Moist (SC/Fill)	Northing: Easting:
			25		Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Dark Gray (CL/Fill)	
			25		Fine to Medium Sand- Some Silt- Greenish Gray- Wet (SP/Fill)	
		30		Silty Clay- Trace Sand- Gravel- Gray (CL)		
		30		END OF SOIL PROBE AT 30 FEET		
		35				

WELL TYPE:			DRILLING METHODS: DIRECT PUSH		
DRILLER: BJM					
RIG NUMBER OR CONTRACTOR:					
WATER LEVEL DATA					
DATE	DEPTH (Feet)	ELEVATION (Feet)			
	28 FEET				

**Notes:**  
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.



# soil and materials engineers, inc.

Monitoring Well

MW105

## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
				GROUND SURFACE ELEVATION= NOT MEASURED	
		0	Asphalt	Driller Reported 3 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED
		5	Sand	Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
		10	Clay	Silty Clay- Trace Sand and Gravel- Brown (CL)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
		12		END OF SOIL PROBE AT 12 FEET	Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15			Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20			Protective Casing Total Length: 12 INCHES Length Above Ground: SLUSH Diameter: 12 INCHES Type: STEEL
		25			Well Cap Type: EXPANDABLE PLUG
		30			Northing: Easting:
		35			

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR  
CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**

1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.
2. GROUNDWATER WAS NOT ENCOUNTERED

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)



## MONITORING WELL LOG

SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL

DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
				GROUND SURFACE ELEVATION= NOT MEASURED		
		0		Driller Reported 4 Inches of Concrete	Top of Casing Elevation: NOT MEASURED	
				Fine to Medium Sand- Some Silt- Trace Gravel- Dark Brown- Moist (SP/Fill)		
			5		Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Dark Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
					Silty Clay- Trace to Some Sand- Trace Gravel- Gray (CL/Fill)	Borehole Diameter: 3 INCHES
					Fine to Coarse Sand- Some Gravel- Trace Silt- Brown- Wet (SP/Fill)	Filter Pack Type: 2 NS SAND
					Silty Clay- Trace Sand and Gravel and Wood Fragments- Gray and Brown (CL)	Well Casing Diameter: 0.75 INCH
			10		END OF SOIL PROBE AT 10 FEET	Length: PVC
						Joint Type:
			15			Well Screen Diameter: 0.75 INCH
						Length: 5 FOOT
					Type: 0.010-INCH SLOT	
					Mesh:	
					Screen Plug (Y/N): Y	
		20			Protective Casing	
					Total Length: 12 INCHES	
					Length Above Ground: SLUSH	
					Diameter: 12 INCHES	
					Type: STEEL	
		25			Well Cap	
					Type: EXPANDABLE PLUG	
		30			Northing:	
					Easting:	
		35				

WELL TYPE:  
 DRILLER: BJM  
 RIG NUMBER OR CONTRACTOR:  
 DRILLING METHODS: DIRECT PUSH

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.

**WATER LEVEL DATA**

DATE	DEPTH (Feet)	ELEVATION (Feet)
	7 FEET	



**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS	
				GROUND SURFACE ELEVATION= NOT MEASURED		
		0		Driller Reported 3 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED	
			5		Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown to Black (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
			10		Silty Clay- Trace to Some Sand- Trace Gravel and Wood Fragments- Occasional Sand Seams- Gray and Dark Gray (CL/Fill)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
			15			<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type: <u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20		END OF SOIL PROBE AT 18 FEET	<u>Protective Casing</u> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL	
		25			<u>Well Cap</u> Type: EXPANDABLE PLUG	
		30			Northing: Easting:	
		35				

WELL TYPE:  
 DRILLER: BJM  
 RIG NUMBER OR CONTRACTOR:  
 DRILLING METHODS: DIRECT PUSH

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.  
 2. GROUNDWATER WAS NOT ENCOUNTERED.

WATER LEVEL DATA		
DATE	DEPTH (Feet)	ELEVATION (Feet)
	None	





**MONITORING WELL LOG**  
**SME PROJECT No. PE54816**

PROJECT NAME: 35975 WOODWARD  
 PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
 CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL)	PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
				GROUND SURFACE ELEVATION= NOT MEASURED	
		0		Driller Reported 6 Inches of Asphalt	
				Fine to Medium Sand- Some Silt- Trace Gravel and Root Fibers- Brown to Black- Moist (SP/Fill)	Top of Casing Elevation: NOT MEASURED
				Sandy Clay- Trace to Some Silt- Trace Gravel and Root Fibers- Dark Gray- Moist (CL/Fill)	Well Screen Tip Elevation: NOT MEASURED
				Sandy Clay- Some Silt- Trace Root Fibers and Gravel- Occasional Sand Seams- Gray and Black (CL)	Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
				Organic Clay- Trace to Some Silt- Trace Root Fibers and Sand- Black (CL)	Well Casing Diameter: 0.75 INCH Length: Type: PVC Joint Type:
		15		END OF SOIL PROBE AT 14 FEET	Well Screen Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20			Protective Casing Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
		25			Well Cap Type: EXPANDABLE PLUG
		30			Northing: Easting:
		35			

WELL TYPE:		DRILLING METHODS: DIRECT PUSH	
DRILLER: BJM			
RIG NUMBER OR CONTRACTOR:			
WATER LEVEL DATA			
DATE	DEPTH (Feet)	ELEVATION (Feet)	

**Notes:**  
 1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.



## MONITORING WELL LOG SME PROJECT No. PE54816

PROJECT NAME: 35975 WOODWARD  
PROJECT LOCATION: BIRMINGHAM, MICHIGAN  
CLIENT:

BY: JCL/JSL DATE: 03/07/07

ELEVATION (FL)	WELL DIAGRAM	DEPTH (FL) PROFILE	PROFILE DESCRIPTION	WELL CONSTRUCTION DETAILS
			GROUND SURFACE ELEVATION= NOT MEASURED	
		0	Driller Reported 3 Inches of Asphalt	Top of Casing Elevation: NOT MEASURED
		5	Fine to Medium Sand- Trace to Some Silt- Trace Gravel- Brown- Moist (SP/Fill)	Well Screen Tip Elevation: NOT MEASURED
		10		Borehole Diameter: 3 INCHES Filter Pack Type: 2 NS SAND
		15	Sandy Clay- Trace to Some Silt- Trace Gravel- Occasional Sand Seams- Gray and Black- Evidence of Free Product at 10.5 to 11 Feet (CL)	<u>Well Casing</u> Diameter: 0.75 INCH Length: Type: PVC Joint Type:  <u>Well Screen</u> Diameter: 0.75 INCH Length: 5 FOOT Type: 0.010-INCH SLOT Mesh: Screen Plug (Y/N): Y
		20		<u>Protective Casing</u> Total Length: 12 INCHES Length Above Ground: FLUSH Diameter: 12 INCHES Type: STEEL
		25	Silty Clay- Trace Sand and Gravel- Brown (CL)	<u>Well Cap</u> Type: EXPANDABLE PLUG
		30	END OF SOIL PROBE AT 28 FEET	Northing: Easting:
		35		

WELL TYPE:  
DRILLER: BJM  
RIG NUMBER OR CONTRACTOR:

DRILLING METHODS: DIRECT PUSH

**Notes:**  
1. THE INDICATED STRATIFICATION LINES ARE APPROXIMATE. IN SITU, THE TRANSITION BETWEEN MATERIALS MAY BE GRADUAL.

### WATER LEVEL DATA

DATE	DEPTH (Feet)	ELEVATION (Feet)
	24 FEET	

## APPENDIX C

### ANALYTICAL RESULTS TABLES

**Table 1- SME Soil Analytical Results**

**Table 2- SME Groundwater Analytical Results**

**Table 3- SME UST Assessment Soil Analytical Results**

**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 1 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Soil Saturation Concentration Screening Levels	Sample Location	SP1	SP1	SP1	SP2	SP2	SP3	SP3	SP4	SP5
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria		Sample ID	S1	S5	S6	S1	S2	S1	S7	S2	S1
									Depth (feet)	1-2'	8-9'	10-11'	1-2'	3-4'	1-2'	12-13'	2-3'	1-2'	
									Date Collected	3/7/2007	3/7/2007	3/7/2007	3/7/2007	3/7/2007	3/7/2007	3/7/2007	3/7/2007	3/7/2007	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<50	5,400	1,600	<50	270	<50	2,100	<50	<50	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	<50	11,000	31,000	<50	<50	<50	1,800	<50	<50	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	1,200	3,600	<250	<250	<250	850	<250	<250	
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<330	<330	10,000	<330	<330	<330	550	<330	<330	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<100	4,900	13,000	<100	<100	<100	2,900	<100	<100	
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	<50	8,700	5,100	<50	68	<50	570	<50	<50	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	<100	37,000	120,000	<100	<100	<100	1,200	<100	<100	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<100	7,000	25,000	<100	<100	<100	410	<100	<100	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	<150	62,000	130,000	<150	<150	<150	2,200	<150	<150	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	690	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLL	NLL	1,500,000	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	850	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	1,100	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLL	NLL	800,000,000	2,500,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	500	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLL	NLL	NLL	200,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	410	
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	810	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLL	NLL	ID	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	ND	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	1,900	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	550	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<330	<330	10,000	<330	<330	<330	1,500	<330	<330	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	1,700	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	1,500	
<b>Inorganics</b>																			
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	NE	NE	NE	NE	5,000	NE	NE	NE	NE	
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	NE	NE	NE	NE	57,000	NE	NE	NE	NE	
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	67	370	200	84	410	77	260	150	520	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	3,400	11,000	12,000	3,900	17,000	4,100	9,700	15,000	12,000	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	2,500	46,000	25,000	6,300	49,000	3,500	27,000	9,500	66,000	
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	NE	NE	NE	NE	62	NE	NE	NE	NE	
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	NE	NE	NE	NE	660	NE	NE	NE	NE	
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	NE	NE	NE	NE	160	NE	NE	NE	NE	

Notes on last page



**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 2 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL								Sample Location	SP6	SP6	SP6	SP7	SP7	SP8	SP8	SP8	SP9
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Sample ID	S1	Duplicate	S4	S3	S10	S1	S6	S11	S2
									Depth (feet)	1-2'	1-2'	7-8'	4-5'	18-19'	0.5-1.5'	11-12'	20-21'	3-4'	
									Date Collected	3/7/2007	3/7/2007	3/7/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	3/8/2007	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<50	<50	<50	<50	6,700J	<50	350J	2,500J	220	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	<50	<50	<50	<50	7,300J	<50	74	1,900	320	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	<250	<250	<250	<13,000	<250	<250	440	<250	
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<13,000	<250	<250	<250	<250	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<330	<330	<330	<330	<17,000	<330	<330	<330	<330	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	5,100J	<50	<50	56	<50	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<100	<100	<100	<100	8,200	<100	<100	500	130	
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	<50	<2,500	<50	<50	71	<50	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	1,100	<2,500	79J	<50	<50	<50	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	<50	<50	<50	<50	<2,500	<50	120J	470J	350	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	<100	<100	<100	<100	6,900	<100	<100	1,300	320	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<100	<100	<100	<100	<5,000	<100	<100	960	100	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	<150	<150	<150	<150	8,200	<150	280	5,300	1,600	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	990	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	<330	<330	<330	380	<330	4,300	650	<330	<330	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLL	NLL	1,500,000	2,000	NA	<330	<330	<330	<330	<330	5,100	440	<330	<330	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<330	<330	<330	340	<330	7,200	650	<330	<330	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLL	NLL	800,000,000	2,500,000	NA	<330	<330	<330	<330	<330	4,000	400	<330	<330	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLL	NLL	NLL	200,000	NA	<330	<330	<330	<330	<330	2,500	<330	<330	<330	
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<330	<330	<330	<330	<330	5,300	690	<330	<330	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLL	NLL	ID	2,000	NA	<330	<330	<330	<330	<330	650	<330	<330	<330	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<330	<330	<330	530	<330	11,000	1,000	<330	<330	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	<330	<330	<330	<330	<330	4,200	<330	<330	<330	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<330	<330	<330	<330	570	<330	610	420	<330	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<330	<330	<330	<330	<330	4,600	890	340	<330	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<330	<330	<330	460	<330	8,200	970	<330	<330	
<b>Inorganics</b>																			
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	78	87	160	290	320	1,100	340	380	330	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	3,500	2,900	12,000	11,000	10,000	7,500	11,000	7,000	9,300	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	4,000	5,100	9,200	32,000	71,000	72,000	54,000	56,000	37,000	
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	NE	NE	NE	NE	NE	NE	NE	NE	NE	

Notes on last page



**TABLE 1**  
**SME SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 3 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL								Sample Location	SP9	SP10	SP11	SP11	SP12	SP12	SP12	SP12	SP13
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Sample ID	S5	S2	S1	S4	S1	S6	Duplicate	S9	S1
									Depth (feet)	9-10'	3-4'	1-2'	6-6.5'	1-2'	11-12'		17-18'	1-2'	
									Date Collected	3/8/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<50	<50	260	750	<50	5,300	5,000	430	250	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	77	<50	550	6,100	<50	7,500	9,800	<50	1,500	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	<250	<250	770	<250	1,100	980	<250	<250	
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	<330	<330	<330	1,400	<330	4,200	4,100	<330	<330	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	64	1,100	<50	3,300	2,600	<50	1,400	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	<100	<100	200	3,000	<100	5,200	4,800	350	1,100	
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	300	<50	480	450	<50	260	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	190	<50	480	140	<50	620	610	72	1,100	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	110	<100	1,800	130	<100	18,000	21,000	140	4,800	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	<100	<100	560	<100	<100	7,000	6,100	<100	870	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	390	<150	2,500	740	<150	16,000	20,000	790	3,600	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLL	NLL	20,000	20,000	NA	970	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLL	NLL	1,500,000	2,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLL	NLL	800,000,000	2,500,000	NA	1,900	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLL	NLL	ID	200,000	NA	440	<330	<330	<330	<330	<330	<330	<330	<330	
Chrysene	218-01-9	NLL	NLL	NLL	NLL	NLL	ID	2,000,000	NA	1,300	<330	<330	<330	<330	<330	<330	<330	<330	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLL	NLL	ID	2,000	NA	530	<330	<330	<330	<330	<330	<330	<330	<330	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLL	NLL	ID	20,000	NA	1,100	<330	<330	<330	<330	<330	<330	<330	<330	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	1,100	<330	<330	6,900	<330	2,200	1,900	<330	<330	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	1,500	<330	<330	<330	<330	<330	<330	<330	<330	
<b>Inorganics</b>																			
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	19,000	NE	NE	NE	NE	NE	NE	NE	NE	
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	160,000	NE	NE	NE	NE	NE	NE	NE	NE	
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	1,300	130	300	260	150	170	180	160	320	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	14,000	9,700	13,000	7,400	9,700	18,000	16,000	14,000	8,600	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	1,200,000	7,000	61,000	61,000	29,000	16,000	18,000	10,000	120,000	
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	610	NE	NE	NE	NE	NE	NE	NE	NE	
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	1,200	NE	NE	NE	NE	NE	NE	NE	NE	
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	300	NE	NE	NE	NE	NE	NE	NE	NE	

Notes on last page



TABLE 1  
SME SOIL ANALYTICAL RESULTS  
35975 WOODWARD AVENUE  
Birmingham, Michigan  
SME Project No. PE54816  
4 of 4

Constituent	CAS Number	Part 201 Generic Residential CC/SL								Sample Location	SP13	SP13	SP14	SP14	SP14	SP15	SP15	SP15	SP15
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels	Sample ID	S4	S7	S1	S6	S14	S3	Duplicate	S6	S11
									Depth (feet)	6-7'	13-14'	1-2'	10-11'	26-27'	4-6'		10-11'	20-22'	
									Date Collected	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/9/2007	3/12/2007	3/12/2007	3/12/2007	3/12/2007	
<b>VOCs</b>																			
Benzene	71-43-2	100	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	1,800	2,900	<50	3,100	<50	4,700	7,000	68,000	590	
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	2,900	4,400	<50	3,200	<50	8,700	10,000	11,000	<50	
Isopropylbenzene	92-82-8	91,000	ID	390,000	390,000	1,700,000	5,800,000,000	390,000	390,000	<250	280	<250	270	<250	1,600	1,600	7,600J	<250	
MTBE	163-40-44	800	15,000	5,900,000	5,900,000	25,000,000	200,000,000,000	1,500,000	5,900,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	
Naphthalene	91-20-3	35,000	870	2,100,000	250,000	300,000	20,000,000	16,000,000	NA	410	<330	<330	470	<330	7,800	7,100	40,000	<330	
n-Butylbenzene	104-51-8	1,600	ID	120,000	ID	ID	ID	2,500,000	10,000,000	130	87	<50	750	<50	4,700	4,500	20,000	<50	
n-Propylbenzene	103-65-1	1,600	NA	300,000	ID	ID	1,300,000,000	2,500,000	10,000,000	770	690	<100	1,400	<100	8,100	7,800	33,000	180	
sec-Butylbenzene	135-98-8	1,600	ID	88,000	ID	ID	ID	2,500,000	10,000,000	<50	<50	<50	120	<50	740	700	2,400J	<50	
Tetrachloroethene	127-18-4	100	900	88,000	11,000	180,000	5,400,000,000	88,000	88,000	<50	<50	<50	<50	<50	<50	<50	<50	<50	
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	670	100	<50	1,600	<50	7,300	6,500	910,000	<50	
1,2,4-Trimethylbenzene	95-63-6	2,100	570	110,000	110,000	21,000,000	82,000,000,000	110,000	110,000	4,800	3,000	<100	6,300	<100	10,000	14,000	210,000	<100	
1,3,5-Trimethylbenzene	108-67-8	1,800	1,100	94,000	94,000	16,000,000	82,000,000,000	94,000	94,000	1,200	950	<100	1,700	<100	6,300	6,900	65,000	<100	
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	8,100	8,100	<150	8,800	<150	11,000	13,000	460,000	260	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	300,000	4,400	970,000	190,000,000	81,000,000	14,000,000,000	41,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Acenaphthylene	208-96-8	5,900	ID	440,000	1,600,000	2,200,000	2,300,000,000	1,600,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Anthracene	120-12-7	41,000	ID	41,000	1,000,000,000	1,400,000,000	67,000,000,000	230,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)anthracene	56-55-3	NLL	NLL	NLL	NLV	NLV	20,000	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(a)pyrene	50-32-8	NLL	NLL	NLL	NLV	NLV	1,500,000	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(b)fluoranthene	205-99-2	NLL	NLL	NLL	ID	ID	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(g,h,i)perylene	191-24-2	NLL	NLL	NLL	NLV	NLV	800,000,000	2,500,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Benzo(k)fluoranthene	207-08-9	NLL	NLL	NLL	NLV	NLV	200,000	200,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Chrysene	218-01-9	NLL	NLL	NLL	ID	ID	ID	2,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Dibenzo(a,h)anthracene	53-70-3	NLL	NLL	NLL	NLV	NLV	ID	2,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Fluoranthene	206-44-0	730,000	5,500	730,000	1,000,000,000	740,000,000	9,300,000,000	46,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	1,100	
Fluorene	86-73-7	390,000	5,300	890,000	580,000,000	130,000,000	9,300,000,000	27,000,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
Indeno(1,2,3-cd)pyrene	193-39-5	NLL	NLL	NLL	NLV	NLV	ID	20,000	NA	<330	<330	<330	<330	<330	<330	<330	<330	<330	
2-Methylnaphthalene	91-57-6	57,000	ID	5,500,000	ID	ID	ID	8,100,000	NA	<330	<330	<330	6,900	<330	13,000	15,000	21,000	<330	
Phenanthrene	85-01-8	56,000	5,300	1,100,000	2,800,000	160,000	6,700,000	1,600,000	NA	<330	<330	<330	810	<330	<330	<330	1,100	<330	
Pyrene	129-00-0	480,000	ID	480,000	1,000,000,000	650,000,000	6,700,000,000	29,000,000	NA	<330	<330	<330	510	<330	<330	<330	800	<330	
<b>Inorganics</b>																			
Arsenic	7440-38-2	5,800	70,000	2,000,000	NLV	NLV	720,000	7,600	NA	NE	NE	NE	NE	NE	NE	NE	5,100	NE	
Barium	7440-39-3	1,300,000	440,000	1,000,000,000	NLV	NLV	330,000,000	37,000,000	NA	NE	NE	NE	NE	NE	NE	NE	42,000	NE	
Cadmium	7440-43-9	6,000	3,600	230,000,000	NLV	NLV	1,700,000	550,000	NA	210	310	93	310	190	240	160	200	190	
Chromium (III)*	16065-83-1	1,000,000,000	3,000,000,000	1,000,000,000	NLV	NLV	330,000,000	790,000,000	NA	15,000	13,000	5,300	6,900	19,000	11,000	25,000	7,900	19,000	
Lead	7439-92-1	700,000	2,800,000	ID	NLV	NLV	10,000,000	400,000	NA	11,000	12,000	6,300	84,000	11,000	58,000	14,000	120,000	11,000	
Mercury	7439-97-6	1,700	130	47,000	48,000	52,000	20,000,000	160,000	NA	NE	NE	NE	NE	NE	NE	NE	88	NE	
Selenium	7782-49-2	4,000	410	78,000,000	NLV	NLV	130,000,000	2,600,000	NA	NE	NE	NE	NE	NE	NE	NE	380	NE	
Silver	7440-22-4	4,500	1,000	200,000,000	NLV	NLV	130,000,000	2,500,000	NA	NE	NE	NE	NE	NE	NE	NE	<100	NE	

NOTES:

- Concentrations reported in ug/kg (parts per billion) unless otherwise noted.
- Analytical results were compared to the MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, dated January 23, 2006.
- <RL = Analytical result was less than the reporting limit.
- CS = Constituent Specific.
- ID = Insufficient data to develop criteria.
- NA = Criterion or value is not available.
- NLV = Chemical is not likely to volatilize under most conditions.
- NLL = Hazardous substance is not likely to leach under most soil conditions.
- J = Analyte positively identified - estimated value.
- ^ = GSI calculated for water not protected as a drinking water source.
- Italicized GSI Criterion were calculated using a water hardness of 150 mg/L CaCO3 and the MDEQ spreadsheet (G).
- Highlighted and bolded results exceed corresponding MDEQ Part 201 Generic Residential Cleanup Criteria.



TABLE 2  
SME GROUNDWATER ANALYTICAL RESULTS  
35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN  
SME Project No. PE54816  
1 of 2

Constituent	CAS Number	Part 201 Generic Residential CC/SL				Water Solubility Criteria	Sample Location	MW102	MW103	MW104	MW106	MW107	MW108	MW108	MW109	MW201
		Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria^	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria		Screen Depth Date Collected	16.5'-21.5' 3/15/2007	19.5'-24.5' 3/15/2007	23'-24.5' 3/14/2007	7'-8' 3/13/2007	MW106 Dup 1 3/13/2007	11'-16' 3/13/2007	6.5'-11.5' 3/14/2007	MW108 Dup 2 3/14/2007	19'-24' 3/14/2007
<b>VOCs</b>																
Benzene	71-43-2	5.0	200	5,600	11,000	1,750,000	1,800	2,600	3.2	700	690	1,200	1,000	2,100	9,800	<1.0
n-Butylbenzene	104-51-8	80	ID	ID	5,900	NA	<1.0	<1.0	<1.0	37	35	11	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	135-98-8	80	ID	ID	4,400	NA	13	<1.0	<1.0	14	14	3.4	5.4	5.4	2.4	<1.0
Ethylbenzene	100-41-4	74	18	110,000	170,000	169,000	1,000	830	<1.0	1,200	1,200	210	750	1,100	280	<1.0
Isopropylbenzene	98-82-8	800	ID	56,000	56,000	56,000	120	72	<5.0	89	88	24	51	51	44	<5.0
MTBE	1634-04-4	40 (E) / 240	730	47,000,000	610,000	46,800,000	<5.0	<5.0	370	<5.0	<5.0	<5.0	<5.0	<5.0	87	<5.0
Naphthalene	91-20-3	520	13	31,000	31,000	31,000	280	120	<5.0	150	150	19	220	230	61	<5.0
n-Propylbenzene	103-65-1	80	ID	ID	15,000	NA	<10	180	1.2	290	280	76	180	180	89	<1.0
Toluene	108-88-3	790	140	530,000	530,000	526,000	84	49	1.6	62	62	23	850	1,300	190	<1.0
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	56,000	55,890	1,200	700	<1.0	97	95	21	960	1,200	85	<1.0
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	61,000	61,150	230	200	<1.0	38	37	6.2	380	310	25	<1.0
Xylenes	1330-20-7	280	35	190,000	190,000	186,000	720	540	<3.0	340	340	100	1,800	3,300	390	<3.0
Other VOC Constituents	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																
Acenaphthene	83-32-9	1,300	19	4,200	4,200	4,240	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acenaphthylene	208-96-8	52	ID	3,900	3,900	3,930	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Anthracene	120-12-7	43	ID	43	43	43	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	56-55-3	2.1	ID	NLV	9.4	9.4	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	1.0 (M)	1.62	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	1.5	1.5	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0 (M)	NA	NLV	1.0 (M)	0.26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(k)fluoranthene	207-08-9	1.0 (M)	NA	NLV	1.0 (M)	0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chrysene	218-01-9	1.6	ID	ID	1.6	1.6	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenzo(a,h)anthracene	53-70-3	2.0 (M)	ID	NLV	2.0 (M)	2.49	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Fluoranthene	206-44-0	210	1.6	210	210	206	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Fluorene	86-73-7	880	12	2,000	2,000	1,980	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	193-39-5	2.0 (M)	ID	NLV	2.0 (M)	2.0 (M)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
2-Methylnaphthalene	91-57-6	260	ID	ID	25,000	24,600	61	24	<5.0	41	35	11	64	49	<5.0	<5.0
Phenanthrene	85-01-8	52	2.4	1,000	1,000	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Pyrene	129-00-0	140	ID	140	140	135	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
<b>Inorganics</b>																
Cadmium	7440-43-9	5.0	3.0	NLV	190,000	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium (III)*	16065-83-1	100	100	NLV	290,000,000	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead	7439-92-1	4.0	16	NLV	ID	NA	6.1	3.1	<3.0	3.9	4.3	4.9	10	13	<3.0	<3.0

Notes on last page

TABLE 2  
SME GROUNDWATER ANALYTICAL RESULTS  
35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN  
SME Project No. PE54816  
2 of 2

Constituent	CAS Number	Part 201 Generic Residential CC/SL				Water Solubility Criteria	Sample Location	OW1	OW1 Dup 3	OW4	OW7	SP15 GW
		Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria <sup>^</sup>	Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria		Screen Depth Date Collected	UNKNOWN 3/15/2007	UNKNOWN 3/15/2007	UNKNOWN 3/15/2007	UNKNOWN 3/14/2007	6'-11' 3/12/2007
<b>VOCs</b>												
Benzene	71-43-2	5.0	200	5,600	11,000	1,750,000	2,400	1,100	91	36	6,600	
n-Butylbenzene	104-51-8	80	ID	ID	5,900	NA	17	<1.0	1.8	<1.0	<1.0	
sec-Butylbenzene	135-98-8	80	ID	ID	4,400	NA	7.2	7.7	1.8	<1.0	<1.0	
Ethylbenzene	100-41-4	74	18	110,000	170,000	169,000	1,500	4,000	3.5	1.9	1,900	
Isopropylbenzene	98-82-8	800	ID	56,000	56,000	56,000	87	100	<5.0	<5.0	85J	
MTBE	1634-04-4	40 (E) / 240	730	47,000,000	610,000	46,800,000	<5.0	<5.0	<5.0	130	53	
Naphthalene	91-20-3	520	13	31,000	31,000	31,000	72	63	<5.0	<5.0	120J	
n-Propylbenzene	103-65-1	80	ID	ID	15,000	NA	230	240	15	4.8	190J	
Toluene	108-88-3	790	140	530,000	530,000	526,000	150	180	1.1	1.5	15,000	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	56,000	55,890	180	<1.0	2	1.3	1,000	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	61,000	61,150	100	110	<1.0	<1.0	320	
Xylenes	1330-20-7	280	35	190,000	190,000	186,000	770	3,900	3.4	10	7,800	
Other VOC Constituents	CS	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>												
Acenaphthene	83-32-9	1,300	19	4,200	4,200	4,240	<5.0	<5.0	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	52	ID	3,900	3,900	3,930	<5.0	<5.0	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	43	43	<5.0	<5.0	<5.0	<5.0	<5.0	
Benzo(a)anthracene	56-55-3	2.1	ID	NLV	9.4	9.4	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	1.0 (M)	1.62	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	1.5	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0 (M)	NA	NLV	1.0 (M)	0.26	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0 (M)	NA	NLV	1.0 (M)	0.8	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	1.6	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0 (M)	ID	NLV	2.0 (M)	2.49	<2.0	<2.0	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	210	206	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	880	12	2,000	2,000	1,980	<5.0	<5.0	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0 (M)	ID	NLV	2.0 (M)	2.0 (M)	<2.0	<2.0	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	260	ID	ID	25,000	24,600	27	28	<5.0	<5.0	31	
Phenanthrene	85-01-8	52	2.4	1,000	1,000	1,000	<2.0	<2.0	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	140	135	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Inorganics</b>												
Cadmium	7440-43-9	5.0	3.0	NLV	190,000	NA	<1.0	<1.0	<1.0	<1.0	NE	
Chromium (III)*	16065-83-1	100	100	NLV	290,000,000	NA	<10	<10	<10	<10	NE	
Lead	7439-92-1	4.0	16	NLV	ID	NA	<3.0	<3.0	<3.0	<3.0	NE	

**NOTES:**

- (1) Concentrations reported in µg/L (parts per billion or ppb) unless otherwise noted
- (2) Analytical results were compared to the MDEQ Part 201 Generic Residential Cleanup Criteria and Screening Levels, dated January 23, 2006 (CC/SL)
- (3) <RL = Analytical result was less than the reporting limit
- (4) CS = Constituent Specific
- (5) ID = Insufficient data to develop criteria
- (6) NA = Criterion or value is not available
- (7) NR = Laboratory analysis was not requested.
- (8) NLV = Chemical is not likely to volatilize under most conditions.
- (9) E = Criterion is the aesthetic drinking water value, as required by Section 20120(a)(5) of the NREPA. Second criterion is the residential health-based drinking water value.
- (10) ^ = GSI calculated for water not protected as a drinking water source
- (11) M = Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
- (12) \* = Total chromium concentration is assumed to be chromium (III) based on historic site use
- (13) *Italicized GSI Criterion were calculated using a water hardness of 150 mg/L CaCO<sub>3</sub> and the MDEQ spreadsheet [G].*
- (14) **Highlighted and bolded results exceed corresponding MDEQ Part 201 Cleanup Criteria.**



**TABLE 3**  
**SME UST ASSESSMENT SOIL ANALYTICAL RESULTS**  
**35975 WOODWARD AVENUE**  
 Birmingham, Michigan  
 SME Project No. PE54816  
 1 of 1

Constituent	CAS Number	Part 201 Generic Residential CC/SL							Sample Location	SS1	SS2	SS3	SS4	SS5	SS6
		Drinking Water Protection Criteria	Groundwater Surface Water Interface (GSI) Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Ambient Air Infinite Source Volatile Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Sample ID	~12'	~12'	~12'	~12'	~12'	~12'
									Date Collected	10/12/2007	10/12/2007	10/12/2007	10/12/2007	10/12/2007	10/12/2007
									Soil Saturation Concentration Screening Levels						
<b>VOCs</b>															
Benzene	71-43-2	<b>100</b>	4,000	220,000	1,600	13,000	380,000,000	180,000	400,000	<b>152</b>	<50	<b>260</b>	<b>178</b>	<50	<50
Ethylbenzene	100-41-4	1,500	360	140,000	87,000	720,000	10,000,000,000	140,000	140,000	83	<50	<50	<50	<50	<50
Toluene	108-88-3	16,000	2,800	250,000	250,000	2,800,000	27,000,000,000	250,000	250,000	1,370	183	801	681	<100	183
Xylenes	1330-20-7	5,600	700	150,000	150,000	46,000,000	290,000,000,000	150,000	150,000	427	<150	186	276	<150	<150
Other VOC Constituents	CS	CS	CS	CS	CS	CS	CS	CS	CS	NE	NE	NE	NE	NE	NE

**NOTES:**

- (1) Concentrations reported in ug/kg (parts per billion) unless otherwise noted.
- (2) Analytical results were compared to the MDEQ Part 201 Generic Cleanup Criteria and Screening Levels, dated January 23, 2006.
- (3) <RL = Analytical result was less than the reporting limit.
- (4) CS = Constituent Specific.
- (5) **Highlighted and bolded results exceed corresponding MDEQ Part 201 Generic Residential Cleanup Criteria.**

**APPENDIX D**  
**LABORATORY DATA REPORTS**

**APPENDIX D**  
**FIELD PROCEDURES**

## **APPENDIX D – FIELD PROCEDURES**

**35975 WOODWARD AVENUE**

**BIRMINGHAM, MICHIGAN**

**SME PROJECT NO.: 075099.01**

### **SOIL GAS POINT INSTALLATION AND SAMPLING**

Direct-push soil borings were advanced using hydraulically driven, direct-push, coring equipment mounted on a truck. Soil samples were collected continuously using four-foot long samplers fitted with a single-use, disposable, acetate liner. The soil in each interval was visually evaluated, and representative samples were collected from each soil unit for visual classification of staining, or other indicators of contamination (e.g. presence of debris). SME visually classified the soil samples from the soil borings in general accordance with the ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).

A portion of each soil sample was used for field screening of ionizable VOCs using a calibrated photoionization detector (PID) equipped with a 10.6 eV lamp. Field screening consisted of placing a portion of the sample in a sealed plastic bag and allowing the sample to warm and release ionizable VOCs. The tip of the PID was inserted in the headspace of the bag, and PID readings were recorded on SME's field soil boring logs.

We installed a soil gas sampling point in borings SG1 through SG5. Each soil gas point was constructed with nylon tubing and a 6-inch woven stainless steel screen attached with stainless steel compression fittings with an approximate screen interval of 5 feet to 5.5 feet below ground surface (bgs). Each borehole was filled with washed filter sand from approximately 6 feet bgs to approximately six inches above the top of the screen (4.5 feet bgs) to create an approximate filter pack interval from 4.5 feet to 6 feet bgs. To seal the soil gas point from the surface, approximately one foot of dry, granular bentonite was placed on the sand followed by hydrated bentonite to the surface.

To collect the samples per EPA Method TO-15, a cleaned, stainless steel sample train was provided by the laboratory along with 1 Liter glass Bottle-Vac™ sample jars. We connected each sample train to each soil gas point and a volume of at least three times greater than the sand pack, soil gas point and the sample train was purged out at a pumping rate between 100 cc/min and 200 cc/min. Following soil gas point purging, a sample is collected at a predetermined flow rate by opening the valve to the sample jar and closing the valve at the pressure predetermined by the laboratory.

After completion of field activities, the soil gas sampling points were removed from the ground and the boreholes were filled to the ground surface and were restored to match surrounding conditions.



**APPENDIX E**  
**SOIL BORING AND SOIL GAS SAMPLING LOGS**



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

**BORING METHOD:** Direct Push

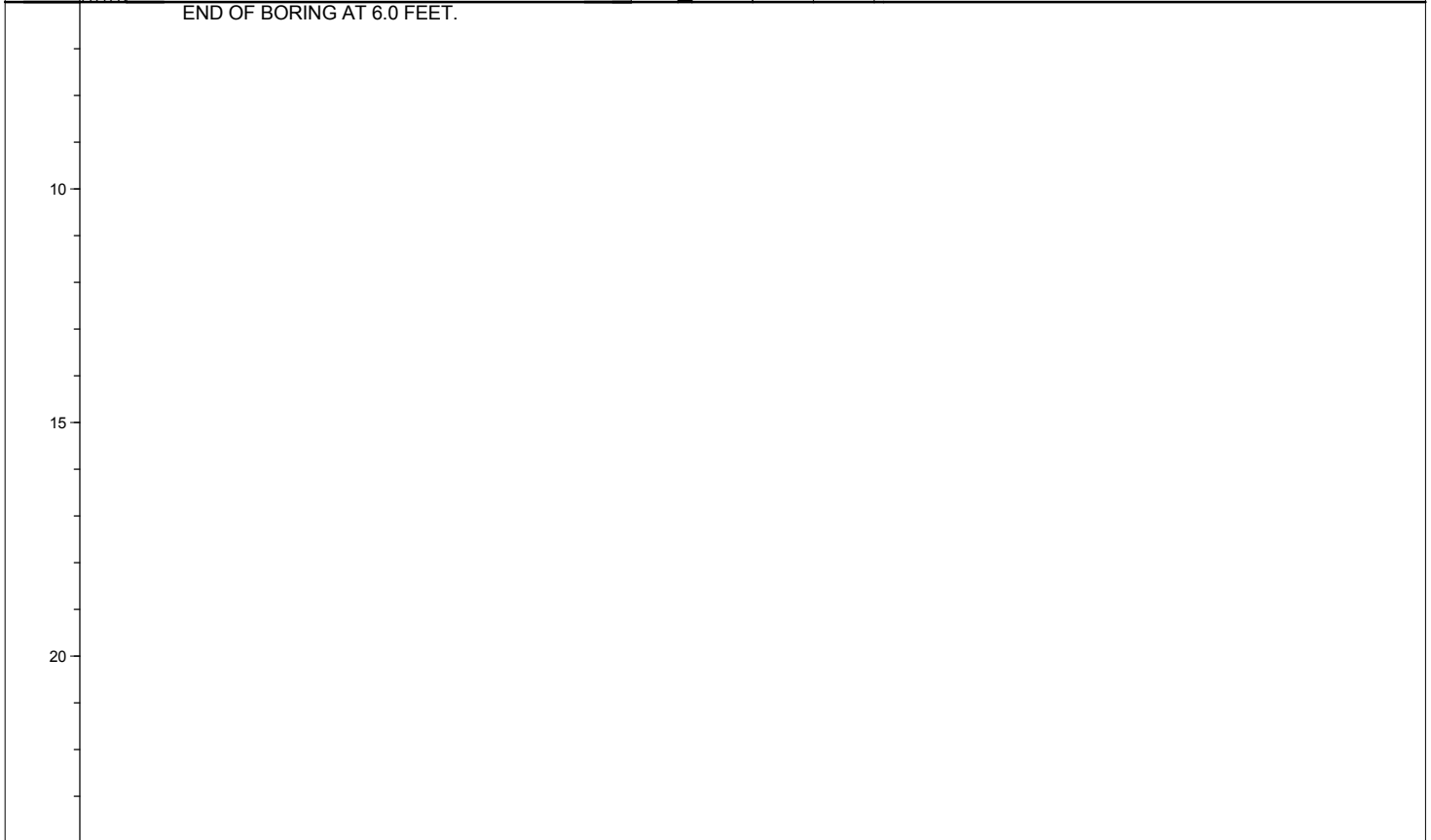
**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY (inches)	PID (ppm)	SOIL ANALYTICAL SAMPLE	REMARKS
0		ASPHALT					
0.5			LS1	28	<1		Black staining from 2 to 4 feet bgs
		FILL- Fine to Medium SAND- Occasional Clay Layers- Brown- Moist (SP)			14.3		
5			LS2	29	68.2		
6.0		END OF BORING AT 6.0 FEET.					



<b>GROUNDWATER &amp; BACKFILL INFORMATION</b>	<b>NOTES:</b> 1. Soil samples were classified according to ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for environmental purposes only. Therefore, the boring logs and associated report(s) should not be used for geotechnical evaluation or design. 2. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual. 3. Geotech samples at 0-3 and 3-5 feet bgs.
GROUNDWATER WAS NOT ENCOUNTERED	
<b>BACKFILL METHOD:</b> Bentonite & Asphalt Patch	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY (inches)	PID (ppm)	SOIL ANALYTICAL SAMPLE	REMARKS
0		ASPHALT					
0.5							
		FILL- Fine to Medium SAND with Gravel and Clay- Brown- Moist (SP-SC)	LS1	35	<1		Black staining from 3 to 4.25 feet bgs
3.0					2.2		
		FILL- LEAN CLAY with Sand- Dark Gray (CL)	LS2	38	9.8		
5							
6.0							
END OF BORING AT 6.0 FEET.							
10							
15							
20							

<p><b>GROUNDWATER &amp; BACKFILL INFORMATION</b></p>	<p>NOTES: 1. Soil samples were classified according to ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for environmental purposes only. Therefore, the boring logs and associated report(s) should not be used for geotechnical evaluation or design. 2. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual. 3. Geotech samples at 0-3 and 3-5 feet bgs.</p>
<p>GROUNDWATER WAS NOT ENCOUNTERED</p>	
<p><b>BACKFILL METHOD:</b> Bentonite &amp; Asphalt Patch</p>	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY (inches)	PID (ppm)	SOIL ANALYTICAL SAMPLE	REMARKS
0		ASPHALT					
0.5							
		FILL- Fine to Medium SAND with Gravel and Concrete Fragments- Gray and Brown- Moist (SP)	LS1	32	<1		
					<1		
5			LS2	16	<1		
6.0							
END OF BORING AT 6.0 FEET.							
10							
15							
20							

<b>GROUNDWATER &amp; BACKFILL INFORMATION</b>	<p>NOTES: 1. Soil samples were classified according to ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for environmental purposes only. Therefore, the boring logs and associated report(s) should not be used for geotechnical evaluation or design.</p> <p>2. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.</p> <p>3. Geotech samples at 0-3 feet bgs.</p>
GROUNDWATER WAS NOT ENCOUNTERED	
<b>BACKFILL METHOD:</b> Bentonite & Asphalt Patch	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY (inches)	PID (ppm)	SOIL ANALYTICAL SAMPLE	REMARKS
0		ASPHALT					
0.2		CONCRETE					
0.8					63.4		Black staining from 1 to 6 feet bgs
		FILL- Sandy LEAN CLAY with Gravel- Dark Brown (CL)	LS1	40	328.0		
5			LS2	23	1535		
6.0		END OF BORING AT 6.0 FEET.					
10							
15							
20							

<p><b>GROUNDWATER &amp; BACKFILL INFORMATION</b></p>	<p>NOTES: 1. Soil samples were classified according to ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for environmental purposes only. Therefore, the boring logs and associated report(s) should not be used for geotechnical evaluation or design. 2. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.</p>
<p>GROUNDWATER WAS NOT ENCOUNTERED</p>	
<p><b>BACKFILL METHOD:</b> Bentonite &amp; Asphalt Patch</p>	



# BORING SG5

**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY (inches)	PID (ppm)	SOIL ANALYTICAL SAMPLE	REMARKS
0		ASPHALT					
0.2		CONCRETE					
0.8					1.7		
		FILL- Fine to Medium SAND with Gravel- Occasional Clay Layers- Brown- Moist (SP)	LS1	27	2.3		
4.5					66.8		Black staining from 5 to 18 feet bgs
5		FILL- Peastone with Sand and Clay- Gray- Moist (GP)	LS2	32	39.4		
6.0		FILL- Clayey SAND with Gravel- Brown- Moist (SC)			491.2		
8.0			LS3	18			
		FILL- PEASTONE with Trace Sand- Occasional Clay Layers- Gray- Moist to Wet (GP)	LS4	5	322		
15							
18.0		LEAN CLAY- Gray (CL)	LS5	13			
20.0		END OF BORING AT 20.0 FEET.					

GROUNDWATER & BACKFILL INFORMATION	
∇ DURING BORING:	DEPTH (FT) 17.5
<b>BACKFILL METHOD:</b> Bentonite & Asphalt Patch	

NOTES: 1. Soil samples were classified according to ASTM D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) for environmental purposes only. Therefore, the boring logs and associated report(s) should not be used for geotechnical evaluation or design.  
 2. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.  
 3. Geotech samples at 0-3, 3-5, 5-7, 8-18, and 18-20 feet bgs.





**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

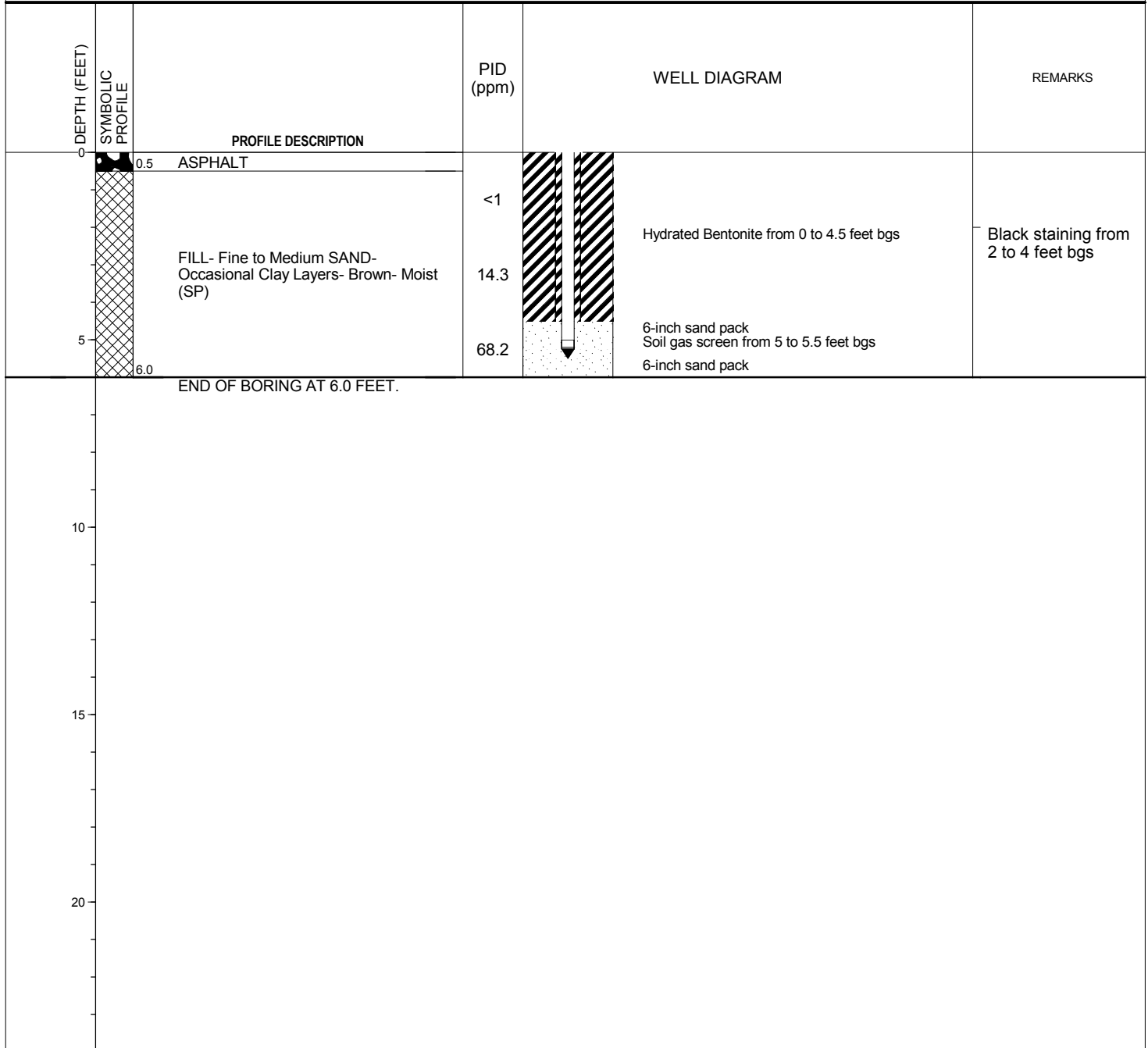
**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH



<b>GROUNDWATER INFORMATION</b>	NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual. 3. Geotech samples at 0-3 and 3-5 feet bgs.
GROUNDWATER WAS NOT ENCOUNTERED	
<b>WELL WATER LEVEL DATA</b>	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

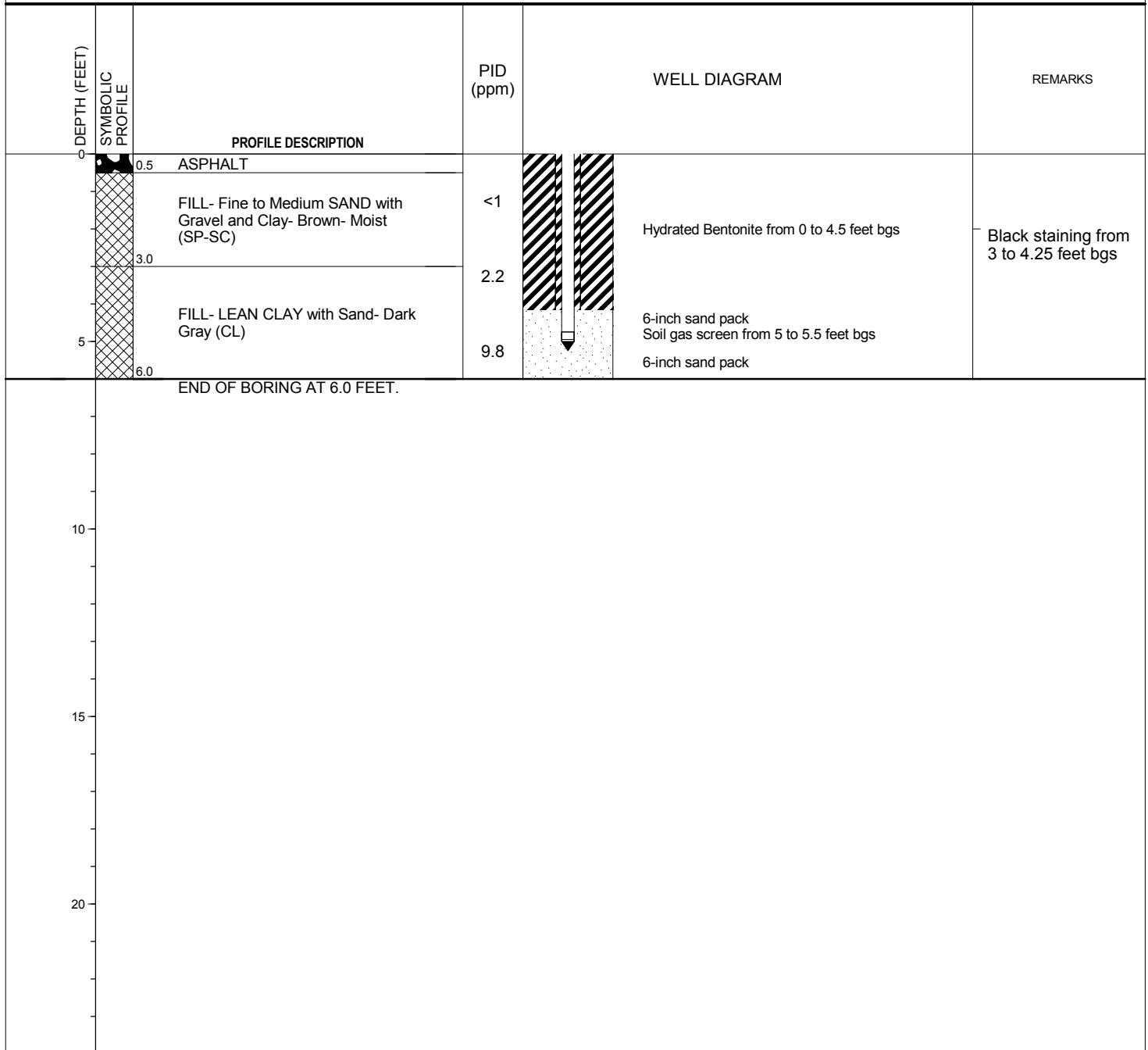
**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH



<b>GROUNDWATER INFORMATION</b>	<p>NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.</p> <p>3. Geotech samples at 0-3 and 3-5 feet bgs.</p>
GROUNDWATER WAS NOT ENCOUNTERED	
<b>WELL WATER LEVEL DATA</b>	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

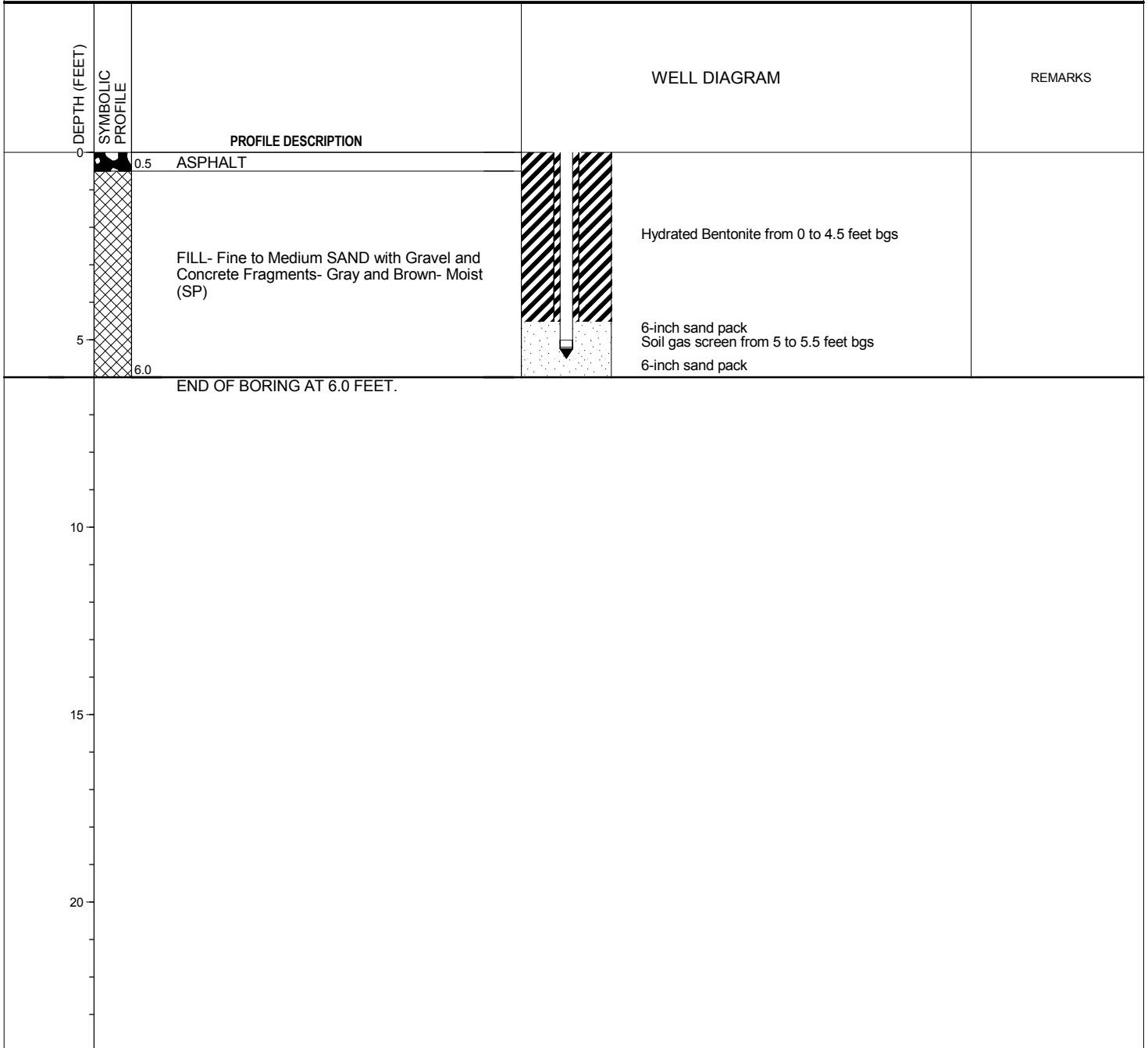
**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH



<b>GROUNDWATER INFORMATION</b>	<p>NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.</p> <p>3. Geotech samples at 0-3 feet bgs.</p>
GROUNDWATER WAS NOT ENCOUNTERED	
<b>WELL WATER LEVEL DATA</b>	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

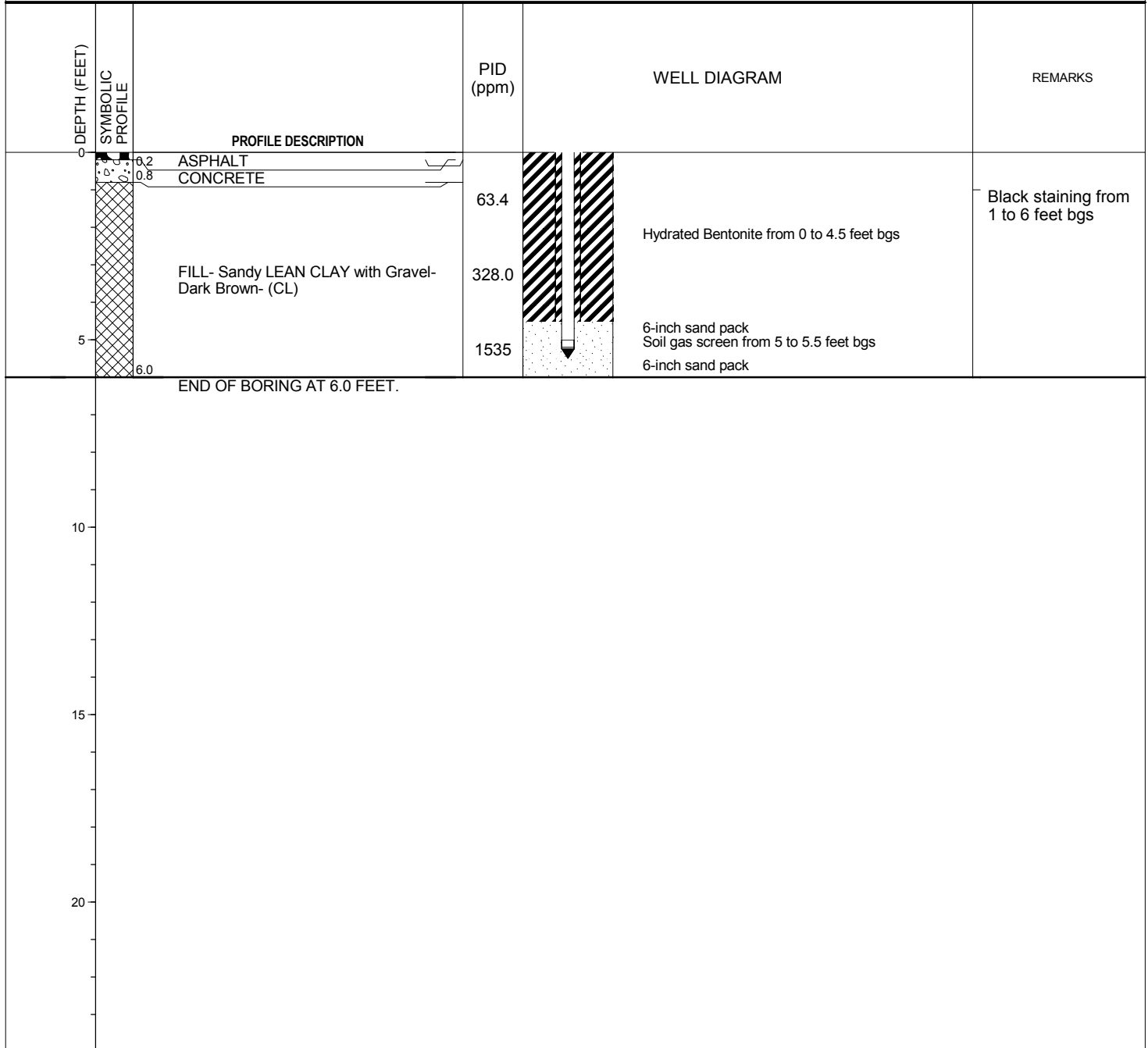
**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH



<b>GROUNDWATER INFORMATION</b>	NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
GROUNDWATER WAS NOT ENCOUNTERED	
<b>WELL WATER LEVEL DATA</b>	



**PROJECT NAME:** August LLC Redevelopment

**PROJECT NUMBER:** 075099.01.002

**CLIENT:** August LLC

**PROJECT LOCATION:** 35975 Woodward Avenue

**DATE STARTED:** 10/6/16

**COMPLETED:** 10/6/16

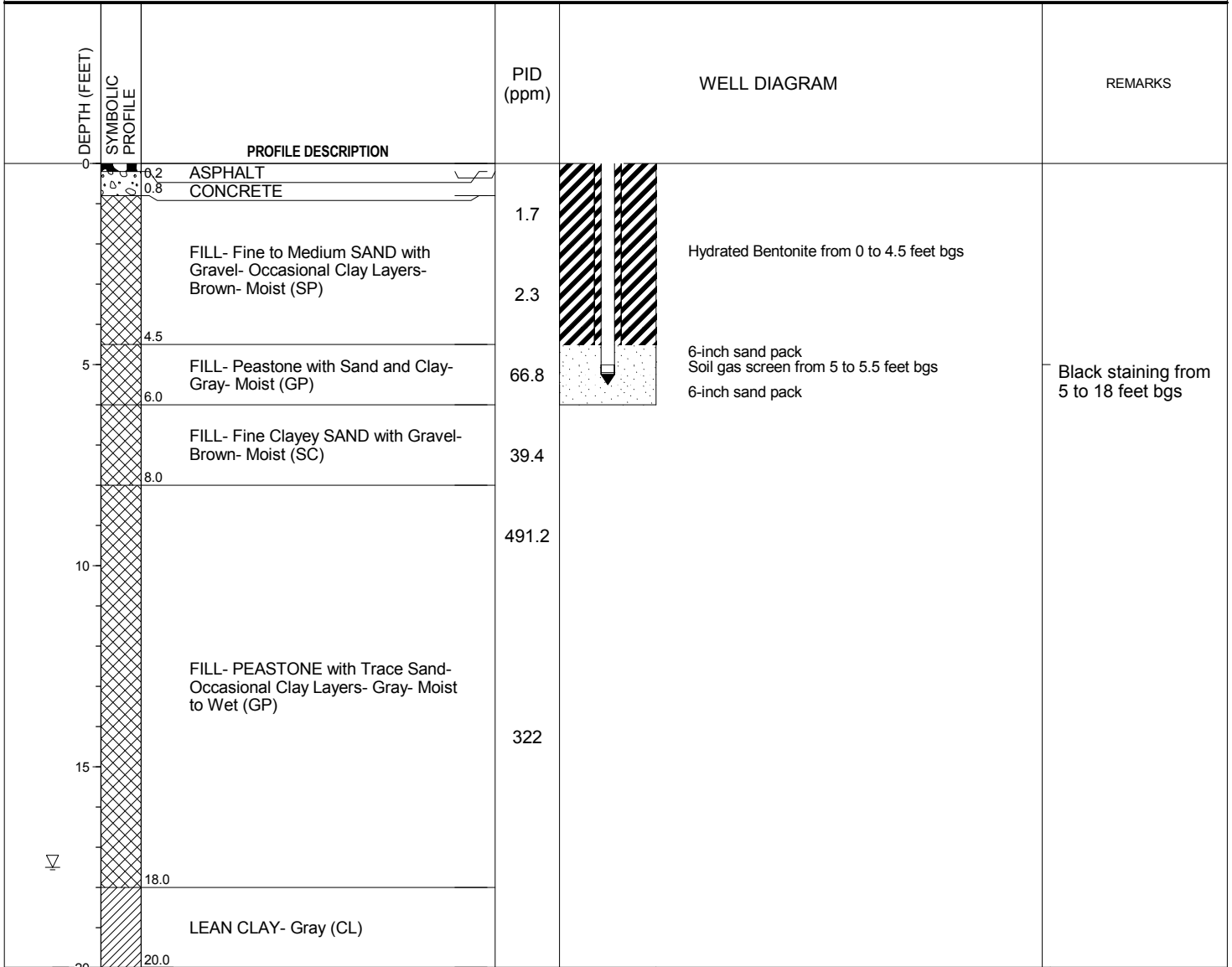
**BORING METHOD:** Direct Push

**OPERATOR:** BJM

**RIG NO.:** TRUCK MOUNT

**LOGGED BY:** CEB

**CHECKED BY:** TDH



GROUNDWATER INFORMATION	
DURING BORING: DEPTH (FT) 17.5	
WELL WATER LEVEL DATA	
DATE	DEPTH (FT)

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.  
 3. Geotech samples at 0-3, 3-5, 5-7, 8-18, and 18-20 feet bgs.



<b>Soil Gas Sample Collection Log</b>
Sample ID: SGI

**Project Site Information:**

Project Name:	August LLC Redevelopment	Date:	10/6/16
SME Project #:	G175049.01	Weather Conditions:	Sunny 60-70 F
Location:	Birmingham, ME	Temperature:	
Client:	August LLC	Barometric Pressure:	
		Wind Speed/Direction:	

**Purging Information:**

Purging Equipment:	Fibertec Helium Chamber Kit		
Tubing Material:	Nyloglow		
Tubing Diameter:	1/4" OD		
Time Purge Began:	1:01	Time Purge Ended:	1:25
Approx. Flow Rate:		Approx. Purge Volume:	

**Sampling Information:**

Sample ID:			
Sampler Name:			
Sample Location:			
Slab Thickness			
Sample Interval (Depth):	5-5.5	Moisture Content of Sampling Zone:	
Time at beginning of sampling:	1:35 pm	Time at end of sampling:	1:41 pm
O2 reading:	—	Background PID Ambient Air Reading:	< 1

**Sample Canister Volume:**

Size (circle one):	500mL	(1L)	6L
--------------------	-------	------	----

**Tracer Gas Information (if applicable):**

Tracer Gas: \_\_\_\_\_

**Canister Pressure (inches Hg):**

Reported by Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection:
28.0	26.0	3.0

**Tracer Gas Concentration (if applicable):**

Measured in 'Concentrated' Area Prior to Purge	Measured in Purge Effluent	Measured in 'Concentrated' Area Following Purge

**General Observations/Comments:**






<b>Soil Gas Sample Collection Log</b>
Sample ID: <b>SG2</b>

Project Site Information:			
Project Name:		Date:	
SME Project #:		Weather Conditions:	
Location:		Temperature:	
Client:		Barometric Pressure:	
		Wind Speed/Direction:	
Purging Information:			
Purging Equipment:			
Tubing Material:			
Tubing Diameter:			
Time Purge Began:	12:26	Time Purge Ended:	12:52
Approx. Flow Rate:		Approx. Purge Volume:	
Sampling Information:			
Sample ID:			
Sampler Name:			
Sample Location:			
Slab Thickness			
Sample Interval (Depth):	5-5.5	Moisture Content of Sampling Zone:	
Time at beginning of sampling:	1:02 pm	Time at end of sampling:	1:07 pm
O2 reading:		Background PID Ambient Air Reading:	< 1
Sample Canister Volume:			
Size (circle one):	500mL	(11)	6L
Tracer Gas Information (if applicable):			
Tracer Gas:	_____		
Canister Pressure (inches Hg):			
<b>Reported by Laboratory</b>	<b>Measured Prior to Sample Collection</b>	<b>Measured Following Sample Collection:</b>	
28.5	28.0	2.5	
Tracer Gas Concentration (if applicable):			
<b>Measured in 'Concentrated' Area Prior to Purge</b>	<b>Measured in Purge Effluent</b>	<b>Measured in 'Concentrated' Area Following Purge</b>	
General Observations/Comments:			



<b>Soil Gas Sample Collection Log</b>
Sample ID: <b>SG3</b>

**Project Site Information:**

Project Name:	Date:
SME Project #:	Weather Conditions:
Location:	Temperature:
Client:	Barometric Pressure:
	Wind Speed/Direction:

**Purging Information:**

Purging Equipment:	
Tubing Material:	
Tubing Diameter:	
Time Purge Began:	11:59
Time Purge Ended:	12:22
Approx. Flow Rate:	Approx. Purge Volume:

**Sampling Information:**

Sample ID:			
Sampler Name:			
Sample Location:			
Slab Thickness			
Sample Interval (Depth):	Moisture Content of Sampling Zone:		
Time at beginning of sampling:	12:32	Time at end of sampling:	12:36
O2 reading:	Background PID Ambient Air Reading:		

**Sample Canister Volume:**

Size (circle one):      500mL      1L      6L

**Tracer Gas Information (if applicable):**

Tracer Gas: \_\_\_\_\_

**Canister Pressure (inches Hg):**

Reported by Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection:
28.0	26.5	2.5

**Tracer Gas Concentration (if applicable):**

Measured in 'Concentrated' Area Prior to Purge	Measured in Purge Effluent	Measured in 'Concentrated' Area Following Purge

**General Observations/Comments:**




<b>Soil Gas Sample Collection Log</b>
Sample ID: <u>SG4</u>

**Project Site Information:**

Project Name:	Date:
SME Project #:	Weather Conditions:
Location:	Temperature:
Client:	Barometric Pressure:
	Wind Speed/Direction:

**Purging Information:**

Purging Equipment:	
Tubing Material:	
Tubing Diameter:	
Time Purge Began:	11:28
Time Purge Ended:	11:54
Approx. Flow Rate:	Approx. Purge Volume:

**Sampling Information:**

Sample ID:		Moisture Content of Sampling Zone:	
Sampler Name:		Time at end of sampling:	12:10
Sample Location:		Background PID Ambient Air Reading:	
Slab Thickness			
Sample Interval (Depth):			
Time at beginning of sampling:	12:05		
O2 reading:			

**Sample Canister Volume:**

Size (circle one):      500mL      1L      6L

**Tracer Gas Information (if applicable):**

Tracer Gas: \_\_\_\_\_

**Canister Pressure (inches Hg):**

Reported by Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection:
28.0	27.5	2.5

**Tracer Gas Concentration (if applicable):**

Measured in 'Concentrated' Area Prior to Purge	Measured in Purge Effluent	Measured in 'Concentrated' Area Following Purge

**General Observations/Comments:**




<b>Soil Gas Sample Collection Log</b>
Sample ID: <u>SG5</u>

**Project Site Information:**

Project Name:		Date:	
SME Project #:		Weather Conditions:	
Location:		Temperature:	
Client:		Barometric Pressure:	
		Wind Speed/Direction:	

**Purging Information:**

Purging Equipment:			
Tubing Material:			
Tubing Diameter:			
Time Purge Began:	11:01	Time Purge Ended:	11:26
Approx. Flow Rate:		Approx. Purge Volume:	

**Sampling Information:**

Sample ID:			
Sampler Name:			
Sample Location:			
Slab Thickness:			
Sample Interval (Depth):		Moisture Content of Sampling Zone:	
Time at beginning of sampling:	11:45	Time at end of sampling:	11:50
O2 reading:		Background PID Ambient Air Reading:	

**Sample Canister Volume:**

Size (cicle one):	500mL	①	6L
-------------------	-------	---	----

**Tracer Gas Information (if applicable):**

Tracer Gas: \_\_\_\_\_

**Canister Pressure (inches Hg):**

Reported by Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection:
28.0	27.5	1.0

**Tracer Gas Concentration (if applicable):**

Measured in 'Concentrated' Area Prior to Purge	Measured in Purge Effluent	Measured in 'Concentrated' Area Following Purge

**General Observations/Comments:**


**APPENDIX F**  
**LABORATORY DATA**



Monday, October 17, 2016

Fibertec Project Number: 75515  
Project Identification: 075099.01.002 /075099.01.002  
Submittal Date: 10/07/2016

Mr. Troy Helmick  
Soil and Materials Engineers, Inc. - Plymouth  
43980 Plymouth Oaks  
Plymouth, MI 48170

Dear Mr. Helmick,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 14 days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

A handwritten signature in black ink that reads "Amanda Petrovsky".

*By Amanda Petrovsky at 4:39 PM, Oct 17, 2016*

For Daryl P. Strandbergh  
Laboratory Director

Enclosures

---

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584





**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-001**

Order: 75515  
Page: 2 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG5</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>11:45</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-001**      **Matrix: Air**  
**Description: SG5**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		ppbv	3700	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
2. Benzene	<b>120000</b>		ppbv	350	3500	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
3. Benzyl Chloride	U		ppbv	150	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
4. Bromodichloromethane	U		ppbv	89	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
5. Bromoform	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
6. Bromomethane	U		ppbv	330	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
7. 1,3-Butadiene	U		ppbv	110	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
8. 2-Butanone	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 9. Carbon Disulfide	U		ppbv	3700	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
10. Carbon Tetrachloride	U		ppbv	87	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
11. Chlorobenzene	U		ppbv	150	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
12. Chloroethane	U		ppbv	2100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
13. Chloroform	U		ppbv	91	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
14. Chloromethane	U		ppbv	130	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
15. Cyclohexane	<b>230000</b>		ppbv	51000	41000	10/14/16	VA16J14A	10/14/16	VA16J14A	NSB
16. Dibromochloromethane	U		ppbv	37	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
17. 1,2-Dichlorobenzene	U		ppbv	370	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
18. 1,3-Dichlorobenzene	U		ppbv	150	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
19. 1,4-Dichlorobenzene	U		ppbv	150	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
20. Dichlorodifluoromethane	U		ppbv	330	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
21. 1,1-Dichloroethane	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
22. 1,2-Dichloroethane	U		ppbv	88	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
23. 1,1-Dichloroethene	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
24. cis-1,2-Dichloroethene	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
25. trans-1,2-Dichloroethene	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
26. 1,2-Dichloropropane	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
27. cis-1,3-Dichloropropene	U		ppbv	360	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
28. trans-1,3-Dichloropropene	U		ppbv	350	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
29. 1,4-Dioxane	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 30. Ethyl Acetate	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
31. Ethylbenzene	<b>5200</b>		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
32. Ethylene Dibromide	U		ppbv	35	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
33. n-Heptane	<b>270000</b>		ppbv	31000	41000	10/14/16	VA16J14A	10/14/16	VA16J14A	NSB
34. Hexachlorobutadiene	U		ppbv	94	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
35. n-Hexane	<b>1800000</b>		ppbv	31000	41000	10/14/16	VA16J14A	10/14/16	VA16J14A	NSB
‡ 36. 2-Hexanone	U		ppbv	1900	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 37. Isopropanol	U		ppbv	1900	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-001**

Order: 75515  
Page: 3 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG5</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>11:45</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-001**      **Matrix: Air**  
**Description: SG5**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. Methylene Chloride	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 39. 2-Methylnaphthalene	U		ppbv	3300	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
40. 4-Methyl-2-pentanone	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
41. MTBE	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 42. Naphthalene	U		ppbv	1200	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
43. Styrene	U		ppbv	1800	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
44. 1,1,2,2-Tetrachloroethane	U		ppbv	37	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
45. Tetrachloroethene	U		ppbv	89	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 46. Tetrahydrofuran	U		ppbv	2100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
47. Toluene	<b>3300</b>		ppbv	370	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
48. 1,2,4-Trichlorobenzene	U		ppbv	1900	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
49. 1,1,1-Trichloroethane	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
50. 1,1,2-Trichloroethane	U		ppbv	88	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
51. Trichloroethene	U		ppbv	35	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
52. Trichlorofluoromethane	U		ppbv	150	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
53. 1,1,2-Trichlorotrifluoroethane	U		ppbv	350	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
54. 1,2,4-Trimethylbenzene	<b>2100</b>		ppbv	370	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
55. 1,3,5-Trimethylbenzene	<b>730</b>		ppbv	360	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
56. Vinyl Acetate	U		ppbv	3800	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
57. Vinyl Chloride	U		ppbv	140	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
58. m&p-Xylene	<b>4500</b>		ppbv	2100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
59. o-Xylene	U		ppbv	1100	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 60. Xylenes	<b>4500</b>		ppbv	3200	1400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-002**

Order: 75515  
Page: 4 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG4</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>12:05</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)** Aliquot ID: **75515-002** Matrix: **Air**  
**Method: EPA TO-15** Description: **SG4**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		ppbv	6700	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
2. Benzene	<b>13000</b>		ppbv	260	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
3. Benzyl Chloride	U		ppbv	270	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
4. Bromodichloromethane	U		ppbv	160	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
5. Bromoform	U		ppbv	1900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
6. Bromomethane	U		ppbv	600	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
7. 1,3-Butadiene	U		ppbv	210	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
8. 2-Butanone	U		ppbv	2000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 9. Carbon Disulfide	U		ppbv	6700	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
10. Carbon Tetrachloride	U		ppbv	160	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
11. Chlorobenzene	U		ppbv	270	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
12. Chloroethane	U		ppbv	3900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
13. Chloroform	U		ppbv	170	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
14. Chloromethane	U		ppbv	250	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
15. Cyclohexane	<b>170000</b>		ppbv	23000	31000	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
16. Dibromochloromethane	U		ppbv	67	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
17. 1,2-Dichlorobenzene	U		ppbv	670	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
18. 1,3-Dichlorobenzene	U		ppbv	270	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
19. 1,4-Dichlorobenzene	U		ppbv	270	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
20. Dichlorodifluoromethane	U		ppbv	600	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
21. 1,1-Dichloroethane	U		ppbv	250	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
22. 1,2-Dichloroethane	<b>370</b>		ppbv	160	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
23. 1,1-Dichloroethene	U		ppbv	260	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
24. cis-1,2-Dichloroethene	U		ppbv	260	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
25. trans-1,2-Dichloroethene	U		ppbv	250	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
26. 1,2-Dichloropropane	U		ppbv	260	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
27. cis-1,3-Dichloropropene	U		ppbv	660	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
28. trans-1,3-Dichloropropene	U		ppbv	650	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
29. 1,4-Dioxane	U		ppbv	260	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 30. Ethyl Acetate	U		ppbv	2000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
31. Ethylbenzene	<b>9100</b>		ppbv	2000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
32. Ethylene Dibromide	U		ppbv	65	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
33. n-Heptane	<b>500000</b>		ppbv	24000	31000	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
34. Hexachlorobutadiene	U		ppbv	170	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
35. n-Hexane	<b>1300000</b>		ppbv	7900	31000	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 36. 2-Hexanone	U		ppbv	3400	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 37. Isopropanol	U		ppbv	3500	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-002**

Order: 75515  
 Page: 5 of 12  
 Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG4</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>12:05</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-002**      **Matrix: Air**  
**Description: SG4**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. Methylene Chloride	U		ppbv	1900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 39. 2-Methylnaphthalene	U		ppbv	6000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
40. 4-Methyl-2-pentanone	U		ppbv	2000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
41. MTBE	U		ppbv	1900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 42. Naphthalene	U		ppbv	2100	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
43. Styrene	U		ppbv	3400	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
44. 1,1,2,2-Tetrachloroethane	U		ppbv	67	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
45. Tetrachloroethene	U		ppbv	160	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 46. Tetrahydrofuran	U		ppbv	3900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
47. Toluene	<b>3100</b>		ppbv	670	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
48. 1,2,4-Trichlorobenzene	U		ppbv	3500	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
49. 1,1,1-Trichloroethane	U		ppbv	250	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
50. 1,1,2-Trichloroethane	U		ppbv	160	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
51. Trichloroethene	U		ppbv	65	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
52. Trichlorofluoromethane	U		ppbv	280	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
53. 1,1,2-Trichlorotrifluoroethane	U		ppbv	640	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
54. 1,2,4-Trimethylbenzene	U		ppbv	670	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
55. 1,3,5-Trimethylbenzene	U		ppbv	660	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
56. Vinyl Acetate	U		ppbv	7000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
57. Vinyl Chloride	U		ppbv	250	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
58. m&p-Xylene	U		ppbv	3900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
59. o-Xylene	U		ppbv	2000	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 60. Xylenes	U		ppbv	5900	2600	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
 11766 E. Grand River  
 8660 S. Mackinaw Trail

Holt, MI 48842  
 Brighton, MI 48116  
 Cadillac, MI 49601

T: (517) 699-0345  
 T: (810) 220-3300  
 T: (231) 775-8368

F: (517) 699-0388  
 F: (810) 220-3311  
 F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-003**

Order: 75515  
 Page: 6 of 12  
 Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG3</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>12:32</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-003**      **Matrix: Air**  
**Description: SG3**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		ppbv	1600	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
2. Benzene	120		ppbv	60	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
3. Benzyl Chloride	U		ppbv	61	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
4. Bromodichloromethane	U		ppbv	38	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
5. Bromoform	U		ppbv	450	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
6. Bromomethane	U		ppbv	140	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
7. 1,3-Butadiene	U		ppbv	48	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
8. 2-Butanone	U		ppbv	460	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 9. Carbon Disulfide	U		ppbv	1600	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
10. Carbon Tetrachloride	U		ppbv	36	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
11. Chlorobenzene	U		ppbv	62	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
12. Chloroethane	U		ppbv	900	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
13. Chloroform	U		ppbv	38	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
14. Chloromethane	U		ppbv	57	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
15. Cyclohexane	2500		ppbv	450	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
16. Dibromochloromethane	U		ppbv	16	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
17. 1,2-Dichlorobenzene	U		ppbv	160	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
18. 1,3-Dichlorobenzene	U		ppbv	61	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
19. 1,4-Dichlorobenzene	U		ppbv	62	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
20. Dichlorodifluoromethane	U		ppbv	140	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
21. 1,1-Dichloroethane	U		ppbv	58	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
22. 1,2-Dichloroethane	U		ppbv	37	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
23. 1,1-Dichloroethene	U		ppbv	60	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
24. cis-1,2-Dichloroethene	U		ppbv	59	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
25. trans-1,2-Dichloroethene	U		ppbv	58	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
26. 1,2-Dichloropropane	U		ppbv	60	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
27. cis-1,3-Dichloropropene	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
28. trans-1,3-Dichloropropene	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
29. 1,4-Dioxane	U		ppbv	60	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 30. Ethyl Acetate	U		ppbv	460	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
31. Ethylbenzene	U		ppbv	460	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
32. Ethylene Dibromide	U		ppbv	15	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
33. n-Heptane	1500		ppbv	460	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
34. Hexachlorobutadiene	U		ppbv	39	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
35. n-Hexane	18000		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 36. 2-Hexanone	U		ppbv	790	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 37. Isopropanol	U		ppbv	810	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB

1914 Holloway Drive  
 11766 E. Grand River  
 8660 S. Mackinaw Trail

Holt, MI 48842  
 Brighton, MI 48116  
 Cadillac, MI 49601

T: (517) 699-0345  
 T: (810) 220-3300  
 T: (231) 775-8368

F: (517) 699-0388  
 F: (810) 220-3311  
 F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-003**

Order: 75515  
Page: 7 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG3</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>12:32</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-003**      **Matrix: Air**  
**Description: SG3**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. Methylene Chloride	U		ppbv	450	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 39. 2-Methylnaphthalene	U		ppbv	1400	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
40. 4-Methyl-2-pentanone	U		ppbv	470	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
41. MTBE	U		ppbv	450	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 42. Naphthalene	U		ppbv	490	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
43. Styrene	U		ppbv	780	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
44. 1,1,2,2-Tetrachloroethane	U		ppbv	16	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
45. Tetrachloroethene	U		ppbv	38	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 46. Tetrahydrofuran	U		ppbv	900	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
47. Toluene	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
48. 1,2,4-Trichlorobenzene	U		ppbv	810	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
49. 1,1,1-Trichloroethane	U		ppbv	58	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
50. 1,1,2-Trichloroethane	U		ppbv	37	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
51. Trichloroethene	U		ppbv	15	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
52. Trichlorofluoromethane	U		ppbv	65	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
53. 1,1,2-Trichlorotrifluoroethane	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
54. 1,2,4-Trimethylbenzene	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
55. 1,3,5-Trimethylbenzene	U		ppbv	150	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
56. Vinyl Acetate	U		ppbv	1600	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
57. Vinyl Chloride	U		ppbv	58	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
58. m&p-Xylene	U		ppbv	900	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
59. o-Xylene	U		ppbv	460	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 60. Xylenes	U		ppbv	1400	600	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-004**

Order: 75515  
Page: 8 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG2</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>13:02</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)** Aliquot ID: **75515-004** Matrix: **Air**  
**Method: EPA TO-15** Description: **SG2**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		ppbv	6100	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
2. Benzene	<b>1100</b>		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
3. Benzyl Chloride	U		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
4. Bromodichloromethane	U		ppbv	150	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
5. Bromoform	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
6. Bromomethane	U		ppbv	550	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
7. 1,3-Butadiene	U		ppbv	190	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
8. 2-Butanone	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 9. Carbon Disulfide	U		ppbv	6100	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
10. Carbon Tetrachloride	U		ppbv	140	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
11. Chlorobenzene	U		ppbv	250	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
12. Chloroethane	U		ppbv	3500	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
13. Chloroform	U		ppbv	150	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
14. Chloromethane	U		ppbv	220	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
15. Cyclohexane	<b>66000</b>		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
16. Dibromochloromethane	U		ppbv	61	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
17. 1,2-Dichlorobenzene	U		ppbv	610	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
18. 1,3-Dichlorobenzene	U		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
19. 1,4-Dichlorobenzene	U		ppbv	250	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
20. Dichlorodifluoromethane	U		ppbv	540	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
21. 1,1-Dichloroethane	U		ppbv	230	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
22. 1,2-Dichloroethane	U		ppbv	150	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
23. 1,1-Dichloroethene	U		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
24. cis-1,2-Dichloroethene	U		ppbv	230	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
25. trans-1,2-Dichloroethene	U		ppbv	230	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
26. 1,2-Dichloropropane	U		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
27. cis-1,3-Dichloropropene	U		ppbv	600	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
28. trans-1,3-Dichloropropene	U		ppbv	590	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
29. 1,4-Dioxane	U		ppbv	240	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 30. Ethyl Acetate	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
31. Ethylbenzene	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
32. Ethylene Dibromide	U		ppbv	59	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
33. n-Heptane	<b>28000</b>		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
34. Hexachlorobutadiene	U		ppbv	160	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
35. n-Hexane	<b>320000</b>		ppbv	9900	13000	10/14/16	VA16J14A	10/14/16	VA16J14A	NSB
‡ 36. 2-Hexanone	U		ppbv	3100	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 37. Isopropanol	U		ppbv	3200	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584





**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-004**

Order: 75515  
Page: 9 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG2</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>13:02</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-004**      **Matrix: Air**  
**Description: SG2**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. Methylene Chloride	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 39. 2-Methylnaphthalene	U		ppbv	5400	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
40. 4-Methyl-2-pentanone	U		ppbv	1900	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
41. MTBE	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 42. Naphthalene	U		ppbv	1900	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
43. Styrene	U		ppbv	3100	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
44. 1,1,2,2-Tetrachloroethane	U		ppbv	61	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
45. Tetrachloroethene	U		ppbv	150	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 46. Tetrahydrofuran	U		ppbv	3500	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
47. Toluene	U		ppbv	610	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
48. 1,2,4-Trichlorobenzene	U		ppbv	3200	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
49. 1,1,1-Trichloroethane	U		ppbv	230	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
50. 1,1,2-Trichloroethane	U		ppbv	150	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
51. Trichloroethene	U		ppbv	59	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
52. Trichlorofluoromethane	U		ppbv	260	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
53. 1,1,2-Trichlorotrifluoroethane	U		ppbv	580	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
54. 1,2,4-Trimethylbenzene	U		ppbv	610	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
55. 1,3,5-Trimethylbenzene	U		ppbv	600	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
56. Vinyl Acetate	U		ppbv	6400	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
57. Vinyl Chloride	U		ppbv	230	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
58. m&p-Xylene	U		ppbv	3500	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
59. o-Xylene	U		ppbv	1800	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 60. Xylenes	U		ppbv	5300	2400	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-005**

Order: 75515  
 Page: 10 of 12  
 Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG1</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>13:35</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)** Aliquot ID: **75515-005** Matrix: **Air**  
**Method: EPA TO-15** Description: **SG1**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. Acetone	U		ppbv	5400	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
2. Benzene	<b>2100</b>		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
3. Benzyl Chloride	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
4. Bromodichloromethane	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
5. Bromoform	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
6. Bromomethane	U		ppbv	480	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
7. 1,3-Butadiene	U		ppbv	170	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
8. 2-Butanone	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 9. Carbon Disulfide	U		ppbv	5400	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
10. Carbon Tetrachloride	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
11. Chlorobenzene	U		ppbv	220	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
12. Chloroethane	U		ppbv	3100	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
13. Chloroform	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
14. Chloromethane	U		ppbv	200	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
15. Cyclohexane	<b>150000</b>		ppbv	3900	5200	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
16. Dibromochloromethane	U		ppbv	54	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
17. 1,2-Dichlorobenzene	U		ppbv	540	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
18. 1,3-Dichlorobenzene	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
19. 1,4-Dichlorobenzene	U		ppbv	220	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
20. Dichlorodifluoromethane	U		ppbv	480	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
21. 1,1-Dichloroethane	U		ppbv	200	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
22. 1,2-Dichloroethane	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
23. 1,1-Dichloroethene	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
24. cis-1,2-Dichloroethene	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
25. trans-1,2-Dichloroethene	U		ppbv	200	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
26. 1,2-Dichloropropane	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
27. cis-1,3-Dichloropropene	U		ppbv	530	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
28. trans-1,3-Dichloropropene	U		ppbv	520	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
29. 1,4-Dioxane	U		ppbv	210	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 30. Ethyl Acetate	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
31. Ethylbenzene	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
32. Ethylene Dibromide	U		ppbv	52	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
33. n-Heptane	<b>25000</b>		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
34. Hexachlorobutadiene	U		ppbv	140	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
35. n-Hexane	<b>230000</b>		ppbv	1300	5200	10/13/16	VK16J13A	10/13/16	VK16J13A	NSB
‡ 36. 2-Hexanone	U		ppbv	2800	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 37. Isopropanol	U		ppbv	2800	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
 11766 E. Grand River  
 8660 S. Mackinaw Trail

Holt, MI 48842  
 Brighton, MI 48116  
 Cadillac, MI 49601

T: (517) 699-0345  
 T: (810) 220-3300  
 T: (231) 775-8368

F: (517) 699-0388  
 F: (810) 220-3311  
 F: (231) 775-8584



**Analytical Laboratory Report**  
**Laboratory Project Number: 75515**  
**Laboratory Sample Number: 75515-005**

Order: 75515  
Page: 11 of 12  
Date: 10/17/16

Client Identification: <b>Soil and Materials Engineers, Inc. - Plymouth</b>	Sample Description: <b>SG1</b>	Chain of Custody: <b>146939</b>
Client Project Name: <b>075099.01.002</b>	Sample No:	Collect Date: <b>10/06/16</b>
Client Project No: <b>075099.01.002</b>	Sample Matrix: <b>Air</b>	Collect Time: <b>13:35</b>

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**TO-15 (Bottle-Vac)**  
**Method: EPA TO-15**

**Aliquot ID: 75515-005**      **Matrix: Air**  
**Description: SG1**

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
38. Methylene Chloride	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 39. 2-Methylnaphthalene	U		ppbv	4800	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
40. 4-Methyl-2-pentanone	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
41. MTBE	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 42. Naphthalene	U		ppbv	1700	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
43. Styrene	U		ppbv	2700	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
44. 1,1,2,2-Tetrachloroethane	U		ppbv	54	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
45. Tetrachloroethene	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 46. Tetrahydrofuran	U		ppbv	3100	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
47. Toluene	U		ppbv	530	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
48. 1,2,4-Trichlorobenzene	U		ppbv	2800	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
49. 1,1,1-Trichloroethane	U		ppbv	200	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
50. 1,1,2-Trichloroethane	U		ppbv	130	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
51. Trichloroethene	<b>1100</b>		ppbv	52	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
52. Trichlorofluoromethane	U		ppbv	230	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
53. 1,1,2-Trichlorotrifluoroethane	U		ppbv	510	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
54. 1,2,4-Trimethylbenzene	U		ppbv	530	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
55. 1,3,5-Trimethylbenzene	U		ppbv	520	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
56. Vinyl Acetate	U		ppbv	5600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
57. Vinyl Chloride	U		ppbv	200	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
58. m&p-Xylene	U		ppbv	3100	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
59. o-Xylene	U		ppbv	1600	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB
‡ 60. Xylenes	U		ppbv	4700	2100	10/12/16	VK16J12A	10/13/16	VK16J12A	NSB

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

---

**Definitions/ Qualifiers:**

- A:** Spike recovery or precision unusable due to dilution.
- B:** The analyte was detected in the associated method blank.
- E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
- J:** The concentration is an estimated value.
- M:** Modified Method
- U:** The analyte was not detected at or above the reporting limit.
- X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
- W:** Results reported on a wet-weight basis.
- \*:** Value reported is outside QC limits

---

**Exception Summary:**

---



Accreditation Number(s):

**T104704518-16-5 (TX)**

---

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Quality Control Report**  
**Preparation Batch QC Summary**  
**Gas Chromatography - Mass Spectrometry (TO-15)**  
**Air**

Batch ID: VA16J14A  
Page: 1 of 1  
Date: 10/17/16

Preparation Batch: VA16J14A      Preparation Date: 10/14/16

Parameter	Method Blank (MB)			Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result ppbv	RL ppbv	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
1. Cyclohexane	U	51000		14.6	14.1	103	74 - 138		103	0	20		MB-3	LCS-3	LCD-3
2. n-Heptane	U	31000		15.2	14.1	107	75 - 141		106	1	20		MB-3	LCS-3	LCD-3
3. n-Hexane	U	9900		15.5	14.5	107	74 - 136		105	2	20		MB-3	LCS-3	LCD-3

System Monitoring Compounds (Surrogates):	Method Blank (MB)				Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result ppbv	Spike ppbv	Rec. %	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
1. 4-Bromofluorobenzene(S)	5.95	6.38	93		6.56	6.38	103	78 - 120		104	1	20		MB-3	LCS-3	LCD-3

**Definitions/ Qualifiers:**

**U:** The analyte was not detected at or above the Reporting Limit (RL).  
**\***: Value reported is outside QC limits

**Run Code (Analysis Sequence/Run Time):**

MB-3    VA16J14A    10/14/16 14:42  
LCS-3    VA16J14A    10/14/16 12:20  
LCD-3    VA16J14A    10/14/16 13:06

**Exception Summary:**

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

**Report Generated By:**

By Amanda Petrovsky at 4:43 PM, Oct 17, 2016

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584

**Quality Control Report**  
**Preparation Batch QC Summary**  
**Gas Chromatography - Mass Spectrometry (TO-15)**  
**Air**

Batch ID: VK16J12A  
Page: 1 of 2  
Date: 10/17/16

Preparation Batch: VK16J12A      Preparation Date: 10/12/16

Parameter	Method Blank (MB)			Laboratory Control Sample (LCS)					LCS Duplicate (LCD)				Run Code		
	Result ppbv	RL ppbv	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
1. Acetone	U	3700		13.9	15.3	91	68 - 130		90	1	20		MB-1	LCS-1	LCD-1
2. Benzene	U	210		14.2	14.1	101	71 - 133		101	0	20		MB-1	LCS-1	LCD-1
3. Benzyl Chloride	U	150		17.4	14.3	122	75 - 139		122	0	20		MB-1	LCS-1	LCD-1
4. Bromodichloromethane	U	89		15.4	14.1	109	71 - 131		109	0	20		MB-1	LCS-1	LCD-1
5. Bromoform	U	1100		15.7	14.3	111	72 - 134		111	0	20		MB-1	LCS-1	LCD-1
6. Bromomethane	U	330		13.5	12.8	106	73 - 135		105	1	20		MB-1	LCS-1	LCD-1
7. 1,3-Butadiene	U	110		14.2	13.6	104	73 - 137		104	0	20		MB-1	LCS-1	LCD-1
8. 2-Butanone	U	1100		14.7	14.3	103	72 - 134		102	1	20		MB-1	LCS-1	LCD-1
9. Carbon Disulfide	U	3700		15.2	14.8	103	69 - 127		102	1	20		MB-1	LCS-1	LCD-1
10. Carbon Tetrachloride	U	87		15.8	13.6	116	72 - 134		116	0	20		MB-1	LCS-1	LCD-1
11. Chlorobenzene	U	150		15.2	14.6	104	70 - 130		104	0	20		MB-1	LCS-1	LCD-1
12. Chloroethane	U	2100		13.8	12.6	109	74 - 136		109	0	20		MB-1	LCS-1	LCD-1
13. Chloroform	U	91		15.8	14.4	110	72 - 132		108	2	20		MB-1	LCS-1	LCD-1
14. Chloromethane	U	130		13.0	13.3	98	70 - 130		98	0	20		MB-1	LCS-1	LCD-1
15. Cyclohexane	U	1800		14.6	14.1	103	74 - 138		102	1	20		MB-1	LCS-1	LCD-1
16. Dibromochloromethane	U	37		16.6	14.9	112	72 - 134		111	1	20		MB-1	LCS-1	LCD-1
17. 1,2-Dichlorobenzene	U	370		16.1	14.6	110	72 - 134		110	0	20		MB-1	LCS-1	LCD-1
18. 1,3-Dichlorobenzene	U	150		16.2	14.4	113	75 - 139		113	0	20		MB-1	LCS-1	LCD-1
19. 1,4-Dichlorobenzene	U	150		16.6	14.5	114	76 - 140		114	0	20		MB-1	LCS-1	LCD-1
20. Dichlorodifluoromethane	U	330		15.2	12.6	121	71 - 131		119	2	20		MB-1	LCS-1	LCD-1
21. 1,1-Dichloroethane	U	140		14.2	13.9	103	71 - 131		102	1	20		MB-1	LCS-1	LCD-1
22. 1,2-Dichloroethane	U	88		16.2	14.1	115	71 - 133		114	1	20		MB-1	LCS-1	LCD-1
23. 1,1-Dichloroethene	U	140		15.3	14.1	109	72 - 134		108	1	20		MB-1	LCS-1	LCD-1
24. cis-1,2-Dichloroethene	U	140		14.8	14.1	105	72 - 134		103	2	20		MB-1	LCS-1	LCD-1
25. trans-1,2-Dichloroethene	U	140		14.7	14.0	105	71 - 133		105	0	20		MB-1	LCS-1	LCD-1
26. 1,2-Dichloropropane	U	140		13.9	14.3	98	71 - 131		97	1	20		MB-1	LCS-1	LCD-1
27. cis-1,3-Dichloropropene	U	360		15.1	14.5	104	74 - 138		104	0	20		MB-1	LCS-1	LCD-1
28. trans-1,3-Dichloropropene	U	350		15.5	14.3	109	75 - 139		109	0	20		MB-1	LCS-1	LCD-1
29. 1,4-Dioxane	U	140		15.2	14.0	108	73 - 135		108	0	20		MB-1	LCS-1	LCD-1
30. Ethyl Acetate	U	1100		15.5	15.1	102	71 - 131		101	1	20		MB-1	LCS-1	LCD-1
31. Ethylbenzene	U	1100		15.5	14.5	107	75 - 139		106	1	20		MB-1	LCS-1	LCD-1
32. Ethylene Dibromide	U	35		15.2	14.1	108	71 - 133		107	1	20		MB-1	LCS-1	LCD-1
33. n-Heptane	U	1600		15.4	14.1	109	75 - 141		108	1	20		MB-1	LCS-1	LCD-1
34. Hexachlorobutadiene	U	94		16.2	14.3	114	73 - 137		114	0	20		MB-1	LCS-1	LCD-1
35. 2-Hexanone	U	1900		16.0	14.3	112	76 - 142		111	1	20		MB-1	LCS-1	LCD-1
36. Isopropanol	U	1900		11.2	11.2	100	68 - 130		86	15	20		MB-1	LCS-1	LCD-1
37. Methylene Chloride	U	1100		14.3	14.0	102	71 - 133		101	1	20		MB-1	LCS-1	LCD-1
38. 2-Methylnaphthalene	U	3300		15.0	11.5	131	73 - 137		131	0	20		MB-1	LCS-1	LCD-1
39. 4-Methyl-2-pentanone	U	1100		15.2	14.4	106	74 - 138		107	1	20		MB-1	LCS-1	LCD-1
40. MTBE	U	1100		11.3	11.9	96	71 - 133		95	1	20		MB-1	LCS-1	LCD-1
41. Naphthalene	U	1200		18.2	15.1	120	74 - 138		119	1	20		MB-1	LCS-1	LCD-1
42. Styrene	U	1800		13.9	13.4	104	74 - 136		103	1	20		MB-1	LCS-1	LCD-1
43. 1,1,2,2-Tetrachloroethane	U	37		15.3	14.3	107	71 - 131		107	0	20		MB-1	LCS-1	LCD-1
44. Tetrachloroethene	U	89		15.0	14.3	106	70 - 130		104	2	20		MB-1	LCS-1	LCD-1
45. Tetrahydrofuran	U	2100		14.9	15.0	100	73 - 135		98	2	20		MB-1	LCS-1	LCD-1
46. Toluene	U	370		15.3	14.6	105	73 - 135		103	2	20		MB-1	LCS-1	LCD-1
47. 1,2,4-Trichlorobenzene	U	1900		17.1	15.1	113	75 - 139		113	0	20		MB-1	LCS-1	LCD-1
48. 1,1,1-Trichloroethane	U	140		15.7	13.6	115	71 - 133		115	0	20		MB-1	LCS-1	LCD-1
49. 1,1,2-Trichloroethane	U	88		14.4	14.0	103	69 - 129		102	1	20		MB-1	LCS-1	LCD-1
50. Trichloroethene	U	35		14.8	14.1	105	72 - 134		104	1	20		MB-1	LCS-1	LCD-1
51. Trichlorofluoromethane	U	150		15.7	15.3	103	73 - 135		102	1	20		MB-1	LCS-1	LCD-1

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Quality Control Report**  
**Preparation Batch QC Summary**  
**Gas Chromatography - Mass Spectrometry (TO-15)**  
**Air**

Batch ID: VK16J12A  
 Page: 2 of 2  
 Date: 10/17/16

Preparation Batch: VK16J12A      Preparation Date: 10/12/16

Parameter	Method Blank (MB)			Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result	RL	Q	Result	Spike	Rec.	LCL - UCL	Q	Rec.	RPD	UCL	Q	MB	LCS	LCD
	ppbv	ppbv		ppbv	ppbv	%	%		%	%	%				
52. 1,1,2-Trichlorotrifluoroethane	U	350		15.0	13.9	108	71 - 131		107	1	20		MB-1	LCS-1	LCD-1
53. 1,2,4-Trimethylbenzene	U	370		16.3	14.5	113	75 - 139		112	1	20		MB-1	LCS-1	LCD-1
54. 1,3,5-Trimethylbenzene	U	360		16.0	14.1	113	74 - 136		113	0	20		MB-1	LCS-1	LCD-1
55. Vinyl Acetate	U	3800		12.8	13.3	96	72 - 134		97	1	20		MB-1	LCS-1	LCD-1
56. Vinyl Chloride	U	140		13.2	13.4	99	74 - 136		99	0	20		MB-1	LCS-1	LCD-1
57. m&p-Xylene	U	2100		30.1	28.4	106	74 - 138		106	0	20		MB-1	LCS-1	LCD-1
58. o-Xylene	U	1100		15.9	14.4	111	73 - 135		110	1	20		MB-1	LCS-1	LCD-1

System Monitoring Compounds (Surrogates)	Method Blank (MB)				Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result	Spike	Rec.	Q	Result	Spike	Rec.	LCL - UCL	Q	Rec.	RPD	UCL	Q	MB	LCS	LCD
	ppbv	ppbv	%		ppbv	ppbv	%	%		%	%	%				
1. 4-Bromofluorobenzene(S)	6.89	6.38	108		7.24	6.38	114	78 - 120		114	0	20		MB-1	LCS-1	LCD-1

**Definitions/Qualifiers:**

U: The analyte was not detected at or above the Reporting Limit (RL).  
 \*: Value reported is outside QC limits

**Run Code (Analysis Sequence/Run Time):**

MB-1 VK16J12A 10/12/16 14:10  
 LCS-1 VK16J12A 10/12/16 11:22  
 LCD-1 VK16J12A 10/12/16 12:16

**Exception Summary:**

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

**Report Generated By:**

By Amanda Petrovsky at 4:43 PM, Oct 17, 2016

1914 Holloway Drive  
 11766 E. Grand River  
 8660 S. Mackinaw Trail

Holt, MI 48842  
 Brighton, MI 48116  
 Cadillac, MI 49601

T: (517) 699-0345  
 T: (810) 220-3300  
 T: (231) 775-8368

F: (517) 699-0388  
 F: (810) 220-3311  
 F: (231) 775-8584





**Quality Control Report**  
**Preparation Batch QC Summary**  
**Gas Chromatography - Mass Spectrometry (TO-15)**  
**Air**

Batch ID: VK16J13A  
Page: 1 of 2  
Date: 10/17/16

Preparation Batch: **VK16J13A**      Preparation Date: **10/13/16**

Parameter	Method Blank (MB)			Laboratory Control Sample (LCS)					LCS Duplicate (LCD)				Run Code		
	Result ppbv	RL ppbv	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
1. Acetone	U	1600		14.2	15.3	93	68 - 130		93	0	20		MB-2	LCS-2	LCD-2
2. Benzene	U	60		14.5	14.1	103	71 - 133		103	0	20		MB-2	LCS-2	LCD-2
3. Benzyl Chloride	U	61		17.2	14.3	121	75 - 139		123	2	20		MB-2	LCS-2	LCD-2
4. Bromodichloromethane	U	38		15.9	14.1	112	71 - 131		111	1	20		MB-2	LCS-2	LCD-2
5. Bromoform	U	450		15.6	14.3	109	72 - 134		111	2	20		MB-2	LCS-2	LCD-2
6. Bromomethane	U	140		13.4	12.8	105	73 - 135		106	1	20		MB-2	LCS-2	LCD-2
7. 1,3-Butadiene	U	48		14.5	13.6	106	73 - 137		107	1	20		MB-2	LCS-2	LCD-2
8. 2-Butanone	U	460		15.3	14.3	107	72 - 134		106	1	20		MB-2	LCS-2	LCD-2
9. Carbon Disulfide	U	1600		15.2	14.8	103	69 - 127		104	1	20		MB-2	LCS-2	LCD-2
10. Carbon Tetrachloride	U	36		16.1	13.6	118	72 - 134		119	1	20		MB-2	LCS-2	LCD-2
11. Chlorobenzene	U	62		15.0	14.6	103	70 - 130		104	1	20		MB-2	LCS-2	LCD-2
12. Chloroethane	U	900		13.9	12.6	110	74 - 136		111	1	20		MB-2	LCS-2	LCD-2
13. Chloroform	U	38		15.9	14.4	111	72 - 132		110	1	20		MB-2	LCS-2	LCD-2
14. Chloromethane	U	57		13.4	13.3	101	70 - 130		104	3	20		MB-2	LCS-2	LCD-2
15. Cyclohexane	U	450		14.9	14.1	105	74 - 138		106	1	20		MB-2	LCS-2	LCD-2
16. Dibromochloromethane	U	16		16.3	14.9	110	72 - 134		111	1	20		MB-2	LCS-2	LCD-2
17. 1,2-Dichlorobenzene	U	160		15.8	14.6	108	72 - 134		110	2	20		MB-2	LCS-2	LCD-2
18. 1,3-Dichlorobenzene	U	61		15.9	14.4	111	75 - 139		113	2	20		MB-2	LCS-2	LCD-2
19. 1,4-Dichlorobenzene	U	62		16.2	14.5	112	76 - 140		114	2	20		MB-2	LCS-2	LCD-2
20. Dichlorodifluoromethane	U	140		15.2	12.6	120	71 - 131		121	1	20		MB-2	LCS-2	LCD-2
21. 1,1-Dichloroethane	U	58		14.5	13.9	104	71 - 131		105	1	20		MB-2	LCS-2	LCD-2
22. 1,2-Dichloroethane	U	37		16.6	14.1	117	71 - 133		117	0	20		MB-2	LCS-2	LCD-2
23. 1,1-Dichloroethene	U	60		15.6	14.1	110	72 - 134		111	1	20		MB-2	LCS-2	LCD-2
24. cis-1,2-Dichloroethene	U	59		15.0	14.1	106	72 - 134		107	1	20		MB-2	LCS-2	LCD-2
25. trans-1,2-Dichloroethene	U	58		15.0	14.0	107	71 - 133		107	0	20		MB-2	LCS-2	LCD-2
26. 1,2-Dichloropropane	U	60		14.4	14.3	101	71 - 131		101	0	20		MB-2	LCS-2	LCD-2
27. cis-1,3-Dichloropropene	U	150		15.5	14.5	107	74 - 138		107	0	20		MB-2	LCS-2	LCD-2
28. trans-1,3-Dichloropropene	U	150		15.9	14.3	112	75 - 139		111	1	20		MB-2	LCS-2	LCD-2
29. 1,4-Dioxane	U	60		15.5	14.0	111	73 - 135		110	1	20		MB-2	LCS-2	LCD-2
30. Ethyl Acetate	U	460		16.0	15.1	106	71 - 131		104	2	20		MB-2	LCS-2	LCD-2
31. Ethylbenzene	U	460		15.3	14.5	106	75 - 139		107	1	20		MB-2	LCS-2	LCD-2
32. Ethylene Dibromide	U	15		15.0	14.1	106	71 - 133		107	1	20		MB-2	LCS-2	LCD-2
33. n-Heptane	U	460		16.1	14.1	114	75 - 141		113	1	20		MB-2	LCS-2	LCD-2
34. Hexachlorobutadiene	U	39		15.7	14.3	110	73 - 137		113	3	20		MB-2	LCS-2	LCD-2
35. n-Hexane	U	150		14.8	14.5	102	74 - 136		103	1	20		MB-2	LCS-2	LCD-2
36. 2-Hexanone	U	790		16.2	14.3	114	76 - 142		115	1	20		MB-2	LCS-2	LCD-2
37. Isopropanol	U	810		11.0	11.2	98	68 - 130		93	5	20		MB-2	LCS-2	LCD-2
38. Methylene Chloride	U	450		14.5	14.0	104	71 - 133		105	1	20		MB-2	LCS-2	LCD-2
39. 2-Methylnaphthalene	U	1400		14.4	11.5	126	73 - 137		131	4	20		MB-2	LCS-2	LCD-2
40. 4-Methyl-2-pentanone	U	470		15.6	14.4	109	74 - 138		108	1	20		MB-2	LCS-2	LCD-2
41. MTBE	U	450		11.5	11.9	97	71 - 133		97	0	20		MB-2	LCS-2	LCD-2
42. Naphthalene	U	490		17.6	15.1	116	74 - 138		119	3	20		MB-2	LCS-2	LCD-2
43. Styrene	U	780		13.7	13.4	102	74 - 136		104	2	20		MB-2	LCS-2	LCD-2
44. 1,1,2,2-Tetrachloroethane	U	16		15.2	14.3	107	71 - 131		108	1	20		MB-2	LCS-2	LCD-2
45. Tetrachloroethene	U	38		14.6	14.3	103	70 - 130		103	0	20		MB-2	LCS-2	LCD-2
46. Tetrahydrofuran	U	900		15.4	15.0	103	73 - 135		102	1	20		MB-2	LCS-2	LCD-2
47. Toluene	U	150		15.2	14.6	104	73 - 135		105	1	20		MB-2	LCS-2	LCD-2
48. 1,2,4-Trichlorobenzene	U	810		16.6	15.1	110	75 - 139		112	2	20		MB-2	LCS-2	LCD-2
49. 1,1,1-Trichloroethane	U	58		16.0	13.6	117	71 - 133		117	0	20		MB-2	LCS-2	LCD-2
50. 1,1,2-Trichloroethane	U	37		14.3	14.0	102	69 - 129		103	1	20		MB-2	LCS-2	LCD-2
51. Trichloroethene	U	15		15.1	14.1	107	72 - 134		106	1	20		MB-2	LCS-2	LCD-2

1914 Holloway Drive  
11766 E. Grand River  
8660 S. Mackinaw Trail

Holt, MI 48842  
Brighton, MI 48116  
Cadillac, MI 49601

T: (517) 699-0345  
T: (810) 220-3300  
T: (231) 775-8368

F: (517) 699-0388  
F: (810) 220-3311  
F: (231) 775-8584



**Quality Control Report**  
**Preparation Batch QC Summary**  
**Gas Chromatography - Mass Spectrometry (TO-15)**  
**Air**

Batch ID: VK16J13A  
 Page: 2 of 2  
 Date: 10/17/16

Preparation Batch: VK16J13A      Preparation Date: 10/13/16

Parameter	Method Blank (MB)			Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result ppbv	RL ppbv	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
52. Trichlorofluoromethane	U	65		15.8	15.3	103	73 - 135		103	0	20		MB-2	LCS-2	LCD-2
53. 1,1,2-Trichlorotrifluoroethane	U	150		15.0	13.9	108	71 - 131		108	0	20		MB-2	LCS-2	LCD-2
54. 1,2,4-Trimethylbenzene	U	150		16.0	14.5	110	75 - 139		113	3	20		MB-2	LCS-2	LCD-2
55. 1,3,5-Trimethylbenzene	U	150		15.7	14.1	111	74 - 136		113	2	20		MB-2	LCS-2	LCD-2
56. Vinyl Acetate	U	1600		12.8	13.3	97	72 - 134		97	0	20		MB-2	LCS-2	LCD-2
57. Vinyl Chloride	U	58		13.3	13.4	100	74 - 136		101	1	20		MB-2	LCS-2	LCD-2
58. m&p-Xylene	U	900		29.7	28.4	105	74 - 138		106	1	20		MB-2	LCS-2	LCD-2
59. o-Xylene	U	460		15.8	14.4	110	73 - 135		111	1	20		MB-2	LCS-2	LCD-2

System Monitoring Compounds (Surrogates)	Method Blank (MB)				Laboratory Control Sample (LCS)					LCS Duplicate (LCD)			Run Code			
	Result ppbv	Spike ppbv	Rec. %	Q	Result ppbv	Spike ppbv	Rec. %	LCL - UCL %	Q	Rec. %	RPD %	UCL %	Q	MB	LCS	LCD
1. 4-Bromofluorobenzene(S)	7.08	6.38	111		7.29	6.38	114	78 - 120		116	2	20		MB-2	LCS-2	LCD-2

**Definitions/ Qualifiers:**

**U:** The analyte was not detected at or above the Reporting Limit (RL).  
**\*:** Value reported is outside QC limits

**Run Code (Analysis Sequence/Run Time):**

MB-2 VK16J13A 10/13/16 13:41  
 LCS-2 VK16J13A 10/13/16 10:55  
 LCD-2 VK16J13A 10/13/16 11:49

**Exception Summary:**

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

**Report Generated By:**

By Amanda Petrovsky at 4:43 PM, Oct 17, 2016

1914 Holloway Drive  
 11766 E. Grand River  
 8660 S. Mackinaw Trail

Holt, MI 48842  
 Brighton, MI 48116  
 Cadillac, MI 49601

T: (517) 699-0345  
 T: (810) 220-3300  
 T: (231) 775-8368

F: (517) 699-0388  
 F: (810) 220-3311  
 F: (231) 775-8584



**Analytical Laboratory**  
 1914 Holloway Drive 8660 S. Mackinaw Trail  
 Holt, MI 48842 Cadillac, MI 49601  
 Phone: 517 699 0345 Phone: 231 775 8368  
 Fax: 517 699 0388 Fax: 231 775 8584  
 email: lab@fibertec.us

**Industrial Hygiene Services, Inc.**  
 1914 Holloway Drive  
 Holt, MI 48842  
 Phone: 517 699 0345  
 Fax: 517 699 0382  
 email: asbestos@fibertec.us

**Geoprobe**  
 11766 E. Grand River  
 Brighton, MI 48116  
 Phone: 810 220 3300  
 Fax: 810 220 3311

Chain of Custody #  
**146939**  
 PAGE 1 of 1

Client Name: <b>SME</b>					MATRIX (SEE RIGHT CORNER FOR CODE)	# OF CONTAINERS	PRESERVED (Y/N)	TO-15	PARAMETERS										Turnaround	Matrix Code	Deliverables		
Contact Person: <b>Troy Helmerick / Christina Bon</b>									24 hour RUSH (surcharge applies)	48 hour RUSH (surcharge applies)	72 hour RUSH (surcharge applies)	Standard (5-7 bus. days)	<input checked="" type="checkbox"/> Other: Specify	S Soil	A Air	O Oil	P Wipe	GW Ground Water	SW Surface Water	WW Waste Water	X Other: Specify	<input type="checkbox"/> Level 2	
Project Name/ Number: <b>075099.01.002</b>																						<input type="checkbox"/> FES Drilling Services	<input type="checkbox"/> Level 3
QUOTE#																							<input type="checkbox"/> Level 4
Purchase Order#					Remarks:													<input type="checkbox"/> EDD					
Lab Sample #	Date	Time	Client Sample #	Client Sample Descriptor																			
	10/6/16	11:45		SG5	A	1	X																
		12:05		SG4	A	1	X																
		12:32		SG3	A	1	X																
		1:02		SG2	A	1	X																
		1:35		SG1	A	1	X																
<b>RCVD BY LAB</b>																							
<b>Initial: MH</b>																							
Comments: <b>Rec'd 5 BV's and 5 Regs. D.T.S.</b>																							
Relinquished By: <i>[Signature]</i>					Date/ Time	Received By: <i>[Signature]</i>																	
					10/7/16 10:36	10/7/16 10:36																	
Relinquished By: <i>[Signature]</i>					Date/ Time	Received By: <i>[Signature]</i>																	
					10/7/16 10:25	10/7/16 10:25																	
Relinquished By: <i>[Signature]</i>					Date/ Time	Received By Laboratory: <i>[Signature]</i>																	
LAB USE ONLY:																							
Fibertec project number: <b>75915</b>																							
Laboratory Tracking: <b>Bm Temp.</b>																							
Temperature at Receipt: <b>Bm Temp.</b>																							

**APPENDIX G**  
**QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL**



## TROY D. HELMICK, CPG

PROJECT CONSULTANT

(248) 982-5149 [helmick@sme-usa.com](mailto:helmick@sme-usa.com)

- Environmental Services
- Regulatory Compliance and Due Diligence
- Site Assessments and Audits
- Project Management

### BACKGROUND

Troy is a Project Consultant and Certified Professional Geologist (CPG) in SME's Plymouth office. As a member of our Environmental Services group, he manages a variety of projects including environmental due diligence, compliance and regulatory requirements associated with petroleum remediation and emergency response activities, underground and aboveground storage tank (UST/AST) assessments and removals, and groundwater and soil contaminant investigations. Troy joined SME in 2016 with 18 years of experience providing comprehensive environmental consulting. His expertise includes onsite vapor, groundwater and soil contaminant investigations.

### RELATED PROJECT EXPERIENCE

Consultant and Project Manager responsible for preparing detailed site assessment and remediation models for client sites regarding environmental regulatory compliance and regulatory closure; and maintaining ongoing relationships with regulatory officers to facilitate regulatory compliance and gain a thorough understanding of the current regulatory climate.

Consultant and Project Manager for diverse oil and gas clients. Responsible for regulatory body compliance reporting; environmental compliance auditing, site inspections and audits; contractor oversight; and safety performance monitoring and reporting. Corrective action experience includes working with soil vapor extraction, air sparge, pump and treat, product skimmers and multi-phase recovery systems.

Due Diligence Manager on ten Part 201 and Part 213 releases. Successfully developed and implemented activities to achieve regulatory No Further Action or Closure.

Project manager for environmental emergency response/remediation modeling projects. Supervised, coordinated and performed environmental spill emergency response activities for multiple petroleum pipeline and toxic chemical releases throughout the country. Provided oversight and coordination of subcontractors during various environmental remedial activities such as remediation system and monitoring well installations, and UST/AST removals, excavations and site decommissioning.

### EDUCATION

B.A., Geological Sciences, Albion College

### REGISTRATIONS AND CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists



## **PROFESSIONAL DEVELOPMENT**

American Petroleum Institute WorkSafe Certified  
Hazard Recognition Plus™

HAZWOPER 40-Hour Training Course

HAZWOPER 8-Hour Refresher Training Course

First Aid/CPR/AED Certified – American Heart Association



## DANIEL R. CASSIDY, CPG

VICE PRESIDENT

(734) 637-0058 [cassidy@sme-usa.com](mailto:cassidy@sme-usa.com)

- Brownfield Redevelopment
- Financial Incentive Support
- Environmental Services
- Project Director

### BACKGROUND

Dan is a Vice President and Principal with more than 20 years of experience. He leads SME's Environmental Services Group to set and implement the Environmental Group's business strategy, manage liability and litigation issues, execute contracts, and continually update Group goals. Dan advises owners, developers, municipalities, and the design and construction community in the areas of urban and brownfield redevelopment strategies and financing, environmental assessment of contaminated sites, remedial investigations, and environmental regulatory compliance. Dan also provides redevelopment financial incentive support, has successfully written applications for over \$30 million in state and federal grant funding, assisted in acquiring incentives, and managed projects involving \$150 million in state and federal incentives.

### RELATED PROJECT EXPERIENCE

Project Director and Client Manager for SME's consulting services supporting the \$60M redevelopment of the former 80-acre General Motors Pontiac Validation Center into the **M1 Concourse**, an auto collector's condominium and event center located on America's first highway (M1) and ground zero for the Woodward Dream Cruise. Services included brownfield incentive acquisition and consulting, pre-acquisition environmental due diligence assessments, vapor intrusion mitigation design, geotechnical assessment and design, and general redevelopment strategy consulting.

Project Director for SME's consulting services supporting the \$13M redevelopment of a former municipal dump into a minor league baseball stadium in Utica, Michigan. Services for the new **Jimmy John's Field** included brownfield incentive acquisition and consulting, pre-acquisition environmental due diligence assessments, vapor intrusion mitigation design, geotechnical assessment and design, civil engineering, construction testing and general redevelopment strategy consulting.

Project Manager for the \$12.8M redevelopment of Henry Ford's first job location, the 1890s former marine engine repair facility, into the **Michigan DNR Outdoor Adventure Center**. Provided brownfield incentives consulting, managed pre-acquisition environmental due diligence services, and provided federal environmental compliance consulting services.

Project Manager since 2005 for the **Downriver Community Conference's** over \$20M USEPA Grant program. Advises DCC communities on brownfield redevelopment strategies and provides consulting services for projects funded by the DCC's USEPA hazardous substance and petroleum assessment and revolving loan fund grants.





## RELATED PROJECT EXPERIENCE CONT.

Project Manager for the **\$20M mixed-used redevelopment** project along Lake Erie in Port Clinton, Ohio. Project revitalized the downtown and linked the city's key asset, Lake Erie, to the community and businesses. Provided environmental and geotechnical services to support site acquisition and redevelopment strategy. Also provided USEPA grant management and consulting services to Ottawa County Ohio, who supported the redevelopment with brownfield grant funding.

Project Manager for SME's consulting services supporting the \$145M redevelopment of the former GM Argonaut Building into the 11-story **College for Creative Studies** in Detroit, Michigan. Provided environmental, geotechnical, construction testing and materials consulting services to assist the project team in capturing over \$11M in brownfield incentives for the project.

Project Manager for SME's consulting services supporting the redevelopment of a former auto service station into the five-story, mixed-use **Greenleaf Trust** building identified as a downtown catalyst project in downtown Birmingham, Michigan. Provided environmental, geotechnical, construction testing and materials consulting services for the \$25M redevelopment project. Also assisted project team in capturing over \$3 M in brownfield incentives for the project.

## EDUCATION

B.S. with Honors, Environmental Geosciences, Michigan State University  
M.S., Business Administration, Wayne State University  
Candidate for Juris Doctor, Wayne State University Law School  
Fellow, Larson Center for Leadership

## REGISTRATIONS AND CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists (AIPG)  
OSHA HAZWOPER, Standard 29 CFR 1910.120(e)

## AFFILIATIONS

Michigan Urban Land Institute, Executive Board, Programs Chair  
Geo-professional Business Association, Vice Chair of Business Practices Committee  
Detroit Downtown Partnership  
American Institute of Professional Geologists (AIPG)  
Michigan Association of Environmental Professionals (MAEP)  
Woodward Avenue Action Association  
International Council of Shopping Centers  
Michigan Economic Development Association  
NW Ohio Regional Economic Development Association



*Passionate People Building  
and Revitalizing our World*





4219 Woodward Avenue  
Suite 204  
Detroit, MI 48201

T (313) 922-7000

[www.sme-usa.com](http://www.sme-usa.com)

October 21, 2016

Mr. David Larsen  
Bodman, PLC  
6th Floor at Ford Field  
1901 St. Antoine Street  
Detroit, Michigan 48226

RE: Phase I Environmental Site Assessment Report  
35975 Woodward Avenue  
Birmingham, Michigan 48009  
SME Project No.: 075099.01

Dear Mr. Larsen:

We have completed a Phase I Environmental Site Assessment (ESA) of the above-referenced property, hereinafter referred to as the Property. The enclosed Phase I ESA report presents our interpretation of site conditions at the time the Phase I ESA was completed, based on field observations, a review of readily available historical and regulatory records, and interviews.

The Phase I ESA was requested to identify recorded and readily observable recognized environmental conditions associated with the Property. We understand August LLC will rely upon the professional opinions and representations contained in the report in accordance with the terms and conditions agreed upon for the project. This reliance is not to be construed as a warranty or guarantee on the part of SME.

If you have any questions concerning this report, or if additional services are required, please contact us.

Sincerely,

**SME**

Troy Helmick, CPG  
Project Consultant

Daniel R. Cassidy, CPG  
Vice President



# PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

35975 WOODWARD AVENUE, BIRMINGHAM, MICHIGAN 48009

SME Project Number: 075099.01

October 21, 2016



# TABLE OF CONTENTS

<b>1. SUMMARY .....</b>	<b>1</b>
<b>2. INTRODUCTION.....</b>	<b>3</b>
2.1 PURPOSE .....	3
2.2 DETAILED SCOPE OF SERVICES.....	3
2.3 SIGNIFICANT ASSUMPTIONS .....	3
2.4 LIMITING CONDITIONS AND EXCEPTIONS .....	4
2.5 SPECIAL TERMS AND CONDITIONS .....	4
2.6 RELIANCE .....	4
<b>3.0 USER-PROVIDED INFORMATION .....</b>	<b>5</b>
3.1 REASON FOR THE PHASE I ESA .....	5
3.2 RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS (AULs) .....	5
3.3 SPECIALIZED KNOWLEDGE AND EXPERIENCE .....	5
3.4 RELATIONSHIP OF PURCHASE PRICE TO VALUE .....	5
3.5 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION.....	5
3.6 PROCEEDINGS INVOLVING THE PROPERTY .....	5
<b>4. RECORDS REVIEW .....</b>	<b>6</b>
4.1 ENVIRONMENTAL RECORD SOURCES .....	6
4.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES.....	7
4.2.1 COUNTY ENVIRONMENTAL HEALTH DEPARTMENT.....	7
4.2.2 LOCAL FIRE DEPARTMENT .....	7
4.2.3 STATE AGENCY FOR OIL AND GAS WELLS .....	7
4.2.4 OTHER RECORD SOURCES .....	7
4.3 PHYSICAL SETTING SOURCE(S) .....	8
4.3.1 USGS – CURRENT 7.5 MINUTE TOPOGRAPHIC MAP .....	8
4.3.2 OTHER NON-PRACTICE PHYSICAL SETTING SOURCES.....	8
4.4 HISTORICAL USE INFORMATION FOR THE PROPERTY .....	8
4.4.1 STANDARD HISTORICAL SOURCES .....	8
4.4.2 HISTORICAL USE SUMMARY .....	9
4.4.3 HISTORICAL USE INFORMATION ABOUT SURROUNDING AREAS.....	10
<b>5. SITE RECONNAISSANCE .....</b>	<b>11</b>
5.1 METHODOLOGY AND LIMITING CONDITIONS .....	11
5.2 GENERAL PROPERTY SETTING .....	11
5.3 EXTERIOR OBSERVATIONS.....	11
5.3.1 CHEMICAL USE AND STORAGE .....	11

5.3.2 USTs/ASTs.....	11
5.3.3 PCB-CONTAINING EQUIPMENT.....	11
5.3.4 PITS, PONDS, AND LAGOONS.....	11
5.3.5 WASTE GENERATION, TREATMENT, STORAGE, AND DISPOSAL.....	11
5.3.6 OTHER EXTERIOR FEATURES.....	11
5.5 ADJOINING SITES OBSERVATIONS.....	12
<b>6. INTERVIEWS.....</b>	<b>13</b>
6.1 INTERVIEWS WITH OWNER/SITE MANAGER/OCCUPANT.....	13
6.2 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS.....	13
6.3 INTERVIEWS WITH OTHERS.....	13
<b>7. EVALUATION.....</b>	<b>14</b>
7.1 FINDINGS.....	14
7.2 OPINIONS AND CONCLUSIONS.....	14
7.3 DATA GAPS AND LIMITING CONDITIONS.....	15
7.4 STATEMENT AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL.....	15
<b>8. DEVIATIONS.....</b>	<b>16</b>
<b>9. NON-SCOPE SERVICES.....</b>	<b>16</b>
<b>10. REFERENCES.....</b>	<b>16</b>
<b>11. GENERAL COMMENTS.....</b>	<b>17</b>

## **FIGURES**

**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: PROPERTY FEATURES DIAGRAM**

## **APPENDIX A**

**PHOTOGRAPHS**

## **APPENDIX B**

**HISTORICAL RESEARCH DOCUMENTATION**

## **APPENDIX C**

**INTERVIEW DOCUMENTATION**

**USER QUESTIONNAIRE**

**OWNER/OCCUPANT QUESTIONNAIRE**

**APPENDIX D**  
**REGULATORY RECORDS DOCUMENTATION**

**APPENDIX E**  
**QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(S)**



# 1. SUMMARY

SME's project team conducted a Phase I Environmental Site Assessment (ESA) of the property at 35975 Woodward Avenue in Birmingham, Oakland County, Michigan, hereinafter referred to as "the Property," in conformance with the scope and limitations of ASTM International (ASTM) Standard Practice E 1527-13 (Practice). Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. The general Property location is shown in Figure 1. Property features are shown in Figure 2.

The purpose of this Phase I ESA was to satisfy relevant All Appropriate Inquiries (AAI) requirements to qualify August LLC (the User) for applicable Landowner Liability Protections (LLP) under the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA).

This Phase I ESA report is comprised of the following elements: 1) property description, 2) User-provided information, 3) records review, 4) site reconnaissance, 5) interviews, 6) findings, opinions, and conclusions.

## FINDINGS

The Property operated as a gas station, for towing service, and for rental car service between at 1967 and 2012. The Property's structures were demolished and underground storage tanks (USTs) were removed by 2013. The Property is currently used as an asphalt parking lot.

## CONCLUSIONS

This assessment has revealed no evidence of recognized environmental conditions in connection with the Property except for the following:

- The reported contamination as evidenced by the previous assessments and the recorded Restrictive Covenant and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012 (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1)

We identified one data gap in connection with this Phase I ESA. The City of Birmingham Fire Department did not respond to our requests for information. In the EP's opinion, a sufficient Property history was developed using the historical sources documented in this report. This data gap did not impact our ability to identify or evaluate suspect RECs in connection with the Property. We identified no limitations in connection with this Phase I ESA.

The User acquiring the Property is the sole party responsible for complying with AAI requirements for LLP under CERCLA as an Innocent Purchaser, Bona Fide Prospective Purchaser, or Contiguous Property Owner, as applicable. The completion of a Phase I ESA, with statement by an Environmental Professional (EP) that it is compliant with AAI and/or the ASTM E 1527-13 Practice, may not be sufficient to provide CERCLA LLP.

The findings, opinions and conclusions presented above are intended to provide a summary of the pertinent findings of our Phase I ESA investigation. It should be noted that although this section is an

integral part of the report, it should not be substituted in lieu of reading the entire report. The entire report must be read in order to fully understand the potential environmental concerns associated with the Property.

SME's Project Team was as follows:

Preparer:	Christiaan E. Bon
Environmental Professional (EP):	Troy Helmick, CPG
Senior Technical Reviewer:	Daniel R. Cassidy, CPG

## 2. INTRODUCTION

SME's project team conducted a Phase I ESA of the Property at 35975 Woodward Avenue, Birmingham, Oakland County, Michigan (Figure 1). The Phase I ESA was conducted according to the ASTM International (ASTM) Practice E 1527-13 (Practice), which is accepted in the U.S. Environmental Protection Agency regulations as satisfying one component of the requirements of AAI under CERCLA.

At the time of the reconnaissance, the Property consisted of approximately 0.6 acres of land developed with an asphalt parking lot. A current Property Features Diagram (Figure 2) was developed from the observations, field notes, photographs, and/or historical information collected during conduct of this Phase I ESA.

The Property's tax parcel identification number is 08-19-25-179-001, and the property summary sheet is attached in Appendix B. The current Property owner is Simon Land Development Group, LLC.

Satisfying AAI is one component of the requirements for a Prospective Purchaser. For properties known to be contaminated with hazardous substances, the Prospective Purchaser also must comply with the continuing obligations defined in CERCLA to maintain the LLP to CERCLA.

Mr. David P. Larson, on behalf of August LLC (the User), authorized the conduct of this Phase I ESA to identify and evaluate potential environmental concerns associated with the Property prior to purchase. We were retained to conduct this Phase I ESA in accordance with our August 30, 2016 proposal number P02266.16.

### 2.1 PURPOSE

The purpose of this Phase I ESA was to satisfy relevant AAI requirements for qualifying the User of this report for applicable landowner liability protections under CERCLA (42 U.S.C. 9601). One of the primary objectives was to identify RECs in connection with the Property and assess the relative significance of the identified REC(s). The Practice defines a REC as:

*...the presence or likely presence of any hazardous substances<sup>1</sup> or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.*

### 2.2 DETAILED SCOPE OF SERVICES

This Phase I ESA was conducted in conformance with the ASTM International Standard Practice on Environmental Site Assessments for Commercial Real Estate designation E 1527-13, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." This Phase I

### 2.3 SIGNIFICANT ASSUMPTIONS

Pursuant to the Practice, we assume information provided by all sources and parties (including the User), is accurate and complete except where obvious inconsistencies or inaccuracies were identified.

---

<sup>1</sup> For the purposes of this Phase I ESA, a hazardous substance is a substance as defined in the ASTM Practice E 1527-13.

## 2.4 LIMITING CONDITIONS AND EXCEPTIONS

No limiting conditions were encountered during site reconnaissance activities.

## 2.5 SPECIAL TERMS AND CONDITIONS

No special terms or conditions were imposed on the conduct of this Phase I ESA.

## 2.6 RELIANCE

We have prepared this report to be used and relied upon solely and exclusively by August LLC (the User), in accordance with terms and conditions agreed upon for the project. No other party may rely upon our opinions, conclusions or reports unless SME has agreed to such reliance in writing.

According to ASTM E 1527-13, the following components of a Phase I ESA must be conducted within 180 days of the date of acquisition or the date of the intended transaction:

- interview(s) with owners, operators, and occupants
- search for recorded environmental cleanup liens
- review of federal, tribal state and local government records
- visual inspections of the Property and adjoining sites
- declaration by the environmental professional responsible for the assessment

Review of federal, tribal state and local government records was completed on September 28, 2016, the earliest completion date of the required Phase I ESA components. This Phase I ESA report, therefore, is valid until March 27, 2016 (180 days after earliest date of listed components).

## 3.0 USER-PROVIDED INFORMATION

As part of AAI, the User has the responsibility, above and beyond the Phase I ESA conducted under supervision of an EP, to provide information described in the subsections below. Ms. Jaime Rae Turnbull, the User's representative, provided information about the following issues through completion of the **User Questionnaire** in Appendix C.

### 3.1 REASON FOR THE PHASE I ESA

The User's representative reported the reason for this Phase I ESA was to support the User's all appropriate inquiries into environmental conditions of the Property, a component of the User's effort to qualify for one of the landowner liability protections to CERCLA applicable to the planned purchase of the Property.

### 3.2 RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY AND USE LIMITATIONS (AULs)

The User's representative reported that First American Title Company was retained to review recorded land title records on file with the Register of Deeds for Oakland County, Michigan, for the purpose of identifying recorded environmental cleanup liens and AULs related to the Property.

The User identified land use limitations/restrictions recorded with the Oakland County Register of Deeds on March 16, 1998. A copy of the restrictive covenant with a list of the land use and/or resource limitations for the Property is included with the User Questionnaire in Appendix C. The land use limitations/restrictions is a REC in connection with the property.

### 3.3 SPECIALIZED KNOWLEDGE AND EXPERIENCE

The User's representative reported having no specialized knowledge or experience that would indicate, or create suspicion of, the presence of environmental contamination on the Property.

### 3.4 RELATIONSHIP OF PURCHASE PRICE TO VALUE

The User's representative reported that the purchase price of the Property reflected fair market value.

### 3.5 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

The User's representative reported that SME had given information on the presence of a former gas station on the Property and a dry cleaner on the south and west-adjointing site. The possible migration of contamination from historical use of the adjoining Property represents a suspect REC in connection with the Property. The possible presence of unreported and/or undetected releases of petroleum products associated with the historical use of the Property represents a suspect REC in connection with the Property.

### 3.6 PROCEEDINGS INVOLVING THE PROPERTY

The User's representative, based on personal knowledge and experience related to the Property, reported no known pending, threatened, or past litigation, administrative proceedings, or violations of environmental laws and regulations related to hazardous substances or petroleum products in, on, or arising from the Property.

## 4. RECORDS REVIEW

### 4.1 ENVIRONMENTAL RECORD SOURCES

We retained Environmental Data Resources, Inc. (EDR) to query the state, federal, and tribal regulatory agency databases described in the Practice to identify regulated and/or environmentally impacted sites within the specified approximate minimum search distances. EDR also queried other readily available regulatory agency databases. The queried databases, associated search radii, and dates the lists were updated are listed in the EDR report (Appendix D). The EDR report also includes maps indicating the locations of these listed sites relative to the Property. Unmapped sites, as identified by EDR, are sites that for various reasons cannot be mapped through the EDR query system. Where possible, we attempted to locate the reported unmapped sites.

A summary of listed sites of concern is presented in the table included in this subsection. Where possible, we attempted to locate the reported unmapped sites. Unmapped sites we determined to be within the applicable approximate minimum search distance(s) and to be suspect RECs are also included in the table. The other listed sites do not appear to represent suspect RECs in connection with the Property, because of the predominately native clay soil profile, lack of groundwater, and distance from the Property limits the likelihood of migration onto the Property from these sites.

SITE NAME AND ADDRESS	APPROXIMATE DISTANCE AND DIRECTION FROM PROPERTY <sup>1</sup>	NAME OF LIST <sup>2</sup>
BP Amoco/Simon Land/A&G Auto Care 35975 Woodward Avenue	The Property	BEA, LUST (open), UST, RGA LUST, RCRA-CESQG
Ghafari Properties Inc. 36101 Woodward Avenue	North-adjointing	LUST (closed), UST

<sup>1</sup>EDR sites are mapped by address. Distances and/or site directions listed above may be adjusted from those reported by EDR to better represent field conditions and potential site boundaries.

<sup>2</sup>Definitions of acronyms and lists are presented in the EDR report.

We reviewed relevant documents provided by the Michigan Department of Environmental Quality (MDEQ) Waste Data System, MDEQ Storage Tank Database, MDEQ Division of Licensing and Regulatory Affairs, and the MDEQ Part 201 Mapper for the listed sites of concern, where available. A summary of our findings is presented in the following paragraphs.

#### The Property

One 6,000-gallon underground storage tank (UST) for storage of diesel fuel and one 8,000-gallon UST and three 6,000-gallon USTs for storage of gasoline were removed from the ground in 1988. One 8,000-gallon UST and three 12,000-gallon USTs for storage of gasoline, as well as two 560-gallon USTs for storage of used oil, were removed from the ground in October 2007. A confirmed release was reported in 1989 and the status is listed as open.

A Baseline Environmental Assessment (BEA) was conducted on the Property in 2007 by SME. SME advanced 15 soil probes and installed 9 monitoring wells. SME concluded that the site was a facility because concentrations of benzene, ethylbenzene, MTBE, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tetrachloroethene, toluene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, tetrahydrofuran, xylenes, flouranthene, arsenic, lead, mercury, and selenium were measured above one or more Michigan Department of Environmental Quality (MDEQ) Part 201 Generic Residential Cleanup Criteria.

The reported soil and groundwater contamination on the Property represents a REC in connection with the Property.

### **Ghafari Properties Inc.**

The north-adjointing Property operated as a gas station from at least 1989 to present day. Six 10,000-gallon and one 12,000-gallon USTs for storage of gasoline were listed as removed from ground in 1990. A gasoline release was reported on the site in 2004 and received closure status by the MDEQ in 2013.

We reviewed the 2012 closure report prepared by Groundwater & Environmental Services, Inc. (GES). GES conducted a remedial excavation and reportedly removed 520 cubic yards of impacted soil and 5,300 gallons of impacted groundwater. A Restrictive Covenant was recorded on the deed and filed with the Oakland County Register of Deeds Office. The Restrictive Covenant restricted land use to nonresidential and prohibited groundwater use at the site. A Tier 1 nonresidential, restricted closure was granted by the MDEQ.

A Mobil gas station continues to operate on the site. The potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the active gas station operations represents a suspect REC in connection with the Property.

## **4.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES**

### **4.2.1 COUNTY ENVIRONMENTAL HEALTH DEPARTMENT**

On September 28, 2016, we contacted the Oakland County Environmental Health Department via telephone and requested all available information pertaining to environmental complaints, concerns or general records associated with the Property and surrounding area, including information on septic systems and water wells, if any, located on the Property. The Oakland County FOIA Center indicated no records were available for the Property.

### **4.2.2 LOCAL FIRE DEPARTMENT**

On September 28, 2016, we contacted the Birmingham Fire Department via facsimile transmission and requested all available records associated with the Property and surrounding area. We did not receive a response from the Birmingham Fire Department. This represents a data gap in connection with the Property.

### **4.2.3 STATE AGENCY FOR OIL AND GAS WELLS**

We queried the MDEQ-Geological Survey Division's (GSD) Oil and Gas Information System. According to the September 28, 2016, query results, no known oil and/or gas well permits were recorded for the Property section number. The information was consistent with the EDR® radius report.

### **4.2.4 OTHER RECORD SOURCES**

No other record sources were accessed as part of this Phase I ESA.



## 4.3 PHYSICAL SETTING SOURCE(S)

### 4.3.1 USGS – CURRENT 7.5 MINUTE TOPOGRAPHIC MAP

We reviewed a United States Geological Survey (USGS) 7.5-minute series Topographic Map Birmingham Quadrangle, Michigan, compiled in 2014. The Property was relatively flat at an elevation of approximately 760 feet above mean sea level (MSL). It was an urban area less than a quarter mile southwest of the intersection of Woodward Avenue and North Old Woodward Avenue. The Sunken Bridge Drain is located a quarter-mile to the west of the Property and the Rouge River is located 100 ft. south of the Property. No other bodies of water were depicted within a one-mile radius.

### 4.3.2 OTHER NON-PRACTICE PHYSICAL SETTING SOURCES

SME previously conducted environmental assessments at the Property and we encountered 2 to 21 feet of sandy clay fill underlain by native lean clay. We noted staining and petroleum odors, and measured elevated levels of VOCs using a photoionization detector (PID). Groundwater was encountered at approximately 16 feet below ground surface. Groundwater flow was estimated to be to the southeast. The presence of staining, petroleum odors, and elevated PID readings represents a suspect REC in connection with the Property.

## 4.4 HISTORICAL USE INFORMATION FOR THE PROPERTY

We consulted historical record sources described in the following subsections to develop a history of the Property's previous uses to help identify the likelihood of past uses having led to RECs in connection with the Property. The information reviewed was from reasonably ascertainable standard sources, defined in the Practice as publicly available, obtainable from its source within reasonable time and cost constraints, and practicably reviewable.

Data failures encountered, as defined by the Practice, are described in the following discussions of the respective historical sources. The Practice requires review of only as many of the standard historical sources as are reasonably ascertainable and likely to be useful.

### 4.4.1 STANDARD HISTORICAL SOURCES

The sources reviewed for this Phase I ESA are summarized below. Copies of source documents are included in Appendix B. A summary of findings from these reviews is presented in section 4.4.2.

- **Aerial Photographs:** We reviewed aerial photographs, obtained from EDR®, dated 1937, 1940, 1949, 1952, 1956, 1967, 1972, 1976, 1983, 1987, 1997, 1999, 2005, 2009, 2010, 2012.
- **Fire Insurance Maps:** Sanborn® Fire Insurance Maps (Sanborn® Maps) are not available for the Property. We reviewed Sanborn® Maps for the area west and south of the Property, obtained from EDR®, dated 1931, 1949, 1960.
- **Property Tax Files:** We visited the Birmingham City Offices to reviewed available records. No records were provided for review. We were able to review property summary sheets.
- **Recorded Land Title Records:** We did not review land title records because information regarding the history of the Property was obtained from other historical sources identified herein. In addition, land title records typically provide information regarding ownership, but not use, of a property.
- **USGS Topographic Maps:** We reviewed the USGS 7.5-minute series Topographic Map Birmingham Quadrangle, Michigan, compiled in 1908, 1936, 1945, 1952, 1968, 1973, 1981, 2014.

- **Local Street Directories:** We reviewed City Directory Images, provided by EDR, for the years 1944, 1951, 1957, 1962, 1967, 1972, 1977, 1982, 1988, 1992, 1995, 1999, 2003, 2008, 2013.
- **Building Department Records:** We visited the Birmingham Building Department and reviewed available records, which were comprised of Demolition Records of the gas station formerly on the Property, fire code violations, inspection records, permits, and cover letters of Phase I and Phase II ESAs.
- **Zoning/Land Use Records:** We reviewed a zoning map. According to The City of Birmingham Zoning Map, the Property was zoned General Business (B-2B).
- **Other Historical Sources:** We did not review other historical sources because sufficient information regarding the Property's history was obtained from the aforementioned historical sources. OR If information is obtained from other sources: We reviewed list other sources (e.g., previous environmental or Phase I ESA reports, RCRA CCRs). AND if the EDR radius report listed historic auto service stations and/or dry cleaners We reviewed the EDR Radius Map Report for listing of historical automobile service stations and/or historical dry cleaners on or in the area of the Property.

#### 4.4.2 HISTORICAL USE SUMMARY

A summary of historical usage of the Property, back to 1931, the date of earliest readily available records as described above, is presented in the following table:

YEAR/PERIOD	IDENTIFIED / INFERRED USE	SOURCE (Date)
1931 - 1960	The Property was depicted as vacant land. No address was listed for the Property	Aerial Photographs (1937 – 1952) Topographic Map (1936 - 1952)
1967 - 1995	The Property was developed with one building on the southwest portion of the Property. Three dispenser islands were visible on the southeast and north portions of the Property. Hunter & Oak Standard service was listed at 905 North Hunter Boulevard.	Aerial Photograph (1967 - 1995) Topographic Map (1968 - 1981) City Directory (1967 - 1995)
1999 - 2012	One structure was visible on the southwestern portion of the Property. Two canopies were visible in the areas of the previously noted dispensers. Birmingham Amoco, Inc., Birmingham Towing, and National Car Rental were listed at 35975 Woodward Avenue.	Aerial Photograph (1999 - 2012) City Directory (1999 - 2008)
2013- 2016	Structures were demolished and the Property is developed with a parking lot. There was no listing for the Property in the 2013 City Directory.	Topographic Map (2014) City Directory (2013) Building Department Records (2013 - 2016)

We were able to determine the first developed use of the Property as an automotive repair and gas station in 1967. The historical use of the Property as a gas station and for automotive repair represents a suspect REC in connection with the Property.

#### 4.4.3 HISTORICAL USE INFORMATION ABOUT SURROUNDING AREAS

An attempt was made to assess the historical uses of specific proximate sites by reviewing records referenced in Section 4.4. A summary of proximate sites of concern (suspect RECs), as identified only to the extent that this information was revealed in the course of researching the Property itself, is presented in the table below:

YEAR/PERIOD	IDENTIFIED / INFERRED USE (Relationship to Property)	SOURCE (Date)
2001 - present	Douglas Cleaners 900 N Old Woodward Ave Historical Cleaners	EDR® Radius Report (2016)
2001 – present	Ghafari Properties Inc. 36101 Woodward Ave EDR Historical Auto	EDR® Radius Report (2016)
1931 – 1960	Southwest Corner of North Old Woodward Avenue and Oak Avenue	Sanborn® Maps (1931 – 1960)

##### **Douglas Cleaners**

Douglas Cleaners is the west-adjointing site and has operated as a dry cleaner from at least 2001 to the present. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the west adjoining site represents a suspect REC in connection with the Property.

##### **Ghafari Properties Inc.**

A Mobil gas station operated on the north-adjointing site from at least 1989 to the present. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the west adjoining site represents a suspect REC in connection with the Property.

##### **Southwest Corner of North Old Woodward Avenue and Oak Avenue**

In our review of Sanborn® Maps for the property, we noted an auto service station on the southwest corner of Oak Avenue and North Woodward Avenue approximately 200 feet west of the Property. The filling station that was part of the service station included three gasoline tanks. The station was present in the 1931, 1949, and 1960 Sanborn® Maps. The station was not reported in the EDR® Radius Report. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from this site represents a suspect REC in connection with the Property.

## 5. SITE RECONNAISSANCE

A site reconnaissance was conducted to identify evidence indicative of suspect RECs in connection with the Property. Descriptions of the current Property use and conditions, including the use, storage, and/or treatment of hazardous substances and/or petroleum products and the generation, storage/accumulation, and/or disposal of chemical, petroleum or other contaminated wastes are presented in the following sections.

### 5.1 METHODOLOGY AND LIMITING CONDITIONS

On October 6, 2016, Mr. Christiaan Bon, under the guidance of the EP, conducted a reconnaissance to observe Property conditions and features. Mr. Bon was unaccompanied during the reconnaissance. Photographs taken during the reconnaissance, which illustrate observed conditions and surrounding areas, are contained in Appendix A. No limiting conditions were encountered.

### 5.2 GENERAL PROPERTY SETTING

The Property was developed with an asphalt parking lot with landscaped areas on the north and east property boundaries. No buildings were present on the Property. The Property was relatively flat and was located in a commercial area on the west side of Woodward Ave.

### 5.3 EXTERIOR OBSERVATIONS

The Property was developed with an asphalt parking lot in good condition. Mr. Bon observed no evidence of stained soils or pavements, or areas of stressed vegetation, septic systems or water supply wells. No suspect RECs were identified unless indicated in the following subsections.

#### 5.3.1 CHEMICAL USE AND STORAGE

Mr. Bon observed no use and/or storage of chemicals.

#### 5.3.2 USTs/ASTs

Mr. Bon observed no evidence of USTs or ASTs.

#### 5.3.3 PCB-CONTAINING EQUIPMENT

Mr. Bon observed no evidence of equipment containing polychlorinated biphenyl (PCB).

#### 5.3.4 PITS, PONDS, AND LAGOONS

Mr. Bon observed no evidence of pits, ponds, or lagoons.

#### 5.3.5 WASTE GENERATION, TREATMENT, STORAGE, AND DISPOSAL

Mr. Bon observed no evidence of the generation, treatment, storage, or disposal of liquid or solid wastes.

#### 5.3.6 OTHER EXTERIOR FEATURES

Mr. Bon observed no other features indicative of suspect RECs.

## 5.5 ADJOINING SITES OBSERVATIONS

Known current uses of adjoining sites are summarized in the following table:

DIRECTION	NAME ADDRESS	ACTIVITY
North	Mobil gas station and Various Commercial Retail 36101 Woodward Avenue	Gas Station/Commercial
East	Woodward Avenue	Roadway
West	Douglas Cleaners and Associated Vacant Land 900 North Old Woodward Avenue	Dry Cleaners

Mr. Bon walked the perimeter of the Property in a clockwise fashion to observe adjoining sites. No tanks or containers indicating hazardous substances were observed. No RECs were observed except for the following:

- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances from the west-adjointing dry cleaners site on to the Property represents a suspect REC in connection with the Property.
- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products from the north-adjointing gas station site on to the Property represents a suspect REC in connection with the Property.

## 6. INTERVIEWS

As part of the conduct of this Phase I ESA, Mr. Bon interviewed the following pertinent individuals other than the User of this report:

- Current Property representatives – Mssrs. Robert Mardigian, Member, and Craig Sickmiller, Agent, at 35975 Woodward, LLC
- State and/or local government officials – Mr. Thomas Hensel, Contract Compliance Analyst, Oakland County Health Division

### 6.1 INTERVIEWS WITH OWNER/SITE MANAGER/OCCUPANT

We evaluated information provided on an Owner/Occupant Questionnaire by Mssrs. Mardigian and Sickmiller on October 4, 2016. A copy of our Owner/Occupant Questionnaire completed by (Name and title) is included in Appendix C.

Mssrs. Mardigian and Sickmiller had knowledge of the site from 2007 to present. They reported that the site was formerly a gas station and that a dry cleaner was located immediately west of the Property. We identified the following suspect RECs based on the interview and review of the Owner/Occupant Questionnaire:

- the potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances from the west-adjointing dry cleaner site on to the Property;
- the potential for unreported and/or undetected releases of hazardous substances associated with the historical gas station operations on the Property.

### 6.2 INTERVIEWS WITH LOCAL GOVERNMENT OFFICIALS

We interviewed Mr. Hensel and asked whether he knew of any environmental incidents or concerns associated with the Property and surrounding area. Mr. Hensel indicated that he was not aware of environmentally-related incidents having occurred on the Property or surrounding area.

### 6.3 INTERVIEWS WITH OTHERS

No other interviews were performed as part of this Phase I ESA.

## 7. EVALUATION

Findings, opinions and conclusions are presented below.

### 7.1 FINDINGS

The Property operated as a gas station, for towing service, and for rental car service between 1967 and 2012. The Property's structures were demolished and USTs were removed by 2013. The Property was then paved with asphalt and used for parking. During the course of our investigation, we identified the following suspect RECs:

- The reported contamination and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012. SME conducted a BEA in 2007 and concluded that the site was a facility based on multiple analytes which exceeded one or more Part 201 Generic Residential Cleanup Criteria and a Restrictive Covenant limiting/restricting the land use was recorded for the Property (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site. The north-adjointing site has operated as a gas station from at least 1989 to the present. The site was listed as a LUST site based on a release report in 1989. A remedial excavation was conducted by GES to remove contaminated soil and groundwater. A Restrictive Covenant was recorded on the deed restricting land use to nonresidential and prohibiting groundwater use at the site. A Tier 1 nonresidential, restricted closure was granted by the MDEQ in 2013. The site has continued to operate as a gasoline filling station after the closure was granted (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner. The west-adjointing site has operated as a dry cleaner from at least 2001 to the present. Historical dry cleaning operations are often associated with perchloroethylene (PCE) impact to soil and groundwater. (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1).
- In our review of Sanborn® Maps for the property, we noted an auto service station with three 'gasoline tanks' on the southwest corner of Oak Avenue and North Woodward Avenue approximately 200 feet west of the Property. The station was present in the 1931, 1949, and 1960 Sanborn® Maps. The station was not identified in the EDR® Radius Report. The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the site represents a suspect REC in connection with the Property (Section 4.4.3).

### 7.2 OPINIONS AND CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E 1527-13 of 35975 Woodward Avenue, Birmingham, Oakland County, Michigan, the Property. Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. In the EP's opinion, this assessment has revealed no evidence of RECs in connection with the Property except for the following.

- The reported contamination as evidenced by the previous assessments and the recorded Restrictive Covenant and potential for unreported and/or undetected releases of hazardous substances and/or petroleum products associated with the historical use of the Property for



gasoline and diesel fuel sales, towing operations, and rental car operations between at least 1967 and 2012 (Sections 3.2, 3.5, 4.3.2, 4.4.2, and 6.1);

- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the north-adjointing gas station site (Sections 4.1, 4.4.3, and 5.5);
- The potential for migration of unreported and/or undetected releases and known releases of hazardous substances and/or petroleum products onto the Property from the west-adjointing dry cleaner (Sections 3.5, 4.1, 4.4.3, 5.5, and 6.1);

In the EP's opinion, the following suspect REC is not a REC in connection with the Property for the stated reason.

- The potential for environmental impact from migration of unreported and/or undetected releases of hazardous substances and/or petroleum products onto the Property from the site 200 ft. west of the Property is not a REC because groundwater is estimated to flow southeast, away from the Property (Section 4.4.3).

### 7.3 DATA GAPS AND LIMITING CONDITIONS

We identified one data gap in connection with this Phase I ESA. The City of Birmingham Fire Department did not respond to our requests for information. In the EP's opinion, a sufficient Property history was developed using the aforementioned historical sources documented in this report. This data gap did not impact our ability to identify or evaluate suspect RECs in connection with the Property. We identified no limitations in connection with this Phase I ESA.

The findings, opinions and conclusions presented above are intended to provide a summary of the pertinent findings of our Phase I ESA investigation. It should be noted that although this section is an integral part of the report, it should not be substituted in lieu of reading the entire report. The entire report must be read in order to fully understand the potential environmental concerns associated with the Property.

### 7.4 STATEMENT AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

The Environmental Professional responsible for the conduct of this Phase I ESA was Mr. Troy Helmick, CPG. His resume is attached in Appendix E.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

---

Troy Helmick, CPG  
Project Consultant

## 8. DEVIATIONS

No deviations occurred as part of this Phase I ESA.

## 9. NON-SCOPE SERVICES

No non-scope services were provided in conjunction with this Phase I ESA.

## 10. REFERENCES

ASTM International, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, November 1, 2013.

Groundwater & Environmental Services, Inc., **Closure Report, Former Mobil #03-KNX, 36101 Woodward Avenue, Birmingham, Oakland County, Michigan**, December 2012.

SME, **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan**, November 16, 2007.

## 11. GENERAL COMMENTS

SME's project team conducted this Phase I ESA to identify RECs in connection with the Property and to assess the relative significance of the identified RECs. The findings, opinions, conclusions, and recommendations presented in this report are based upon observations noted during the site visit, and information obtained during the performance of the scope of services on the dates indicated. In the process of obtaining the field and historical information in preparation of this report, procedures were followed that represent reasonable and accepted environmental practices and principles, in a manner consistent with that level of care and skill ordinarily exercised by members of these professions currently practicing under similar conditions. Records reviewed at various locations as identified within the text of this report, include only those records that were provided to SME by the referenced department on the date indicated. As such, the records provided to SME may not represent all records available at a given source. Appropriate Inquiries was made into the past uses of the Property consistent with good commercial or customary practice. As is typical with Phase I ESAs, SME conducted no testing or subsurface evaluation for this assessment.

Due to unknown or latent conditions on the Property, or on adjacent or nearby properties, which may become evident in the future, SME does not represent the Property is free of contamination or hazardous waste material. It should also be noted the Property conditions may change over time. Should additional surface, subsurface, chemical, or other data become available after the date of issue of this report, the findings, conclusions and recommendations contained in this report may have to be modified. SME should be retained to review the new information and adjust our opinion and recommendations accordingly.

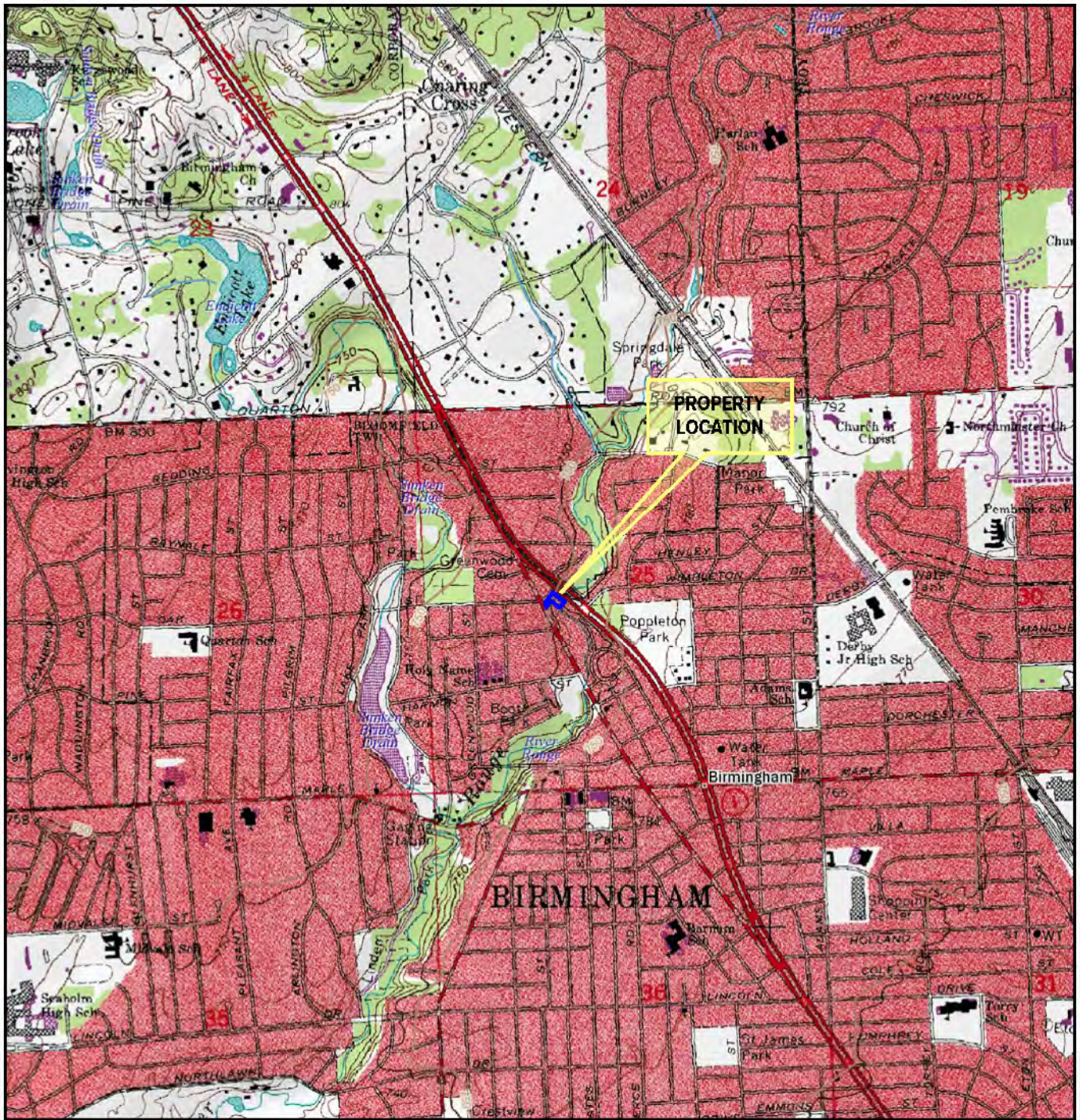
All reports, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by SME as instruments of service are the property of SME. No parties other than those specifically identified in this report may rely upon SME's opinions, conclusions or reports unless SME has agreed to such reliance in writing. In any event, any reliance will be subject to the terms and conditions set forth in the contractual agreement under which this work was performed.

## **FIGURES**

**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: PROPERTY FEATURES DIAGRAM**





Base map obtained from © DeLorme Topo North America™ 10.

**LEGEND**



APPROXIMATE  
PROPERTY LOCATION

USGS QUADRANGLE(S) REFERENCED  
BIRMINGHAM (MI) TOPO QUAD - 1981

No.	Revision Date	Date	10-10-16
		Drawn By	GM
		Designed By	CEB
		Scale	1" = 2000'
		Project	075099.01

**PROPERTY LOCATION MAP  
35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

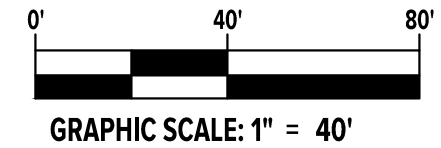
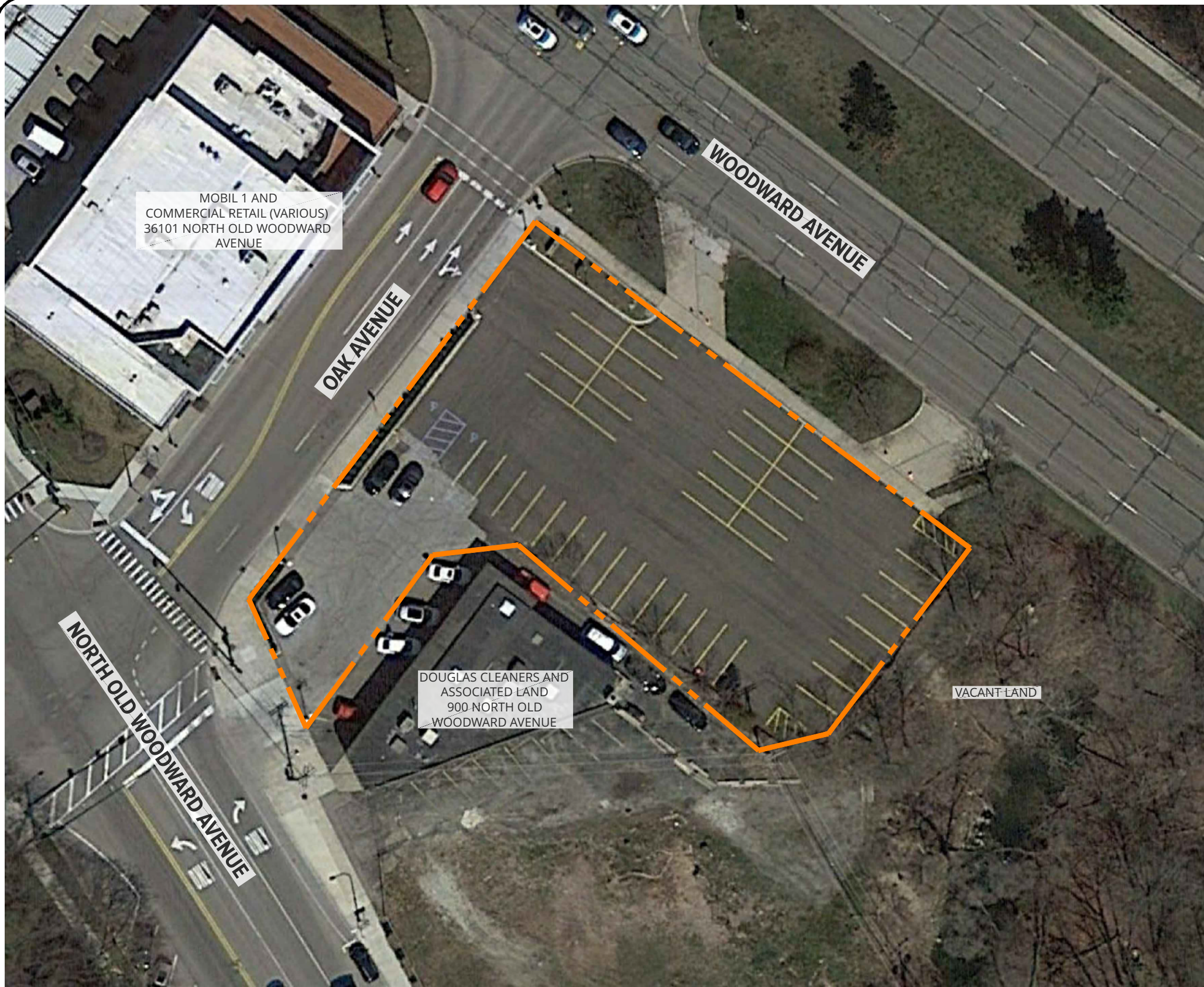


www.sme-usa.com

**Figure No. 1**



Oct 13, 2016 - 12:54pm - MANDRILA - FILE LOCATION: \\sme-inc\p\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg  
 PLOT DATE:



www.sme-usa.com

Project  
**35975 WOODWARD AVENUE**

Project Location  
**BIRMINGHAM, MICHIGAN**

Sheet Name  
**PROPERTY FEATURES DIAGRAM**

No.	Revision Date

Date	10-10-16
CADD	GM
Designer	CEB
Scale	1" = 40'
Project	075099.01

Figure No.  
**2**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
 © 2015

**LEGEND**

— — — — — APPROXIMATE PROPERTY BOUNDARY

NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO AND SITE RECONNAISSANCE.



**APPENDIX A**  
**PHOTOGRAPHS**





PHOTO NO. 1: View of the south portion of the site.



PHOTO NO. 2: View of the north portion of the site.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan



PHOTO NO. 3: View of the north-adjointing commercial retail building and Mobil 1.



PHOTO NO. 4: View of northeast-adjointing Woodward Avenue and commercial offices.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan





PHOTO NO. 5: View of south and west-adjointing Douglas Cleaners.



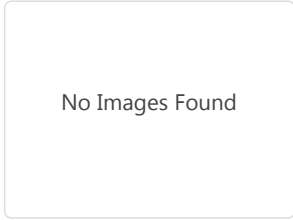
PHOTO NO. 6: View of the south-adjointing vacant land.

SME Project No.:	075099.01
Photographs by:	Christiaan E. Bon
Date:	October 6, 2016
Project:	Proposed Two-Story Office Building
Location:	35975 Woodward Avenue, Birmingham, Michigan

**APPENDIX B**  
**HISTORICAL RESEARCH DOCUMENTATION**

**35975 WOODWARD AVE** BIRMINGHAM, MI 48009-0940 (Property Address)

Parcel Number: 08-19-25-179-001



**Property Owner: 35975 WOODWARD LLC**

**Summary Information**

- > Assessed Value: \$672,700 | Taxable Value: \$672,700
- > Property Tax Information found
- > 7 Special Assessments found
- > 2 Invoices Found, Amount Due: 0.00

**Parcel is Vacant**

**Owner and Taxpayer Information**

<b>Owner</b>	35975 WOODWARD LLC 35980 WOODWARD AVE STE 210 BLOOMFIELD HILLS, MI 48304	<b>Taxpayer</b>	SEE OWNER INFORMATION
--------------	---	-----------------	-----------------------

**General Information for Tax Year 2016**

<b>Property Class</b>	201 Bus Imp	<b>Unit</b>	08 City of Birmingham
<b>School District</b>	030 Birmingham City Sch	<b>Assessed Value</b>	\$672,700
<b>ITOnly</b>	POST	<b>Taxable Value</b>	\$672,700
<b>PPBusCode</b>	0	<b>State Equalized Value</b>	\$672,700
<b>User Alpha 1</b>	Not Available	<b>Date of Last Name Change</b>	12/08/2007
<b>User Alpha 3</b>	Not Available	<b>Notes</b>	Not Available
<b>Historical District</b>	Not Available	<b>Census Block Group</b>	Not Available
<b>User Alpha 2</b>	Not Available		

**Principal Residence Exemption Information**

**Homestead Date** Not Available

Principal Residence Exemption	June 1st	Final
2016	0.0000 %	-
2015	0.0000 %	0.0000 %

**Previous Year Information**

Year	MBOR Assessed	Final SEV	Final Taxable
2015	\$672,700	\$672,700	\$672,700
2014	\$672,700	\$672,700	\$672,700
2013	\$789,600	\$789,600	\$789,600

**Land Information**

<b>Zoning Code</b>	BI	<b>Total Acres</b>	0.538
<b>Land Value</b>	\$1,345,396	<b>Land Improvements</b>	\$0
<b>Renaissance Zone</b>	No	<b>Renaissance Zone Expiration Date</b>	Not Available
<b>ECF Neighborhood</b>	E.C.F. Table CVL	<b>Mortgage Code</b>	00000
<b>Lot Dimensions/Comments</b>	Not Available	<b>Neighborhood Enterprise Zone</b>	No

Lot(s)	Frontage	Depth
Lot 1	1.00 ft	0.00 ft
<b>Total Frontage: 1.00 ft</b>		<b>Average Depth: 0.00 ft</b>

**Legal Description**

T2N, R10E, SEC 25 PART OF NW 1/4 BEG AT PT DIST N 88-16-00 W 659.12 FT & N 49-21-00 W 120.93 FT FROM CEN OF SEC, TH N 49-21-00 W 200 FT, TH S 40-39-00 W 171.16 FT, TH S 22-50-00 E 49.17 FT, TH N 40-39-00 E 77.11 FT, TH N 85-39-00 E 22.63 FT, TH S 49-21-00 E 113.19 FT, TH S 88-16-00 E 34.45 FT, TH N

Sale Date	Sale Price	Instrument	Grantor	Grantee	Terms of Sale	Liber/Page
-----------	------------	------------	---------	---------	---------------	------------

**Land Division Act Information**

<b>Date of Last Split/Combine</b>	Not Available	<b>Number of Splits Left</b>	0
<b>Date Form Filed</b>	Not Available	<b>Unallocated Div.s of Parent</b>	0
<b>Date Created</b>	Not Available	<b>Unallocated Div.s Transferred</b>	0
<b>Acreage of Parent</b>	0.00	<b>Rights Were Transferred</b>	Not Available
<b>Split Number</b>	0	<b>Courtesy Split</b>	Not Available
<b>Parent Parcel</b>	Not Available		

**Sale History**

Sale Date	Sale Price	Instrument	Grantor	Grantee	Terms of Sale	Liber/Page
10/17/2007	\$1.00	WD	SIMON LAND DEV GROUP	35975 WOODWARD	2-\$1orNoConsideratn	39723:017
03/10/2006	\$350,000.00	WD	ARMADA OIL GAS CO	SIMON LAND DEV GROUP	14-Other	37310:141
05/25/2005	\$300,000.00	PTA	ARMADA OIL & GAS		14-Other	

**\*\*Disclaimer:** BS&A Software provides AccessMyGov.com as a way for municipalities to display information online and is not responsible for the content or accuracy of the data herein. This data is provided for reference only and WITHOUT WARRANTY of any kind, expressed or inferred. Please contact your local municipality if you believe there are errors in the data.

Copyright © 2016 [BS&A Software](#), Inc.



35975 Woodward Avenue

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.9

September 28, 2016

## The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# EDR Aerial Photo Decade Package

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.9

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

**Search Results:**

<b>Year</b>	<b>Scale</b>	<b>Details</b>	<b>Source</b>
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1999	1"=500'	Acquisition Date: March 28, 1999	USGS/DOQQ
1997	1"=500'	Flight Date: May 04, 1997	DTE
1987	1"=500'	Flight Date: June 17, 1987	USDA
1983	1"=500'	Flight Date: May 05, 1983	USDA
1976	1"=500'	Flight Date: March 25, 1976	USDA
1972	1"=500'	Flight Date: July 01, 1972	USDA
1967	1"=500'	Flight Date: May 12, 1967	DTE
1956	1"=500'	Flight Date: May 07, 1956	DTE
1952	1"=500'	Flight Date: April 25, 1952	DTE
1949	1"=500'	Flight Date: May 03, 1949	DTE
1940	1"=500'	Flight Date: September 05, 1940	USDA
1937	1"=500'	Flight Date: October 15, 1937	USDA

**LEGEND**

APPROXIMATE  
PROPERTY BOUNDARY

**When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.**

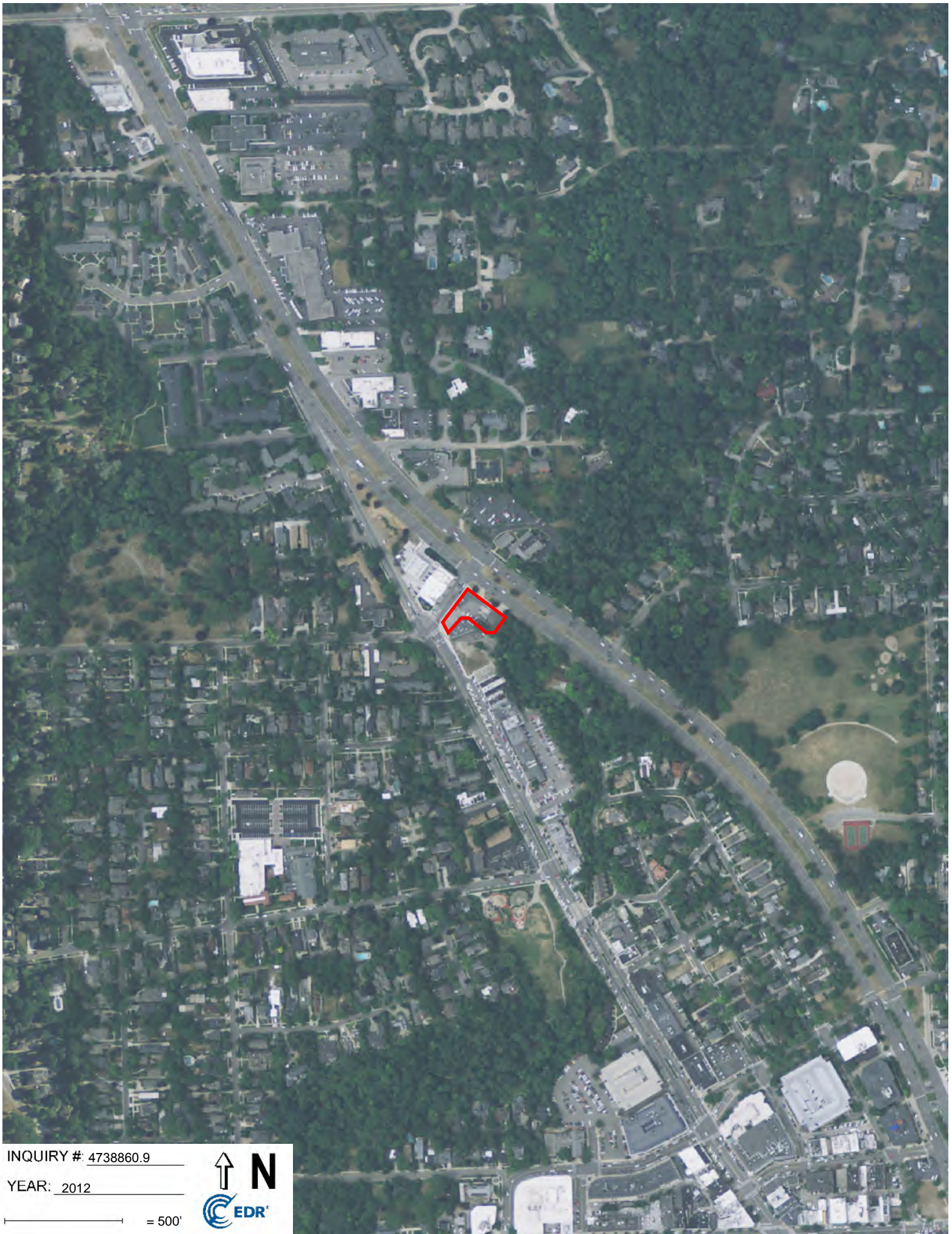
**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.





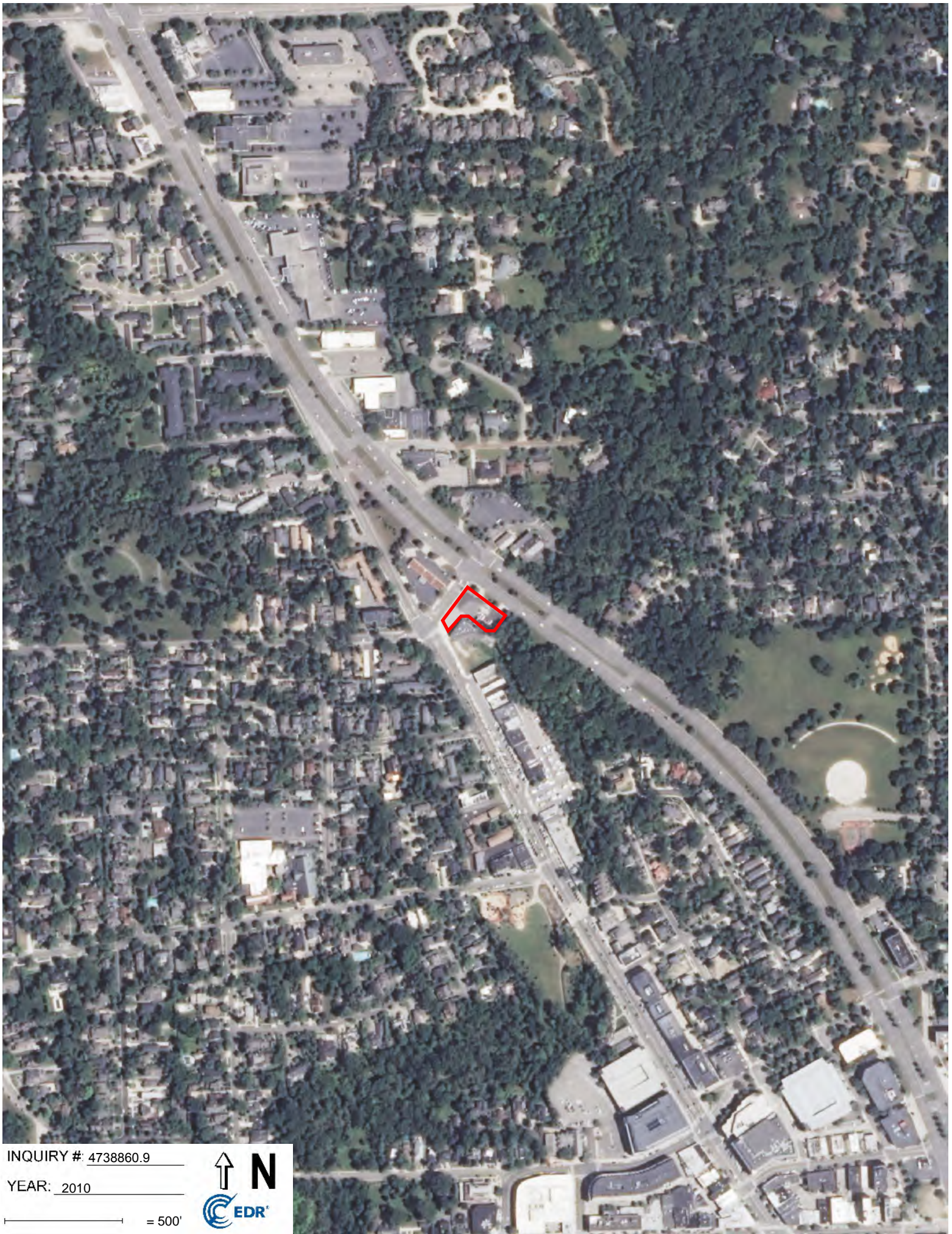
INQUIRY # 4738860.9

YEAR: 2012

— = 500'







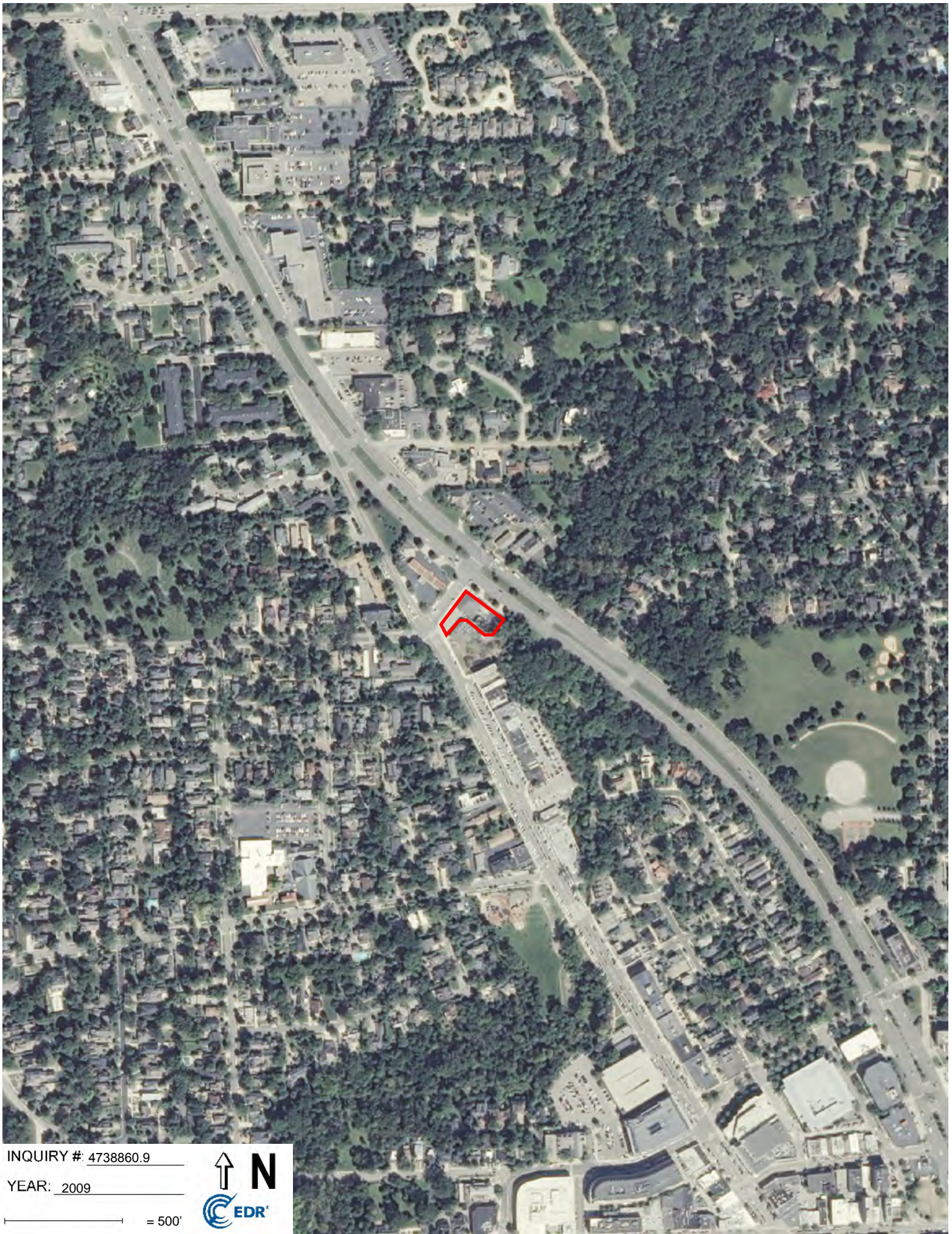
INQUIRY # 4738860.9

YEAR: 2010

— = 500'







INQUIRY # 4738860.9

YEAR: 2009

— = 500'







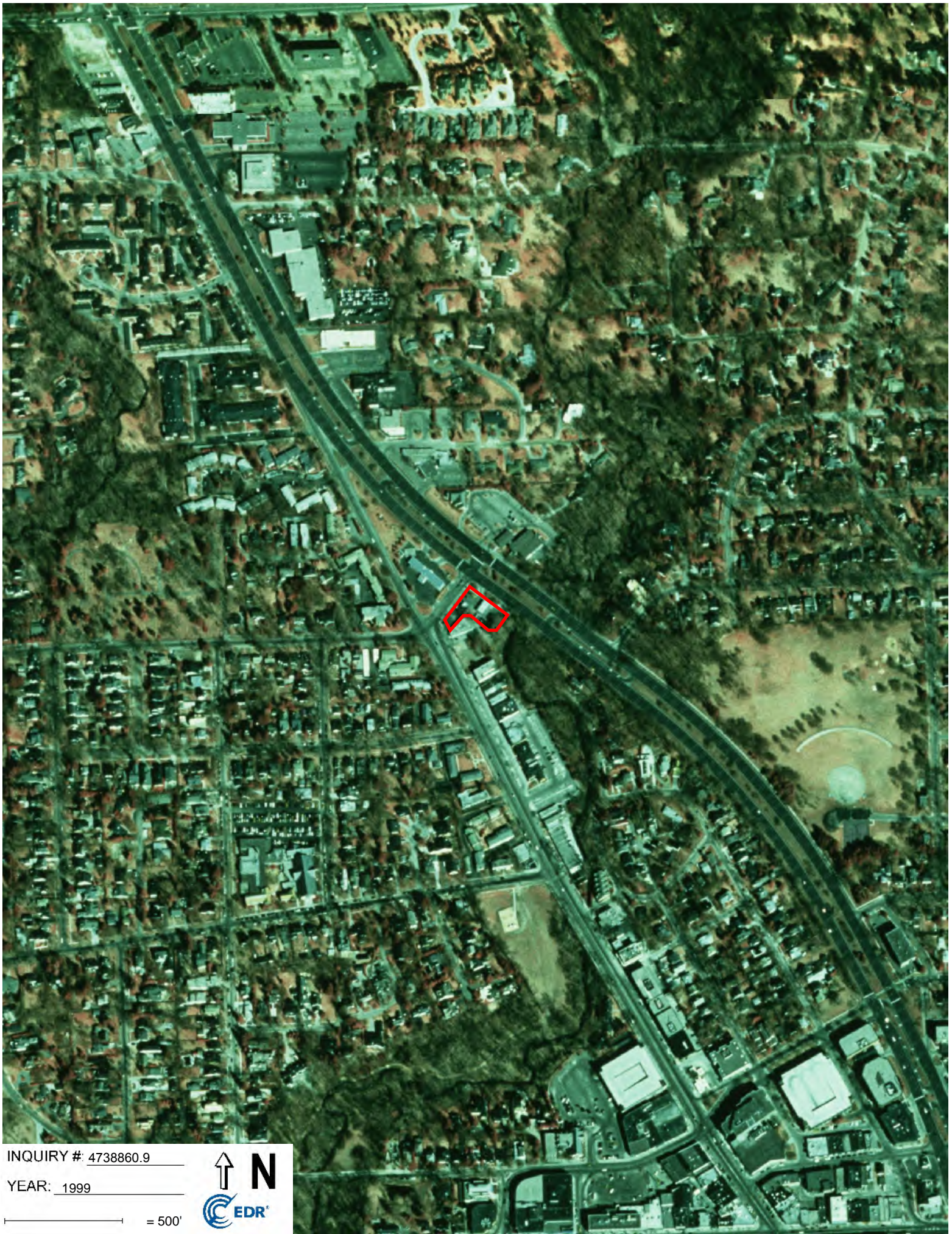
INQUIRY # 4738860.9

YEAR: 2005

— = 500'







INQUIRY #: 4738860.9

YEAR: 1999

— = 500'







INQUIRY # 4738860.9

YEAR: 1997

— = 500'







INQUIRY # 4738860.9

YEAR: 1987

— = 500'







INQUIRY # 4738860.9

YEAR: 1983

— = 500'







INQUIRY # 4738860.9

YEAR: 1976

— = 500'







INQUIRY # 4738860.9

YEAR: 1972

— = 500'







INQUIRY #: 4738860.9

YEAR: 1967

— = 500'







INQUIRY #: 4738860.9

YEAR: 1956

— = 500'







INQUIRY #: 4738860.9

YEAR: 1952

— = 500'







INQUIRY #: 4738860.9

YEAR: 1949

— = 500'







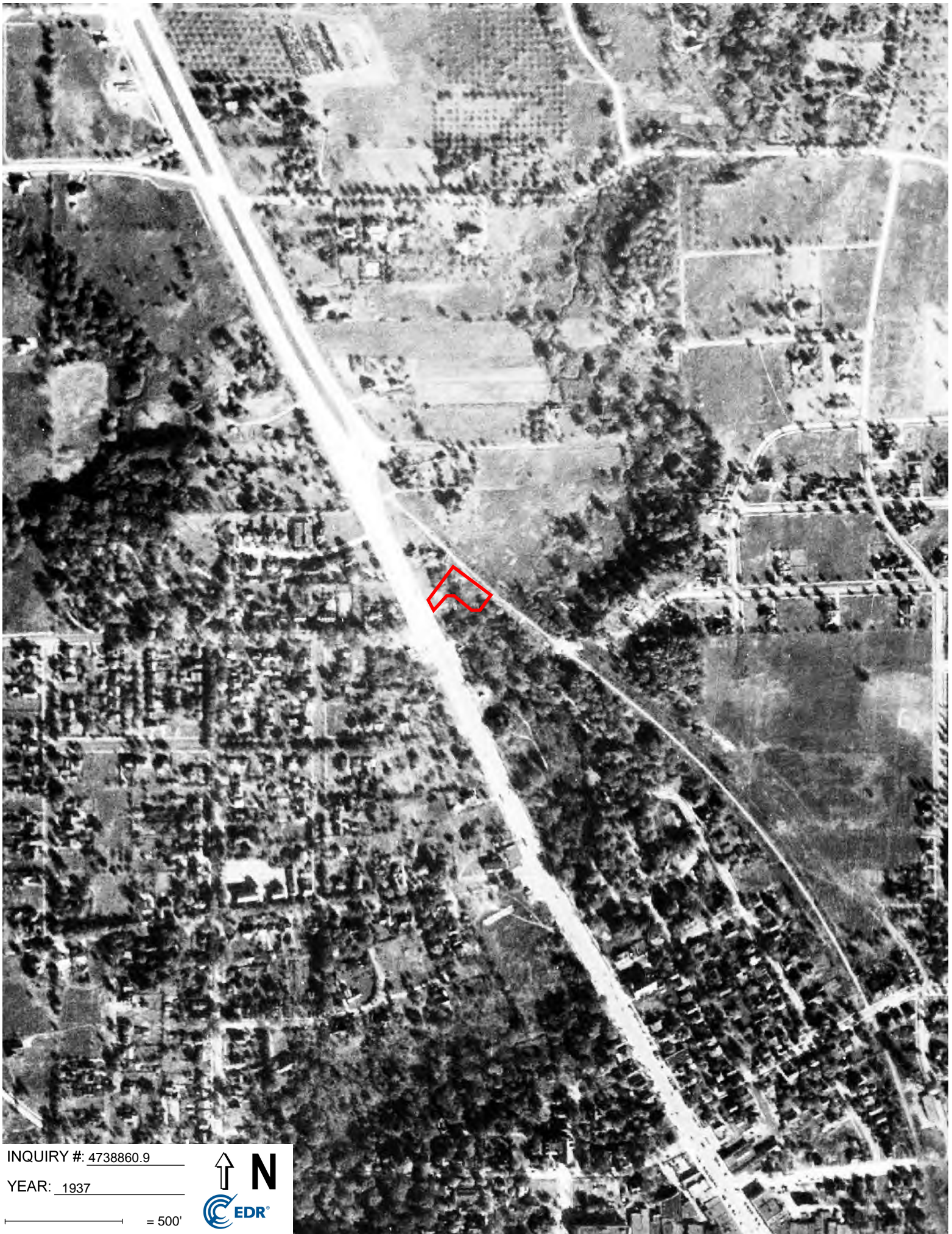
INQUIRY #: 4738860.9

YEAR: 1940

— = 500'







INQUIRY #: 4738860.9

YEAR: 1937

— = 500'



35975 Woodward Avenue

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.3

September 28, 2016

## Certified Sanborn® Map Report



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# Certified Sanborn® Map Report

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.3

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Soil & Materials Engineers were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

## Certified Sanborn Results:

**Certification #** 9BF8-410E-85A2  
**PO #** 075099.01  
**Project** 375099.01 Woodward- 075099.01

**Maps Provided:**

1960  
1949  
1931



Sanborn® Library search results

Certification #: 9BF8-410E-85A2

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

*The Sanborn Library LLC Since 1866™*

## Limited Permission To Make Copies

Soil & Materials Engineers (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.



### 1960 Source Sheets



Volume 1, Sheet 5  
1960



Volume 1, Sheet 23  
1960

### 1949 Source Sheets



Volume 1, Sheet 5  
1949

### 1931 Source Sheets



Volume 1, Sheet 5  
1931

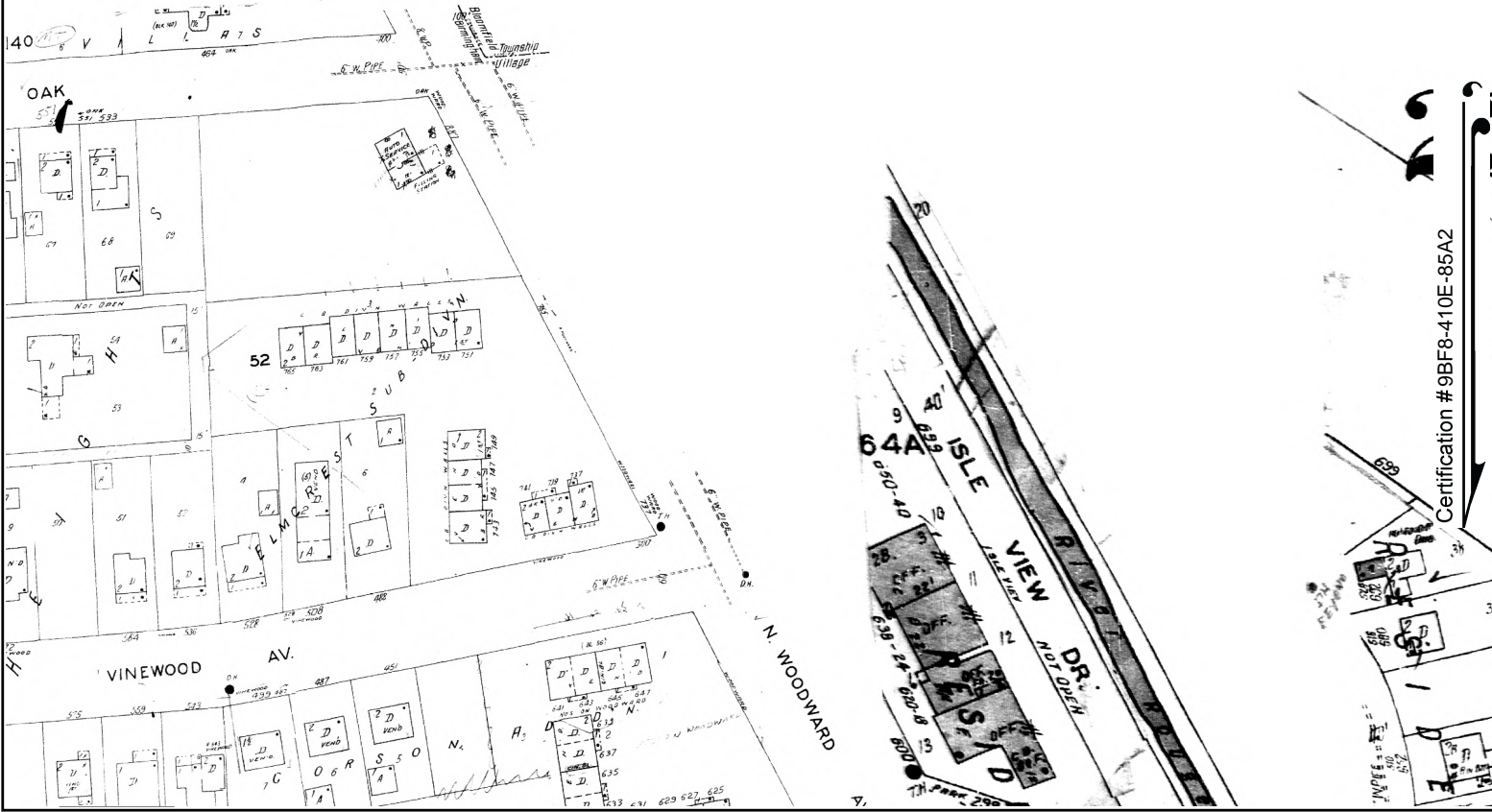


Volume 1, Sheet 23  
1931

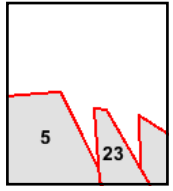
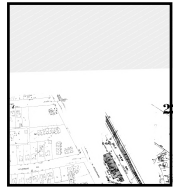
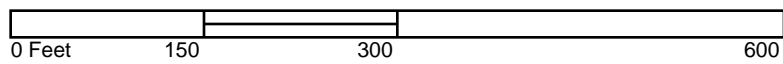
Site Name: 35975 Woodward Avenue  
 Address: 35975 Woodward Ave  
 City, ST, ZIP: Birmingham, MI 48009  
 Client: Soil & Materials Engineers  
 EDR Inquiry: 4738860.3  
 Order Date: 09/28/2016  
 Certification # 9BF8-410E-85A2  
 Copyright: 1960



The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.



This Certified Sanborn Map combines the following sheets.  
 Outlined areas indicate map sheets within the collection.

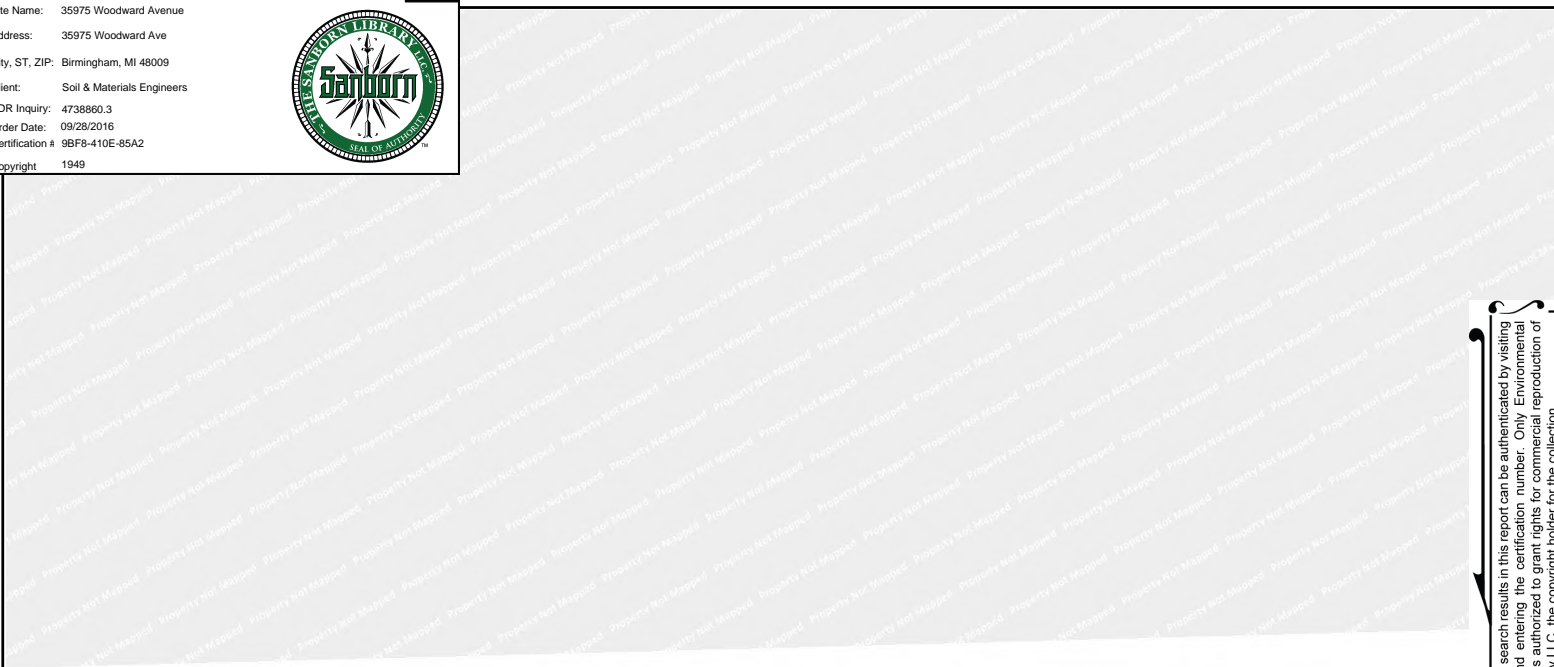


Volume 1, Sheet 23  
 Volume 1, Sheet 5

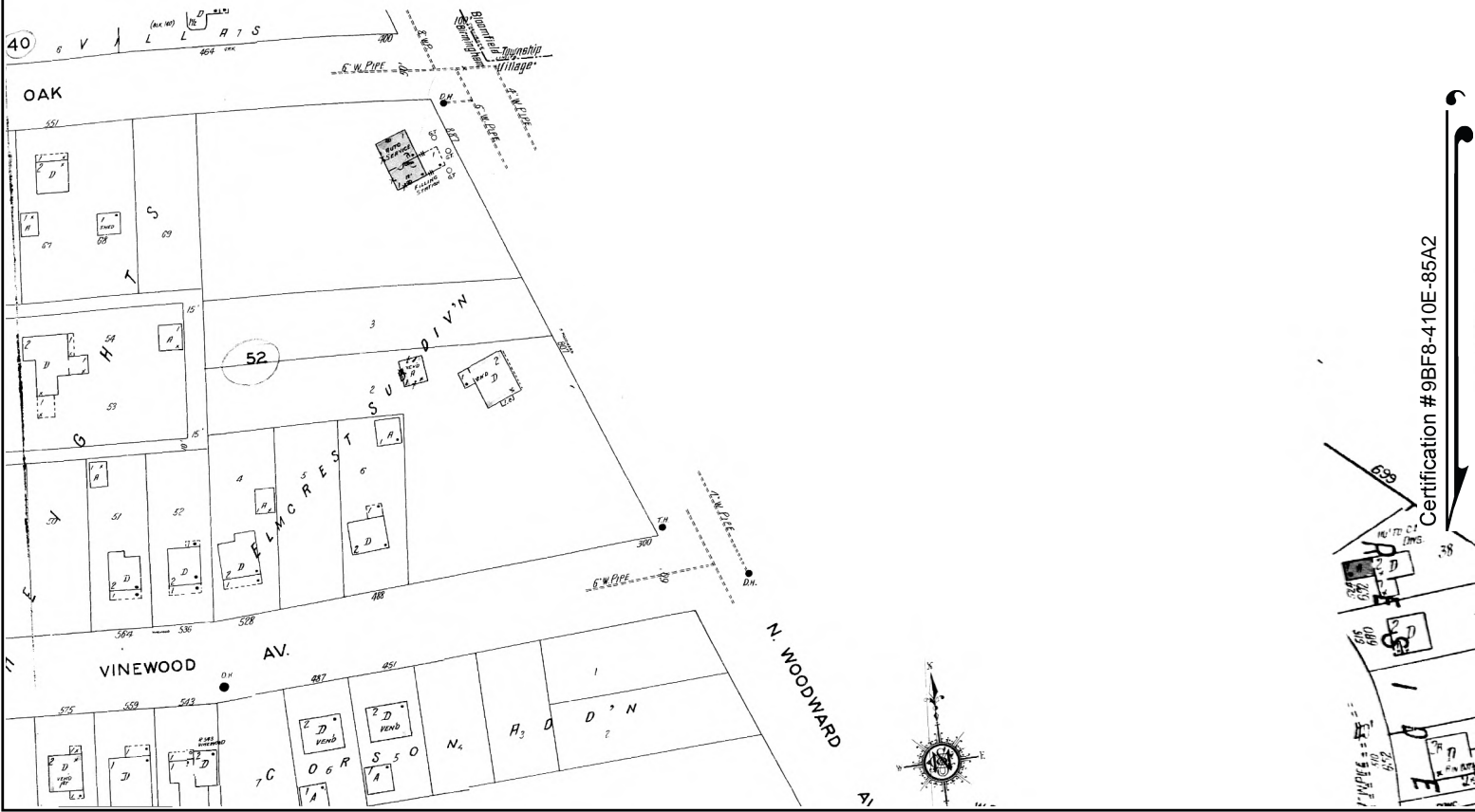


Certification #9BF8-410E-85A2

Site Name: 35975 Woodward Avenue  
 Address: 35975 Woodward Ave  
 City, ST, ZIP: Birmingham, MI 48009  
 Client: Soil & Materials Engineers  
 EDR Inquiry: 4738860.3  
 Order Date: 09/28/2016  
 Certification # 9BF8-410E-85A2  
 Copyright: 1949

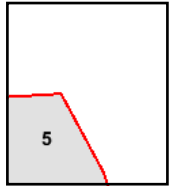


The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.



Certification #9BF8-410E-85A2

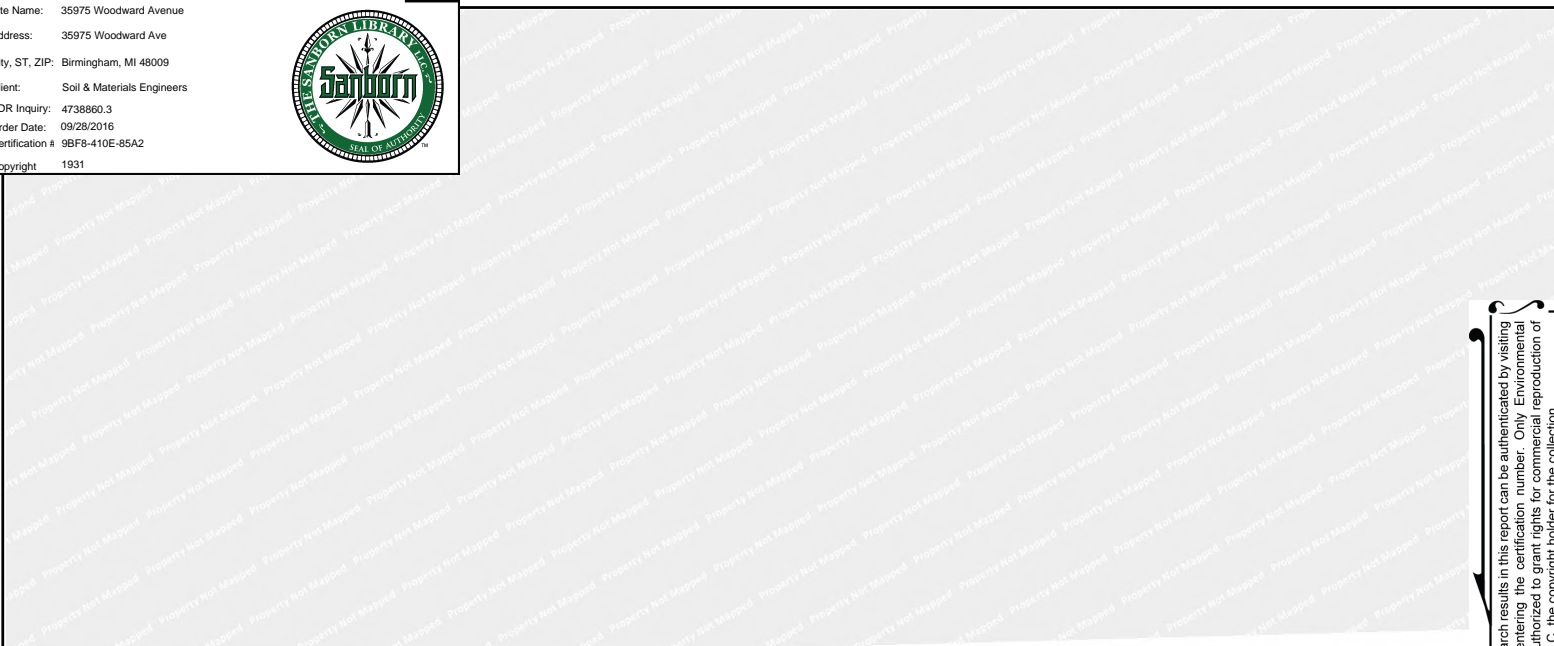
This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



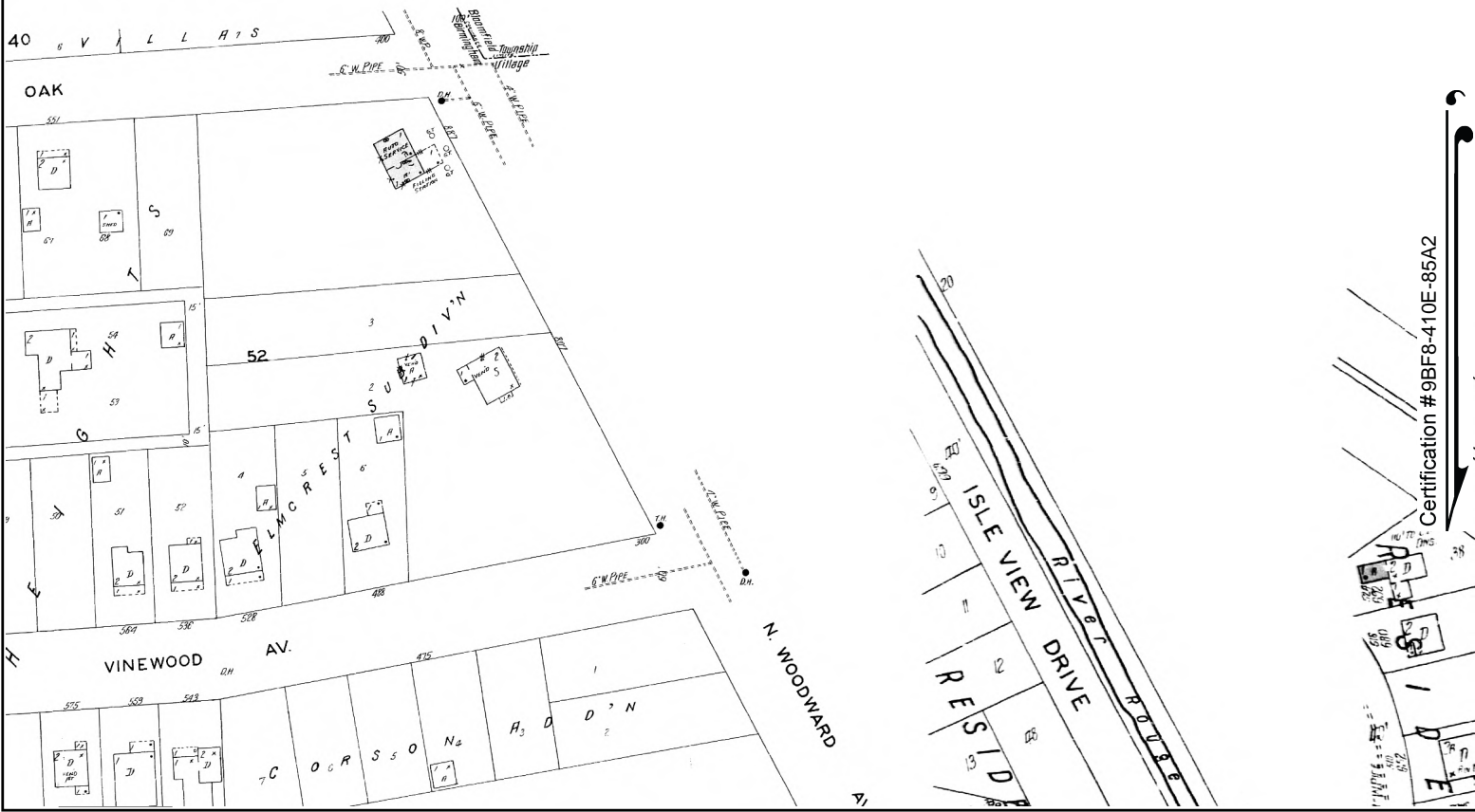
Volume 1, Sheet 5



Site Name: 35975 Woodward Avenue  
Address: 35975 Woodward Ave  
City, ST, ZIP: Birmingham, MI 48009  
Client: Soil & Materials Engineers  
EDR Inquiry: 4738860.3  
Order Date: 09/28/2016  
Certification # 9BF8-410E-85A2  
Copyright 1931

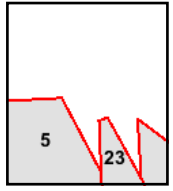


The certified Sanborn Library search results in this report can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn) and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by The Sanborn Library LLC, the copyright holder for the collection.




Certification #9BF8-410E-85A2

This Certified Sanborn Map combines the following sheets. Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 23  
Volume 1, Sheet 5



35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009

Inquiry Number: 4738860.4

September 28, 2016

# EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# EDR Historical Topo Map Report

09/28/16

**Site Name:**

35975 Woodward Avenue  
35975 Woodward Ave  
Birmingham, MI 48009  
EDR Inquiry # 4738860.4

**Client Name:**

Soil & Materials Engineers  
43980 Plymouth Oaks Boulevard  
Plymouth, MI 48170  
Contact: Christiaan Bon



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Soil & Materials Engineers were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

**Search Results:****Coordinates:**

<b>P.O.#</b>	075099.01	<b>Latitude:</b>	42.55351 42° 33' 13" North
<b>Project:</b>	375099.01 Woodward- 075099	<b>Longitude:</b>	-83.218765 -83° 13' 8" West
		<b>UTM Zone:</b>	Zone 17 North
		<b>UTM X Meters:</b>	317844.22
		<b>UTM Y Meters:</b>	4713620.62
		<b>Elevation:</b>	742.13' above sea level

**Maps Provided:**

2014  
1981  
1973  
1968  
1952  
1945  
1936  
1908

**LEGEND**

APPROXIMATE  
PROPERTY LOCATION

**Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT. Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **2014 Source Sheets**



Birmingham  
2014  
7.5-minute, 24000

### **1981 Source Sheets**



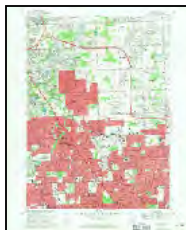
Birmingham  
1981  
7.5-minute, 24000  
Photo Revised 1981  
Aerial Photo Revised 1981

### **1973 Source Sheets**



Birmingham  
1973  
7.5-minute, 24000  
Photo Revised 1973  
Aerial Photo Revised 1973

### **1968 Source Sheets**



Birmingham  
1968  
7.5-minute, 24000  
Aerial Photo Revised 1967

## **Topo Sheet Key**

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

### **1952 Source Sheets**



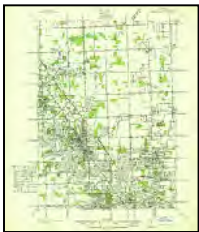
Birmingham  
1952  
7.5-minute, 24000

### **1945 Source Sheets**



Birmingham  
1945  
7.5-minute, 24000

### **1936 Source Sheets**



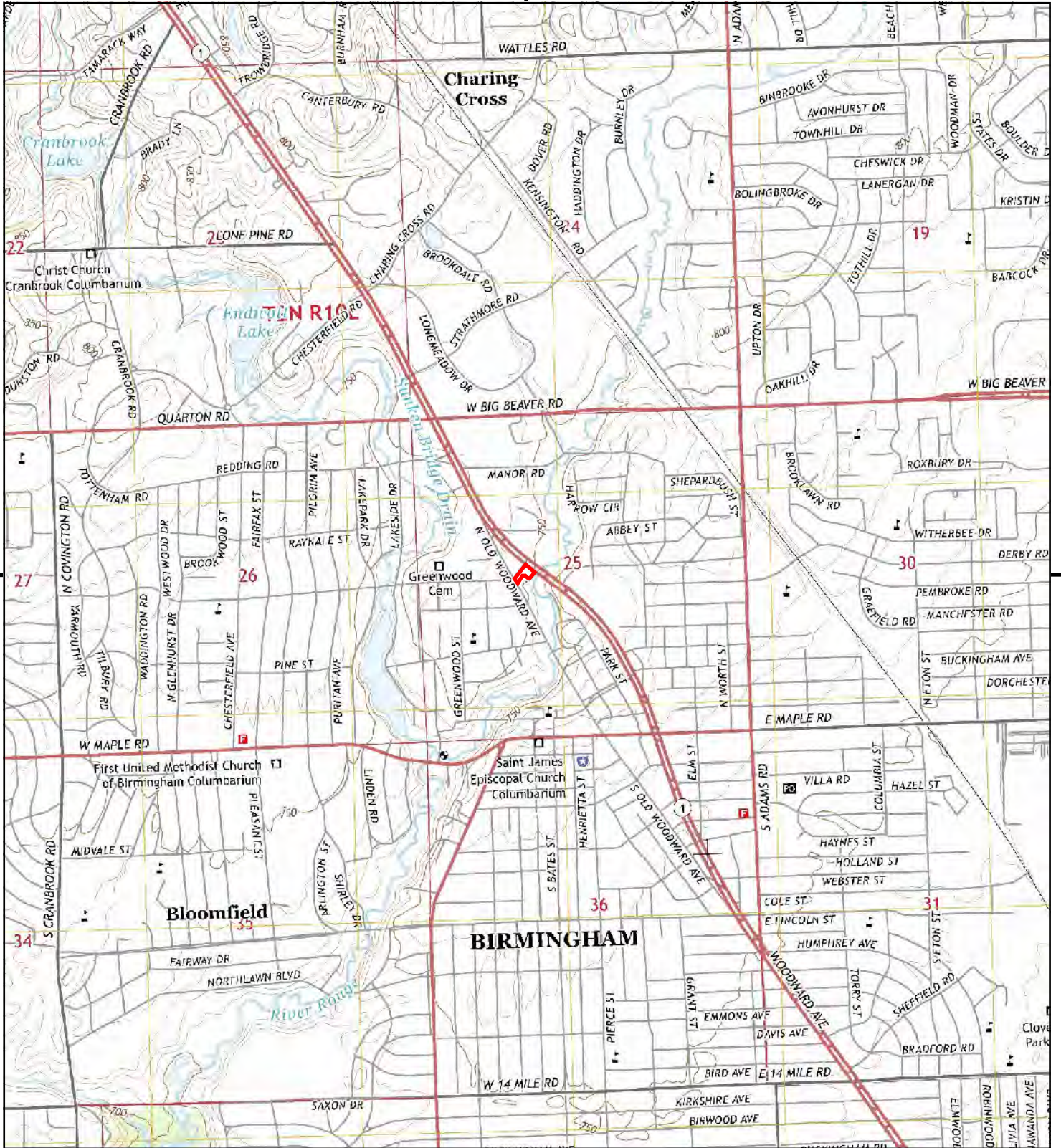
Birmingham  
1936  
7.5-minute, 31680

### **1908 Source Sheets**



Rochester  
1908  
15-minute, 62500





This report includes information from the following map sheet(s).



TP, Birmingham, 2014, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

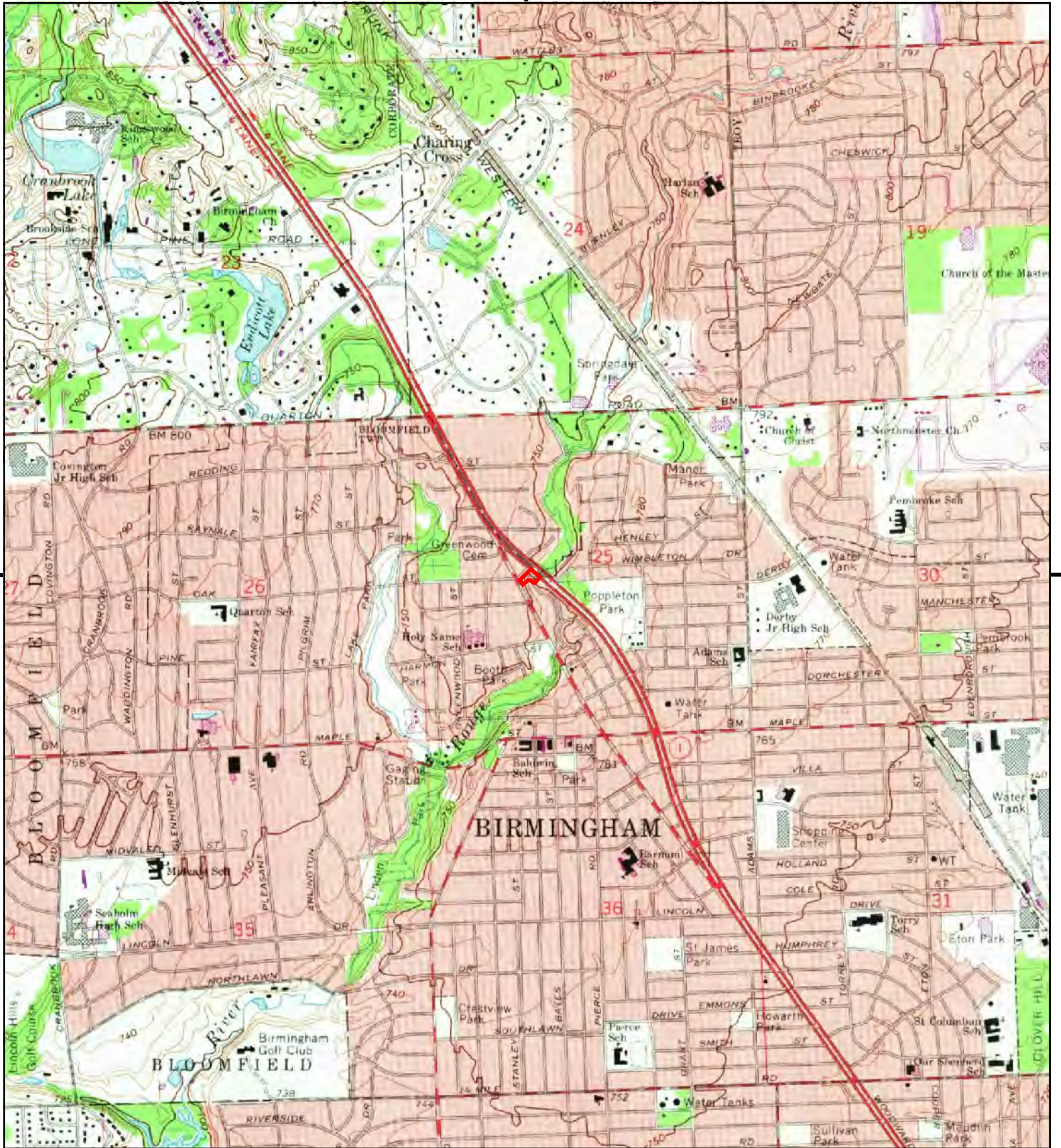


TP, Birmingham, 1981, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

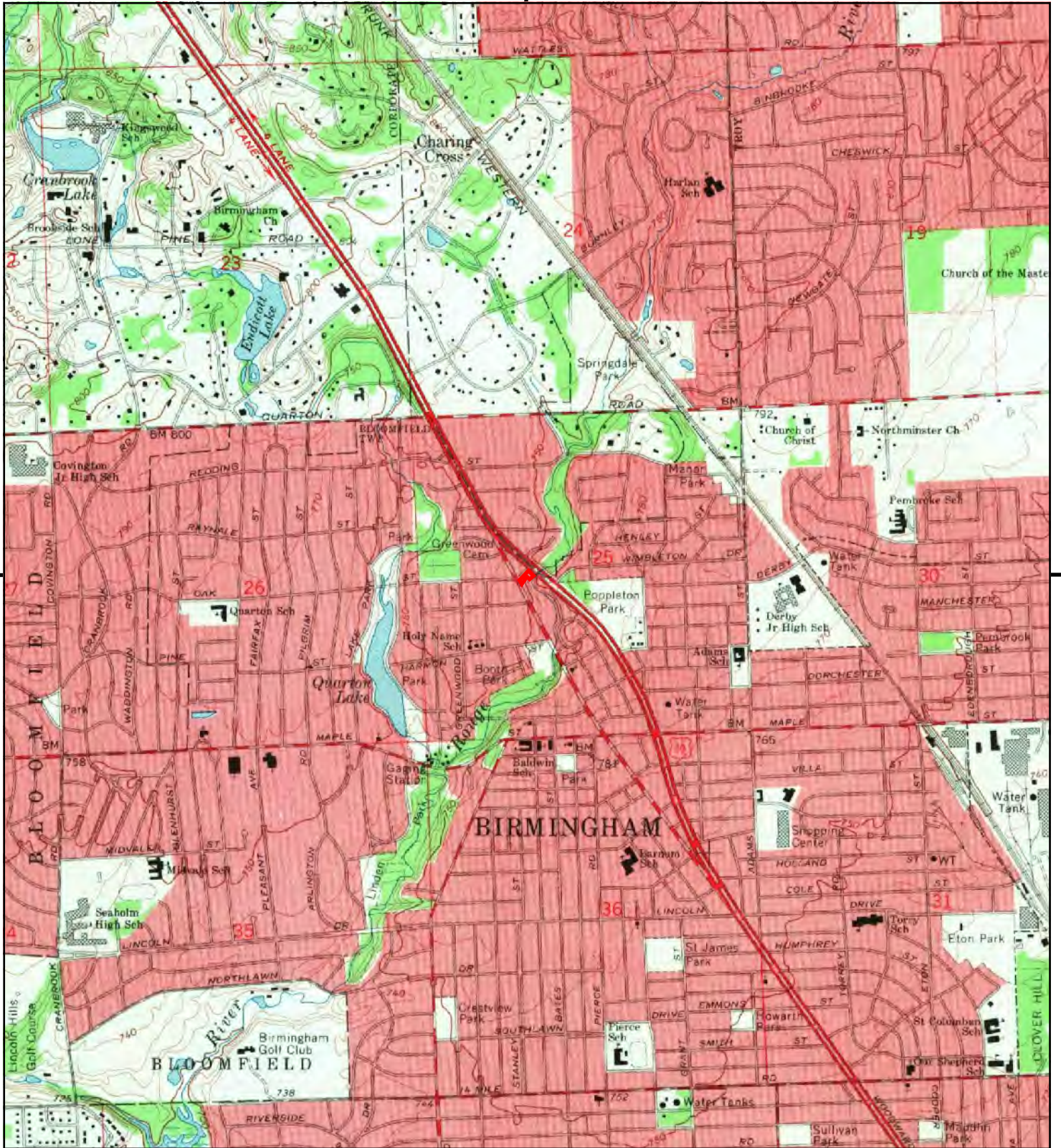


TP, Birmingham, 1973, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

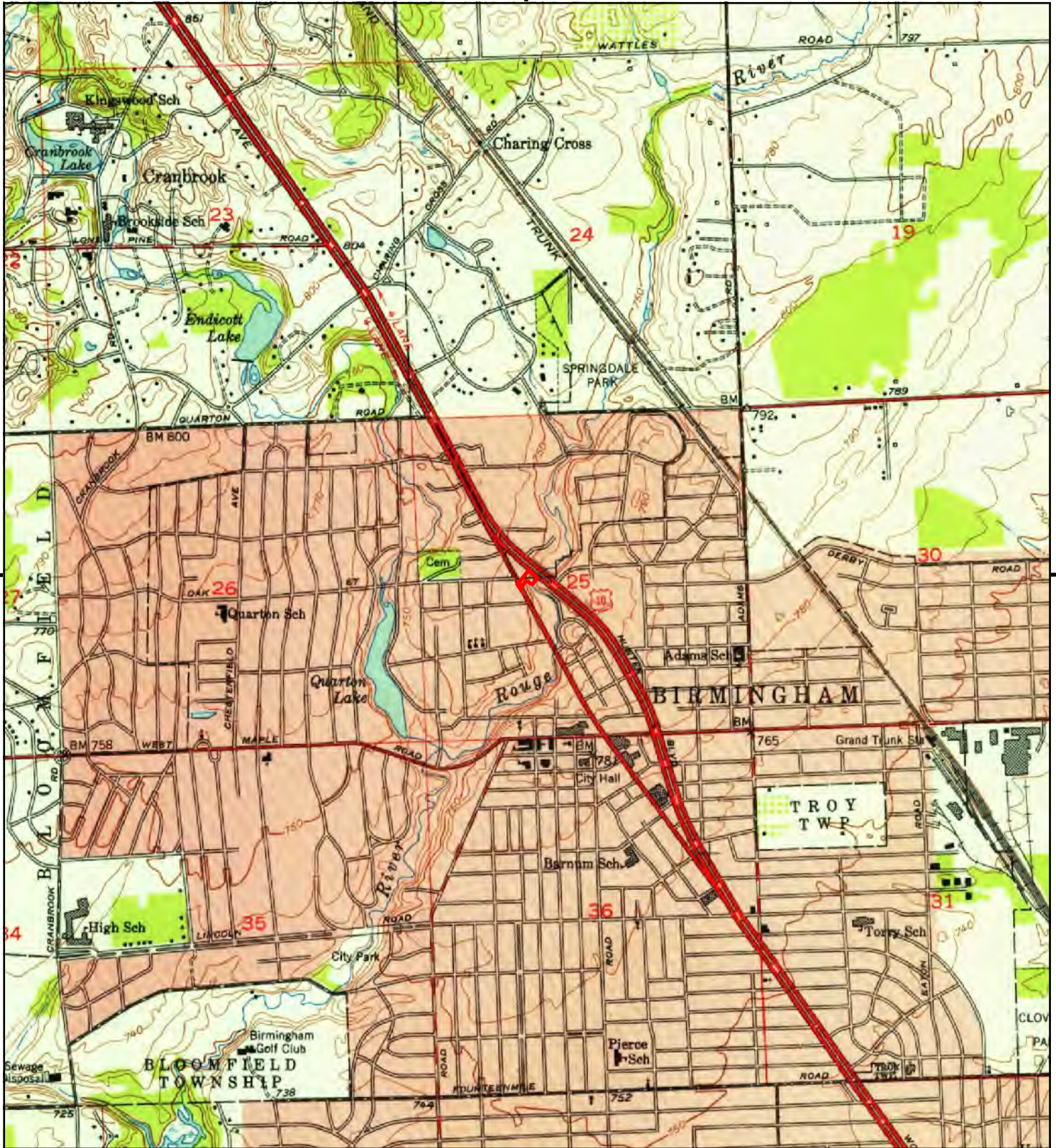


TP, Birmingham, 1968, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

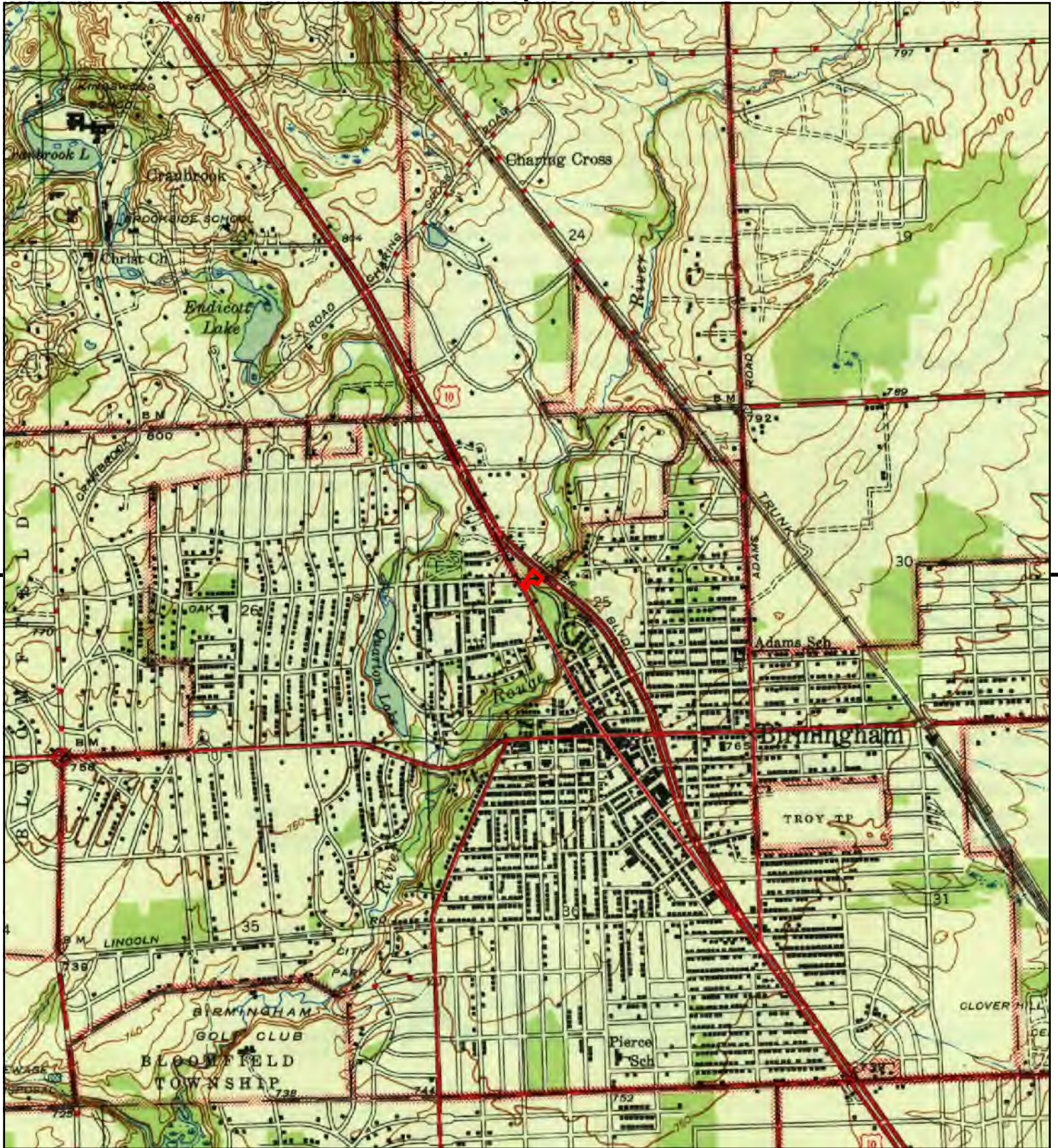


TP, Birmingham, 1952, 7.5-minute

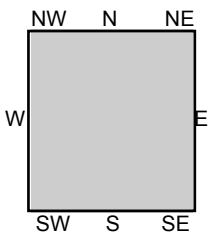
SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).



TP, Birmingham, 1945, 7.5-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).

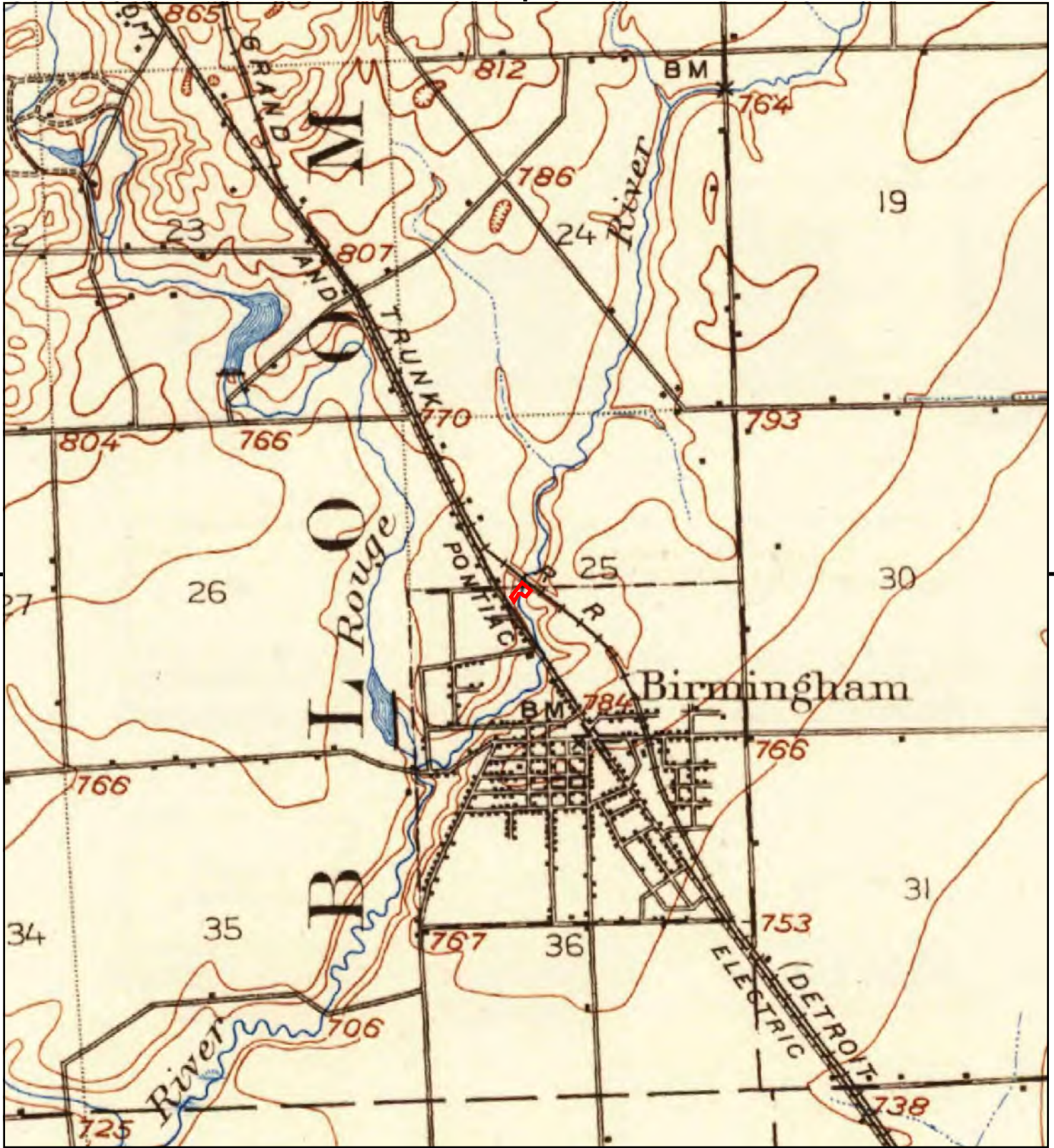


TP, Birmingham, 1936, 7.5-minute

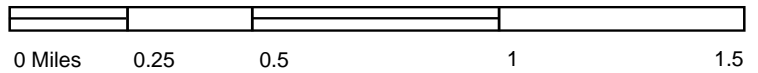
SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers







This report includes information from the following map sheet(s).



TP, Rochester, 1908, 15-minute

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham, MI 48009  
 CLIENT: Soil & Materials Engineers



**35975 Woodward Avenue**

35975 Woodward Ave  
Birmingham, MI 48009

Inquiry Number: 4738860.5  
September 28, 2016

# The EDR-City Directory Image Report



## TABLE OF CONTENTS

### SECTION

Executive Summary

Findings

City Directory Images

***Thank you for your business.***  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

### **Disclaimer - Copyright and Trademark Notice**

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc. or its affiliates is prohibited without prior written permission.

EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2008	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1999	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cole Information Services
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Bresser's Cross-Index Directory Company
1992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1988	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1982	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1977	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1972	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1967	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1962	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1957	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1951	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory
1944	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Polk's City Directory

### RECORD SOURCES

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.

## FINDINGS

### TARGET PROPERTY STREET

35975 Woodward Ave  
Birmingham, MI 48009

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
<b><u>WOODWARD AVE</u></b>		
2013	pg A2	Cole Information Services
2008	pg A6	Cole Information Services
2003	pg A11	Cole Information Services
1999	pg A16	Cole Information Services
1995	pg A20	Bresser's Cross-Index Directory Company
1992	pg A21	Polk's City Directory
1988	pg A22	Polk's City Directory
1982	pg A23	Polk's City Directory
1982	pg A24	Polk's City Directory
1977	pg A25	Polk's City Directory
1972	pg A26	Polk's City Directory
1972	pg A27	Polk's City Directory
1967	pg A28	Polk's City Directory
1962	pg A29	Polk's City Directory
1957	pg A30	Polk's City Directory
1951	pg A31	Polk's City Directory
1944	pg A32	Polk's City Directory
1944	pg A33	Polk's City Directory

## FINDINGS

### CROSS STREETS

No Cross Streets Identified

## **City Directory Images**

## WOODWARD AVE 2013

34750 SPEEDWAY  
34802 AAA  
34952 BARCLAY INN  
34965 PEABODYS RESTAURANT  
34977 CATALYST DEVELOPMENT  
CSM  
FINNEA GROUP  
GREENLEAF CAPITAL INC  
GREENLEAF TRUST  
OGLETREE DEAKINS NASH SMOAK & STEWAR  
ZAZIOS BIRMINGHAM  
35028 FORSTER & LAIDLAW FLORISTS INC  
35032 DAIRY MAT  
35046 BEAUMONT  
GENERATIONS OB GYN  
MOB GENERATIONS  
ORTHO ASSOC  
35075 HUNTER HOUSE HAMBURGERS  
35106 MASTROMATTEO J A DDS  
NORTH HUNTER DENTAL ASSOCIATES PC  
SANSONE MICHAEL A DDS  
35238 FLAGSTAR BANK  
35270 HOLIDAY INN EXPRESS  
HOLIDAY INN EXPRESS DETROITBIRMINGH  
35300 ALAN MCLELLAN  
ALLAN HARRISON  
B SUITES  
BARBARA KLOSNER  
BRIAN SMITH  
BRITTNEY MINOR  
CHRIS FULLER  
CHRISTOPHER WARDLE  
CRAIG SKINNER  
DANIEL KEYES  
DONALD ISAACSEN  
GEORGE FRIEND  
GUSTAVO GAYNETT  
J KLOAIN  
JASON VOGEL  
JOHN SHAW  
JONATHAN LAU  
KASTINE HABIB  
MAHA DERANI  
NANCY CONEFF  
NICHOLAS COHEN  
P FRANK  
POPPELTON PLACE  
STEVEN JAFFE  
T AM MARKETING  
VAUGHN DROBNICH



-  
**WOODWARD AVE 2013 (Cont'd)**

35977	CHARLES RUTHERFORD
35980	AZD ASSOCIATES
	M C M MANAGEMENT
	MY INSURANCE EXPERT
	RELIABLE ONE STAFFING SERVICES
36000	JAMES BOERKOEL
36050	BANK OF AMERICA
36101	UPTOWN MARKET MOBIL
36200	BACKYARD BIRDS
36240	HUNTER ROBERTS HOMES
	PETERSON WIAND BOES & CO
	WELLINGTON CHASE HOMES
36260	CLOSET INTERIORS OF BLOOMFIELD
36280	HARDWARE WHOLESALE
	RUSSELL HARDWARE COMPANY
36300	NATIONAL CITY BANK
	PNC BANK
36330	ANK ENTERPRISES INC
	CUSTOM SALES INC
	DESROSIERS ARCHITECTS INC
36360	MARK EPPS FINANACIAL ADVISORY SERVIC
36400	ALIDADE CAPITAL
	AVESIAN ASSOCIATES INC
	CARMCO INC
	CONCORD INDUSTRIAL CORP
	DARVIN & CO
	DARVIN LUCCI INVESTMENTS
	DIETZ COMMERCIAL REAL ESTATE
	FREEDLAND MICHAEL H MD PLASTIC SURGE
	HOWARD BABCOCK & ASSOCIATES
	KELTER SCHWARTZ DESIGN
	MANOR HOMES
	MJD METAL COMPANY
	OXFORD FINANCIAL CORP
	PRIME CAPITAL MORTGAGE
	ROBERT W LARIN PC
	ROYCE MUSIC
	SALZEIDER INC
	SENTECH SERVICES INC
	SHARE A SMILE
	STAFFING COMPANY THE
	WOODWARD FINANCIAL GROUP
36509	MERCY BAIDOO
36521	GARY WELLS
36527	L LOVE
36533	JAMES STRANDLOFF
36539	SCOTT WILSON
36545	ELAINE KOZAR
36551	FAITH GENTRY
36563	OCCUPANT UNKNOWN

-  
**WOODWARD AVE 2013 (Cont'd)**

36600 ENTERPRISE RENTACAR  
 ESTATE MOTORS LTD

36623 DAVID BAXTER

36627 BRIAN CAMERON

36631 ALISON HOFLEY

36635 OCCUPANT UNKNOWN

36639 OCCUPANT UNKNOWN

36643 COLONIAL COURT APT BIRMINGHAM  
 OCCUPANT UNKNOWN

36700 1400 WOODWARD ASSOC LLC  
 ANDERSONMILLER LTD  
 BLOOMFIELD DENTAL ASSOCIATES  
 CHISA NELDAGAE MD  
 DAVID H MILLER PLLC  
 GOETZ & ROGERS PC  
 GREENBRIAR INC  
 HAYNES JACK P PHD  
 HEBER FUGER & WENDLIN INC  
 LAW OFFICES OF ELIAS MUAWAD  
 MIKE KINNA STATE FARM INSURANCE  
 NORTHERN LIGHTS ENTERPRISES  
 P & C INDUSTRIES  
 RAYMOND SALLOUM LAW OFFICES  
 RE MAX  
 REIZEN MARK E ATTORNEY  
 RLACREADING & LANGUAGE ARTS CENTERS  
 SENTECH ENGINEERING SERVICES  
 THOMAS CUNNINGTON  
 THOMAS SEBOLD & ASSOCIATES

36800 HARRIS MORTON E  
 IMAGE PROCESS DESIGN  
 LUCKENBACH ZIEGELMAN ARCHITECTS PLLC  
 M1 CAPITAL MANAGEMENT  
 PLANNING ALTERNATIVES LTD

36880 BODOIN NICHOLAS J PHD  
 BOSLER MARK S  
 DICKERSON GROUP INC  
 ECHO KIMPINTO MS LAC  
 FOCUSED SOLUTIONS HYPNOTHERAPY  
 HANDS ON PHYSICAL THERAPY  
 JOYCE SCHOMER  
 KATHLINE MCCARTHY  
 LAUREL WOMENS MEDICAL GROUP  
 LEITMAN SUSAN PHD  
 MARK BOSLER  
 MASSAGE SYMPHONY STUDIOS  
 MCCARTHY KATHLEEN PHD PC  
 MEDICUS PAIN & SPINE PLC  
 NICHOLA BODOIN  
 NICOLETTI & ASSOCIATES PC

**WOODWARD AVE 2013 (Cont'd)**

36880 NIGHTINGALE & SISTER NURSES  
NORTH AMERICAN PENSION SERVICES LTD  
PURE JOY PEDIATRICS  
SAYEG PLASTIC SURGERY  
SCHOMER JOYCE PHD  
SUSAN LEITMAN  
VISAGE SPA  
WISH UPON A TEEN  
37000 ACE INDUSTRIES  
ADVANTAGE CONSULTING GROUP  
BERGER ROLAND  
BIRMINGHAM EXECUTIVE SUITES  
CHASE  
COCHRAN JACK M  
CYNTHIA OHANIAN INTERIORS  
GREENSTONE FINANCIAL  
INDEPENDENCE ADVISORS INC  
JUSTICE CANCER FOUNDATION  
LACHINE FINANCIAL SERVICES  
LANCOPE  
LEVEL ONE BANK  
LOAN BROKERAGE CENTER  
PARAGON MORTGAGE SERVICES  
PHYLLIS MAZURE  
PRO MANAGE  
SMITH PROFESSIONAL SEARCH  
SOUTHWEST FABRICATIONS  
STEPHEN J TILL  
VINCE TIMPA GROUP  
W B REHABILITATION SERVICES  
37357 BIRMINGHAM MASONIC LODGE NUM 44  
37425 THE CHURCH OF JESUS CHRIST OF LATTER

**WOODWARD AVE 2008**

34750 DIAMOND SHAMROCK REF MARKETING  
TOTAL PETROLEUM INC

34802 AAA  
AAA OF MICHIGAN  
AUTOMOBILE CLUBMICHIGAN  
CLUB TRAVEL AGENCY INC

34901 1ST DISCOUNT MORTGAGE CORP

34952 BARCLAY INN

34953 FINE FURNISHING LIQUIDATORS INC

34965 PEABODY'S OF BIRMINGHAM

35028 FORSTER & LAIDLAW INC

35032 DAIRY MAT

35075 HUNTER HOUSE HAMBURGERS INC

35106 NORTH HUNTER DENTAL  
SANSONE MICHAEL A DDS

35238 INTERNATIONAL HOUSE PANCAKES

35270 HAMILTON HOTEL  
HOLIDAY INN EXPRESS

35300 ADRIENNE BAKER  
ALFRED LISS  
BARBARA KLOSNER  
BRIAN SMITH  
C WELLS  
CLINTOM LAUER  
CRAIG SKINNER  
D HRABAK  
DANIELLE ROGERS  
DEBORAH JALABA  
DEBORAH NIGHTINGALE  
DONALD ISAACSEN  
FRANK CANCRO  
GINA SCOZZAFAVE  
GLORIA MCCUEN  
HUGH MAHLER  
HUNTER HODGSON PRODUCTIONS  
JAY FRIEND  
JOHN SHAW  
JONATHAN LAU  
KASTINE HABIB  
KIMBERLY ROGERS  
LIVIA HUNT  
MEL DROSIS  
NICOLE RICOTTA  
PIERRE WEBSTER  
S TRAVIS  
STANLEY WORTH  
STEVE JOHNSON  
TAM MARKETING

35975 A & G AUTO CARE LLC  
OAKLAND AMOCO

**WOODWARD AVE 2008 (Cont'd)**

35977 CHARLES RUTHERFORD  
35980 BILTMORE BUILDING CO LP  
CARLTON FORREST PROPERTIES  
INTERNATIONAL HEALTH CARE MGMT ASSOC  
ROBERT D HANDELSMAN  
W GROUP  
35990 DECKLEVER LLC  
DESTINATION UNKNOWN LLC  
SHORES OF WALLOON ASSOCIATION  
36000 JAMES BOERKOEL  
36050 STANDARD FEDERAL BANK  
36101 STAFFING ACADEMY LLC  
36200 BACKYARD BIRDS  
KRUCHEN KRAMAR  
36240 WELLINGTON CHASE HOMES  
36260 AGF INC  
CLOSET INTERIORS  
36280 HARDWARE WHOLESALE  
RUSSELL HARDWARE CO  
36300 NATIONAL CITY BANK  
36330 CSI  
CUSTOM SALES INC  
DESROSIERS ARCHITECTS INC  
FIRST ALLIANCE LOGISTICS  
ORION CUSTOM MADE MACHINERY LL  
R BRADLEY LAMBERT PLC  
SALEM FOODS INVESTMENTS LLC  
36400 ALAIMO CAROLYN PHD  
BABCOCK HOWARD A & ASSOCS  
BIRMINGHAM INTERNET GROUP  
CONCORD INDUSTRIAL CORP  
CYCLONE DAVISON LLC  
DALY REAL ESTATE APPRAISERS  
DARVIN & CO  
DIESEL TECHNOLOGIES LLC  
DIETZ COMMERCIAL  
FLAGSTAR MORTGAGE CORP  
G H FORBES ASSOCIATES ARCHITECTS PC  
HERBERT LAWSON INC  
HOME FOR SPORTS LLC  
INVESTMENT TIMING CONSULTANTS  
KATHLEEN MOORE PHD  
LARIN & LEONARD  
LMC FINANCIAL GROUP LLC  
LPP LEASING  
MANOR HOMES  
NEW FINANCIAL CONCEPTS INC  
OXFORD FINANCIAL CORP  
PRIME CAPITAL MORTGAGE  
SENTEK CORP

-  
**WOODWARD AVE 2008 (Cont'd)**

36400 SOUTH OAKLAND ANESTHESIA ASSOCIATES  
 SOUTHWEST FINANCIAL OF MICHIGAN  
 THE WINDHAM GROUP LLC  
 WELLMAN INC

36509 DUANE KOSMOWSKI

36515 OCCUPANT UNKNOWN

36521 ANDREW WEIDENBACH

36527 OCCUPANT UNKNOWN

36533 GRACE SACHS  
 THE WEB ADVISORS LLC

36539 ZIPPORIA SHERROD

36545 ELAINE KOZAR

36551 JOHN ROGERS

36557 ANTOINETTE MAGGIO-JACOB  
 ZAHID SHEIKH

36563 EUI PARK

36600 ESTATE MOTORS LTD  
 MERCEDES BENZ OF BLOOMFIELD HILLS

36623 WYANATTA HILL

36627 MICHAEL MAGDALINA

36631 ALISON HOFLEY

36635 TOM SPRING

36639 OCCUPANT UNKNOWN

36643 COLONIAL COURT TERRACES  
 OCCUPANT UNKNOWN  
 STUART FRANKEL DEVELOPMENT C

36700 ANDERSON FINANCIAL  
 ARTHUR LISS  
 BETH MD MIRAL  
 BRAVEN ENTERPRISES LLC  
 CHILD HEALTH ASSOCIATES PC  
 COMPETITIVE COMPUTER SYSTEMS INC  
 DETROIT RETAIL LLC  
 ERIC C SPENCER  
 HEBER FUGER WENDIN INC  
 JACK P HAYNES PHD  
 JENNIFER CHISA  
 JOHN LYNCH  
 KOUZA & EJBEH PC  
 LYNCH JOHN T III PC  
 MIKE REALTOR LLC  
 MILLER & SHENSKY  
 MYRA KOLIN MD  
 NORTHERN LIGHT ENTERPRISES  
 PRUDENTIAL  
 R E HOLCOMB REAL ESTATE  
 R LAC READING & LANGUAGE ARTS CENTER  
 READING & LANGUAGE  
 REMAX  
 ROY SHECTER



**WOODWARD AVE 2008 (Cont'd)**

36700 ROY SHECTER & VOCHT PC  
 SCHMIDT JAMES C PHD  
 SIGURD R WENDIN & ASSOCIATES INC  
 STATE FARM INSURANCE  
 SWAN CREEK PLAZA LLC  
 THE ANDERSON FINANCIAL GROUP INC  
 THOMAS SEBOLD & ASSOCS  
 VENKATARAMON PREETI  
 VOCHT LAW FIRM  
 WEINSTEIN LEE MD

36800 ALBERT MANAGEMENT CO  
 CAPITAL POWER  
 COMPREHENSIVE HOME INSPECTION  
 DISPOSAL MANAGEMENT  
 ESI  
 ESI NORTH AMERICA INC  
 EVELYN L REDMOND ATTORNEY  
 IMAGE PROCESS DESIGN INC  
 INTERNATIONAL REHABILITATION CENTERS  
 LUCKENBACH ZIEGELMAN & PARTNERS INC  
 MICHAEL B GELLIS MD PC  
 MICHAEL GELLIS  
 REDI PROPERTY MANAGEMENT CO  
 ROBERT ZIEGELMAN  
 THINK OR SWIM  
 THINKORSWIM ADVISORS  
 VIBRO ACOUSTIC SCIENCES INC

36880 AGENCY COMPUTER SYSTEMS  
 BODOIN NICHOLAS J PHD  
 CARMEN BOGDAN  
 CENTRAL PARK INSURANCE AGENCY INC  
 CLARICA CO  
 DAVID A KUZDEK AND  
 DEFOE TRAVEL SERVICES  
 DICKERSON GROUP INC  
 EDUCATIONAL CONSULTATION SERVICE  
 JOYCE SCHOMER  
 JOYCE SCHOMER PHD  
 KATHLINE MCCARTY  
 LEITMAN SUSAN PHD  
 LITTLE JOHN GROUP  
 MCCARTY KATHLINE PHD PC  
 MICHAEL FREEDLAND  
 MICHAEL H FREEDLAND MD  
 NICHOLAS BODOIN  
 NORTH AMERICAN PENSION SERVICES LTD  
 SILLS FIEDLER & CHARBONEAU PC  
 SILLS LAW GILLARY ESSAD FIEDLER & CH  
 SOMERSET INSURANCE SERVICES LTD  
 SUSAN LEI

**WOODWARD AVE 2008 (Cont'd)**

36880 THB VENTURES INC  
THOMAS R CHARBONEAU JR PC  
VISAGE SPA

37000 A R C SCRAP MANAGEMENT INC  
ACE INDUSTRIES  
ALLERTON FINANCIAL CORP  
AMERICAN CURRENCY EXCHANGE  
AMERICAN MEDICAL PRODUCTION  
ANDREW LAUREN INC  
AUTOMARK INC  
BANK ONE NATIONAL ASSN CHICAGO  
CHANDLER & ASSOCIATES  
CHASE MANHATTAN BANK  
DALLOLMO MAROUGY INSURANCE AG  
FRUSH FINANCIAL GROUP  
GAC DAVID R CPA  
GREENSTONE FINANCIAL  
GUNTOPIA INC  
HANRAHAN COMMUNICATIONS  
HRN STAFFING SOLUTIONS  
INDEPENDENT MORTGAGE CONSULTING  
INNOVATIVE MEDICINE  
INTEGRATED ALARM LLC  
JUNE & ROBERT GURWIN FAMILY FOUNDATI  
KOPPIN JOHN P CPA  
L A R RETAIL INDUSTRIES  
LOIS BLAESING  
LOIS C BLAESING PC  
MARY PANTELY ASSOCIATES  
MICHAEL WOLK & ASSOCIATES  
MIND OVER MATTER  
MJD METAL CO LLC  
PARAGON MORTGAGE SERVICES  
PRO MANAGEMENT  
PURDY DONOVAN & BEAL LLP  
THE WILLITS FINANCIAL GROUP LLC  
W B REHABILITATION SERVICES

37357 BIRMINGHAM MASONIC LODGE NUM 44

37425 CHURCH OF JESUS CHRIST OF LATTER DAY  
FAMILY HISTORY CENTER

**WOODWARD AVE 2003**

34750 TOTAL PETROLEUM INC  
34802 AAA MICHIGAN  
AAAAAA BRANCH OFFICES  
34901 1ST DISCOUNT MORTGAGE CORP  
34952 HOLIDAY INN EXPRESS  
34953 WORKBENCH CONTEMPORARY FRNTR  
34965 OCCUPANT UNKNOWN  
PEABODYS RESTAURANT & BAR  
34977 A & T BIRMINGHAM DEVELOPMENT INC  
OCCUPANT UNKNOWN  
SPEEDZONE INC  
35001 OCCUPANT UNKNOWN  
35028 FORSTER & LAIDLAW FLORISTS INC  
OCCUPANT UNKNOWN  
35046 BOTTLE & BASKET SHOPPE  
35064 ALBANS BOTTLE & BASKET  
OCCUPANT UNKNOWN  
35075 HUNTER HOUSE HAMBURGERS INC  
35106 MICHAEL A SANSONE DDS  
MICHAEL SANSONE  
NORTH HUNTER DENTAL ASSOC  
35270 HAMILTON HOTEL  
OCCUPANT UNKNOWN  
35300 A WHALEN  
AMBER OCONNELL  
ARTHUR OATLEY  
BRITT JACKMAN  
CASSANDRA JOUBERT  
CATHERINE HANCOX  
DANIEL KOPRINCE  
DENNIE DANIELSSON  
DOUGLAS CURRIE  
EDWIN PLACE  
FM CAPITAL CORP  
FRANK MILLER  
H WILLIAMSON  
HUNTER ARMS APARTMENTS  
JAMES RICE  
JAY FRIEND  
JAY WRIGHT  
KIMBERLY JOHNSON  
MARIJO SANTONI  
MARK RAUCHFUSS  
MARY MACKRAIN  
MERLIN MCCORMICK  
MICHAEL MCBREARTY  
OLIVE BRYCE  
POLLACK RONALD I PHD  
RAIGAN OSULLIVAN  
SHARON MCCORMICK INC

-  
**WOODWARD AVE 2003 (Cont'd)**

35300	THEODORE WREESMAN
35975	BIRMINGHAM AMOCO INC NATIONAL CAR RENTAL OCCUPANT UNKNOWN
35977	CHARLES RUTHERFORD
35980	ERINN DOUGHERTY FEENEY KELLETT WIENNER & BUSH FNY KLT WNR & BUSCH P C GM MOTORS HELEN HAMMOND JAMES FEENEY JERRY JOHNSON KATHLEEN KALAHAR LENNOX EMANUEL MARIAN KELLETT THOMAS MANGANELLO
36000	JAMES BOERKOEL
36050	STNDRD FDRL BANK MMBR ABN AMRO
36101	GHAFAI TRADING LTD MOBIL MART AT HUNTER & OAK
36200	BACKYARD BIRDS
36260	CLOSET INTERIORS
36280	HARDWARE WHOLESALE WILLIAM MCBRIDE
36300	NATIONAL CITY BANK OF MI IL
36330	EMDR THERAPY FIRST ALLIANCE LOGISTICS MARSALESE MICHAEL P ATTY MONEY MATTERS INC PAUL HENEKS
36360	DES ROSIERS ARCHITECTS
36400	AL ROSSI & ASSOCS CARMCO INC CARMCO INSURANCE CONCORD INDUSTRIAL CORP DALY REAL ESTATE APPRAISERS FLAGSTAR BANK FSB GARRETT MORELOCK GH FORBES ASSOCS JOSEPH M ADAMY & ASSOC MANOR HOMES INC MONROE ENGINEERING MOORE KATHLEEN PHD NADHIR INVESTMENTS NEW FINANCIAL CONCEPTS PMP AUTOMOTIVE ACCESSORIES POTTER ROBERT CPA PRIME CAPITAL MORTGAGE PROMOTOR CAR PRODUCT INC ROSSI C F INC

**WOODWARD AVE 2003 (Cont'd)**

36400 SAD TECH LEGISTICS INC  
SENTECH ENGINEERING SERVICES  
SENTECH SERVICES  
SPECIALTY PROTECTIVE COATINGS  
STONE CONSTRUCTION  
VISCON INC  
VISUAL CONSULTING INC  
WOLVERINE WHOLESALE GROCERS INC  
WOODWARD FINANCIAL GROUP  
36440 COMERICA SECURITIES  
DORA CEVETTE  
36509 OCCUPANT UNKNOWN  
36515 J CASHIER  
36521 KATHERINE LARIN  
36527 EVERETT CURRIER  
36533 THOMAS MEYER  
36539 JEROME MORRISSEY  
36545 ELAINE KOZAR  
36551 BRIAN ARNOLD  
36557 ROY CHOMA  
36563 JENNIFER KOVACH  
36600 CHARLES GHESQUIERE  
MRCD BENZ OF BLMFLD HILLS  
36623 ANNE NELSON  
36627 MICHAEL MAGDALINA  
36631 EMIR OZAN  
36635 OWEN TOWNSEND  
36639 SCOTT KEMME  
36643 COLONIAL COURT TERRACES  
OCCUPANT UNKNOWN  
36700 1400 WOODWARD ASSOCS LLC  
ALAN GILES  
ANDERSON FINANCIAL GROUP  
BLOOMFIELD CCS  
CHILD HEALTH ASSOCS PC  
COMPETITIVE COMPUTER SYSTEMS  
COOK GOETZ ROGERS & LUKEY PC  
DAN SCHANOSKI  
FAMILY CTR FOR PSYCHOLOGICAL  
FAMILY HOMESTYLE CAFE  
GERTRUDE MONTGOMERY  
GERTRUDE MONTGOMERY  
GRAND PRIX CLUB OF AMERICA  
HASHEM NAJAH REAL ESTATE  
HAYES JACK P PHD  
HAYNES JACK P PHD  
JACK HAYNES  
JACK MEREWETHER  
JAMES SZALAY  
JOHN LEONE

**WOODWARD AVE 2003 (Cont'd)**

36700 JOHN LYNCH  
JOHN POLASKY  
JOHN S SAFRAN EDD  
JUDY JONES  
KATHERINE SHENSKY-WAINRIGHT  
KATHERINE WAINRIGHT SHENSKY PC  
LAURA J SELL ASSOCS  
LAURA SELL  
LISS ARTHUR Y ATTY  
LYNCH JOHN T III PC  
MICHAEL J KINNA  
MICHAEL KINNA  
MILLER & SHENSKY P L L C  
OAKWOODS PSYCHOLOGICAL CTR  
PEPCO MANAGEMENT INC  
RANDY DEAN  
ROGER WITTRUP  
SIGURD R WENDIN & ASSOC INC  
TELE TRIBUTE INC  
THEODORE SCHNEIDER  
VOCHT LAW FIRM  
WARREN CCS  
WILBUR DIANE L INSURANCE AGENT  
36800 ALPERN ROBERT IRVING PC ATTY  
BBI ENTERPRISES LP  
IMAGE PROCESS DESIGN INC  
IPD  
IPD CANADA HOLDINGS INC  
KATO CONSTRUCTION INC  
MICHAEL GELLIS MD  
NASKA FINANCIAL INC  
ROBERT ALPERN  
ROLLCREST APARTMENTS  
SHOE DEPOT INC  
SRI RAM  
TRIPLE CHECK INCOME TAX SRVC  
36880 BIO MEDIX INC  
BODOIN NICHOLAS J PHD  
CENTRAL PARK INSURANCE AGENCY INC  
DICKERSON GROUP INC  
DONNEL DICKERSON  
F KHERA  
GREAT WEST LF ANNITY INSUR CO  
JOYCE SCHOMER  
JOYCE SCHOMER PHD  
KHERA REKHA MD FACC  
LEITMAN SUSAN PHD  
MICHAEL H FREEDLAND MD  
MICHIGAN MICROSYSTEMS ALLIANCE  
NICHOLAS BODOIN



**WOODWARD AVE 2003 (Cont'd)**

36880 NORTH AMERICAN PENSION SRVC LTD  
RENAISSANCE STRATEGIES LLC  
RYNEARSON SCOTT A ATTY  
SILLS CHRBN FDLR & BRNT PC  
SILLS LAW ESSAD FIEDLER  
SILLS LAW GILLARY ESSAD F  
SOMERSET INSURANCE SERVICES LTD  
SUSAN LEITMAN  
VISAGE LLC

37000 ALLERTON FINANCIAL CORP  
BANNON & ASSOCS ATIMA  
BIRMINGHAM BLMFLD MRKT CTR  
CHANDLER & ASSOCS  
DENTAL CONTACTS INC  
DEVON TITLE CO  
ELISECO INC  
GLADSTONE BENORA  
JACK M COCHRAN  
JAMES BARNES  
JANET CHAMBERLAIN  
JOAN M BARNES  
JOANNE SMITH  
JOHN P KOPPIN LLP  
KOLAR COMMERCIAL GROUP  
LILLY J ALBERT  
MARVIN BANNON  
MARYANN D GREENSTONE  
MICHAEL CONWAY  
MJD METAL CO  
PANTELY MARY & ASSOCS  
PARAGON MORTGAGE SERVICES  
PURDY DONOVAN & BEAL  
VAN VLIET GERALD  
VANNON & ASSOCS

37357 BIRMINGHAM MASONIC LODGE NUM  
LAURENCE HEINTZ

37425 CHRCH OF JESUS CHRST OF LTTR D

## WOODWARD AVE 1999

34750 TOTAL PETROLEUM INCORPORATED  
34802 A A A  
A A A A A BRANCH OFFICES  
34901 1ST DISCOUNT MORTGAGE CORPORATION  
34935 BIRMINGHAM CONEY ISLAND  
34952 HOLIDAY INN EXPRESS  
34953 WORKBENCH CONTEMPORARY FURNITURE  
34965 PEABODYS RESTAURANT & BAR  
34977 BIRMINGHAM SHELL SERVICE  
35001 BIRMINGHAM SUNOCO  
MORTONS BIRMINGHAM SUNOCO  
35028 FORSTER & LAIDLAW FLORISTS INCORPORATED  
35064 ALBANS RESTAURANT & DELICATESSEN  
35075 HUNTER HOUSE HAMBURGERS  
35106 MASTROMATTEO JOSEPH A DDS  
MICHAEL SANSONE  
NORTH HUNTER DENTAL ASSOCIATION PC  
SANSONE MICHAEL A DDS  
35238 INTERNATIONAL HOUSE OF PANCAKES  
35270 HAMILTON HOTEL  
HOTEL HAMILTON  
35300 A CHIPPS  
A LLEWELLYN  
ARTHUR HUDSON  
ARTHUR OATLEY  
B CARROLL  
BRITT JACKAMN  
C HANCOX  
DIANE CREASY  
DOROTHY HRABAK  
E RHEE  
EDWIN PLACE  
ELSIE SERVICE  
EUGENE BONK  
G GOODELL  
HELEN WILLIAMSON  
HUNTER ARMS APARTMENTS  
JAMES WHITAKER  
JAY WRIGHT  
KEIKO YAMAMOTO  
KENNETH BURGESS  
L CORSINI  
LIVIA HUNT  
M BURKHART  
MICHAEL MCBREARTY  
MICHAEL MURZENSKI  
OLIVE BRYCE  
QUENTIN MAI  
STEPHEN HEFFRON  
T WREESMAN

**WOODWARD AVE 1999 (Cont'd)**

35975	HUNTER & OAK AMOCO SERVICE NATIONAL CAR RENTAL INTERRENT
35980	DOUGHERTY ERINN L FEENEY KELLETT WIENNER & BUSH PC HAMMOND HELEN MELIA HANDELSMAN ROBERT D ROBERT HANDELSMAN
36101	MOBIL MART AT HUNTER & OAK
36200	BACKYARD BIRDS
36330	DIGITAL DESIGNS & EDITS EATING DISORDERS PROGRAM EILEEN ORLOFF HENEKS PAUL H M SMALL MONEY MATTERS INCORPORATED ORLOFF EILEEN FREEDLAND ACSW PAUL HENEKS RELATED RETAIL CORPORATION SMALL MARK L PC ATTORNEY
36360	DESROSIERS ARCHITECTS INCORPORATED
36400	ADAMY JOSEPH M & ASSOCIATE INCORPORATED ALLSTATE INSURANCE COMPANIES SALES OFFICES BABCOCK HOWARD A & ASSOCIATES BADEN GROUP INCORPORATED THE BREDESON SALES & ENGINEERING CARMCO INCORPORATED COMPONENTS MARKETING GROUP CONCORD INDUSTRIAL CORPORATION DALY & SIMON REAL ESTATE APPRAISERS FLAGSTAR BANK LOAN CENTER FORBES G H ASSOCIATES ARCHT JACK PARR KATHRYN LARIN-AUGIER KIPP ELESA LARIN ROBERT W ATTORNEY LEONARD EDWIN R ATTORNEY M NURENBERG MITZIS EYE INCORPORATED MONROE ENGINEERING PRODUCTS INCORPORATED MOORE KATHLEEN PHD NEW FINANCIAL CONCEPTS NURENBERG MIKE INS PARR JACK PERRONE T M & ASSOCIATES ROSSI AL & ASSOCIATE REAL ESTATE SIEWEK TOOL COMPANY SPECIALTY PROTECTIVE COATINGS WELLMAN INCORPORATED
36420	BIRMINGHAM GLASS & MIRROR
36509	MATTHEW EDWARDS

WOODWARD AVE 1999 (Cont'd)

36515	J CASHIER
36521	FRANK LARIN
36527	RENE BACHOLZKY
36551	SHANNON ARNOLD
36600	ESTATE MOTORS LIMITED
36623	TAMMY ULMAN
36627	OCCUPANT UNKNOWN
36635	ALYSE COHEN M GOLDMAN
36639	C ROONEY
36643	COLONIAL COURT TERRACES WILLIAM DORMAN
36700	1400 WOODWARD ASSOCIATES LLC COOK GOETZ ROGERS & LUKEY PC F SCHOTT FEINBERG DEVELOPMENT COMPANY FOREST DUNES GOLF & COUNTRY CLUB G E CAPITAL GILES ALAN F HALLMANN WILLIAM P CPA PC HASHEM NAJAH REAL ESTATE JONES JUDY MA JUSTICE CONNIE KOHLER MA KLEIN ROBERT M ATTORNEY LISS ARTHUR Y ATTORNEY MCCALLUM EDWARD ASSOCIATES MEIER RICHARD A ATTORNEY METRO DETROIT RELOCATION GUIDE MILLENNIUM MORTGAGE CORPORATION MILLER & SHENSKY PC MIRAL BETH K MD NETMORE REALTY OAKWOODS PSYCHOLOGICAL CENTER PENTZ RONALD A ATTORNEY REMAX IN THE HILLS SELL LAURA J LPC SHENSKY KATHERINE W ATTORNEY SIMON HELENE B ATTORNEY SINGER STANFORD A MD TRIPP WILLIAM H ATTORNEY WILBUR DIANEL INSURANCE AGENT
36800	ALPERN ROBERT IRVING PC ATTORNEY AMERICAN CRIMINAL LAW ASSOCIATION AMERICAN PRINCIPAL GROUP CAPITAL CONSULTING GROUP CHADWICK MARK A ATTORNEY COONEY TRAINER & WAHL PC ATTORNEYS FARMERS INSURANCE AGENT INS GELLIS MICHAEL B MD GOLDBERG GARY A ATTORNEY

**WOODWARD AVE 1999 (Cont'd)**

36800 HODESS SUSAN J CFP  
K BARNHART  
KISTLER REID AGENCY INS  
KOCUR SHIRLEY J MD  
LOWER JOYCE Q ATTORNEY & COUNSELOR AT LAW  
MARSALESE MICHAEL P ATTORNEY  
NATIONAL CATHOLIC RISK RETENTION GROUP INCORPORATED THE  
PREMIER ADVISORS INCORPORATED  
RAM SRI R MD  
TAUBER MARSHALL S ATTORNEY  
WYMAN TIM ATTORNEY

36880 ADAMS ROAD PEDIATRICS ASSOCIATE PC  
AGENCY COMPUTER SYSTEMS  
BODOIN NICHOLAS J PHD  
CENTRAL PARK INSURANCE AGENCY INCORPORATED  
FOX IAN H DO  
IMAD MANSOOR  
LEITMAN SUSAN PHD  
LOCKWITZ TODD  
MANSOOR IMAD MD  
MERCY MEDICAL GROUP  
MULLER PETER T MD  
SARIN SUNITA MD  
SCHOMER JOYCE PHD LICENSED PSYCHOLOGIST  
SILLS JOHN D ATTORNEY  
SILLS LAW ESSAD FIEDLER & CHARBONEAU  
SNAVELY BRENT A ATTORNEY  
SNAVELY BRENT A PC  
SOMERSET INSURANCE SERVICES LIMITED  
STACHECKI MICHAEL MD  
VILLALBA NILDA MD

37000 BARNES JOAN M  
BEITZ DANIEL K ATTORNEY  
BENORA GLADSTONE  
CHANDLER & ASSOCIATES  
COCHRAN JACK M & INSURANCE  
CONWAY & MOSSNER  
GLADSTONE BENORA  
KOLAR COMMERCIAL GROUP  
LEKTROCORP  
LYNCH THANH CONG INTERNATIONAL  
N BD BANK  
PARAGON CAPITAL GROUP INCORPORATED  
RONIE A M & COMPANY  
SHAPPELL DEAN L PHD

## WOODWARD AVE 1995

751	F A Cunningham	83	540-1325
	K Cunningham	83	540-1325
753	K M Breen	73	642-7286
757	E A Kennedy	88	646-3355
759	B L Porter	90	433-3514
761	A J Chrzanowski	78	645-5597
765	Edward M Chung	80	645-9768
	Robert J Gullo	80	645-9788
768	* Birmingham Deli	83	644-4940
790	* Madelinas Antq Shp		
		84	644-2493
794	* Somerset Cleaners	85	644-6667
798	* Birm Prin Shop Bd	85	433-3550
	* Patrck Irla Studio	86	258-8818
	* Mettal Studio Ltd	86	258-8818
	* Cary Stefani Stdio	86	258-8818
800	* Ajour Ltd Fn Jewlr	86	646-0070
	* David Weiss Antq	92	646-2840
	* D I Katzman Aty	88	258-4800
	* R F Schaden Aty	86	258-4800
	* Schaden&Assocs	92	258-4800
	* Weiss Antq Gallery	92	646-2840
	* B O Wilson Aty	93	258-4800
	* N H Zieglman Arch		
		85	647-5600
885	Oak Manor Apts		350-9500
	16 Units		
	Dan Jacobs Mgr		350-9500
	Kevin Barry	92	644-6272
	M A Bergdahl	68	646-0098
	Patk H Cavanaugh	91	644-5126
	Marc Cohen	93	646-7040
	Shannon Day	85	644-6714
	Jeffrey Fabian	85	644-5771
	K M Fanning	85	644-3019
	Jess N Hollenbeck	85	647-6182
	Philippe Houchois	85	647-5856
	B Miller	91	644-1786
	Mark Wayde	93	258-6974
900	* David J Underdown	88	644-6864
	ALL ODD ADDRESSES		
	FROM 961 TO 975		
	ON WOODWARD N ARE		
	PATRICIAN PL CONDO		
	12 UNITS		
	SHERWOOD & ASSOC		
	540-1454		
961	Charles E Grenier	89	647-7011
963	Barbara Batdorf		646-1635
967	Paul Kircos	82	540-4965
973	Mark S Davis	90	647-1552
	Matthew M Davis	85	647-7321
975	Walter T Bromley	76	644-9161
1000	* Hsp Group Inc		258-9274
	* M Parkins Assoc		642-5656
1003	J N Fulkerson	75	642-2291
1005	Gary K August	85	647-6163
1009	H M Kross	75	642-6143
1011	Dani H Burdick II	77	647-7742
1015	J H Moreau	75	646-6253
1017	William T Sharpe	86	642-2742
1019	B E Travers	85	258-2686
1021	M Himmelspach	89	647-0802
1029	M G Howarn	77	642-0826
1031	Constance W Evans	76	646-1746
	ALL ODD ADDRESSES		
	FROM 1035 TO 1047		
	ON WOODWARD N ARE		
	GLENWOOD TERRACE		
	APARTMENTS		
	35 UNITS		
	MRS L BRAISTED MGR		
	645-2437		
1035	Jack Baum		642-4767
	Dorothy T Cobb	85	646-6646
	George Howard Fox		
		70	644-5398
	L Grabowsky	74	642-5086
	Craig Wilson	85	433-3377
1037	Ralph H Backus	70	646-7822
	Mrs C S Collinson	69	647-8759
	Robert W Collinson	69	647-8759
	Carl Kaltwasser		433-3253
1039	J M Belanger	87	646-0131
	Christina Cash	85	433-1977
	M Gill	93	642-4482
	H Jovanovich	69	646-2298
	D Rossman	93	642-4482
	Barbara A Wauldron		
			642-8004
	* B A Wauldron ASID		
			642-8004
	* Wauldron Design		642-8004
1041	Leroy W Braisted	82	645-2437
	Kristin McAlear		647-7145
	M McAlear		647-6078
1043	Apartment		
	D S Denniston	85	540-9707
	C J Dooley	85	540-2943
	J Floch	89	647-3454
	T Norville Hubbard	73	644-3535
	Edward S McCombe		
		81	646-5281
	Daniel A Nestitt	93	642-5658
1045	J P Peterson		646-2038
	D E Porritt	68	644-6684
1047	Brian L Kaye	88	646-1145



WOODWARD AVE 1992

N WOODWARD AV-Contd

- 101 Baran Dolores J dentist 646-2633
- 830 Bastianelli David dentist
- 102 Holden Harold J dentist
- 201 Krevsky Seymour phys 258-6566
- 202 Getschman George R dentist 646-2040
- 203 Holm-Stewart Travel travel agcy 640-3700
- 301 Milan Mitchell dentist 644-2136
- 302 Vetraino Mark chiropractor 647-2500
- 631\*Crossman Katherine G 644-1721
- 633 Sussex Mildred R 646-8204
- 635 Erickson Arvid G 646-3670
- 637 Beaver R J 258-6346
- 639 Middleton Beatrice M 647-0118
- 640 Office Building
- Suites
- 101 Wong Pluto K phys 646-4646
- 102 Dahl Associates P C 642-2580
- 201 Garwood Robert A psychiatrist 645-9946
- 203 Samalona Clinic 642-5650
- 204 Birmingham Distributor Inc 258-9111
- 204 Birmingham Bloomfield Builder Inc 258-9111
- 204 Birmingham Hauling Ltd hauling co 258-9111
- 301 Pugh & Associates lwyrs 644-7222
- 301 Mooney John G lwyer 647-4380
- 302 Maximum Living counselling 640-0047
- 643 Allan Margt E 642-8273
- 645 Turna-cliff J C 640-6751
- 647\*Goodman K 645-2485
- VINEWOOD AV BEGINS
- 700 Birmingham & Oakland Travel Inc agcy 646-8700
- Joie De Vie 644-8448
- Artful Domain Gallery 646-2030
- Trade Service Corp 642-4750
- 110 Hannett Corporation
- 110 Commonwealth Land Title ins co 433-0890
- 120 Pierce Fred Realtors 647-1414
- 704 Shearlock's Hair Design 640-8644
- 706 Gordon Sue Bridal Salon 642-1112
- 710 Vacant
- 715 Goldsmith Ethel V 258-9282
- 717 Drosge Barbara J 646-0431
- 719 Ford Charlotte 646-0431
- 726 Building
- Rooms
- 201 Knowles W C Inc mfg rep 642-4340
- 202 Vacant
- 205 Sushko John M dentist 644-5735
- 206 Forand Sales Co mfrs rep 644-0087
- 210 Simpson A G Inc mfrs rep 642-6440
- 215 Jackson Tube tube & steel
- 721 No Return
- 722 Claymore Shop the clo 642-7755
- 723 Stephenson Katherine S 647-0257
- 725 Nette Herbert W 644-8739
- 727 Hale Marjorie B 646-0003
- 730 Oscar Does My Hair beauty shop 645-0630
- Golden Pond the art gallery 258-0110
- 742 Thomas Norman A Co Inc jwlr sup 642-7210
- Salerno Ray A optom 644-0644
- 761-765 Hillcrest Apartments
- 761 Wheeler G L 645-0590
- 763 Breen Kathleen M 642-7286
- 765 Larson Robt C 433-1225
- 767 Kennedy Edith A 646-3366
- 769 Porter Barbara L 433-3514
- 761 Chzanowski Alden J 645-6597
- 763 Carron Paul J 646-2075
- 765 Chung Edw M 645-9788
- 768 Birmingham Delicatessen 640-0181
- 790 Madeline's Antique Shop 644-2493
- 794 Somerset Cleaners & Shirt Laundry dry cleaners 644-6667
- Squires Coloring 644-4891
- 796 Freigenson Preston Gallery 644-3955
- 798 Mettal jewelry design 258-8818
- Rear Brown Melissa Mc Gann int dec 640-4307
- 800 Riverview Place ofc bldg
- Floors
- 1stfl Schaden Richd F lwyer 258-4800
- 1stfl Weiss Gallery addl sp
- 1stfl Ajour Limited jewelers 646-0070
- 2dfl Ziegelman Norman H Architects Inc 647-5600
- 2dfl N H Z Continental Construction Corp 647-5600
- 2dfl N H Z Coastal Properties Inc 647-5600
- 2dfl Arkitektura Showrooms Inc furn ret 646-0097
- 850 Vacant
- 885 Oakwood Manor Apartments 646-0949
- 1 Fanning Thomas M 644-3358
- 2\*Morrison Raymond
- 3 Morrassy Jenny
- 6 De Hut Everett
- 7 Flack Jas K 644-7644
- 8 Reason Pamela
- 9 Brennan Marty 647-3874
- 10 Mc Ferren Allison 647-1972
- 11 Bergdahl Frances T 646-0068
- 12\*Varkapich Daniela 647-1848
- 13 Vacant
- 14\*Miller B 644-1788
- 15 Stine Jas C 646-0949
- 16 Gibbs Mary E 642-8589
- 900 Douglas Cleaners Inc 642-6230
- OAK ST INTERSECTS
- 961 Grenier Mildred M 647-7011
- 963\*Hutcheson K 642-7535
- 965 Fredman Donald J 646-0949
- 967 Kircos Paul 646-0949
- 969 Vacant
- 971 Busche Margt M 646-6365
- 973\*Davis Mark S 647-1552
- 975 Ferguson Edw J 644-2077
- BLOOMFIELD CT BEGINS
- 1003-31 Glen Condominiums the 646-9023
- 1003 Fulkerson Jean N 642-2291
- 1005 Vacant
- 1007 Bronco Thomas P 433-1829
- 1009 Kross Helen M 642-6143
- 1011 Burdick Danl H II 647-7742
- 1015 Moreau Helen M 646-8253
- 1017 Sharpe Wm T 642-2742
- 1019 Jones B Mary 642-6084
- 1021 Himmelspach M 647-0803
- 1023\*Weinfield Martin P 646-0949
- 1025 Grombala F T 258-1182
- 1027 No Return
- 1029 Howarn M G 642-0826
- 1031 Evans Constance W 646-1746
- 1036 Glenwood Apartments 646-2437
- 1 Grabowski Lenore H 642-6088
- 2 Badalamenti James P 645-6592
- 3 Rhinehart Donna R
- 4 Green Isabelle M 644-3720
- 5 Fox Katherine G 644-5399
- 6 Vacant
- 7 Cobb Dorothy T 646-6646
- 1037 Glenwood Apartments 645-2437
- 1 Zanbeck Helen A
- 2 Backus Virginia C 646-7822
- 3 Collinson Robt W 647-8759
- 4 Vigellus Wm F
- 1039 Glenwood Apartments 645-2437
- 1 Ciampia Pamela S
- 2 Wallace Marti 647-1489
- 3 Kuzar Elaine E
- 4 Renfrew Chas W 644-0748
- 5 Jovanovich Helen M 646-2398
- 6 Mead Marvin R
- 7 Wauldron Barbara
- 8 Belanger Julie M 646-0131
- 1041 Glenwood Apartments 645-2437
- 1 Braisted Leroy W 645-2437
- 2\*Nimmo Donald D 647-4250
- 1043 Glenwood Apartments 645-2437
- 1 Welsh Merle A 644-2616
- 2 Hubbard Elise 644-3505
- 3 Dooley C J 640-2500
- 4 Nesbitt Daniel A 642-5658
- 5 Hunt Eloise 644-7280
- 6\*Mc Combe Edw S 646-8281
- 7 Floch James 647-3454
- 1045 Glenwood Apartments 645-2437
- 1\*Manson Wm L 647-6553
- 2 Schmidt Mary G
- 3 Porritt Dorothy E 644-6684
- 1047 Glenwood Apartments 645-2437
- 1 Kaye Brian L 646-1145
- 2 Stewart Dorothy L 644-4099
- 3 Quigley Maryellen E 433-1546
- 4 Larin Yvonne 645-9736
- 1051 No Return
- 1053 Schrenk Linda L 640-4025
- N HUNTER BLVD ENDS
- MAYWOOD BEGINS
- 1054 First of America Bank-Southeast Mich N A br 642-6221
- 1055 Mc Woods Arthur 640-4539
- 1059 Johnson Vivian 647-1754
- 1071 Arner Anne D 642-4122
- 1080 Derand Investment Corp 647-0978
- 1073 Vacant
- 1077\*Rea Frank Jr 647-8948
- 1080 Money Matters Inc inv consultant 647-0977
- Pioneer Group inc financial planning serv 647-0979
- De Lorean Properties Corp coml real est 644-3992
- Vacant
- Des Rosiers Architects Inc 642-7771
- Cuttner & Small 258-6070
- Eisenberg Sue Ellen lwyer 258-6080
- Glazier Sandra D lwyer 646-2500
- 1100 Office Building
- Suites
- 100 Bremer Associates 640-8008
- B1 Bremer Assoc addl space
- B2 Bremer Associate addl sp
- B3 Bremer Associate addl sp
- 102-102 Vacant (2 Suites)
- 106 F A K Enterprises Inc human resource consultants



## WOODWARD AVE 1988

## N WOODWARD AV-Contd

- 633 Edson Ferne  
 635 Erickson Arvid G @ 646-3670  
 637 Beaver Er J @ 258-6346  
 639 Middleton Geo C @ 647-0118  
 640 Office Building  
 102 Dynamedia Incorporated adv reps  
 674-7447  
 Suites  
 101 Wong Pluto K phys 646-4646  
 102 Francisco John W psychologist  
 644-7077  
 201 Michigan Health Care Consultants  
 540-2262  
 202 Maximum Living counselling 645-2347  
 203 Samalona Clinic 642-5650  
 204 Pierce Fred Inc real est 647-1414  
 301 Pugh & Associates lwyrs 644-7222  
 641 No Return  
 643 Allan Margt E @ 642-8273  
 645★Turnacliff J C 540-5751  
 647 Snypp Roy M @ 642-9334  
 VINEWOOD AV BEGINS  
 704 Shearlock's Hair Design 540-8644  
 708 Gordon Sue Bridal Salon 642-1112  
 715 Goldsmith Ethel V @ 258-9262  
 717 Droege Barbara Mrs @ 646-0431  
 719 Nighbor Archie F @ 642-7714  
 720 Building  
 Rooms  
 201 Knowles W C Inc mfg rep 642-4340  
 202 Seven Twenty Answering Service  
 642-3880  
 205 Deer Edwin W dentist 644-5735  
 205 Sushko John dentist 644-5735  
 206 Forand Sales Co electronic equip &  
 sups 644-0087  
 210 Simpson A G Inc mfrs rep 642-6440  
 215 National Machinery Co 647-3456  
 721 Vacant  
 722 Claymore Shop The clo 642-7755  
 723★Stephenson Charles J @ 646-4906  
 725 Nette Herbert W @ 644-8739  
 727 Hale Marjorie B Mrs @ 646-0003  
 730 Birmingham & Oakland Travel Inc  
 646-8700  
 Oscar Does My Hair beauty shop  
 645-0630  
 Golden Pond The 258-0110  
 742 Thomas Norman A Co Inc jwlr sup  
 642-7210  
 Wallace Edw L optom 644-0644  
 Salerno Ray A optom 644-0644  
 751-765 Hillcrest Apartments  
 751 Wheeler G L 645-0596  
 753 Breen Kathleen M 642-7286  
 755★Larson Robt C 433-1225  
 757 Kennedy Eidth A 646-3355  
 759 Herbst Eleanor M Mrs 642-4831  
 761 Chzanoowski Alden J 645-5597  
 763 Carron Paul J 646-2075  
 765 Chung Edw M 645-9768  
 768 Birmingham Deli 540-0182  
 790 Madeline's Antique Shop 644-2493  
 794 Somerset Cleaners dry cleaners 644-6667  
 796 Gauzeling Gallery & Wearable Art  
 644-2320  
 798 Mettal jewelry design 258-8818  
 Rear Brown Melissa Mc Gann int dec  
 540-4307  
 800 Riverview Place (Ofc Bldg)  
 Floors  
 1stfl Schaden & Heldman lwyrs 258-4800  
 1stfl Brava Incorporated boutique 645-0311  
 1stfl Ajour Limited jewelers 646-0070  
 2dfl Ziegelman Norman H Architects Inc  
 647-5600  
 2dfl N H Z Continental Construction Corp  
 647-5600  
 2dfl N H Z Coastal Properties Inc  
 647-5600  
 2dfl Arkitektura Showrooms Inc furn ret  
 646-0097  
 856 House Of Carrie Lee's restr 644-7576  
 885 Oakwood Manor Apartments  
 1★Lamb Joseph 644-4982  
 2 Vacant  
 3 Salinski T 642-1752  
 4 Kaufman Nora 258-3420  
 5 Muehl Ellen Mrs 642-2537  
 6 Kendricks Mabel 644-5575  
 7 Poepscul M E 467-7135  
 8 Thomas G Ernest Rev 644-1473  
 9 Connell Kathleen 645-0398  
 10 No Return  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Stern Susan 645-6652  
 13 No Return  
 14★Poyle R 642-4645  
 15 Coons Michl 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 OAK ST INTERSECTS  
 961 Grenier Charles E Jr 647-7011  
 963★Conti Chris 433-3705  
 965 Fredman Donald J 644-0145  
 967 Kircos Paul 540-4965  
 969 No Return  
 971 Busche Margt M 646-6365  
 973 No Return  
 975 Ferguson Edw J 644-2377  
 BLOOMFIELD CT BEGINS  
 1003-31 Glen Condominiums The 646-9023  
 1003 Fulkerson Jean N 642-2291  
 1005 Vacant  
 1007 Pickard Terry F 540-7962  
 1009 Kross Helen M 642-6143  
 1011 Burdick Danl H II @ 647-7742  
 1015 Moreau Helen M 646-8253  
 1017 Sharpe Wm 642-2742  
 1019 Jones B Mary Mrs @ 642-5984  
 1021★O'Berg Greg 647-3107  
 1023 Rundquist James 646-2636  
 1025 Troccio Thos 540-2823  
 1027 Vacant  
 1029 Howarn Margt G Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Apartments apts 645-2437  
 1 Grabowsky Lenore 642-5086  
 2 Herrick B 646-1785  
 3 Vacant  
 4★Johnson Roy W 642-0833  
 5 Fox Geo H 644-5399  
 6 Gass Janet C 642-6024  
 7 Cobb Dorothy 646-6646  
 1037 Glenwood Apts 645-2437  
 1 Kinsman Clare D 540-2787  
 2 Backus Virginia Mrs 646-7822  
 3 Collinson Robt W 647-8759  
 4 Nimmo Barbara 647-4250  
 1039 Glenwood Apts 645-2437  
 1★Belanger J 646-0131

## WOODWARD AVE 1982

643\*Allan Margt E 642-8273  
 645\*Kindred Ruth M 644-3310  
 647\*Snypp Roy M 642-9334  
 VINEWOOD AV BEGINS  
 704 New Hair Inc (Addn Space)  
 New Hair Inc unisex hair piece work  
 642-9449  
 706 Hairem The beauty shop 644-2257  
 708 Gordon Sue Bridal Salon bridal  
 accessories 642-1112  
 715 De Board Mae Mrs 642-9128  
 717 Droege Barbara Mrs 646-0431  
 719 Nighbor Archie F 642-7714  
 720 Building  
 Jackson Tube mfrs rep 644-6776  
 Rooms  
 201 Knowles W C Inc mfg rep 642-4340  
 202 Seven Twenty Answering Service  
 642-3880  
 202 Mather Jim Associates Ltd mfr rep  
 646-6215  
 205 Deer Edwin W dentist 644-5735  
 205 Sushko John dentist 644-5735  
 205 Forand Sales Co electronic equip &  
 sups 644-0087  
 206 I T T General Controls mfg rep  
 642-1830  
 210 Simpson A G & Company mfrs rep  
 642-6440  
 215 National Machinery Co 647-3456  
 Corrosion Control Systems 642-4890  
 Group Services Inc ins 642-6161  
 Hudson Arth S mtge broker 642-4048  
 721 Echlin Helen Mrs 644-6073  
 722 Claymore Shop The men's clo 642-7755  
 723 Ricketts Lillian Mrs 647-8621  
 725 Restrck Minnie H Mrs 646-6084  
 726 Berry Leonard-Gordon Greek Antiques  
 646-1996  
 727 Hale Marjorie B Mrs 646-0003  
 730 Birmingham & Oakland Travel & Glenn  
 Travel Inc 646-8700  
 Oscar Does My Hair beauty shop  
 645-0630  
 742 Thomas Norman A Co Inc jwlr sup  
 642-7210  
 751 Wheeler G L 645-0596  
 753 Breen Kathleen M 642-7286  
 755 Hatch Viola Mrs 647-1185  
 757 Kennedy Edith 646-3355  
 759 Herbst Eleanor M Mrs © 642-4831  
 761 Chzanoowski Alden J © 645-5597  
 763 Carron Paul J 646-2075  
 765 No Return  
 768 Birmingham Deli delicatessen 540-0181  
 790 Underground Collector Ltd The antiques  
 644-3982  
 794 Audio Dimensions audio splts 642-6383  
 798 Percussion World Inc 644-6636  
 856 House Of Carrie Lee's restr 644-7576  
 885 Oakwood Manor Apartments  
 1 Rattner Joseph 642-2604  
 2 Hospitality Suite (Oakwood Apt Assn)  
 3 Salinski T 642-1752  
 4 Kendrick James A 644-5575  
 5 Muehl Ellen Mrs 642-2537  
 6 Drozdowski Donna C Mrs 642-0184  
 7 Blackwood Caroline T Mrs 647-6195  
 8 Thomas G Ernest Rev 644-1473  
 9 Connell Kathleen 645-0398  
 10 Frank Esther W Mrs 642-4555



## WOODWARD AVE 1982

N WOODWARD AV—Contd  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Sipe Ronelva M 644-1245  
 13 Foadich  
 14 Cohen S  
 15 Coon M 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 OAK ST BEGINS  
 961 Vacant  
 963 Hecker Edwin W 646-9232  
 965 Fredman Donald J 644-0145  
 967★Kircos Paul 540-4965  
 969★Silver Sue  
 971 Busche Margt M @ 646-6365  
 973★Kroph Bill  
 975 Ferguson Edw J 644-2377  
 BLOOMFIELD CT BEGINS  
 1003 Glen Terrace Apartments 646-9023  
 Fulkerson Jean N 642-2291  
 1005 Bjorkman Harry @ 642-0795  
 1007★Friedman Richd @ 540-3883  
 1009 Kross Helen 642-6143  
 1011 Burdick Dani H II 647-7742  
 1015 Moreau Helen M 646-8253  
 1017 Basile Teresa M Mrs @ 642-1817  
 1019 Jones Mary Mrs @ 642-5984  
 1021★Nawrot Ken 644-5546  
 1023★Cliff Cathy 646-1530  
 1025 Adams Martha 642-9244  
 1027 Chapin  
 1029 Howarn Margt Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Terrace apts 645-2437  
 1 Grabowsky Lenore 642-5086  
 2 Wickersham Nancy 644-2859  
 3 Rhinehart John E  
 4 Green Isabel M Mrs  
 5★Fox Geo 644-5399  
 6 Gass Janet C 642-6024  
 7 Boyle John D 644-8690  
 1037 Apartments  
 1★Kinsman Clare 540-2787  
 2 Backus Virginia Mrs 646-7822  
 3 Collinson Robt W 647-8759  
 4 Nimmo Barbara 647-4250  
 1039 Apartments  
 1 Mc Guire Norman 644-1969  
 2 Hilde Helen 642-1647  
 3 Geldart Wilfred A 644-4325  
 4 Renfrew Charles 644-0749  
 5 Jovanovich Helen M Mrs 646-2298  
 6 Mead Marvin  
 7 Mac Creadie Jeanne M Mrs 647-3870  
 8 No Return  
 1041★Braisted Charlotte 645-2437  
 ★Ingold Margt Mrs 644-7922  
 1043 Apartments  
 1 Welsh Marvin A  
 2★Hubbard Rex  
 3 Mc Clear Robt D 645-9327  
 4 Smith Jean Mrs 646-3158  
 5 Hunt Eloise Mrs 644-7280  
 6 Le Moyne Frances C Mrs  
 7 Ferguson Frances B 642-9372  
 1045 Apartments  
 1 Leyton Dorothy 645-5217  
 2 Schmidt Mary G  
 3 Porritt Dorothy E 644-6684  
 1047 Apartments  
 1 Kay Bryan 646-1145

## WOODWARD AVE 1977

## N WOODWARD AV—Contd

- 717★Droege Paul F 646-0431  
 719 Nighbor Archie F 642-7714  
 720 Building  
 Rooms  
 201 Vacant  
 202 Stevens Valerie Interiors Co int dec  
 646-2665  
 205 Deer Edwin W dentist 644-5735  
 205 Deer Edwin W Jr dentist  
 206 Sharbach Terry Graphic Design coml  
 artist 647-3850  
 207 Vacant  
 210 Simpson A G & Company mfrs rep  
 642-6440  
 215 Vacant  
 721 Echlin Helen Mrs 644-6073  
 722 Claymore Shop The men's clo 642-7755  
 723 Ricketts Lillian Mrs 647-8621  
 725 Restrict Wm C 646-5084  
 726 Berry Leonard Gordon Greek Antiques  
 646-1996  
 727 Hale Marjorie B Mrs 646-0003  
 730 Birmingham & Oakland Travel Inc  
 646-8700  
 Alexander Salon beauty shop 642-2250  
 742 Thomas Norman A Company jwlr sup  
 642-7210  
 751 Wheeler G L 645-0596  
 753 Breen K M 642-7286  
 755 Hatch Fred J 647-1185  
 757 Kennedy Edythe A Mrs 646-3355  
 759 Herbst Eleanor M Mrs © 642-4831  
 761 Chzanoowski Alden J © 645-5597  
 763★Carron Paul J 646-2075  
 765 Cornfoot Henry  
 768 Michael's beer-wine 647-3030  
 790 Underground Collector Ltd The antiques  
 644-3982  
 794 Audio Dimensions audio splts 642-6383  
 798 Percussion World Inc 644-6636  
 856 House Of Carrie Lee's 644-7576  
 885 Oakwood Manor Apartments  
 1 Scolaro Joseph R 647-6998  
 2 Anderson H A C 646-8508  
 3★Salinski T 642-1752  
 4★Cowan John J 642-9123  
 5 Muehl Ellen Mrs 642-2537  
 6 Drozdowski Donna C Mrs 642-0184  
 7 Blackwood Caroline T Mrs 647-6195  
 8 Gilleran Nancy A  
 9 Usas Vytautas J 642-9247  
 10 Frank Philip B 642-4555  
 11 Bergdahl Frances T Mrs 646-0098  
 12 Sipe Ronelva M 644-1245  
 13 Seaborn Arth J 642-8977  
 14★Covert Alf D 644-1543  
 15★Coon M 647-1362  
 16 Gibbs Mary E 642-8589  
 900 Douglas Cleaners Inc 642-6230  
 910 Vacant  
 OAK ST BEGINS  
 961 Green J Donald © 646-4553  
 963 Hecker Edwin W 646-9232  
 965★Cobb Robt A 642-8475  
 967★Bush Wm R Jr 642-3081  
 969 Fairbanks Betty 645-0867  
 971★Snodgrass Robt T 644-1848  
 973 Nickel Jack S 642-0699  
 975 No Return  
 BLOOMFIELD CT BEGINS  
 1003 Glen Terrace Apartments 646-9023  
 Fulkerson Jean N 642-2291  
 1005★Bjorkman Harry © 642-0795  
 1007 Gloff Richd C 647-7073  
 1009 Kross Helen 642-6143  
 1011★Burdick Danl H II 647-7742  
 1015 Moreau Helen 646-8253  
 1017 Basile Teresa M Mrs © 642-1817  
 1019 Jones Mary Mrs © 642-5984  
 1021 Cook J R 646-2763  
 1023 Runnells Martha 222-3487  
 1025 Scott Wm H 644-3386  
 1027 Coughlin Sylvania P 645-0652  
 1029★Howarn Margt Mrs 642-0826  
 1031 Evans Constance W 646-1746  
 1035 Glenwood Terrace apts 646-9023  
 1 Grabonsky Lenore 642-5086  
 2 Wiggins Olive 646-4286  
 3 Rhinehart John E  
 4 Green Isabel 644-3720  
 5 Fox Kath Mrs 644-5399  
 6 Oakley Mabel M Mrs 646-5669  
 7 Carson Howard 647-1731  
 1037 Apartments  
 1 Schaefer Genevieve 642-5446  
 2 Backus Virginia Mrs  
 3 Collinson Robt W 647-8759  
 Nimmo Barbara 647-4250  
 1039 Apartments  
 1 Gregory Thelma Mrs 645-1069  
 2 Tedesco Wm A 642-3763  
 3 Geldart Wilfred A 644-4325  
 4★Renfrew Charles  
 5 Jovanovich Helen M Mrs 646-2298  
 6 Mc Donald Paul E 642-7774  
 7 Mac Creadie Jeanne M Mrs 647-3870  
 8 Hubbard Elise Mrs 644-3535  
 1041 Swats Sarah D Mrs 646-1254  
 Smith Charlotte P Mrs 646-9023  
 1043 Apartments  
 1 Bee Wm C 644-0862  
 2 Moran Leona M Mrs 646-6416  
 3 Mc Clear Robt D 645-9327  
 4 Smith Jean Mrs 646-3158  
 5 Hunt Eloise Mrs MI4-7280  
 6 Le Moyne Frances C Mrs 644-0715  
 7 Ferguson Edgar S 642-9372  
 1045 Apartments  
 1 Leyton Dorothy 645-5217  
 2 Schmidt M G  
 3 Porritt Dorothy E 644-6684  
 1047 Apartments  
 1 Erickson Geo C 644-0368  
 2 Stewart Dorothy L 644-4099  
 3 Saunders Marie J Mrs 644-4813  
 4★Larin Yvonne 645-9738  
 1051 Ryan Arth W 642-1495  
 1053 Frons G  
 1054 Parsons childrens clo 644-7118  
 N HUNTER BLVD ENDS  
 1055 Crawford Nancy C 647-1541  
 1057 No Return  
 1059 Valliere Barbara M 646-6925  
 1061 Kritsch Michl L 646-6598  
 1063 Potter Pauline Mrs MI4-5260  
 1065★Whitson James A 642-6844  
 1067 Krejci Mary G Mrs 646-7807  
 1069 Sheppard Ann L 642-6535  
 1071 Spicer J 645-0790  
 1073★Cotran Sharon  
 1075★Aylward Karen Mrs 646-3791



## WOODWARD AVE 1972

650 Pugh Moehlman & Pugh lwyr 644-7222  
 VINEWOOD AV BEGINS  
 704 Mobile Home Materials Inc 644-4400  
 Birmingham Bloomfield Bd Of Realtors  
 (Ofcs) 646-7793  
 706 Spata IV Rivard beauty shop MI4-5166  
 708 Claymore Shop The men's clothing  
 642-7755  
 715 De Board Elmer B 642-9128  
 717 Nette Herbert W 646-7826  
 719 Jaynes Bernice R Mrs 646-2168  
 720 Building  
 Rooms  
 201 Oakland Phototype  
 202 Stevens Valerie Interiors Co int dec  
 646-2665  
 205 Deer Edwin W dentist 644-5735  
 206 Earthen Arts Gallery jeweler sup  
 642-7210  
 206 Thomas Norman A Co jeweler sup  
 642-7210  
 207 Jacquie Ltd Import-Export 645-0225  
 210 Boyd Donald A mfg rep automotive  
 parts 642-6440  
 215 Gonzales R Manuel phys MI7-7224  
 721 Echlin Helen Mrs 644-6073  
 722 Claymore Shop The (addn space)  
 642-7755  
 723 Ricketts Lillian Mrs 647-8621  
 725 Restruck Wm C 646-5084  
 726 Lewanes Coiffures Inc 644-2257  
 727 Hale Marjorie B Mrs 646-0003  
 730 Birmingham & Oakland Travel Inc  
 646-8700  
 Beauty Shop Of Birmingham The  
 642-2250  
 742 First Of Michigan Corp (Br) stock  
 brokerage 647-1400  
 751 Plumbly Arnold  
 753 Whiting Raymond W Mrs 644-4546  
 755 Nighbor Archie F 642-7714  
 757 Kennedy Edythe A Mrs 646-3355  
 759 Beaver Ralph J 646-1451  
 761 Coote Harold M 646-4592  
 763 Sweeney Charles F Jr 642-2956  
 765 Vacant  
 768 Michael's beer-wine 647-3030  
 790 Horizons Of Birmingham 646-1873  
 794 Tower Of Pizza 644-4890  
 Northland-Oakland Medical Laboratories  
 laby 644-7720  
 798 Pool Edson K dentist 644-3635  
 Madorsky Erwin I dentist 642-8130  
 856 Lee's Carrie Restaurant 644-7576  
 885 Oakwood Manor Apartments  
 1 Scolaro Joseph R 647-6998  
 2 Murphy Dorothy J Mrs 642-4078  
 3 Montgomery Gladys D Mrs 642-5029  
 4 Walrad Hazel D Mrs 646-7106  
 5 Costello Anne M Mrs 642-2475  
 6 Griskevich E R 642-0063  
 7 Blackwood Caroline T Mrs 647-6195  
 8 Taylor Margt E Mrs 644-4081  
 9 Hause Emily 647-1796



## WOODWARD AVE 1972

**N WOODWARD AV—Contd**  
 10 Frank Philip B 642-4555  
 11 Vacant  
 12 Bergdahl Frances T Mrs 646-0098  
 13 Seaborn Arth J 642-8977  
 14 Phillips Dexter  
 15 Hendricks Fred  
 16 Gibbs Mary E  
 900 Douglas Cleaners Inc 642-6230  
 910 Mobil Friendly Service 644-9713  
**OAK ST BEGINS**  
 961 Green J Donald 646-4553  
 963 Hecker Edwin W 646-9232  
 965 Nelson Robt D 647-3242  
 967 Greene Hilda M 645-9656  
 969 Fairbanks Betty 645-0867  
 971 Mantell Margt S Mrs 644-6683  
 973 Antrobus W Frank 645-9289  
 975 Greenleaf Joy L Mrs 642-6968  
**BLOOMFIELD CT BEGINS**  
 1003 Glen Terrace Apartments 646-9023  
     Hubbard Margt W Mrs 644-2045  
 1005 Wheelock Juanita Mrs 642-2147  
 1007 Conlan Mariane Mrs  
 1009 No Return  
 1011 Koser Wayne L 647-4580  
 1015 Meyers Thos  
 1017 Millard Mary I Mrs 647-0149  
 1019 Gauntt Julia E Mrs 644-8517  
 1021 Erickson Geo C 644-0368  
 1023 Laufer Anson E Mrs 647-1597  
 1025 Scott Wm H 644-3386  
 1027 Noble Frank W 646-7107  
 1029 Cavanaugh Thos J 642-4855  
 1031 Schmittiel Rudolph H real est 646-5072  
 1035 Glenwood Terrace apts 646-9023  
     1 Hawke Leonard 646-7475  
     2 Skimin Doris 646-4286  
     3 Schumaker Geo B 645-2191  
     4 Craig Clarence J 642-5492  
     5 Fox Kath Mrs MI4-5399  
     6 Oakley Mabel M Mrs 646-5669  
     7 Miller Roger E 646-7563  
 1037 Apartments  
     1 Schaefer Genevieve 642-5446  
     2 Backus Virginia Mrs  
     3 Collinson Ethel M Mrs 647-8759  
     4 Roby Glenn A 646-2144  
 1039 Apartments  
     1 Gregory Thelma Mrs 645-1069  
     2 Milliken Logan 645-1253  
     3 Bay Donald W MI4-5017  
     4 Nichols Harry Mrs 644-7036  
     5 Jovanovich Helen M Mrs 646-2298  
     6 Morrison Merle J 642-2817  
     7 Mac Creadie Alex G 647-3870  
     8 Hubbard Elise Mrs 644-3535  
 1041 Swats Sarah D Mrs 646-1254  
     Smith Charlotte P Mrs 646-9023  
 1043 Apartments  
     1 Bee Wm C 644-0862  
     2 Moran Leona M Mrs 646-6416  
     3 Saltarelli Frank L 644-6062  
     4 Smith Jean Mrs 646-3158

## WOODWARD AVE 1967

WOODWARD AV N--CONTD	
634 HOLDEN HAROLD J DENTIST 644-6688 RILEY JAMES M DENTIST 644-2136	910 MOBIL FRIENDLY SERVICE GAS STA 644-9713 ---OAK ST BEGINS
635 MUESSEL GERALD K 646-6111	961 FISHER MAPEL C MRS 647-2374
637 GREEN CHARLES * 646-9711	963 RISDON MARY A MRS 646-0936
638 DEER EDWIN W DENTIST 644-5735	965 HERMAN VINCENT L 646-7510
639 MIDDLETON GEO C 647-0118	967 KOENIG WILBUR M 644-8107
640 DUSTIN ROBT W PHYS 644-6422 STOLPMAN A KENNETH PHYS 644-6422 WATSON THOS Y PHYS 644-1966	969 LA FOND EMMA E MRS 646-9624
641 EADE DONALD G 644-6397	971 MANTELL MARGT S MRS 644-6683
642 NO RETURN	973 SULLIVAN KATHRYN M MRS 644-2354
643 STERRITT CHARLES R 647-4608	975 GOODMAN JULIA A 646-4114
645 HALE MARJORIE B MRS 646-0003	---BLOOMFIELD CT BEGINS
646 ALDERISIO JAMES P DENTIST 646-2964 MARIN GEO E DENTIST 644-3131 SCHOENFELD ROBT J DENTIST 644-3131	1003 GLEN TERRACE APARTMENTS 646-9023 HUBBARD MARGT W MRS 644-2045
647 VACANT	1005 BLAKE ROSEMARY MRS 646-2722
648 CAMPBELL FREDK W PHYS 646-5644	1007 HUBERT ETHEL M 644-5696
650 HEIB FRANK B PUBL REP 647-1655	1009 GAUNTT JULIA MRS 644-8517
---VINEWOOD AV BEGINS	1011 LE DUC ALYCE H MRS 644-7168
704 ADAMS W G & ASSOCIATES STEEL BROKER 647-1152 VICTORIA CUSTOM HAIRPIECES WIG MAKEPS 647-1538 1 BROWN BETTY M 642-7803	1015 POTTS D M MI7-1560
706 NINO SALON BEAUTY SHOP 644-5166	1072 MILLAPD IRWIN W 647-0149
708 HELSIGAN MARY INC WOMEN'S CLO 646-4420	1019 CLARA MAY B 644-9145
715 DE GUEPE PHILIP L 647-3060	1021 ERICKSON GEO C 644-0368
717 NETTE HERBEPT W 646-7826	1023 LAUFER ANSON E MRS 567-1597
719 JEYNES BERNICE R MRS 646-2168	1025 SCOTT WM H 644-3386
721 EGBERT DONALD C 644-5097	1027 NOBLE FRANK W 646-7107
722 CLAYMORE SHOP THE MENS CLO 642-7755	1029 MEAD MAURICE 647-5786
723 WESEBAUM CARL	1031 SCHMUTT RUDOLPH H REAL EST 646-5072
725 RESTRICK WM C 646-5084	1035 GLENWOOD TERRACE APTS 646-9023 APARTMENTS
727 MURRAY BARBARA MRS 646-0890	1 SMITH WM W 646-4059
730 BIRMINGHAM & OAKLAND TRAVEL INC 646-8700	2 SKIMIN DORIS 646-4286
742 FIRST OF MICHIGAN COPP (BO) STOCK BROKERAGE 647-1400	3 KALTWASSER ELEANOR R MRS MI6-8681
751 HILLCREST TERRACE 644-7410 BURKE EUGENIA R	5 HARTLE RICHD H 647-2674
753 KNUDSEN NELSE S 646-1968	6 OAKLEY MABEL M MRS 646-5669
755 CHASE MAY M MRS 646-8866	7 MILLER ROGER E 646-7563
757 KENNEDY W ALEX 646-3355	1037 APARTMENTS
759 STAHL CATH M 646-1451	1 THOMPSON EVERETT L 644-7249
761 COOTE HAROLD M 646-4592	2 PLANCON HENRIETTE MRS 644-0133
763 FREYER FRANCES MRS 646-3677	3 SCHMIDT ELVIRA M MRS 644-6836
765 RAUBE REINHOLD H 644-5336	4 ROBY GLENN A 646-2144
768 MICHAEL'S BEER-WINE 647-3030	1039 APARTMENTS
790 VILLAGE BOOKSHELF THE 646-8887	1 CARROLL A PETER REV 644-8074
794 WIG SHOPPE 642-6777	3 BAY DONALD W MI4-5017
798 POOL EDSON K DENTIST 644-3635 WALMOTH RAYMOND W DENTIST 646-7644	4 KELLY LEONA MRS 644-7193
856 LEE'S CARRIE RESTAURANT 644-7576	5 JOVANOVICH HELEN M MRS 646-2298
	6 NO RETURN
	7 MAC CPEADIE ALEX G 647-3870
	8 KLEIN HAROLD F 646-0929
	1041 SWATS ROBT L 646-1254 SMITH PAYMOND H 646-9023
	1043 APARTMENTS
	1 BEE WM C 644-0862
	2 SOUTER GEO 644-9278
	3 SALTARELLI FRANK L
	4 SMITH JOHN M 646-3158
	5 BURLEY ELSIE MRS 647-5785
	6 TUCKER MILDRED MRS 647-6065
	7 CROOKER EDITH M MRS 646-8132



## WOODWARD AVE 1962

## WOODWARD AV N—Contd

626 Scott Stewart C dentist  
MI6-2040

628 McCain French H phys  
MI4-7944

630 Bemister Dental Laby  
MI6-4010  
Noonan Melvin A dentist  
MI4-4118

634 Riley Jas M dentist  
MI4-2136  
Holden Harold J dentist  
MI4-6688

638 Deer Edwin W dentist MI4-5735

640 Watson Thos Y phys  
MI4-1966  
Dustin Robt W phys MI4-6422  
Stolpman A Kenneth phys  
MI4-6422

642 Valpey Grant R Co mfrs agt  
MI6-5440

644 Vacant

646 Hair Designs by John beauty  
shop 647-1020

648 Renniks Co auto parts MI7-2224

650 Richarson R M Co mfrs agt  
MI6-2500  
Angove R L Co mfrs agts  
MI6-7870

Street continued

615 Duncan S Jas @ MI4-5860

625-47 Elm Court Terrace Apart-  
ments

625 Knisely Marie C Mrs  
MI4-8130

627 Bonds Cora S Mrs MI4-8063

629 Langstrom Frank MI4-8563

631 Chittenden Maude Mrs  
MI6-6520

633 Engelgau Irwin G MI4-7106

635 Muessel Gerald K MI6-6111

637 Jones Walter S MI6-3695

639 Middleton Geo C MI7-0118

641 Eade Donald G MI4-6397

643 Bartlett Georgia Mrs  
MI6-7350

645 Hale Marjorie B Mrs MI6-0003

647 Minto Maud C Mrs MI4-1780

Vinewood av begins

704 Nino Salon beauty shop  
MI4-5166

708 Helsigan Mary Inc clo  
MI6-4420

715 Davidson Nolan V MI6-3493

717 Helsigan Mary A

719 Nolan Mary E Mrs MI6-3790

721 Woolson Bessie V Mrs MI6-6218

723 Chickering Wm E MI6-6795

725 Cloonan Ethel Mrs MI6-3850

727 Jackson Myrta A Mrs MI6-7008

730 Oakland Travel Inc agcy  
MI6-8700

742 Lowery Furn Studios  
MI6-7660

751-65 Hillcrest Terraces Apart-  
ments MI4-7410

751 Burke Jean

753 Knudsen Nelse S 646-1968

755 Baldwin Robt J MI6-1938

757 Vacant

759 Vacant

761 Zacharias Gertrude W Mrs  
MI7-0061

763 Gray Otis MI6-9262

765 Baker Helen C Mrs MI4-5336

768 Michael's beer MI7-3032

768 Michaels beer MI7-3032

790 Village Bookshelf The books  
MI6-8887

794 Torgerson Thos S dentist  
MI7-1422  
Schoenfeld Robt J dentist  
MI6-9597  
Small Irwin A phys MI7-1422

798 Link Oscar N dentist MI6-8871  
Wamoth Raymond W dentist  
MI6-7644

856 Carrie Lee's Chinese Tea  
Room MI4-7576

887 Williams Car Wash MI6-4210

910 Mobil Friendly Serv gas sta  
MI4-9713

## Oak begins

961 Cavanaugh Geo A MI7-1970

963 Risdon Mary A Mrs MI6-0936

965 Herman Vincent L MI6-7810

967 Foster G Scott MI7-0235

969 LaFond Emma M MI6-9624

971 Mantell Margt S Mrs MI4-6683

973 Vacant

975 Wilson Otis J @

Bloomfield ct begins

1003-31 Glen Terrace Apartments  
MI6-9023

1003 Cludius Ella G Mrs MI6-0332

1005 Blake Rosemary Mrs 646-2722

1007 Hubert Ethel M MI4-5696

1009 Hinkley Ora L MI7-2442

1011 D'Andrea Dan MI6-5260

1015 Potts Dorothy M Mrs

1017 Moore Eug A 647-0417

1019 Clara May B MI4-8145

1021 Erickson Geo C

1023 Burt Marian R Mrs MI7-0629

1025 Scott Wm H MI4-3886

1027 Noble Francis W MI6-7107

1029 Pino Maude W MI6-8715

1031 Schmittdiel Rudolph H real  
est MI6-5072

1035-47 Glenwood Terrace MI6-9023  
Apartments:

- 1 Smith Mabel Mrs 646-4059
- 2 Moody Romaine Mrs  
MI7-1130
- 3 Shinnick Fred M MI4-1135
- 4 Marchard Rheo C MI6-6126
- 5 Office Gerald S 646-2670
- 6 Oakley Mabel M Mrs  
MI6-5669
- 7 Wetstein Sarah C

## Street continued

1037 Apartments

- 1 Thompson Everett L MI4-7249
- 2 Plancon Henriette Mrs 644-0133
- 3 Schmidt Elvira M Mrs  
MI4-6836
- 4 Roby Glenn

Street continued



## WOODWARD AVE 1957

## WOODWARD AV N—Contd

631△Chittenden Maude Mrs ◎  
 633△Shone Harold K  
 635△McGraw Agnes M Mrs  
 637△Breivogel Helen  
 639△Middleton Geo C  
 641△Eade Donald G  
 643△Schluchter Charlotte R Mrs  
 645△Hale Marjorie B Mrs  
 647△Minto Maud C Mrs

## Street continued

618△Mason Robt J phys  
 620△Hasberger John B phys  
   △Alderisio Jas P dentist  
   △Jeffers Fredk A dentist  
 624-38 Reid Building  
 624△Prescription Center druggists  
 626△Scott Stewart C dentist  
 628△McCain French H phys  
 630△Bemister Dental Laby  
   △Noonan Melvin A dentist  
 632 Vacant  
 634△Riley Jas M dentist  
   △Deer Edwin N dentist  
   △Holden Harold J dentist  
 640△Watson Thos Y phys  
   △Dustin Robt W phys  
   △Stolpman A Kenneth phys  
 642△Birmingham Optical Co  
 644△Olfs A C & Associates mfrs  
   agt  
   Bristol Brass Co mfrs agt  
 646△Fortune J R & Son mfrs  
   agt  
 647△Minto Maude C Mrs  
 648△Fox Ralph M phys  
   △Cutler Wm N phys  
 650△Richardson R M Co mfrs agt  
   △Corduroy Rubber Co (sls ofc)  
   △Lambrecht Realty Co (br)

## Vinewood av begins

715△Davidson Nola  
 717△Helsigan Mary  
 719△Nolan Mary E Mrs  
 721△Woolson Bessie V Mrs  
 723△Logan Frank G  
 725△Cloonan Ethel Mrs  
 727△Black Wm J ◎  
 751-65 Hillcrest Terraces  
 751△Pinner Walter L ◎  
 753△Ingram Lewis  
 755△Sackett Ray C  
 757△Morgan Howard K  
 759△Raube Ronald H  
 761△Zacharias Allen H

763△Parker Lillian C Mrs  
 765△Sloan Paul E  
 856△Lee's Carrie Chinese Tea  
   Room restr  
   △Lee Frank ◎  
 887△Williams Car Wash  
 910△Socony-Mobil Friendly Serv  
   gas sta

## Oak begins

961△Blanton Chester E  
 963△Young Robt  
 965△Costello Bernard P jr  
 967△Foster G Scott  
 969△Edlefsen Niels E  
 971△Wentworth Saml C  
 973△Hardin Beth H  
 975△Wilson Otis

Bloomfield ct begins  
Hunter blvd ends

1003-91 Glen Terrace Apts  
 1003△Claudius Ella G Mrs  
 1005△Hedgcock Mervyn  
 1007△Hubert Kathryn  
 1009△List Cora B Mrs  
 1011△Stratton Richd  
 1015△Stein Jean Mrs  
 1017△Krause John J contr bldg  
   genl  
 1019△Clara Maybelle  
 1021△Koett Albert C  
 1023△Steward John H  
 1025△Scott Wm H  
 1027△Noble Frank W ◎  
 1029△Waldorf Arth E  
 1031△Schmittdiel Rudolph H real  
   'est  
 1051△Goss Marvin C  
 1053△Cottrell Sylvester V  
 1054△Pollock Ethel M Infants &  
   Children's Shop clo  
 1055△Low Wm C  
 1057△Chapman Janet Mrs  
 1059△Atkinson Genevieve C  
 1061△Moore Martha Mrs  
   △Bird Harrie W  
 1063 Vacant  
 1065△Norgren Henry R  
 1067 Vacant  
 1069△Marshall Eliz Mrs  
 1071△Baker Kath W Mrs  
 1073△Wheelock Hugo H  
 1075 French Walter G  
 1077△McKenney Lana B Mrs



## WOODWARD AVE 1951

571△Bachus Arth A  
 573△Pioch Wm  
 575△Morley Walter G  
 577△Leach Ernest C  
 583△Adams Merrill C  
 585△Hoenecke Edw C  
 593△Kiefer Harold D ①  
 595△Curtis Edna T Mrs  
 615-47 Elm Court Terrace  
 615△Duncan S Jas  
 625 Vacant  
 627 Vacant  
 629△Langstrom Frank  
 631△Smith Reginald A  
 633△Rogers Jas D  
 635△Cartier Harry J  
 637△Breivogel Helen  
 639△Groton Marshall T  
 641△Eade Donald G  
 643△Spren Wm F ①  
 645△Armstrong Harold M  
 647△Minto Mrs  
   **Vinewood av begins**  
 720 Vacant  
 807△Bigge Donald M  
 856△Carrie Lee's Tea Room restr  
       △Lee Carrie ①  
 887△Green Art Service fill sta  
   **Oak begins**  
 981△McGaffey Donald ①  
   **Bloomfield Court begins**  
   **Hunter blvd ends**  
 1003△Roach Sylvia S Mrs ①  
 1005△Clara May Belle  
 1007△Hilliard Eliz Mrs  
 1009△List Cora B Mrs  
 1011△Wicklund Willard W  
 1015△Clark Mary J Mrs ①  
 1017△Krause John G  
 1019△McKenny Keith  
 1020 Diffrient Niles  
 1021△Braisted LeRoy  
 1023△Sheldon Sherwood M  
 1025△Stapchinskas Jos P ①  
 1027△McClanathan Jos W  
 1029△Brown Earl A jr  
 1031△Tucker Frances C Mrs  
 1051△Tate Jean L Mrs  
 1053△Whalley Geo E  
 1054△Pollock Ethel M children's clo  
 1055 Vacant  
 1057△MacDonald Anna F Mrs  
 1059△Gray Nicholas  
 1061△Parsons Emma A Mrs  
 1063△White A Raymond  
 1065△Bonnett E Grace  
 1067△Lahodny John A  
 1069△Marshall Eliz Mrs  
 1071△Walstrom Wilfred J ①  
 1073△Royal Herbert  
 1075 Vacant

## WOODWARD AVE 1944

380 First Presbyterian Ch

387<sup>△</sup>Griffiths Charlotte I

Mrs

Conwell Harry S

**Euclid av begins**

408<sup>△</sup>Beasecker Frank W

460<sup>△</sup>Wickman Carl R

462<sup>△</sup>Stareck Jesse E

**Ravine rd begins**

485 Vacant

**Harmon av begins**

511<sup>△</sup>Murphy John C filling  
sta

527-535<sup>△</sup>Wieland Furniture  
Shop furn repr

551<sup>△</sup>Rounds Geo M <sup>⊙</sup>

615<sup>△</sup>Reineke Frances M Mrs  
<sup>⊙</sup>

**Vinewood av begins**

720<sup>△</sup>Mother & Son Shop  
antiques

Jones Edith J Mrs

807 Reaney Thos A

Tacy Allen A



## WOODWARD AVE 1944

856<sup>△</sup>Wooton Giftcraft  
Studio

Wooton Clifford G ©

889<sup>△</sup>Stevens Jerry Service  
filling sta

**Oak begins**

**Bloomfield ct begins**

**Hunter blvd ends**

**Maywood rd begins**

1120<sup>△</sup>Williams Eva M  
antiques

1145<sup>△</sup>Perry Robt L

1166 Berz Milton H box mkr

1169<sup>△</sup>McKenzie Leo E

**Redding rd begins**

1180<sup>△</sup>Hutchinson Ross A

**Manor rd begins**

1450<sup>△</sup>McGraw Augustus C ©  
Gravlin Hugh E

1521<sup>△</sup>Gasow Fred H vet

Greenwalt Clarence A

1595<sup>△</sup>Standard Oil Co filling  
sta

**Quarton rd begins**

**APPENDIX C**  
**INTERVIEW DOCUMENTATION**  
**USER QUESTIONNAIRE**  
**OWNER/OCCUPANT QUESTIONNAIRE**



SME Project No. \_\_\_\_\_

## PHASE I ENVIRONMENTAL ASSESSMENT (ESA) PROPERTY OWNER/OCCUPANT QUESTIONNAIRE

This questionnaire concerns the current and historical uses and conditions of the referenced property and will be included within the Phase I ESA report. Questionnaire answers should be based upon the owner/occupant's reasonable knowledge of current and historical use and activities at the property.

Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: \_\_\_\_\_

Property Location: \_\_\_\_\_

County: \_\_\_\_\_ State: \_\_\_\_\_

Questionnaire Completed By/Title: \_\_\_\_\_

Company/ Phone Number: \_\_\_\_\_

On Behalf Of (if applicable): \_\_\_\_\_

Year of Purchase/~~XXXXXXXXXX~~Lease (circle one): \_\_\_\_\_

Time Period of Site Knowledge: \_\_\_\_\_

Names/Phone Numbers of Former Owners/Occupants:

Owners: \_\_\_\_\_

Occupants: \_\_\_\_\_

Names/Phone Numbers of other persons who have knowledge of property history: \_\_\_\_\_

\_\_\_\_\_

### PROPERTY DESCRIPTION AND USE

1. Provide a general description of the property:

Undeveloped  Vacant  Wooded  Buildings  Other Paved lot

2. Describe the structures present on the property (number, size, and construction date): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



SME Project No. \_\_\_\_\_

3. Identify utilities available to the property (check box and indicate provider):

- Electric: \_\_\_\_\_
- Gas: \_\_\_\_\_
- Sanitary Sewer: \_\_\_\_\_
- Storm Sewer: \_\_\_\_\_
- Municipal Water: \_\_\_\_\_

4. Are there any easements at the property?:

- Yes     No

If yes, where are the easements located?: \_\_\_\_\_  
\_\_\_\_\_

5. To the best of your knowledge, identify if the following were formerly (F) or are currently (C) present on the property. Select NA if not applicable to the property.

- |   |   |    |  |
|---|---|----|--|
| F | C | NA | On-site water supply wells                     |
| F | C | NA | Septic fields, drain fields, or dry wells      |
| F | C | NA | Abandoned wells                                |
| F | C | NA | Lagoons, settling ponds                        |
| F | C | NA | Monitoring wells                               |
| F | C | NA | Underground sumps, lines, basins, or tanks     |
| F | C | NA | Aboveground storage tanks (ASTs)               |
| F | C | NA | Transformers or capacitors                     |
| F | C | NA | Other PCB containing equipment                 |
| F | C | NA | Mines or pits                                  |
| F | C | NA | Hidden chemical materials or wastes            |
| F | C | NA | Dumps or landfills                             |
| F | C | NA | Oil or gas wells or test holes                 |
| F | C | NA | Unusual fill areas, such as foundry sand, etc. |
| F | C | NA | Barrel or drum storage areas                   |

6. What is the general use of property:

- Industrial     Commercial     Residential     Other
- Currently empty

7. What products/services are produced/provided at the property?: \_\_\_\_\_  
\_\_\_\_\_

8. What type of on-site processes are used at the property?: \_\_\_\_\_  
\_\_\_\_\_

9. What types of equipment are used at the property?: \_\_\_\_\_  
\_\_\_\_\_

10. What raw materials are used at the property?: \_\_\_\_\_  
\_\_\_\_\_



SME Project No. \_\_\_\_\_

11. Are there any environmental permits (e.g. solid waste disposal, hazardous waste disposal, wastewater, NPDES, etc.) associated with the property?:

- Yes
- No
- None known

If yes, list the applicable permit(s): \_\_\_\_\_

### PROPERTY AND ADJOINING PROPERTIES - CURRENT AND HISTORICAL USE

12. Are there any liquid or solid wastes generated at the property?

- Yes
- No
- Unknown

If yes, please list the monthly volume generated and explain disposal method: \_\_\_\_\_

13. Is the property or any adjoining property currently used for an industrial use?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_

14. Is the property or any adjoining property currently used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_

Please complete the current land use table below:

	Name/Owner	Land Use
Property		
North adjoining properties		
South adjoining properties		
East adjoining properties		
West adjoining properties		

For Items 15 through 32, SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

15. Has the property or any adjoining property been used for an industrial use in the past?

- Yes
- No
- Unknown
- Property
- Adjoining

If yes, explain briefly: \_\_\_\_\_



SME Project No. \_\_\_\_\_

16. Has the property or any adjoining property historically been used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes                       No                       Unknown
- Property    Adjoining

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

Please complete the historical land use table below:

	Owner	Use	Dates
Previous use of Property			
Previous use of properties to north			
Previous use of properties to south			
Previous use of properties to east			
Previous use of properties to west			

### CURRENT AND HISTORICAL PROPERTY CONDITIONS

17. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals (individual containers greater than 5 gallons or greater than 50 gallons total) stored on or used at the property or at the facility?

- Yes                       No                       Unknown

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

18. Are there currently, or have there been previously, any industrial drums (typically 55-gallon) or sacks of chemicals stored on the property or at the facility?

- Yes                       No                       Unknown

If yes, describe the chemicals stored on the property (volume, contents and dates of storage): \_\_\_\_\_  
\_\_\_\_\_

19. Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned/incinerated on the property?

- Yes                       No                       Unknown

If yes, identify the location and date(s): \_\_\_\_\_  
\_\_\_\_\_



20. Are there currently, or have there been previously, any registered or unregistered storage tanks (aboveground or underground) located on the property?

- Yes                       No                       Unknown

**If yes**, identify the location, date(s) of use, and date(s) of removal (if applicable): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

21. Are there currently, or have there been previously, any vent pipes, fill pipes protruding from the ground, areas of patched concrete or asphalt, or access ways indicating an underground storage tank on the property?

- Yes                       No                       Unknown

**If yes**, identify the location: \_\_\_\_\_  
\_\_\_\_\_

22. Are there transformers, capacitors, or hydraulic equipment on the property?

- Yes                       No                       Unknown

**If yes**, are there any records indicating the presence of PCBs?: \_\_\_\_\_  
\_\_\_\_\_

23. Is there currently, or has there been previously, any stained soil on the property?

- Yes                       No                       Unknown

**If yes**, identify the location of the stained soil and date(s) it was present on the property: \_\_\_\_\_  
\_\_\_\_\_

24. Has fill dirt been brought onto the property that is of unknown origin? Has fill dirt been brought onto the property that originated from a contaminated site?

- Yes                       No                       Unknown

**If yes**, identify the date and location of fill placement: \_\_\_\_\_  
\_\_\_\_\_

25. Are there currently, or have there been previously, any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?

- Yes                       No                       Unknown

**If yes**, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

26. Are there currently, or have there been previously, any pits, ponds, or lagoons associated with waste treatment or disposal located on the property?

- Yes       No       Unknown

**If yes**, identify the location and dates: \_\_\_\_\_  
\_\_\_\_\_

27. Excluding storm water and sanitary waste discharge into an existing storm/sanitary sewer, does the property discharge wastewater on or adjacent to the property?

- Yes       No       Unknown

**If yes**, describe the type of wastewater and identify discharge location: \_\_\_\_\_  
\_\_\_\_\_

28. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed applicable guidelines? Has the well been designated as contaminated by any government environmental/health agency?

- Yes       No       Unknown

**If yes**, identify the contaminants and dates of exceedances: \_\_\_\_\_  
\_\_\_\_\_

## PREVIOUSLY IDENTIFIED ENVIRONMENTAL CONDITIONS

29. Have you been informed of the current or past existence of hazardous substances, petroleum products, or environmental violations with respect to the property or any facility located on the property?

- Yes       No       Unknown

**If yes**, briefly explain: \_\_\_\_\_  
\_\_\_\_\_

30. Do you have knowledge of any environmental site assessment(s) of the property (e.g., Phase I ESA, Phase II ESA) that indicated / did not indicate the presence of hazardous substances or petroleum products on, or contamination of, the property?

- Yes       No       Unknown

**If yes**, briefly explain: \_\_\_\_\_  
\_\_\_\_\_

31.

- a) If the property is in Michigan, has a Baseline Environmental Assessment (BEA) been prepared for the property? **OR**  
b) If the property is in Indiana, has a Comfort/Site Status Letter been prepared for the property? **OR**  
c) If the property is in Ohio, has a Covenant Not to Sue been prepared for the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

---

32. Are you aware of the existence of environmental reports and permits; UST, AST, and underground injection system registrations; material safety data sheets; community right-to-know plans; safety and spill prevention plans; hydrogeologic reports; notices of past or current violations of environmental laws; hazardous waste generator notices or reports; geotechnical studies; risk assessments; and, recorded activity and use limitations.

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

---

33. Do you know of any pending, threatened, or past lawsuits or administrative proceedings concerning the release of any hazardous substances or petroleum products involving the property or any facility located on the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

---

34. Do you have any knowledge of environmental liens or government notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?

Yes                       No                       Unknown

If yes, briefly explain: \_\_\_\_\_

---

35. Are you aware of any activity and land use limitations (engineering controls or institutional controls/land use restrictions) that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes                       No                       Unknown

If yes, identify limitation/restriction: \_\_\_\_\_

---



SME Project No. \_\_\_\_\_

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date



SME Project No. \_\_\_\_\_

## PHASE I ENVIRONMENTAL ASSESSMENT (ESA) PROPERTY OWNER/OCCUPANT QUESTIONNAIRE

This questionnaire concerns the current and historical uses and conditions of the referenced property and will be included within the Phase I ESA report. Questionnaire answers should be based upon the owner/occupant's reasonable knowledge of current and historical use and activities at the property.

Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: 35975 Woodward Avenue

Property Location: Southwest corner of Woodward Avenue and Oak Street

County: Oakland State: Michigan

Questionnaire Completed By/Title: Robert Mardigian, Member and Craig Sickmiller, Agent

Company/ Phone Number: 248.932.9600

On Behalf Of (if applicable): \_\_\_\_\_

Year of Purchase/Lease (circle one): 2007

Time Period of Site Knowledge: 2007 to present

Names/Phone Numbers of Former Owners/Occupants:

Owners: Simon Land Development Group, LLC

Occupants: Not known

Names/Phone Numbers of other persons who have knowledge of property history: \_\_\_\_\_

SME

### PROPERTY DESCRIPTION AND USE

1. Provide a general description of the property:

Undeveloped  Vacant  Wooded  Buildings  Other  Paved lot

2. Describe the structures present on the property (number, size, and construction date): \_\_\_\_\_

N/A  
\_\_\_\_\_  
\_\_\_\_\_



SME Project No. \_\_\_\_\_

3. Identify utilities available to the property (check box and indicate provider):

- Electric: No current provider
- Gas: No current provider
- Sanitary Sewer: City of Birmingham
- Storm Sewer: City of Birmingham
- Municipal Water: City of Birmingham

4. Are there any easements at the property?:

- Yes       No

If yes, where are the easements located?: See title work.

5. To the best of your knowledge, identify if the following were formerly (F) or are currently (C) present on the property. Select NA if not applicable to the property.

- |                          |                          |                          |  |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | On-site water supply wells                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Septic fields, drain fields, or dry wells      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Abandoned wells                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Lagoons, settling ponds                        |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Monitoring wells                               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Underground sumps, lines, basins, or tanks     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Aboveground storage tanks (ASTs)               |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Transformers or capacitors                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Other PCB containing equipment                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Mines or pits                                  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hidden chemical materials or wastes            |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dumps or landfills                             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Oil or gas wells or test holes                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Unusual fill areas, such as foundry sand, etc. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Barrel or drum storage areas.                  |

SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

6. What is the general use of property:

- Industrial     Commercial     Residential     Other

Currently empty

7. What products/services are produced/provided at the property?: n/a

8. What type of on-site processes are used at the property?: n/a

9. What types of equipment are used at the property?: n/a

10. What raw materials are used at the property?: n/a





SME Project No. \_\_\_\_\_

11. Are there any environmental permits (e.g. solid waste disposal, hazardous waste disposal, wastewater, NPDES, etc.) associated with the property?:

- Yes  No
- None known

If yes, list the applicable permit(s): \_\_\_\_\_

### PROPERTY AND ADJOINING PROPERTIES - CURRENT AND HISTORICAL USE

12. Are there any liquid or solid wastes generated at the property?

- Yes  No  Unknown

If yes, please list the monthly volume generated and explain disposal method: \_\_\_\_\_

13. Is the property or any adjoining property currently used for an industrial use?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_

14. Is the property or any adjoining property currently used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: There is a dry cleaner located immediately to the west of the property

Please complete the current land use table below:

	Name/Owner	Land Use
Property		
North adjoining properties		
South adjoining properties		
East adjoining properties		
West adjoining properties		

For Items 15 through 32, SME performed the Phase I investigations and has the most accurate and complete information regarding the history of the site.

15. Has the property or any adjoining property been used for an industrial use in the past?

- Yes  No  Unknown
- Property  Adjoining

If yes, explain briefly: \_\_\_\_\_



SME Project No. \_\_\_\_\_

16. Has the property or any adjoining property historically been used as a gasoline station, vehicle repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?

- Yes       No       Unknown
- Property    Adjoining

If yes, explain briefly: Gas station

Please complete the historical land use table below:

	Owner	Use	Dates
Previous use of Property			
Previous use of properties to north			
Previous use of properties to south			
Previous use of properties to east			
Previous use of properties to west			

### CURRENT AND HISTORICAL PROPERTY CONDITIONS

17. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, pesticides, paints, or other chemicals (individual containers greater than 5 gallons or greater than 50 gallons total) stored on or used at the property or at the facility?

- Yes       No       Unknown

If yes, explain briefly: \_\_\_\_\_

18. Are there currently, or have there been previously, any industrial drums (typically 55-gallon) or sacks of chemicals stored on the property or at the facility?

- Yes       No       Unknown

If yes, describe the chemicals stored on the property (volume, contents and dates of storage): \_\_\_\_\_

19. Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or any other waste materials been dumped above grade, buried, and/or burned/incinerated on the property?

- Yes       No       Unknown

If yes, identify the location and date(s): \_\_\_\_\_





SME Project No. \_\_\_\_\_

20. Are there currently, or have there been previously, any registered or unregistered storage tanks (aboveground or underground) located on the property?

- Yes       No       Unknown

If yes, identify the location, date(s) of use, and date(s) of removal (if applicable): \_\_\_\_\_

\_\_\_\_\_

21. Are there currently, or have there been previously, any vent pipes, fill pipes protruding from the ground, areas of patched concrete or asphalt, or access ways indicating an underground storage tank on the property?

- Yes       No       Unknown

If yes, identify the location: \_\_\_\_\_

\_\_\_\_\_

22. Are there transformers, capacitors, or hydraulic equipment on the property?

- Yes       No       Unknown

If yes, are there any records indicating the presence of PCBs?: \_\_\_\_\_

\_\_\_\_\_

23. Is there currently, or has there been previously, any stained soil on the property?

- Yes       No       Unknown

If yes, identify the location of the stained soil and date(s) it was present on the property: \_\_\_\_\_

\_\_\_\_\_

24. Has fill dirt been brought onto the property that is of unknown origin? Has fill dirt been brought onto the property that originated from a contaminated site?

- Yes       No       Unknown

If yes, identify the date and location of fill placement: \_\_\_\_\_

\_\_\_\_\_

25. Are there currently, or have there been previously, any leaks, spills, or staining by substances other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the property?

- Yes       No       Unknown

If yes, identify the location and dates: \_\_\_\_\_

\_\_\_\_\_



SME Project No. \_\_\_\_\_

26. Are there currently, or have there been previously, any pits, ponds, or lagoons associated with waste treatment or disposal located on the property?

- Yes  No  Unknown

If yes, identify the location and dates: \_\_\_\_\_

27. Excluding storm water and sanitary waste discharge into an existing storm/sanitary sewer, does the property discharge wastewater on or adjacent to the property?

- Yes  No  Unknown

If yes, describe the type of wastewater and identify discharge location: \_\_\_\_\_

28. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed applicable guidelines? Has the well been designated as contaminated by any government environmental/health agency?

- Yes  No  Unknown

If yes, identify the contaminants and dates of exceedances: \_\_\_\_\_

**PREVIOUSLY IDENTIFIED ENVIRONMENTAL CONDITIONS**

29. Have you been informed of the current or past existence of hazardous substances, petroleum products, or environmental violations with respect to the property or any facility located on the property?

- Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_

30. Do you have knowledge of any environmental site assessment(s) of the property (e.g., Phase I ESA, Phase II ESA) that indicated / did not indicate the presence of hazardous substances or petroleum products on, or contamination of, the property?

- Yes  No  Unknown

If yes, briefly explain: \_\_\_\_\_



SME Project No. \_\_\_\_\_

31.

- a) If the property is in Michigan, has a Baseline Environmental Assessment (BEA) been prepared for the property? **OR**
- b) If the property is in Indiana, has a Comfort/Site Status Letter been prepared for the property? **OR**
- c) If the property is in Ohio, has a Covenant Not to Sue been prepared for the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

32. Are you aware of the existence of environmental reports and permits; UST, AST, and underground injection system registrations; material safety data sheets; community right-to-know plans; safety and spill prevention plans; hydrogeologic reports; notices of past or current violations of environmental laws; hazardous waste generator notices or reports; geotechnical studies; risk assessments; and, recorded activity and use limitations.

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

33. Do you know of any pending, threatened, or past lawsuits or administrative proceedings concerning the release of any hazardous substances or petroleum products involving the property or any facility located on the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

34. Do you have any knowledge of environmental liens or government notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property?

Yes       No       Unknown

If yes, briefly explain: \_\_\_\_\_

35. Are you aware of any activity and land use limitations (engineering controls or institutional controls/land use restrictions) that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes       No       Unknown

If yes, identify limitation/restriction: \_\_\_\_\_





SME Project No. \_\_\_\_\_

Robert Mardigian  
Printed Name

35975 Woodward, LLC  
Company

October 4 2016  
Date

  
Signature

Member  
Title





## PHASE I ENVIRONMENTAL ASSESSMENT – ALL APPROPRIATE INQUIRY USER QUESTIONNAIRE

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the Brownfields Amendments to CERCLA), the User of a Phase I Environmental Site Assessment (ESA) must consider the issues discussed below as part of the User's All Appropriate Inquiry (AAI) to identify Recognized Environmental Conditions (RECs) associated with the Property. This information should be provided to the Environmental Professional conducting the Phase I ESA so that a complete report can be issued.

The User may decide not to provide this information to the Environmental Professional; however, the absence of the information will be noted in the Phase I ESA report and may affect assessment conclusions. Under these circumstances, it will be the User's responsibility to determine if the Phase I ESA results, combined with results from the tasks described below, is sufficient to satisfy the requirements of All Appropriate Inquiry as defined by federal statute and regulation.

### Instructions:

1. Fill in all blanks.
2. Indicate "NA" (not applicable), if appropriate.
3. Attach additional pages with your signature if additional space is required.

Property Name: 35975 Woodward Ave., Birmingham MI

Property Location: Southwest corner of Woodward Avenue and Oak Street

County: Oakland State: Michigan

Questionnaire Completed By/Title: Jaime Jamie Rae Turnbull, owner's representative of August LLC

Company/ Phone Number: 248-672-2020

On Behalf Of (if applicable): \_\_\_\_\_

Planned Date of Purchase/Lease (circle one): October 2016

Time Period of Site Knowledge: Three months

### 1. REASON FOR PHASE I ESA

The User of the requested Phase I ESA must make the reason for the Phase I ESA known to the Environmental Professional. Otherwise, it must be assumed that the reason is to qualify for an LLP to CERCLA liability. Please indicate the reason for this Phase I ESA of the Property.

- Due diligence/liability protection for purchase of the Property
- Due diligence/liability protection for lease of the Property
- Mortgage loan or refinance
- Foreclosure
- Other; explain \_\_\_\_\_



SME Project No. \_\_\_\_\_

**2. RECORDED ENVIRONMENTAL CLEANUP LIENS AND ACTIVITY/USE LIMITATIONS**

The User is responsible to ascertain, through personal knowledge and/or a review of reasonably ascertainable recorded land and judicial records, if any environmental liens have been filed on the Property and if any activity or use limitations (AULs) have been placed on the Property because of environmental impact. You may engage a title company or other capable professional to undertake the review of reasonably ascertainable records on your behalf.

Have you conducted, or arranged to have conducted, a review of land title records in which recorded liens and activity/use restrictions would be revealed?

Yes       No

If yes, please specify who conducted the review: First American Title Company

If yes, please specify the types and locations of records reviewed: Oakland County Register of Deeds

Based on your personal knowledge and/or reviews of title records, are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law?

Yes       No

If yes, explain briefly: \_\_\_\_\_

Based on your personal knowledge and/or reviews of title records, are you aware of any activity and/or use limitations, such as engineering controls, land use restrictions, or institutional controls, that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

Yes       No

If yes, identify the land use limitations/restrictions: A restrictive covenant was filed by AMOCO in 1998, a copy of which is attached for SME to interpret and describe.

**3. SPECIALIZED KNOWLEDGE AND EXPERIENCE**

Any specialized knowledge or experience of the User that could indicate, or create suspicion of, the presence environmental contamination on the Property must be considered as part of the AAI process. Specialized knowledge or experience includes familiarity with historic activities on the Property that could result in environmental impact, personal knowledge or experience that would indicate a risk of environmental impact associated with past Property uses, knowledge of the environmental history of the Property, and any other information that could indicate environmental impact or threat of environmental impact on the Property.



SME Project No. \_\_\_\_\_

As the User of this environmental site assessment, do you have any specialized knowledge or experience related to the Property or adjoining properties?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. RELATIONSHIP OF PURCHASE PRICE TO VALUE**

Historically, environmentally contaminated properties often have been sold at prices below market value to entice buyers to acquire the property, contamination, and resultant liabilities; therefore, if a property's sale price is significantly below market value without any obvious impairments or reasons for the reduced price, the potential for environmental impact as a cause of the reduced price must be evaluated.

Does the purchase price being paid for this Property reflect the fair market value of the Property?

Yes       No

If there is a significant negative difference, can you identify the reason for the reduced price versus value? If "No" the Property may be assumed to be contaminated.

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

**5. COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION**

Have you become aware, through conversations, rumor, etc., of any commonly known or reasonably ascertainable information within the local community that would indicate the Property could be contaminated (e.g. types of past uses, presence of storage tanks, use of chemicals, environmental cleanups, etc.) or that any past event (e.g. fire, chemical spill, accident, etc.) could have resulted in environmental impact of the Property or adjoining properties.

Yes       No

If yes, explain briefly: the only information is that which SME provided and so SME should  
describe.



SME Project No. \_\_\_\_\_

### 6. PROCEEDINGS INVOLVING THE PROPERTY

Do you, the User of this environmental site assessment, based on your knowledge and experience related to the property, have any knowledge of any of the following:

- Pending, threatened, or past litigation related to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

- Pending, threatened, or past administrative proceedings related to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

- Notices from any governmental entity regarding any possible violation of environmental laws or regulations or possible liability relating to hazardous substances or petroleum products in, on or arising from the Property?

Yes       No

If yes, explain briefly: \_\_\_\_\_  
\_\_\_\_\_

*Jaimie*

Jamie Rae Turnbull  
\_\_\_\_\_  
Printed Name

October 4, 2016  
\_\_\_\_\_  
Date

*Jamie Rae Turnbull*  
\_\_\_\_\_  
Signature

HR:16 98 076100

LIB: 18211 238

\$ 17.00 MISCELLANEOUS RECORDING  
\$ 2.00 REAFFIRMATION  
16 MAR 98 8:26 A.M. RECEIPT# 107A  
PAID RECORDED - OAKLAND COUNTY  
LYNN D. ALLEN, CLERK/REGISTER OF DEEDS

**RESTRICTIVE COVENANT**

**D-922** MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - UNDERGROUND STORAGE TANK DIVISION

*This information and form is required under Sections 21310a(2) and 21316 of Part 213, Leaking Underground Storage Tanks (LUST), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Failure to comply with the provisions of this Act may result in civil fines not to exceed \$10,000 for each day the violation continues or failure to comply continues.*

**INSTRUCTIONS:** Use this form for filing the restrictive covenant with the register of deeds. This form is needed when the corrective action is based on a restrictive covenant for institutional controls. This form is not needed if an alternate mechanism is approved by the Department of Environmental Quality (Department) pursuant to Section 21310a(3) and 21310(4) of Part 213. If corrective action is based on the use of institutional controls regarding off-site migration of regulated substances, wait for USTD approval before recording the Restrictive Covenant with the register of deeds for contamination that has migrated or will migrate off-site. If the institutional controls are for on-site contamination, the owner/operator may proceed with recording the Restrictive Covenant with the register of deeds. In all cases, submit a copy of the Restrictive Covenant and proof of recording with the Closure Report (EQP 3843) to the appropriate USTD District Office listed on the back of the Closure Report Cover Sheet. This form must be completed in its entirety.

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs).

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following, and more fully described in Attachment A, attached. *(Attach a legal property description as Attachment A for the land where the restrictive covenant would apply, and a survey map of the areas addressed by this restrictive covenant.)* The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resource limitations. The survey defining the areas addressed by the corrective action plan is attached. *(Describe the scope of any land use or resource use limitations.)*

Please Refer to Attachment B

The restrictive covenant is being filed by the below listed legal titleholder or with the express written permission of the legal titleholder. *(Attach permission statement from the legal titleholder if he/she is not signing this document.)*

Owner/Operator implementing the corrective action plan: Amoco

17.00  
2.00

Release Date(s): January 13, 1989

County where deed is registered: Oakland County

Common description of land, township/city, County: 905 North Hunter Boulevard, Birmingham, Oakland County, Michigan

O.K. - ML

REF: 18211 239

Now Therefore (Legal Titleholder Name and Address) Amoco Oil Company, 38705 Seven Mile Road  
Suite 360, Livonia, Michigan 48152-1056

(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.
2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.
3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.
4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.
5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.
6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

M. E. McDermet  
Legal Titleholder or Authorized Representative's Signature

Feb. 23, 1998  
Date

M. E. McDermet - Amoco  
Print Legal Titleholder or Authorized Representative's Name

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 23 day of February, 1998.



18211 210

Signed in the presence of:

Lori Sanchez  
Witness

[Signature]  
Witness

LORI Sanchez  
Print Witness' Name

T. STEBNER  
Print Witness' Name

Subscribed and sworn to me before this 23<sup>rd</sup> day of February, 1998, M. Azalia Abney  
Notary Public

Cook County, IL Michigan  
(Insert County)

My Commission Expires: \_\_\_\_\_

Drafted by:

\*\*\*\*\*  
"OFFICIAL SEAL"  
M. AZALIA ABNEY  
NOTARY PUBLIC, STATE OF ILLINOIS  
By Commission Expires Mar. 31, 2000  
\*\*\*\*\*

Amoco Marketing Environmental Services  
Company Name

Marilyn A. DeWitt  
Print Name of Drafter

38705 Seven Mile Road, Suite 360, Livonia, Michigan 48152  
Company Address

18211 211

Attachment A

0.452 Acres parcel in part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as beginning at a point in the Westerly line of 200 foot Hunter Boulevard, said point located North 88 degrees 16 minutes West 659.12 feet and North 49 degrees 21 minutes West 120.93 feet from Center of said Section 25; thence North 49 degrees 21 minutes West along Westerly line of 200 foot Hunter Boulevard 200 feet to Southerly line of 60 foot Oak Street; thence South 40 degrees 39 minutes West along said Southerly line 100 feet; thence South 49 degrees 21 minutes East 173.19 feet; thence South 88 degrees 16 minutes East along a line parallel to and 15 feet Northerly of the East and West 1/4 Section line and the north line of Assessors Plat No. 29, a distance of 34.45 feet; thence North 40 degrees 39 minutes East 78.36 feet to the point of beginning. Containing 0.452 acres more or less.

pt 19-25-179-001

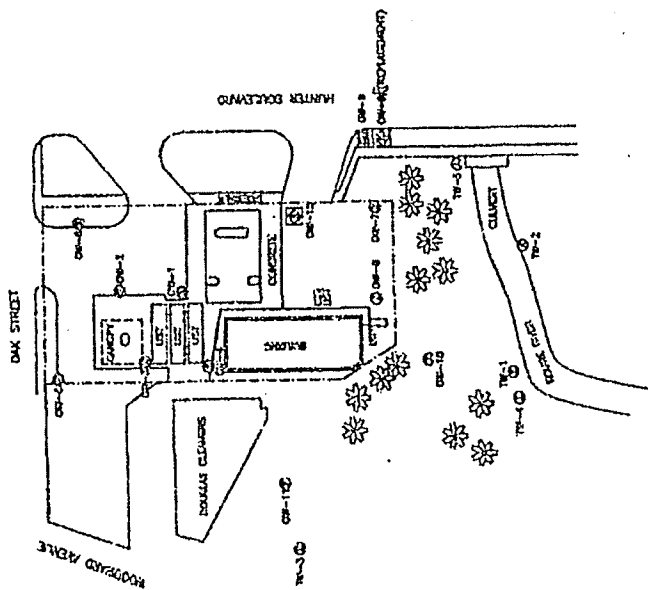
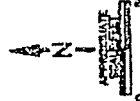
Attachment B

- NO WATER WELLS MAY BE CONSTRUCTED AT THE PROPERTY FOR EITHER POTABLE OR OTHER USE (EXCLUDING WELLS RELATED TO ACTIVITIES OUTLINED IN THE RESTRICTIVE COVENANT).
- THE PROPERTY MUST REMAIN COVERED AND IN GOOD CONDITION WITH AN IMPERMEABLE MATERIAL (ASPHALT, CONCRETE OR OTHER COMPARABLE SURFACE).
- THE PROPERTY USE MUST REMAIN A MINIMUM OF COMMERCIAL SUBCATEGORY III (PER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL RESPONSE DIVISION OPERATIONAL MEMORANDUM #14 (REV. 2), DATED JUNE 6, 1995).
- NO ACTIVITIES PROHIBITED BY OR HINDERING IMPLEMENTATION OR MAINTENANCE OF ACTIONS PROPOSED IN THIS RESTRICTIVE COVENANT SHALL BE PERFORMED. ADDITIONAL ASSESSMENT CAN BE CONDUCTED TO DETERMINE IMPACT OF PROPOSED ACTIVITIES AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ACTIVITIES.
- ANY ADDITIONS OR ALTERATIONS TO CURRENT BUILDINGS OR STRUCTURES MUST FIRST BE ASSESSED FOR ENVIRONMENTAL IMPACT AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ADDITIONS OR ALTERATIONS.
- COSTS INCURRED FROM EXCAVATION, CHARACTERIZATION, AND DISPOSAL OF SOILS OR GROUND WATER REMOVED FROM THE PROPERTY AS A RESULT OF ADDITIONAL SITE CONSTRUCTION ACTIVITIES OR IMPROVEMENTS WILL BE AT THE EXPENSE OF THE OWNER AT THE TIME OF SOILS EXCAVATION OR GROUND WATER REMOVAL.
- AMOCO AND IT'S REPRESENTATIVES RETAIN RIGHT OF ACCESS TO THE PROPERTY TO CONDUCT ACTIVITIES RELATED TO THOSE DESCRIBED IN THIS RESTRICTIVE COVENANT.

USER 18211 213

- CONSTRUCTION WELL
- DETACHED OBSERVATION WELL
- PUMP STATION
- WASTEWATER STORAGE TANK
- MAIN CONSTRUCTION WELL LOCATOR

FIGURE 2  
MONITOR WELL LOCATIONS  
905 N. HUNTER BLVD.  
BIRMINGHAM, MICHIGAN



ADAPTED FROM EST. MAP (SCALE, 1945)

**APPENDIX D**  
**REGULATORY RECORDS DOCUMENTATION**

**35975 Woodward Avenue**

35975 Woodward Ave

Birmingham, MI 48009

Inquiry Number: 4738860.2s

September 28, 2016

## The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor  
Shelton, CT 06484  
Toll Free: 800.352.0050  
[www.edrnet.com](http://www.edrnet.com)



# TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
Executive Summary .....	ES1
Overview Map .....	2
Detail Map .....	3
Map Findings Summary .....	4
Map Findings .....	8
Orphan Summary .....	35
Government Records Searched/Data Currency Tracking .....	GR-1
 <b><u>GEOCHECK ADDENDUM</u></b>	
Physical Setting Source Addendum .....	A-1
Physical Setting Source Summary .....	A-2
Physical Setting SSURGO Soil Map .....	A-5
Physical Setting Source Map .....	A-13
Physical Setting Source Map Findings .....	A-15
Physical Setting Source Records Searched .....	PSGR-1

***Thank you for your business.***  
 Please contact EDR at 1-800-352-0050  
 with any questions or comments.

### Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

Copyright 2016 by Environmental Data Resources, Inc. All rights reserved. Reproduction in any media or format, in whole or in part, of any report or map of Environmental Data Resources, Inc., or its affiliates, is prohibited without prior written permission. EDR and its logos (including Sanborn and Sanborn Map) are trademarks of Environmental Data Resources, Inc. or its affiliates. All other trademarks used herein are the property of their respective owners.

## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

#### COORDINATES

Latitude (North): 42.5535100 - 42° 33' 12.63"  
Longitude (West): 83.2187650 - 83° 13' 7.55"  
Universal Transverse Mercator: Zone 17  
UTM X (Meters): 317839.1  
UTM Y (Meters): 4713406.5  
Elevation: 740 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 6066350 BIRMINGHAM, MI  
Version Date: 2014

### AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140721, 20140628  
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
<a href="#">A1</a>	BP / AMOCO #15913	35975 WOODWARD	RGA LUST		TP
<a href="#">A2</a>	SIMON LAND DEVELOPME	35975 WOODWARD AVE	LUST, UST, INVENTORY, BEA, WDS		TP
<a href="#">A3</a>	SIMON LAND DEVELOPME	35975 WOODWARD	RGA LUST		TP
<a href="#">A4</a>	A & G AUTO CARE	35975 WOODWARD AVE	RCRA-CESQG, FINDS, ECHO		TP
<a href="#">A5</a>	AMOCO STATION #5791	35975 WOODWARD AVENU	INVENTORY		TP
<a href="#">A6</a>	SIMON LAND DEVELOPME	35975 WOODWARD AVE	RGA LUST		TP
<a href="#">A7</a>	GASOLINE STATION	35975 WOODWARD AVENU	INVENTORY		TP
<a href="#">A8</a>	BP / AMOCO #15913	35975 WOODWARD / OAK	RGA LUST		TP
<a href="#">A9</a>	AMOCO OIL #5791	35975 WOODWARD	RGA LUST		TP
<a href="#">A10</a>		35975 WOODWARD AVE	EDR Hist Auto		TP
<a href="#">A11</a>		900 N OLD WOODWARD A	EDR Hist Cleaner	Higher	68, 0.013, SSW
<a href="#">A12</a>	DOUGLAS CLEANERS INC	900 N OLD WOODWARD A	DRYCLEANERS, WDS	Higher	68, 0.013, SSW
<a href="#">A13</a>	DOUGLAS CLEANERS INC	900 N OLD WOODWARD A	RCRA-CESQG, FINDS, ECHO	Higher	68, 0.013, SSW
<a href="#">B14</a>	FLS PROPERTIES #5, L	856 NORTH OLD WOODWA	INVENTORY	Higher	199, 0.038, SSW
<a href="#">B15</a>	CHINESE RESTAURANT	856 NORTH OLD WOODWA	INVENTORY	Higher	199, 0.038, SSW
<a href="#">B16</a>	CHINESE RESTAURANT	856 NORTH OLD WOODWA	BEA	Higher	199, 0.038, SSW
<a href="#">C17</a>	GHAFARI PROPERTIES I	36101 WOODWARD AVE	LUST, UST, AUL, INVENTORY	Higher	287, 0.054, NW
<a href="#">18</a>		794 N OLD WOODWARD A	EDR Hist Cleaner	Lower	300, 0.057, SSE
<a href="#">C19</a>		36101 WOODWARD AVE	EDR Hist Auto	Higher	346, 0.066, NW
<a href="#">20</a>	MOBIL OIL CORP	910 N HUNTER BLVD &	RCRA NonGen / NLR, FINDS, ECHO	Higher	383, 0.073, ESE
<a href="#">21</a>	MICHIGAN NATIONAL CO	36050 WOODWARD AVE	RCRA NonGen / NLR, FINDS, ECHO	Higher	464, 0.088, North
<a href="#">22</a>	DAKOTA	280 HARMON ST	RCRA NonGen / NLR	Lower	1005, 0.190, South
<a href="#">23</a>	GHEEN RESIDENCE	272 RAVINE ROAD	INVENTORY, WDS	Higher	1368, 0.259, SE
<a href="#">24</a>	COMERICA BANK BIRMIN	322 N. OLD WOODWARD	INVENTORY	Higher	2061, 0.390, SSE
<a href="#">25</a>	FIRST CHURCH OF CHRI	191 N. CHESTER ST.	INVENTORY	Higher	2300, 0.436, South

## EXECUTIVE SUMMARY

### TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
BP / AMOCO #15913 35975 WOODWARD BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
SIMON LAND DEVELOPME 35975 WOODWARD AVE BIRMINGHAM, MI 48084	LUST Release Status: Open Facility Id: 00005681  UST Database: UST, Date of Government Version: 04/13/2016 Tank Status: Removed from Ground Facility Type: CLOSED Facility Id: 00005681  INVENTORY Facility ID: 00005681  BEA WDS WMD Id: 404537 Site Id: MID985606458	N/A
SIMON LAND DEVELOPME 35975 WOODWARD BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
A & G AUTO CARE 35975 WOODWARD AVE BIRMINGHAM, MI 48009	RCRA-CESQG EPA ID:: MID985606458  FINDS Registry ID:: 110003653056  ECHO	MID985606458
AMOCO STATION #5791 35975 WOODWARD AVENU OAKLAND (County), MI	INVENTORY	N/A
SIMON LAND DEVELOPME 35975 WOODWARD AVE BIRMINGHAM, MI	RGA LUST Facility ID: 5681	N/A
GASOLINE STATION 35975 WOODWARD AVENU OAKLAND (County), MI 48009	INVENTORY	N/A
BP / AMOCO #15913 35975 WOODWARD / OAK BIRMINGHAM, MI	RGA LUST	N/A

## EXECUTIVE SUMMARY

Facility ID: 00005681  
Facility ID: 5681

AMOCO OIL #5791  
35975 WOODWARD  
BIRMINGHAM, MI

RGA LUST  
Facility ID: 0-005681

N/A

35975 WOODWARD AVE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

EDR Hist Auto

N/A

### DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

### STANDARD ENVIRONMENTAL RECORDS

#### ***Federal NPL site list***

NPL..... National Priority List  
Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

#### ***Federal Delisted NPL site list***

Delisted NPL..... National Priority List Deletions

#### ***Federal CERCLIS list***

FEDERAL FACILITY..... Federal Facility Site Information listing  
SEMS..... Superfund Enterprise Management System

#### ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

#### ***Federal RCRA CORRACTS facilities list***

CORRACTS..... Corrective Action Report

#### ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

## EXECUTIVE SUMMARY

### ***Federal RCRA generators list***

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators

### ***Federal institutional controls / engineering controls registries***

LUCIS..... Land Use Control Information System  
US ENG CONTROLS..... Engineering Controls Sites List  
US INST CONTROL..... Sites with Institutional Controls

### ***Federal ERNS list***

ERNS..... Emergency Response Notification System

### ***State- and tribal - equivalent CERCLIS***

SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

### ***State and tribal landfill and/or solid waste disposal site lists***

SWF/LF..... Solid Waste Facilities Database

### ***State and tribal leaking storage tank lists***

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### ***State and tribal registered storage tank lists***

FEMA UST..... Underground Storage Tank Listing  
AST..... Aboveground Tanks  
INDIAN UST..... Underground Storage Tanks on Indian Land

### ***State and tribal voluntary cleanup sites***

INDIAN VCP..... Voluntary Cleanup Priority Listing

### ***State and tribal Brownfields sites***

BROWNFIELDS..... Brownfields and UST Site Database

### **ADDITIONAL ENVIRONMENTAL RECORDS**

#### ***Local Brownfield lists***

US BROWNFIELDS..... A Listing of Brownfields Sites

#### ***Local Lists of Landfill / Solid Waste Disposal Sites***

HIST LF..... Inactive Solid Waste Facilities  
SWRCY..... Recycling Facilities  
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands



## EXECUTIVE SUMMARY

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations  
ODI..... Open Dump Inventory

### **Local Lists of Hazardous waste / Contaminated Sites**

US HIST CDL..... Delisted National Clandestine Laboratory Register  
PART 201..... Part 201 Site List  
CDL..... Clandestine Drug Lab Listing  
DEL PART 201..... Delisted List of Contaminated Sites  
US CDL..... National Clandestine Laboratory Register

### **Local Land Records**

LIENS..... Lien List  
LIENS 2..... CERCLA Lien Information

### **Records of Emergency Release Reports**

HMIRS..... Hazardous Materials Information Reporting System  
SPILLS..... Pollution Emergency Alerting System

### **Other Ascertainable Records**

FUDS..... Formerly Used Defense Sites  
DOD..... Department of Defense Sites  
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing  
US FIN ASSUR..... Financial Assurance Information  
EPA WATCH LIST..... EPA WATCH LIST  
2020 COR ACTION..... 2020 Corrective Action Program List  
TSCA..... Toxic Substances Control Act  
TRIS..... Toxic Chemical Release Inventory System  
SSTS..... Section 7 Tracking Systems  
ROD..... Records Of Decision  
RMP..... Risk Management Plans  
RAATS..... RCRA Administrative Action Tracking System  
PRP..... Potentially Responsible Parties  
PADS..... PCB Activity Database System  
ICIS..... Integrated Compliance Information System  
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
MLTS..... Material Licensing Tracking System  
COAL ASH DOE..... Steam-Electric Plant Operation Data  
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List  
PCB TRANSFORMER..... PCB Transformer Registration Database  
RADINFO..... Radiation Information Database  
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing  
DOT OPS..... Incident and Accident Data  
CONSENT..... Superfund (CERCLA) Consent Decrees  
INDIAN RESERV..... Indian Reservations  
FUSRAP..... Formerly Utilized Sites Remedial Action Program  
UMTRA..... Uranium Mill Tailings Sites  
LEAD SMELTERS..... Lead Smelter Sites  
US AIRS..... Aerometric Information Retrieval System Facility Subsystem  
US MINES..... Mines Master Index File  
DOCKET HWC..... Hazardous Waste Compliance Docket Listing

## EXECUTIVE SUMMARY

UXO.....	Unexploded Ordnance Sites
AIRS.....	Permit and Emissions Inventory Data
COAL ASH.....	Coal Ash Disposal Sites
LEAD.....	Lead Safe Housing Registry
NPDES.....	List of Active NPDES Permits
UIC.....	Underground Injection Wells Database
FUELS PROGRAM.....	EPA Fuels Program Registered Listing

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP..... EDR Proprietary Manufactured Gas Plants

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA PART 201..... Recovered Government Archive State Hazardous Waste Facilities List  
RGA LF..... Recovered Government Archive Solid Waste Facilities List

### SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

### STANDARD ENVIRONMENTAL RECORDS

#### ***Federal RCRA generators list***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/21/2016 has revealed that there is 1 RCRA-CESQG site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b><i>DOUGLAS CLEANERS INC</i></b>	<b><i>900 N OLD WOODWARD A</i></b>	<b><i>SSW 0 - 1/8 (0.013 mi.)</i></b>	<b><i>A13</i></b>	<b><i>18</i></b>

## EXECUTIVE SUMMARY

### **State and tribal leaking storage tank lists**

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Quality's Leaking Underground Storage Tank (LUST) Database.

A review of the LUST list, as provided by EDR, and dated 04/27/2016 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>GHAFARI PROPERTIES I</b> Release Status: Closed Substance Release: Gasoline,Gasoline,Gasoline,Gasoline Facility Id: 00034940	<b>36101 WOODWARD AVE</b>	<b>NW 0 - 1/8 (0.054 mi.)</b>	<b>C17</b>	<b>23</b>

### **State and tribal registered storage tank lists**

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Quality's Michigan UST database.

A review of the UST list, as provided by EDR, has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>GHAFARI PROPERTIES I</b> Database: UST, Date of Government Version: 04/13/2016 Tank Status: Removed from Ground Tank Status: Currently In Use Facility Type: ACTIVE Facility Id: 00034940	<b>36101 WOODWARD AVE</b>	<b>NW 0 - 1/8 (0.054 mi.)</b>	<b>C17</b>	<b>23</b>

### **State and tribal institutional control / engineering control registries**

AUL: A listing of sites with institutional and/or engineering controls in place.

A review of the AUL list, as provided by EDR, and dated 06/09/2016 has revealed that there is 1 AUL site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>GHAFARI PROPERTIES I</b> Facility ID: 00034940	<b>36101 WOODWARD AVE</b>	<b>NW 0 - 1/8 (0.054 mi.)</b>	<b>C17</b>	<b>23</b>

# EXECUTIVE SUMMARY

## ADDITIONAL ENVIRONMENTAL RECORDS

### **Local Lists of Hazardous waste / Contaminated Sites**

INVENTORY: The Inventory of Facilities has three data sources: Facilities under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) identified through state funded or private party response activities (Projects); Facilities under Part 213, Leaking Underground Storage Tanks of the NREPA; and Facilities identified through submittals of Baseline Environmental Assessments (BEA) submitted pursuant to Part 201 or Part 213 of the NREPA. The Part 201 Projects Inventory does not include all of the facilities that are subject to regulation under Part 201 because owners are not required to inform the Department of Environmental Quality (DEQ) about the facilities and can pursue cleanup independently. Facilities that are not known to DEQ are not on the Inventory, nor are locations with releases that resulted in low environmental impact. Part 213 facilities listed here may have more than one release; a list of releases for which corrective actions have been completed and list of releases for which corrective action has not been completed is located on the Leaking Underground Storage Tanks Site Search webpage. The DEQ may or may not have reviewed and concurred with the conclusion that the corrective actions described in a closure report meets criteria. A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

A review of the INVENTORY list, as provided by EDR, and dated 07/26/2016 has revealed that there are 6 INVENTORY sites within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
FLS PROPERTIES #5, L CHINESE RESTAURANT	856 NORTH OLD WOODWA	SSW 0 - 1/8 (0.038 mi.)	B14	22
<b>GHAFARI PROPERTIES I</b> Facility ID: 00034940	<b>36101 WOODWARD AVE</b>	<b>NW 0 - 1/8 (0.054 mi.)</b>	<b>C17</b>	<b>23</b>
<b>GHEEN RESIDENCE</b> Facility ID: 63006037	<b>272 RAVINE ROAD</b>	<b>SE 1/4 - 1/2 (0.259 mi.)</b>	<b>23</b>	<b>33</b>
COMERICA BANK BIRMIN Facility ID: 63005254	322 N. OLD WOODWARD	SSE 1/4 - 1/2 (0.390 mi.)	24	33
FIRST CHURCH OF CHRI Facility ID: 63005278	191 N. CHESTER ST.	S 1/4 - 1/2 (0.436 mi.)	25	34

### **Other Ascertainable Records**

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 06/21/2016 has revealed that there are 3 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>MOBIL OIL CORP</b>	<b>910 N HUNTER BLVD &amp;</b>	<b>ESE 0 - 1/8 (0.073 mi.)</b>	<b>20</b>	<b>28</b>
<b>MICHIGAN NATIONAL CO</b>	<b>36050 WOODWARD AVE</b>	<b>N 0 - 1/8 (0.088 mi.)</b>	<b>21</b>	<b>30</b>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
DAKOTA	280 HARMON ST	S 1/8 - 1/4 (0.190 mi.)	22	32

## EXECUTIVE SUMMARY

BEA: A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

A review of the BEA list, as provided by EDR, and dated 08/21/2013 has revealed that there is 1 BEA site within approximately 0.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
CHINESE RESTAURANT	856 NORTH OLD WOODWA	SSW 0 - 1/8 (0.038 mi.)	B16	23

DRYCLEANERS: A listing of drycleaning facilities in Michigan.

A review of the DRYCLEANERS list, as provided by EDR, and dated 07/20/2016 has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<b>DOUGLAS CLEANERS INC</b> Establishment#: 6300081	<b>900 N OLD WOODWARD A</b>	<b>SSW 0 - 1/8 (0.013 mi.)</b>	<b>A12</b>	<b>17</b>

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	36101 WOODWARD AVE	NW 0 - 1/8 (0.066 mi.)	C19	27

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 2 EDR Hist

## EXECUTIVE SUMMARY

Cleaner sites within approximately 0.125 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	900 N OLD WOODWARD A	SSW 0 - 1/8 (0.013 mi.)	A11	17

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	794 N OLD WOODWARD A	SSE 0 - 1/8 (0.057 mi.)	18	27



## EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 1 records.

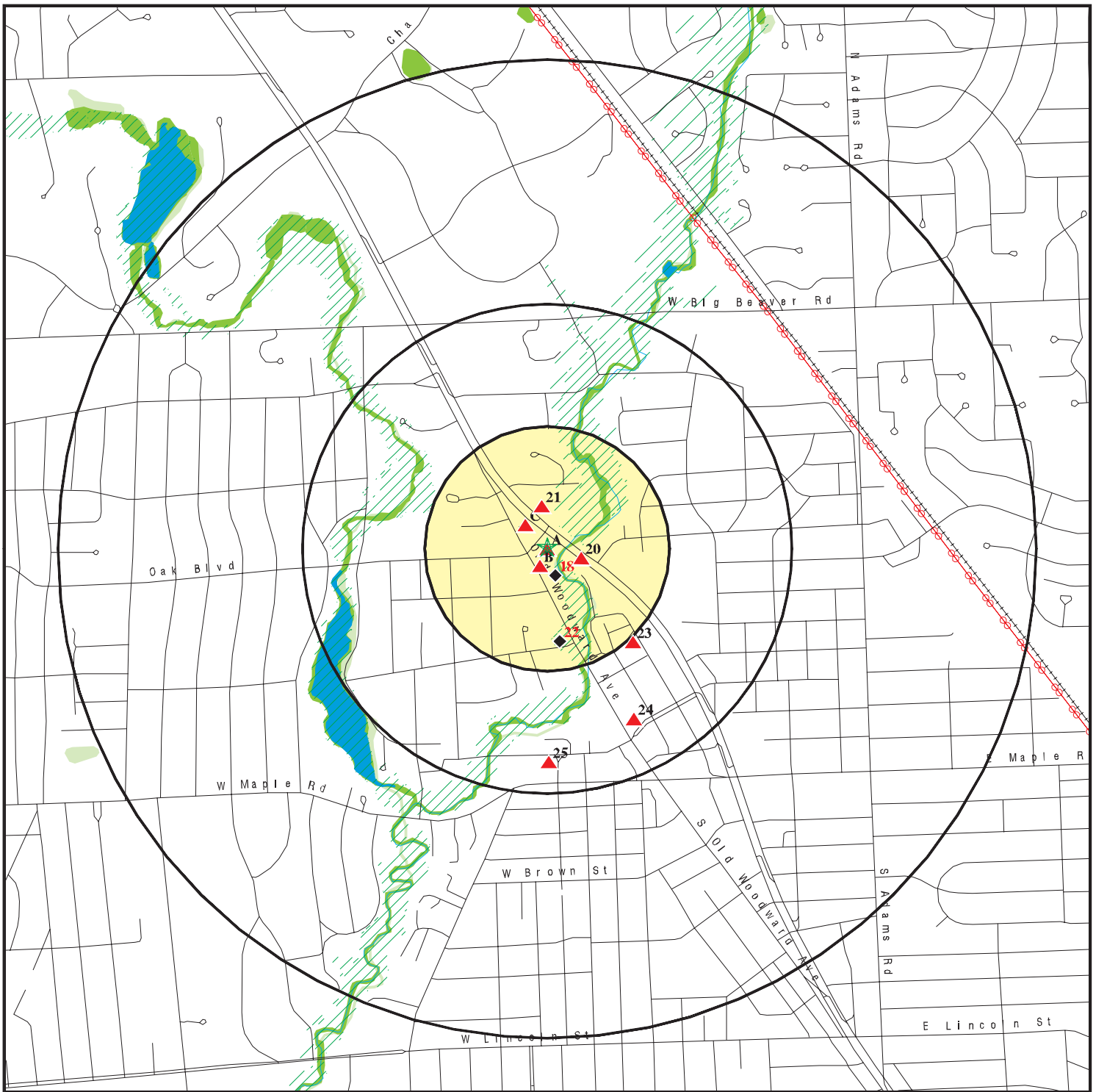
Site Name

TIFFANY FLORIST

Database(s)

LUST, UST, INVENTORY

# OVERVIEW MAP - 4738860.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- ⚡ Power transmission lines
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham MI 48009  
 LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
 CONTACT: Christiaan Bon  
 INQUIRY #: 4738860.2s  
 DATE: September 28, 2016 11:59 am

# DETAIL MAP - 4738860.2S



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
  - 100-year flood zone
  - 500-year flood zone
  - National Wetland Inventory
  - State Wetlands
- 0 1/16 1/8 1/4 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Avenue  
 Birmingham MI 48009  
 LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
 CONTACT: Christiaan Bon  
 INQUIRY #: 4738860.2s  
 DATE: September 28, 2016 12:01 pm

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<b><i>Federal NPL site list</i></b>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<b><i>Federal Delisted NPL site list</i></b>								
Delisted NPL	1.000		0	0	0	0	NR	0
<b><i>Federal CERCLIS list</i></b>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<b><i>Federal CERCLIS NFRAP site list</i></b>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA CORRACTS facilities list</i></b>								
CORRACTS	1.000		0	0	0	0	NR	0
<b><i>Federal RCRA non-CORRACTS TSD facilities list</i></b>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<b><i>Federal RCRA generators list</i></b>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250	1	1	0	NR	NR	NR	2
<b><i>Federal institutional controls / engineering controls registries</i></b>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<b><i>Federal ERNS list</i></b>								
ERNS	TP		NR	NR	NR	NR	NR	0
<b><i>State- and tribal - equivalent CERCLIS</i></b>								
SHWS	1.000		0	0	0	0	NR	0
<b><i>State and tribal landfill and/or solid waste disposal site lists</i></b>								
SWF/LF	0.500		0	0	0	NR	NR	0
<b><i>State and tribal leaking storage tank lists</i></b>								
LUST	0.500	1	1	0	0	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
<b><i>State and tribal registered storage tank lists</i></b>								
FEMA UST	0.250		0	0	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250	1	1	0	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
<b>State and tribal institutional control / engineering control registries</b>								
AUL	0.500		1	0	0	NR	NR	1
<b>State and tribal voluntary cleanup sites</b>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
<b>State and tribal Brownfields sites</b>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<b>Local Brownfield lists</b>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>Local Lists of Landfill / Solid Waste Disposal Sites</b>								
HIST LF	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
<b>Local Lists of Hazardous waste / Contaminated Sites</b>								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
PART 201 INVENTORY	1.000		0	0	0	0	NR	0
CDL	0.500	3	3	0	3	NR	NR	9
DEL PART 201	TP		NR	NR	NR	NR	NR	0
US CDL	1.000		0	0	0	0	NR	0
	TP		NR	NR	NR	NR	NR	0
<b>Local Land Records</b>								
LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
<b>Records of Emergency Release Reports</b>								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
<b>Other Ascertainable Records</b>								
RCRA NonGen / NLR	0.250		2	1	NR	NR	NR	3
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0

## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
BEA	0.500	1	1	0	0	NR	NR	2
COAL ASH	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.250		1	0	NR	NR	NR	1
LEAD	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WDS	TP	1	NR	NR	NR	NR	NR	1
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
ECHO	TP	1	NR	NR	NR	NR	NR	1

### EDR HIGH RISK HISTORICAL RECORDS

#### ***EDR Exclusive Records***

EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125	1	1	NR	NR	NR	NR	2
EDR Hist Cleaner	0.125		2	NR	NR	NR	NR	2

### EDR RECOVERED GOVERNMENT ARCHIVES

#### ***Exclusive Recovered Govt. Archives***

RGA PART 201	TP		NR	NR	NR	NR	NR	0
--------------	----	--	----	----	----	----	----	---



## MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP	5	NR	NR	NR	NR	NR	5
- Totals --		16	14	1	3	0	0	34

**NOTES:**

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Site

Database(s)

EDR ID Number  
EPA ID Number

**A1**  
**Target**  
**Property**

**BP / AMOCO #15913**  
**35975 WOODWARD**  
**BIRMINGHAM, MI**

**RGALUST**

**S115667409**  
**N/A**

**Site 1 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGALUST: 2005 BP / AMOCO #15913 35975 WOODWARD

**A2**  
**Target**  
**Property**

**SIMON LAND DEVELOPMENT GROUP LLC**  
**35975 WOODWARD AVE**  
**BIRMINGHAM, MI 48084**

**LUST**  
**UST**  
**INVENTORY**  
**BEA**  
**WDS**

**U003320634**  
**N/A**

**Site 2 of 13 in cluster A**

**Actual:**  
**740 ft.**

LUST:  
 Facility ID: 00005681  
 Source: STATE OF MICHIGAN  
 Owner Name: Simon Land Development Group LLC  
 Owner Address: 1826 Northwood Dr  
 Owner City,St,Zip: Troy, MI 48084  
 Owner Contact: Fawzi Simon  
 Owner Phone: (248) 688-9625  
 Country: USA  
 District: Region 1 - SE Michigan District Office  
 Site Name: Amoco #5791  
 Latitude: 42.55354  
 Longitude: -83.21935  
 Date of Collection: 01/11/2001  
 Method of Collection: Address Matching-House Number  
 Accuracy: 100  
 Accuracy Value Unit: FEET  
 Horizontal Data: NAD83  
 Point Line Area: POINT  
 Desc Category: Plant Entrance (Freight)

Leak Number: C-0008-89  
 Release Date: 01/13/1989  
 Substance Released: Not reported  
 Release Status: Open  
 Release Closed Date: Not reported

UST:  
 Facility ID: 00005681  
 Facility Type: CLOSED  
 Owner Name: SIMON LAND DEVELOPMENT GROUP LLC  
 Owner Address: 1826 NORTHWOOD DR  
 Owner City,St,Zip: TROY, MI 48084  
 Owner Country: USA  
 Owner Contact: Fawzi Simon  
 Owner Phone: (248) 688-9625  
 Contact: Faiz Simon  
 Contact Phone: (313) 292-5500  
 Date of Collection: 01/11/2001  
 Accuracy: 100  
 Accuracy Value Unit: FEET  
 Horizontal Datum: NAD83  
 Source: STATE OF MICHIGAN

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)  
Method of Collection: Address Matching-House Number  
Latitude: 42.55354  
Longitude: -83.21935

Tank ID: 1  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Diesel  
Install Date: 04/26/1962  
Remove Date: 02/09/1989  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 2  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 3  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 4  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline  
Install Date: 04/26/1962  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 5  
**Tank Status: Removed from Ground**  
Capacity: 8000  
Product: Gasoline  
Install Date: 04/26/1970  
Remove Date: 12/01/1988  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel,Lined Interior  
Impressed Device: No

Tank ID: 6  
**Tank Status: Removed from Ground**  
Capacity: 560  
Product: Used Oil  
Install Date: 04/27/1959  
Remove Date: 11/10/1989  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Galvanized Steel  
Piping Type: Not reported  
Construction Material: Asphalt Coated or Bare Steel  
Impressed Device: No

Tank ID: 7  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 8  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 9  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: 04/26/1986  
Remove Date: 10/11/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Pressure  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

Tank ID: 10  
**Tank Status: Removed from Ground**  
Capacity: 560  
Product: Used Oil  
Install Date: 11/10/1989  
Remove Date: 11/01/2007  
Tank Release Detection: Automatic Tank Gauging  
Pipe Realease Detection: Automatic Line Leak Detectors  
Piping Material: Fiberglass reinforced plastic, Vent.  
Piping Type: Not reported  
Construction Material: Cathodically Protected Steel  
Impressed Device: No

**INVENTORY:**

Bea Number: Not reported  
Township: Not reported  
District: Southeast MI  
Data Source: Part 213  
Latitude: 42.55355  
Longitude: -83.21936

**BEA:**

Secondary Address: Not reported  
BEA Number: 3735  
District: Southeast MI  
Date Received: 11/21/2007  
Submitter Name: 35975 Woodward, LLC  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: No Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: mitchelf  
Division Assigned: Storage Tank Division

Secondary Address: Not reported  
BEA Number: 3161  
District: Southeast MI  
Date Received: 05/31/2006

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**SIMON LAND DEVELOPMENT GROUP LLC (Continued)**

**U003320634**

Submitter Name: Simon Land Development Group, LLC  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: Same Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: schlaufj  
Division Assigned: Storage Tank Division

WDS:

Site Id: MID985606458  
WMD Id: 404537  
Site Specific Name: A & G AUTO CARE  
Mailing Address: 35975 WOODWARD AVE  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

**A3  
Target  
Property**

**SIMON LAND DEVELOPMENT GROUP LLC  
35975 WOODWARD  
BIRMINGHAM, MI**

**RGA LUST S115694086  
N/A**

**Site 3 of 13 in cluster A**

**Actual:  
740 ft.**

RGA LUST:

2007 SIMON LAND DEVELOPMENT GROUP LLC 35975 WOODWARD  
2006 SIMON LAND DEVELOPMENT GROUP LLC 35975 WOODWARD

**A4  
Target  
Property**

**A & G AUTO CARE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009**

**RCRA-CESQG 1000704668  
FINDS MID985606458  
ECHO**

**Site 4 of 13 in cluster A**

**Actual:  
740 ft.**

RCRA-CESQG:

Date form received by agency: 01/24/2005  
Facility name: A & G AUTO CARE  
Facility address: 35975 WOODWARD AVE  
BIRMINGHAM, MI 48009  
EPA ID: MID985606458  
Contact: ASLAM GARBOWAI  
Contact address: 35975 WOODWARD AVE  
BIRMINGHAM, MI 48009  
Contact country: US  
Contact telephone: (248) 203-7866  
Contact email: Not reported  
EPA Region: 05  
Land type: Private  
Classification: Conditionally Exempt Small Quantity Generator  
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A & G AUTO CARE (Continued)**

**1000704668**

time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: ASLAM GARBOWAI  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 01/20/2003  
Owner/Op end date: Not reported

Owner/operator name: ASLAM GARBOWAI  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: 01/20/2003  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 09/08/1997  
Site name: A & G AUTO CARE  
Classification: Not a generator, verified

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 02/20/1991  
Site name: A & G AUTO CARE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A & G AUTO CARE (Continued)**

**1000704668**

Classification: Small Quantity Generator  
. Waste code: D001  
. Waste name: IGNITABLE WASTE

Facility Has Received Notices of Violations:

Regulation violated: Not reported  
Area of violation: Generators - General  
Date violation determined: 02/20/2004  
Date achieved compliance: 01/24/2005  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 02/20/2004  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 02/20/2004  
Evaluation: NON-FINANCIAL RECORD REVIEW  
Area of violation: Generators - General  
Date achieved compliance: 01/24/2005  
Evaluation lead agency: State

FINDS:

Registry ID: 110003653056

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid: 1000704668  
Registry ID: 110003653056  
DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003653056](http://echo.epa.gov/detailed_facility_report?fid=110003653056)

**A5 AMOCO STATION #5791 (FORMER)  
Target 35975 WOODWARD AVENUE  
Property OAKLAND (County), MI**

**INVENTORY S114032539  
N/A**

**Site 5 of 13 in cluster A**

**Actual:  
740 ft.**

INVENTORY:  
Bea Number: 200603161LV  
Township: Birmingham  
District: Southeast MI  
Data Source: BEA  
Latitude: Not reported

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**AMOCO STATION #5791 (FORMER) (Continued)**

**S114032539**

Longitude: Not reported

**A6**      **SIMON LAND DEVELOPMENT GROUP LLC**  
**Target**    **35975 WOODWARD AVE**  
**Property**   **BIRMINGHAM, MI**

**RGA LUST**    **S115694085**  
**N/A**

**Site 6 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2012	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2011	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2010	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2009	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE
2008	SIMON LAND DEVELOPMENT GROUP LLC	35975 WOODWARD AVE

**A7**      **GASOLINE STATION**  
**Target**    **35975 WOODWARD AVENUE**  
**Property**   **OAKLAND (County), MI 48009**

**INVENTORY**    **S114035253**  
**N/A**

**Site 7 of 13 in cluster A**

**Actual:**  
**740 ft.**

INVENTORY:

Bea Number:	200703735LV
Township:	Birmingham
District:	Southeast MI
Data Source:	BEA
Latitude:	Not reported
Longitude:	Not reported

**A8**      **BP / AMOCO #15913**  
**Target**    **35975 WOODWARD / OAK**  
**Property**   **BIRMINGHAM, MI**

**RGA LUST**    **S115667408**  
**N/A**

**Site 8 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2004	BP / AMOCO #15913	35975 WOODWARD / OAK
2003	BP / AMOCO #15913	35975 WOODWARD / OAK

**A9**      **AMOCO OIL #5791**  
**Target**    **35975 WOODWARD**  
**Property**   **BIRMINGHAM, MI**

**RGA LUST**    **S115664621**  
**N/A**

**Site 9 of 13 in cluster A**

**Actual:**  
**740 ft.**

RGA LUST:

2001	AMOCO OIL #5791	35975 WOODWARD
2000	AMOCO OIL #5791	35975 WOODWARD
1999	AMOCO OIL #5791	35975 WOODWARD
1998	AMOCO OIL #5791	35975 WOODWARD

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**A10**  
**Target**  
**Property**

**35975 WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**EDR Hist Auto**    **1015447540**  
**N/A**

**Site 10 of 13 in cluster A**

**Actual:**  
**740 ft.**

EDR Historical Auto Stations:

Name: HUNTER & OAK AMOCO SERVICE  
Year: 1999  
Address: 35975 WOODWARD AVE

Name: HUNTER & OAK AMOCO SERVICE  
Year: 2000  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2001  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2002  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2003  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2004  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2005  
Address: 35975 WOODWARD AVE

Name: BIRMINGHAM AMOCO INC  
Year: 2006  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2007  
Address: 35975 WOODWARD AVE

Name: A & G AUTO CARE LLC  
Year: 2008  
Address: 35975 WOODWARD AVE

Name: OAKLAND AMOCO  
Year: 2009  
Address: 35975 WOODWARD AVE

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

A11  
SSW  
< 1/8  
0.013 mi.  
68 ft.

900 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009

Site 11 of 13 in cluster A

EDR Hist Cleaner 1015104182  
N/A

Relative:  
Higher

EDR Historical Cleaners:

Name: DOUGLAS CLEANERS  
Year: 2001  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2005  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2006  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2010  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2011  
Address: 900 N OLD WOODWARD AVE

Name: DOUGLAS CLEANERS  
Year: 2012  
Address: 900 N OLD WOODWARD AVE

Actual:  
742 ft.

A12  
SSW  
< 1/8  
0.013 mi.  
68 ft.

DOUGLAS CLEANERS INC  
900 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009

Site 12 of 13 in cluster A

DRYCLEANERS S106439647  
WDS N/A

Relative:  
Higher

DRYCLEANERS:

fadd2: Not reported  
Facility Status: Open  
Establishment#: 6300081  
DCM #: 1  
DCM Type: Perc  
Total lb: 60  
Inspector: joejaskowski  
Last Insp Date: 12/23/2015

Actual:  
742 ft.

WDS:

Site Id: MID049263031  
WMD Id: 395883  
Site Specific Name: DOUGLAS CLEANERS I  
Mailing Address: 900 N OLD WOODWARD AVE  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

A13  
SSW  
< 1/8  
0.013 mi.  
68 ft.

**DOUGLAS CLEANERS INC**  
**900 N OLD WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**RCRA-CESQG** 1000235644  
**FINDS** MID049263031  
**ECHO**

**Site 13 of 13 in cluster A**

**Relative:**  
**Higher**

RCRA-CESQG:

Date form received by agency: 09/30/2003

Facility name: DOUGLAS CLEANERS INC

Facility address: 900 N OLD WOODWARD AVE

BIRMINGHAM, MI 48009

EPA ID: MID049263031

Contact: DAVID UNDERDOWN

Contact address: 900 N OLD WOODWARD AVE

BIRMINGHAM, MI 48009

Contact country: US

Contact telephone: (248) 642-6231

Contact email: Not reported

EPA Region: 05

Land type: Private

Classification: Conditionally Exempt Small Quantity Generator

Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name: UNDERDOWN DAVID

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Owner

Owner/Op start date: 09/16/1986

Owner/Op end date: Not reported

Owner/operator name: UNDERDOWN DAVID

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Operator

Owner/Op start date: 09/16/1986

Owner/Op end date: Not reported

Handler Activities Summary:



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 04/30/2003  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 10/14/1998  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 09/16/1986  
Site name: DOUGLAS CLEANERS INC  
Classification: Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Facility Has Received Notices of Violations:

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: Not reported  
Enforcement action date: 04/27/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Regulation violated: Not reported  
Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 03/13/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - General  
Date violation determined: 11/22/2002  
Date achieved compliance: 03/14/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 04/24/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 04/24/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Area of violation: Generators - Manifest  
Date violation determined: 11/22/2002  
Date achieved compliance: 04/28/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 12/06/2002  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Regulation violated: Not reported  
Area of violation: Generators - Pre-transport  
Date violation determined: 11/22/2002  
Date achieved compliance: 07/11/2003  
Violation lead agency: State  
Enforcement action: WRITTEN INFORMAL  
Enforcement action date: 03/13/2003  
Enf. disposition status: Not reported  
Enf. disp. status date: Not reported  
Enforcement lead agency: State  
Proposed penalty amount: Not reported  
Final penalty amount: Not reported  
Paid penalty amount: Not reported

Evaluation Action Summary:  
Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - Pre-transport  
Date achieved compliance: 07/11/2003  
Evaluation lead agency: State

Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - Manifest  
Date achieved compliance: 04/28/2003  
Evaluation lead agency: State

Evaluation date: 11/22/2002  
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE  
Area of violation: Generators - General

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DOUGLAS CLEANERS INC (Continued)**

**1000235644**

Date achieved compliance: 03/14/2003  
Evaluation lead agency: State

**FINDS:**

Registry ID: 110003595547

**Environmental Interest/Information System**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**ECHO:**

Envid: 1000235644  
Registry ID: 110003595547  
DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003595547](http://echo.epa.gov/detailed_facility_report?fid=110003595547)

**B14**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**FLS PROPERTIES #5, LLC**  
**856 NORTH OLD WOODWARD AVENUE**  
**OAKLAND (County), MI 48009**

**INVENTORY S118188653**  
**N/A**

**Site 1 of 3 in cluster B**

**Relative:**  
**Higher**

**INVENTORY:**

Bea Number: 201506712LV  
Township: Birmingham  
District: Southeast MI  
Data Source: BEA  
Latitude: Not reported  
Longitude: Not reported

**Actual:**  
**750 ft.**

**B15**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**CHINESE RESTAURANT**  
**856 NORTH OLD WOODWARD AVENUE**  
**OAKLAND (County), MI 48009**

**INVENTORY S114033310**  
**N/A**

**Site 2 of 3 in cluster B**

**Relative:**  
**Higher**

**INVENTORY:**

Bea Number: 200603364LV  
Township: Birmingham  
District: Southeast MI  
Data Source: BEA  
Latitude: Not reported  
Longitude: Not reported

**Actual:**  
**750 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**B16**  
**SSW**  
**< 1/8**  
**0.038 mi.**  
**199 ft.**

**CHINESE RESTAURANT**  
**856 NORTH OLD WOODWARD AVENUE**  
**BIRMINGHAM, MI 48009**

**Site 3 of 3 in cluster B**

**BEA** **S108236717**  
**N/A**

**Relative:**  
**Higher**

**BEA:**  
Secondary Address: Not reported  
BEA Number: 3364  
District: Southeast MI  
Date Received: 11/17/2006  
Submitter Name: Grant Perry Development Company  
Petition Determination: No Request  
Petition Disclosure: 0  
Category: No Hazardous Substance(s)  
Determination 20107A: No Request  
Reviewer: mitchelf  
Division Assigned: Storage Tank Division

**Actual:**  
**750 ft.**

**C17**  
**NW**  
**< 1/8**  
**0.054 mi.**  
**287 ft.**

**GHAFARI PROPERTIES INC**  
**36101 WOODWARD AVE**  
**BIRMINGHAM, MI 48009**

**Site 1 of 2 in cluster C**

**LUST** **U003426133**  
**UST** **N/A**  
**AUL**  
**INVENTORY**

**Relative:**  
**Higher**

**LUST:**  
Facility ID: 00034940  
Source: STATE OF MICHIGAN  
Owner Name: Ghafari Properties LLC  
Owner Address: 36101 Woodward Ave  
Owner City,St,Zip: Birmingham, MI 48009  
Owner Contact: Not reported  
Owner Phone: (248) 647-0020  
Country: USA  
District: Region 1 - SE Michigan District Office  
Site Name: Mobil #03-kxn  
Latitude: 42.55429  
Longitude: -83.21976  
Date of Collection: 01/05/2007  
Method of Collection: GPS Code Meas. Standard Positioning Service SA Off  
Accuracy: 100  
Accuracy Value Unit: FEET  
Horizontal Data: NAD83  
Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)

**Actual:**  
**757 ft.**

Leak Number: C-0276-89  
Release Date: 06/29/1989  
Substance Released: Not reported  
Release Status: Closed  
Release Closed Date: 06/12/1996

Leak Number: C-0301-90  
Release Date: 02/21/1990  
Substance Released: Not reported  
Release Status: Closed  
Release Closed Date: 04/04/1996

Leak Number: C-0323-04  
Release Date: 07/15/2004

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Substance Released: Gasoline,Gasoline,Gasoline,Gasoline  
Release Status: Closed  
Release Closed Date: 01/02/2013

UST:

Facility ID: 00034940  
Facility Type: ACTIVE  
Owner Name: GHAFARI PROPERTIES LLC  
Owner Address: 36101 WOODWARD AVE  
Owner City,St,Zip: BIRMINGHAM, MI 48009  
Owner Country: USA  
Owner Contact: Not reported  
Owner Phone: (248) 647-0020  
Contact: Sejaan Ghafari  
Contact Phone: (248) 647-0020  
Date of Collection: 01/05/2007  
Accuracy: 100  
Accuracy Value Unit: FEET  
Horizontal Datum: NAD83  
Source: STATE OF MICHIGAN  
Point Line Area: POINT  
Desc Category: Plant Entrance (Freight)  
Method of Collection: GPS Code Meas. Standard Positioning Service SA Off  
Latitude: 42.55429  
Longitude: -83.21976

Tank ID: 1  
**Tank Status: Removed from Ground**  
Capacity: 12000  
Product: Gasoline  
Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 2  
**Tank Status: Removed from Ground**  
Capacity: 10000  
Product: Gasoline  
Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Realease Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 3  
**Tank Status: Removed from Ground**  
Capacity: 6000  
Product: Gasoline



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Install Date: Not reported  
Remove Date: 09/13/1990  
Tank Release Detection: Not reported  
Pipe Release Detection: Not reported  
Piping Material: Fiberglass reinforced plastic  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced plastic  
Impressed Device: No

Tank ID: 4  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Pressure, Pressure, Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 5  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Fiberglass Reinforced Plastic  
Piping Type: Pressure  
Construction Material: Lined Interior, Double Walled  
Impressed Device: No

Tank ID: 6  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990  
Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 7  
**Tank Status: Currently In Use**  
Capacity: 10000  
Product: Gasoline  
Install Date: 09/13/1990

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Remove Date: Not reported  
Tank Release Detection: Automatic Tank Gauging  
Pipe Release Detection: Automatic Line Leak Detectors, Line Tightness Testing  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Gravity Fed?, Pressure  
Construction Material: Fiberglass Reinforced Plastic  
Impressed Device: No

Tank ID: 8  
**Tank Status: Currently In Use**  
Capacity: 6000  
Product: Water  
Install Date: 11/22/2011  
Remove Date: Not reported  
Tank Release Detection: Not reported  
Pipe Release Detection: Automatic Line Leak Detectors  
Piping Material: Double Walled, Flexible Piping  
Piping Type: Not reported  
Construction Material: Fiberglass Reinforced Plastic, Double Walled  
Impressed Device: No

**AUL:**

Status: Recorded  
Site Name: Not reported  
Property: On-Site  
Land Use Restriction Type: RC  
Program Type: Part 213  
Program Support Assigned User: Nicholas Ekel  
Program Support Assigned Date: 03/24/2015  
Legal Description Of Property: Not reported  
Based On The Deq Ref #: 11121306053  
MDEQ Reference Number: RC-RRD-213-06-053  
Property Or Description Restricted Area: Not reported  
Lead Division: RRD  
File Name Of Hyperlinked Legal Doc: U:\KERMIT\11121306053.PDF  
Mapped Polygons Area In Acres: 1.0281  
Mapped Polygons Area In Square Miles: 1.6000000000000001E-3  
Date Data Entry Started: 04/02/2015  
Date Data Entry Finished: 04/02/2015  
Individual Or Staff Assoc With The Mapping: Nicholas Ekel  
Program Used To Map Restricted Features: ArcGIS 10.1  
Date Legal Paperwork Stamped/Filed/Register Of Deeds: 09/07/2006  
Commercial I Land Use Restriction: 1  
Commercial Ii Land Use Restriction: 1  
Commercial Iii Land Use Restriction: 0  
Commercial Iv Land Use Restriction: 0  
Industrial Land Use Restriction: 0  
Residential Land Use Restriction: 1  
Recreational Land Use Restriction: 1  
Multiple Land-Use Restrictions: 0  
Site Specific Restrictions: 1  
Groundwater Consumption Restrictions: 1  
Groundwater Contact Restrictions: 0  
Special Well Construction Requirements: 0  
Special Building Restrictions: 1  
Excavation And Soil Movement Restrictions: 1

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**GHAFARI PROPERTIES INC (Continued)**

**U003426133**

Soil Movement Requirements: 1  
There Is A Restriction On All Construction: 0  
Monitoring Well Protected, No Tampering Or Removal: 1  
There Is An Exposure Barrier In Place: 1  
There Is A Health And Safety Plan: 1  
There Is A Permanent Marker On The Site: 0  
Map Comments: 20150324 - LRUR is NOT mapped in KERMIT - Nick Ekel  
mapped in KERMIT - Nick Ekel  
Comment: 20150324 - LRUR was sent in by the Oakland County Health Department -  
Nick Ekel

INVENTORY:

Bea Number: Not reported  
Township: Not reported  
District: Southeast MI  
Data Source: Part 213  
Latitude: 42.5543  
Longitude: -83.21976

18  
SSE  
< 1/8  
0.057 mi.  
300 ft.

**794 N OLD WOODWARD AVE  
BIRMINGHAM, MI 48009**

**EDR Hist Cleaner 1015096107  
N/A**

**Relative:  
Lower  
Actual:  
734 ft.**

EDR Historical Cleaners:

Name: SOMERSET CLEANERS & SHIRT LAUNDRY  
Year: 1999  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQ CLEANERS  
Year: 2009  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQUIRE CLEANERS  
Year: 2011  
Address: 794 N OLD WOODWARD AVE  
  
Name: ESQUIRE CLEANERS  
Year: 2012  
Address: 794 N OLD WOODWARD AVE

C19  
NW  
< 1/8  
0.066 mi.  
346 ft.

**36101 WOODWARD AVE  
BIRMINGHAM, MI 48009**

**EDR Hist Auto 1015449268  
N/A**

**Site 2 of 2 in cluster C**

**Relative:  
Higher  
Actual:  
757 ft.**

EDR Historical Auto Stations:

Name: MOBIL MART AT HUNTER & OAK  
Year: 2001  
Address: 36101 WOODWARD AVE  
  
Name: MOBIL MART AT HUNTER & OAK  
Year: 2002  
Address: 36101 WOODWARD AVE

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**(Continued)**

**1015449268**

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2003  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2004  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK  
 Year: 2005  
 Address: 36101 WOODWARD AVE

Name: MOBIL MART AT HUNTER & OAK INC  
 Year: 2006  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBIL MART  
 Year: 2007  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE  
 Year: 2009  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBIL 1  
 Year: 2010  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE 1  
 Year: 2011  
 Address: 36101 WOODWARD AVE

Name: GHAFARI MOBILE 1  
 Year: 2012  
 Address: 36101 WOODWARD AVE

**20**  
**ESE**  
**< 1/8**  
**0.073 mi.**  
**383 ft.**

**MOBIL OIL CORP**  
**910 N HUNTER BLVD & OAK**  
**BIRMINGHAM, MI 48009**

**RCRA NonGen / NLR** **1000529096**  
**FINDS** **MID985615293**  
**ECHO**

**Relative:**  
**Higher**

RCRA NonGen / NLR:  
 Date form received by agency: 03/10/2008  
 Facility name: MOBIL OIL CORP  
 Facility address: 910 N HUNTER BLVD & OAK  
 BIRMINGHAM, MI 48009  
 EPA ID: MID985615293  
 Mailing address: 12265 W BAYAUD AVE  
 LAKEWOOD, CO 80228  
 Contact: JOHN HOOVER  
 Contact address: 910 N HUNTER BLVD & OAK  
 BIRMINGHAM, MI 48009  
 Contact country: US  
 Contact telephone: (303) 986-8011  
 Contact email: Not reported  
 EPA Region: 05  
 Classification: Non-Generator

**Actual:**  
**748 ft.**

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MOBIL OIL CORP (Continued)**

**1000529096**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name: NO ACTIVE O/OP AS NOT GENERATING WASTE  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 07/01/2004  
Owner/Op end date: Not reported

Owner/operator name: NO ACTIVE O/OP AS NOT GENERATING WASTE  
Owner/operator address: Not reported  
Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Operator  
Owner/Op start date: 07/01/2004  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 09/18/2001  
Site name: MOBIL OIL CORP  
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Date form received by agency: 06/05/1991  
Site name: MOBIL OIL CORP  
Classification: Small Quantity Generator

. Waste code: D001

Map ID  
 Direction  
 Distance  
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
 EPA ID Number

**MOBIL OIL CORP (Continued)**

**1000529096**

Waste name: IGNITABLE WASTE

Violation Status: No violations found

**FINDS:**

Registry ID: 110007577728

**Environmental Interest/Information System**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

**ECHO:**

Envid: 1000529096  
 Registry ID: 110007577728  
 DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110007577728](http://echo.epa.gov/detailed_facility_report?fid=110007577728)

21  
 North  
 < 1/8  
 0.088 mi.  
 464 ft.

**MICHIGAN NATIONAL CORP**  
**36050 WOODWARD AVE**  
**BLOOMFIELD TOWNSHIP, MI 48304**

**RCRA NonGen / NLR**  
**FINDS**  
**ECHO**

**1000451544**  
**MID985583228**

**Relative:**  
**Higher**

**RCRA NonGen / NLR:**

Date form received by agency: 10/14/1998  
 Facility name: MICHIGAN NATIONAL CORP  
 Facility address: 36050 WOODWARD AVE  
 BLOOMFIELD TOWNSHIP, MI 48304  
 EPA ID: MID985583228  
 Mailing address: 27777 INKSTER RD  
 FARMINGTON HILLS, MI 48334  
 Contact: KELLY HILLEN  
 Contact address: 36050 WOODWARD AVE  
 BLOOMFIELD TOWNSHIP, MI 48304  
 Contact country: US  
 Contact telephone: (313) 473-3694  
 Contact email: Not reported  
 EPA Region: 05  
 Classification: Non-Generator  
 Description: Handler: Non-Generators do not presently generate hazardous waste

**Actual:**  
**754 ft.**

**Owner/Operator Summary:**

Owner/operator name: MICHIGAN NATIONAL BANK  
 Owner/operator address: Not reported  
 Not reported  
 Owner/operator country: Not reported  
 Owner/operator telephone: Not reported  
 Legal status: Private  
 Owner/Operator Type: Operator  
 Owner/Op start date: 01/01/1901  
 Owner/Op end date: Not reported



Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MICHIGAN NATIONAL CORP (Continued)**

**1000451544**

Owner/operator name: MICHIGAN NATIONAL BANK  
Owner/operator address: Not reported  
Owner/operator country: Not reported  
Owner/operator telephone: Not reported  
Legal status: Private  
Owner/Operator Type: Owner  
Owner/Op start date: 01/01/1901  
Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No  
Mixed waste (haz. and radioactive): No  
Recycler of hazardous waste: No  
Transporter of hazardous waste: No  
Treater, storer or disposer of HW: No  
Underground injection activity: No  
On-site burner exemption: No  
Furnace exemption: No  
Used oil fuel burner: No  
Used oil processor: No  
User oil refiner: No  
Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Historical Generators:

Date form received by agency: 07/19/1990  
Site name: MICHIGAN NATIONAL CORP  
Classification: Not a generator, verified

. Waste code: D001  
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110003642808

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ECHO:

Envid: 1000451544  
Registry ID: 110003642808

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**MICHIGAN NATIONAL CORP (Continued)**

**1000451544**

DFR URL: [http://echo.epa.gov/detailed\\_facility\\_report?fid=110003642808](http://echo.epa.gov/detailed_facility_report?fid=110003642808)

**22**  
**South**  
**1/8-1/4**  
**0.190 mi.**  
**1005 ft.**

**DAKOTA**  
**280 HARMON ST**  
**BIRMINGHAM, MI 48009**

**RCRA NonGen / NLR**

**1007099707**  
**MIK718658982**

**Relative:**  
**Lower**

RCRA NonGen / NLR:

Date form received by agency: 06/19/2001

Facility name: DAKOTA

Facility address: 280 HARMON ST  
BIRMINGHAM, MI 48009

EPA ID: MIK718658982

Contact: JOE TRIBUZIO

Contact address: 280 HARMON ST  
BIRMINGHAM, MI 48009

Contact country: US

Contact telephone: (248) 594-6380

Contact email: Not reported

EPA Region: 05

Classification: Non-Generator

Description: Handler: Non-Generators do not presently generate hazardous waste

**Actual:**  
**739 ft.**

Owner/Operator Summary:

Owner/operator name: DAKOTA

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Operator

Owner/Op start date: 06/19/2001

Owner/Op end date: Not reported

Owner/operator name: DAKOTA

Owner/operator address: Not reported

Not reported

Owner/operator country: Not reported

Owner/operator telephone: Not reported

Legal status: Private

Owner/Operator Type: Owner

Owner/Op start date: 06/19/2001

Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste: No

Mixed waste (haz. and radioactive): No

Recycler of hazardous waste: No

Transporter of hazardous waste: No

Treater, storer or disposer of HW: No

Underground injection activity: No

On-site burner exemption: No

Furnace exemption: No

Used oil fuel burner: No

Used oil processor: No

User oil refiner: No

Map ID  
Direction  
Distance  
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number  
EPA ID Number

**DAKOTA (Continued)**

**1007099707**

Used oil fuel marketer to burner: No  
Used oil Specification marketer: No  
Used oil transfer facility: No  
Used oil transporter: No  
  
. Waste code: D001  
. Waste name: IGNITABLE WASTE  
  
Violation Status: No violations found

**23**  
**SE**  
**1/4-1/2**  
**0.259 mi.**  
**1368 ft.**

**GHEEN RESIDENCE**  
**272 RAVINE ROAD**  
**BIRMINGHAM, MI 48009**

**INVENTORY** **S117057927**  
**WDS** **N/A**

**Relative:**  
**Higher**  
  
**Actual:**  
**758 ft.**

INVENTORY:  
Bea Number: Not reported  
Township: Birmingham  
District: Southeast MI  
Data Source: Part 201  
Latitude: Not reported  
Longitude: Not reported

WDS:  
Site Id: MIK407668698  
WMD Id: 493758  
Site Specific Name: LOCAL HOME CLEANUP  
Mailing Address: 272 RAVINE RD  
Mailing City/State/Zip: 48009  
Mailing County: OAKLAND

**24**  
**SSE**  
**1/4-1/2**  
**0.390 mi.**  
**2061 ft.**

**COMERICA BANK BIRMINGHAM**  
**322 N. OLD WOODWARD**  
**BIRMINGHAM, MI 48009**

**INVENTORY** **S114028625**  
**WDS** **N/A**

**Relative:**  
**Higher**  
  
**Actual:**  
**773 ft.**

INVENTORY:  
Bea Number: Not reported  
Township: Birmingham  
District: Southeast MI  
Data Source: Part 201  
Latitude: 42.54826  
Longitude: -83.2162

MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Site

Database(s)

EDR ID Number  
EPA ID Number

**25**  
**South**  
**1/4-1/2**  
**0.436 mi.**  
**2300 ft.**

**FIRST CHURCH OF CHRIST**  
**191 N. CHESTER ST.**  
**BIRMINGHAM, MI 48009**

**INVENTORY**    **S114028648**  
**N/A**

**Relative:**  
**Higher**

INVENTORY:

Bea Number:    Not reported  
Township:      Birmingham  
District:        Southeast MI  
Data Source:    Part 201  
Latitude:        42.54709  
Longitude:      -83.21811

**Actual:**  
**780 ft.**

Count: 1 records.

ORPHAN SUMMARY

<u>City</u>	<u>EDR ID</u>	<u>Site Name</u>	<u>Site Address</u>	<u>Zip</u>	<u>Database(s)</u>
BIRMINGHAM	U004123610	TIFFANY FLORIST	772-784 S OLD WOODWARD	48009	LUST, UST, INVENTORY

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

## STANDARD ENVIRONMENTAL RECORDS

### ***Federal NPL site list***

#### **NPL: National Priority List**

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

#### **NPL Site Boundaries**

##### **Sources:**

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone 617-918-1143

EPA Region 6  
Telephone: 214-655-6659

EPA Region 3  
Telephone 215-814-5418

EPA Region 7  
Telephone: 913-551-7247

EPA Region 4  
Telephone 404-562-8033

EPA Region 8  
Telephone: 303-312-6774

EPA Region 5  
Telephone 312-886-6686

EPA Region 9  
Telephone: 415-947-4246

EPA Region 10  
Telephone 206-553-8665

#### **Proposed NPL: Proposed National Priority List Sites**

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

#### **NPL LIENS: Federal Superfund Liens**

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***Federal Delisted NPL site list***

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: N/A
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/07/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## ***Federal CERCLIS list***

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/13/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/06/2016	Telephone: 703-603-8704
Date Made Active in Reports: 05/20/2016	Last EDR Contact: 07/06/2016
Number of Days to Update: 135	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: 800-424-9346
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Quarterly

## ***Federal CERCLIS NFRAP site list***

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/07/2016	Source: EPA
Date Data Arrived at EDR: 04/05/2016	Telephone: 800-424-9346
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 10	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA CORRACTS facilities list***

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/27/2016	Source: EPA
Date Data Arrived at EDR: 06/30/2016	Telephone: 800-424-9346
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/10/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA non-CORRACTS TSD facilities list***

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## ***Federal RCRA generators list***

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/21/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/30/2016	Telephone: 312-886-6186
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 06/30/2016
Number of Days to Update: 64	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Varies

## ***Federal institutional controls / engineering controls registries***

### LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015	Source: Department of the Navy
Date Data Arrived at EDR: 05/29/2015	Telephone: 843-820-7326
Date Made Active in Reports: 06/11/2015	Last EDR Contact: 08/12/2016
Number of Days to Update: 13	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: Varies

### US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 05/09/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/01/2016	Telephone: 703-603-0695
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/31/2016
Number of Days to Update: 93	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

### US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 05/09/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/01/2016	Telephone: 703-603-0695
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/31/2016
Number of Days to Update: 93	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## **Federal ERNS list**

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/28/2016

Date Data Arrived at EDR: 03/30/2016

Date Made Active in Reports: 05/20/2016

Number of Days to Update: 51

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 09/26/2016

Next Scheduled EDR Contact: 01/09/2017

Data Release Frequency: Annually

## **State- and tribal - equivalent CERCLIS**

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

Date of Government Version: N/A

Date Data Arrived at EDR: 10/31/2013

Date Made Active in Reports: 11/20/2013

Number of Days to Update: 20

Source: Dept of Environmental Quality

Telephone: 517-284-5103

Last EDR Contact: 07/22/2016

Next Scheduled EDR Contact: 11/07/2016

Data Release Frequency: No Update Planned

## **State and tribal landfill and/or solid waste disposal site lists**

SWF/LF: Solid Waste Facilities Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/27/2016

Date Data Arrived at EDR: 06/30/2016

Date Made Active in Reports: 09/01/2016

Number of Days to Update: 63

Source: Dept of Environmental Quality

Telephone: 517-335-4035

Last EDR Contact: 09/27/2016

Next Scheduled EDR Contact: 01/09/2017

Data Release Frequency: Semi-Annually

## **State and tribal leaking storage tank lists**

LUST: Leaking Underground Storage Tank Sites

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 04/27/2016

Date Data Arrived at EDR: 05/18/2016

Date Made Active in Reports: 07/05/2016

Number of Days to Update: 48

Source: Dept of Environmental Quality

Telephone: 517-373-9837

Last EDR Contact: 08/17/2016

Next Scheduled EDR Contact: 11/28/2016

Data Release Frequency: Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/17/2016

Date Data Arrived at EDR: 04/27/2016

Date Made Active in Reports: 06/03/2016

Number of Days to Update: 37

Source: EPA, Region 5

Telephone: 312-886-7439

Last EDR Contact: 07/27/2016

Next Scheduled EDR Contact: 11/07/2016

Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/07/2016  
Date Data Arrived at EDR: 01/08/2016  
Date Made Active in Reports: 02/18/2016  
Number of Days to Update: 41

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 02/25/2016  
Date Data Arrived at EDR: 04/27/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 37

Source: Environmental Protection Agency  
Telephone: 415-972-3372  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/13/2015  
Date Data Arrived at EDR: 10/23/2015  
Date Made Active in Reports: 02/18/2016  
Number of Days to Update: 118

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

**INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/09/2015  
Date Data Arrived at EDR: 02/12/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 112

Source: EPA Region 7  
Telephone: 913-551-7003  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

**INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 12/11/2015  
Date Data Arrived at EDR: 02/19/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 105

Source: EPA Region 6  
Telephone: 214-665-6597  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

**INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land**  
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/05/2016  
Date Data Arrived at EDR: 04/29/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 35

Source: EPA Region 4  
Telephone: 404-562-8677  
Last EDR Contact: 07/26/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Semi-Annually

**INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land**  
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/27/2015  
Date Data Arrived at EDR: 10/29/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 67

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 07/29/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

***State and tribal registered storage tank lists***

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/07/2016
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Varies

## UST: Underground Storage Tank Facility List

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 04/13/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 05/18/2016	Telephone: 517-241-8847
Date Made Active in Reports: 07/05/2016	Last EDR Contact: 08/17/2016
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: Annually

## UST 2: Underground Storage Tank Listing

A listing of underground storage tank site locations that have unknown owner information.

Date of Government Version: 07/19/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 07/25/2016	Telephone: 517-241-8847
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 07/15/2016
Number of Days to Update: 38	Next Scheduled EDR Contact: 10/31/2016
	Data Release Frequency: Annually

## AST: Aboveground Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 05/02/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 05/18/2016	Telephone: 517-241-8847
Date Made Active in Reports: 07/05/2016	Last EDR Contact: 09/12/2016
Number of Days to Update: 48	Next Scheduled EDR Contact: 11/28/2016
	Data Release Frequency: No Update Planned

## INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/20/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 10/29/2015	Telephone: 617-918-1313
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 07/29/2016
Number of Days to Update: 67	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/26/2016	Source: EPA Region 8
Date Data Arrived at EDR: 02/05/2016	Telephone: 303-312-6137
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 119	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014	Source: EPA Region 7
Date Data Arrived at EDR: 11/25/2014	Telephone: 913-551-7003
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 07/27/2016
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 12/03/2015	Source: EPA Region 6
Date Data Arrived at EDR: 02/04/2016	Telephone: 214-665-7591
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 120	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Semi-Annually

## INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/05/2015	Source: EPA Region 5
Date Data Arrived at EDR: 11/13/2015	Telephone: 312-886-6136
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 52	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/25/2016	Source: EPA Region 9
Date Data Arrived at EDR: 04/27/2016	Telephone: 415-972-3368
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 37	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly

## INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 01/07/2016	Source: EPA Region 10
Date Data Arrived at EDR: 01/08/2016	Telephone: 206-553-2857
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 07/27/2016
Number of Days to Update: 41	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Quarterly

## INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/05/2016	Source: EPA Region 4
Date Data Arrived at EDR: 04/29/2016	Telephone: 404-562-9424
Date Made Active in Reports: 06/03/2016	Last EDR Contact: 07/26/2016
Number of Days to Update: 35	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Semi-Annually

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## ***State and tribal institutional control / engineering control registries***

### **AUL: Engineering and Institutional Controls**

A listing of sites with institutional and/or engineering controls in place.

Date of Government Version: 06/09/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 06/13/2016	Telephone: 517-373-4828
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 08/26/2016
Number of Days to Update: 80	Next Scheduled EDR Contact: 11/14/2016
	Data Release Frequency: Varies

## ***State and tribal voluntary cleanup sites***

### **INDIAN VCP R7: Voluntary Cleanup Priority Listing**

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

### **INDIAN VCP R1: Voluntary Cleanup Priority Listing**

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 09/26/2016
Number of Days to Update: 142	Next Scheduled EDR Contact: 01/09/2017
	Data Release Frequency: Varies

## ***State and tribal Brownfields sites***

### **BROWNFIELDS: Brownfields and USTfield Site Database**

All state funded Part 201 and 213 sites, as well as LUST sites that have been redeveloped by private entities using the BEA process. Be aware that this is not a list of all of the potential brownfield sites in Michigan.

Date of Government Version: 01/15/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 02/02/2016	Telephone: 517-373-4805
Date Made Active in Reports: 04/04/2016	Last EDR Contact: 07/22/2016
Number of Days to Update: 62	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

### **BROWNFIELDS 2: Brownfields Building and Land Site Locations**

A listing of brownfield building and land site locations. The listing is a collaborative effort of Michigan Economic Development Corporation, Michigan Economic Developers Association, Detroit Edison, Detroit Area Commercial Board of Realtors

Date of Government Version: 04/09/2007	Source: Economic Development Corporation
Date Data Arrived at EDR: 04/10/2007	Telephone: 888-522-0103
Date Made Active in Reports: 05/01/2007	Last EDR Contact: 08/26/2016
Number of Days to Update: 21	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## **ADDITIONAL ENVIRONMENTAL RECORDS**

### ***Local Brownfield lists***

#### **US BROWNFIELDS: A Listing of Brownfields Sites**

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/21/2016  
Date Data Arrived at EDR: 06/22/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 72

Source: Environmental Protection Agency  
Telephone: 202-566-2777  
Last EDR Contact: 09/21/2016  
Next Scheduled EDR Contact: 01/02/2017  
Data Release Frequency: Semi-Annually

## **Local Lists of Landfill / Solid Waste Disposal Sites**

### SWRCY: Recycling Facilities

A listing of recycling center locations.

Date of Government Version: 07/07/2016  
Date Data Arrived at EDR: 07/11/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 52

Source: Dept of Environmental Quality  
Telephone: 517-241-5719  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Varies

### HIST LF: Inactive Solid Waste Facilities

The database contains historical information and is no longer updated.

Date of Government Version: 03/01/1997  
Date Data Arrived at EDR: 02/28/2003  
Date Made Active in Reports: 03/06/2003  
Number of Days to Update: 6

Source: Dept of Environmental Quality  
Telephone: 517-335-4034  
Last EDR Contact: 02/28/2003  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998  
Date Data Arrived at EDR: 12/03/2007  
Date Made Active in Reports: 01/24/2008  
Number of Days to Update: 52

Source: Environmental Protection Agency  
Telephone: 703-308-8245  
Last EDR Contact: 08/05/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Varies

### ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985  
Date Data Arrived at EDR: 08/09/2004  
Date Made Active in Reports: 09/17/2004  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 800-424-9346  
Last EDR Contact: 06/09/2004  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

### DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009  
Date Data Arrived at EDR: 05/07/2009  
Date Made Active in Reports: 09/21/2009  
Number of Days to Update: 137

Source: EPA, Region 9  
Telephone: 415-947-4219  
Last EDR Contact: 07/20/2016  
Next Scheduled EDR Contact: 10/07/2016  
Data Release Frequency: No Update Planned

## **Local Lists of Hazardous waste / Contaminated Sites**

### US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/31/2016  
Date Data Arrived at EDR: 09/06/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 17

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 08/31/2016  
Next Scheduled EDR Contact: 10/10/2016  
Data Release Frequency: No Update Planned

## INVENTORY: Inventory of Facilities

The Inventory of Facilities has three data sources: Facilities under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) identified through state funded or private party response activities (Projects); Facilities under Part 213, Leaking Underground Storage Tanks of the NREPA; and Facilities identified through submittals of Baseline Environmental Assessments (BEA) submitted pursuant to Part 201 or Part 213 of the NREPA. The Part 201 Projects Inventory does not include all of the facilities that are subject to regulation under Part 201 because owners are not required to inform the Department of Environmental Quality (DEQ) about the facilities and can pursue cleanup independently. Facilities that are not known to DEQ are not on the Inventory, nor are locations with releases that resulted in low environmental impact. Part 213 facilities listed here may have more than one release; a list of releases for which corrective actions have been completed and list of releases for which corrective action has not been completed is located on the Leaking Underground Storage Tanks Site Search webpage. The DEQ may or may not have reviewed and concurred with the conclusion that the corrective actions described in a closure report meets criteria. A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

Date of Government Version: 07/26/2016  
Date Data Arrived at EDR: 07/27/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 36

Source: Department of Environmental Quality  
Telephone: 517-284-5136  
Last EDR Contact: 07/27/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

## PART 201: Part 201 Site List

A Part 201 Listed site is a location that has been evaluated and scored by the DEQ using the Part 201 scoring model. The location is or includes a "facility" as defined by Part 201, where there has been a release of a hazardous substance(s) in excess of the Part 201 residential criteria, and/or where corrective actions have not been completed under Part 201 to meet the applicable cleanup criteria for unrestricted residential use. The Part 201 List does not include all of the sites of contamination that are subject to regulation under Part 201 because owners are not required to inform the DEQ about the sites and can pursue cleanup independently. Sites of environmental contamination that are not known to DEQ are not on the list, nor are sites with releases that resulted in low environmental impact.

Date of Government Version: 10/01/2013  
Date Data Arrived at EDR: 10/03/2014  
Date Made Active in Reports: 10/03/2014  
Number of Days to Update: 0

Source: Department of Environmental Quality  
Telephone: 517-284-5103  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: No Update Planned

## CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab locations.

Date of Government Version: 05/11/2016  
Date Data Arrived at EDR: 05/24/2016  
Date Made Active in Reports: 07/05/2016  
Number of Days to Update: 42

Source: Department of Community Health  
Telephone: 517-373-3740  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## DEL PART 201: Delisted List of Contaminated Sites

A deleted site has been removed from the Part 201 List because information known to the DEQ at the time of the evaluation does not support inclusion on the Part 201 List. This designation is often applied to sites where changes in cleanup criteria resulted in a determination that the site no longer exceeds any applicable cleanup criterion. A delisted site has been removed from the Part 201 List because response actions have reduced the levels of contaminants to concentrations which meet or are below the criteria for unrestricted residential use.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/01/2013  
Date Data Arrived at EDR: 08/01/2013  
Date Made Active in Reports: 09/11/2013  
Number of Days to Update: 41

Source: Dept of Environmental Quality  
Telephone: 517-373-9541  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 08/30/2016  
Date Data Arrived at EDR: 09/06/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 17

Source: Drug Enforcement Administration  
Telephone: 202-307-1000  
Last EDR Contact: 08/31/2016  
Next Scheduled EDR Contact: 12/12/2016  
Data Release Frequency: Quarterly

## Local Land Records

### LIENS: Lien List

An Environmental Lien is a charge, security, or encumbrance upon title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon a property, including (but not limited to) liens imposed pursuant to CERCLA 42 USC \* 9607(1) and similar state or local laws. In other words: a lien placed upon a property's title due to an environmental condition

Date of Government Version: 07/07/2015  
Date Data Arrived at EDR: 07/24/2015  
Date Made Active in Reports: 08/05/2015  
Number of Days to Update: 12

Source: Dept of Environmental Quality  
Telephone: 517-241-7603  
Last EDR Contact: 04/22/2016  
Next Scheduled EDR Contact: 08/01/2016  
Data Release Frequency: Varies

### LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014  
Date Data Arrived at EDR: 03/18/2014  
Date Made Active in Reports: 04/24/2014  
Number of Days to Update: 37

Source: Environmental Protection Agency  
Telephone: 202-564-6023  
Last EDR Contact: 07/29/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## Records of Emergency Release Reports

### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/27/2016  
Date Data Arrived at EDR: 06/28/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 87

Source: U.S. Department of Transportation  
Telephone: 202-366-4555  
Last EDR Contact: 09/27/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

### PEAS: Pollution Emergency Alerting System

Environmental pollution emergencies reported to the Department of Environmental Quality such as tanker accidents, pipeline breaks, and release of reportable quantities of hazardous substances.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 07/01/2016  
Date Data Arrived at EDR: 07/29/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 34

Source: Dept of Environmental Quality  
Telephone: 517-373-8427  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Quarterly

## ***Other Ascertainable Records***

### **RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated**

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/21/2016  
Date Data Arrived at EDR: 06/30/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 64

Source: Environmental Protection Agency  
Telephone: 312-886-6186  
Last EDR Contact: 06/30/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

### **FUDS: Formerly Used Defense Sites**

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015  
Date Data Arrived at EDR: 07/08/2015  
Date Made Active in Reports: 10/13/2015  
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers  
Telephone: 202-528-4285  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/19/2016  
Data Release Frequency: Varies

### **DOD: Department of Defense Sites**

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 11/10/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 62

Source: USGS  
Telephone: 888-275-8747  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Semi-Annually

### **FEDLAND: Federal and Indian Lands**

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 02/06/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 339

Source: U.S. Geological Survey  
Telephone: 888-275-8747  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: N/A

### **SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing**

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/07/2011      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/09/2011      Telephone: 615-532-8599  
Date Made Active in Reports: 05/02/2011      Last EDR Contact: 08/15/2016  
Number of Days to Update: 54      Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: Varies

## US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/08/2016      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 05/18/2016      Telephone: 202-566-1917  
Date Made Active in Reports: 09/02/2016      Last EDR Contact: 08/17/2016  
Number of Days to Update: 107      Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: Quarterly

## EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/21/2014      Telephone: 617-520-3000  
Date Made Active in Reports: 06/17/2014      Last EDR Contact: 08/08/2016  
Number of Days to Update: 88      Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Quarterly

## 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013      Source: Environmental Protection Agency  
Date Data Arrived at EDR: 03/03/2015      Telephone: 703-308-4044  
Date Made Active in Reports: 03/09/2015      Last EDR Contact: 09/06/2016  
Number of Days to Update: 6      Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Varies

## TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012      Source: EPA  
Date Data Arrived at EDR: 01/15/2015      Telephone: 202-260-5521  
Date Made Active in Reports: 01/29/2015      Last EDR Contact: 09/23/2016  
Number of Days to Update: 14      Next Scheduled EDR Contact: 01/02/2017  
Data Release Frequency: Every 4 Years

## TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 11/24/2015  
Date Made Active in Reports: 04/05/2016  
Number of Days to Update: 133

Source: EPA  
Telephone: 202-566-0250  
Last EDR Contact: 08/26/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Annually

## SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009  
Date Data Arrived at EDR: 12/10/2010  
Date Made Active in Reports: 02/25/2011  
Number of Days to Update: 77

Source: EPA  
Telephone: 202-564-4203  
Last EDR Contact: 07/25/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Annually

## ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013  
Date Data Arrived at EDR: 12/12/2013  
Date Made Active in Reports: 02/24/2014  
Number of Days to Update: 74

Source: EPA  
Telephone: 703-416-0223  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/19/2016  
Data Release Frequency: Annually

## RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/01/2016  
Date Data Arrived at EDR: 05/26/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 99

Source: Environmental Protection Agency  
Telephone: 202-564-8600  
Last EDR Contact: 07/25/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995  
Date Data Arrived at EDR: 07/03/1995  
Date Made Active in Reports: 08/07/1995  
Number of Days to Update: 35

Source: EPA  
Telephone: 202-564-4104  
Last EDR Contact: 06/02/2008  
Next Scheduled EDR Contact: 09/01/2008  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 10/17/2014	Telephone: 202-564-6023
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 08/12/2016
Number of Days to Update: 3	Next Scheduled EDR Contact: 11/21/2016
	Data Release Frequency: Quarterly

## PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/20/2016	Source: EPA
Date Data Arrived at EDR: 04/28/2016	Telephone: 202-566-0500
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 07/15/2016
Number of Days to Update: 127	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Annually

## ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/06/2015	Telephone: 202-564-5088
Date Made Active in Reports: 03/09/2015	Last EDR Contact: 07/07/2016
Number of Days to Update: 31	Next Scheduled EDR Contact: 10/24/2016
	Data Release Frequency: Quarterly

## FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/17/2016
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/17/2016
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/07/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 03/18/2016	Telephone: 301-415-7169
Date Made Active in Reports: 04/15/2016	Last EDR Contact: 09/05/2016
Number of Days to Update: 28	Next Scheduled EDR Contact: 11/21/2016
	Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 09/09/2016
Number of Days to Update: 76	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Varies

## COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 09/06/2016
Number of Days to Update: 40	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Varies

## PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 07/29/2016
Number of Days to Update: 83	Next Scheduled EDR Contact: 11/07/2016
	Data Release Frequency: Varies

## RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/09/2015	Telephone: 202-343-9775
Date Made Active in Reports: 09/16/2015	Last EDR Contact: 07/07/2016
Number of Days to Update: 69	Next Scheduled EDR Contact: 10/17/2016
	Data Release Frequency: Quarterly

## HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

## HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006  
Date Data Arrived at EDR: 03/01/2007  
Date Made Active in Reports: 04/10/2007  
Number of Days to Update: 40

Source: Environmental Protection Agency  
Telephone: 202-564-2501  
Last EDR Contact: 12/17/2008  
Next Scheduled EDR Contact: 03/17/2008  
Data Release Frequency: No Update Planned

## DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012  
Date Data Arrived at EDR: 08/07/2012  
Date Made Active in Reports: 09/18/2012  
Number of Days to Update: 42

Source: Department of Transportation, Office of Pipeline Safety  
Telephone: 202-366-4595  
Last EDR Contact: 08/02/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Varies

## CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 03/31/2016  
Date Data Arrived at EDR: 08/01/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 53

Source: Department of Justice, Consent Decree Library  
Telephone: Varies  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Varies

## BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 02/24/2015  
Date Made Active in Reports: 09/30/2015  
Number of Days to Update: 218

Source: EPA/NTIS  
Telephone: 800-424-9346  
Last EDR Contact: 08/26/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Biennially

## INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005  
Date Data Arrived at EDR: 12/08/2006  
Date Made Active in Reports: 01/11/2007  
Number of Days to Update: 34

Source: USGS  
Telephone: 202-208-3710  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Semi-Annually

## FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 07/21/2016  
Date Data Arrived at EDR: 07/26/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 59

Source: Department of Energy  
Telephone: 202-586-3559  
Last EDR Contact: 07/26/2016  
Next Scheduled EDR Contact: 11/21/2016  
Data Release Frequency: Varies

## UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/14/2010  
Date Data Arrived at EDR: 10/07/2011  
Date Made Active in Reports: 03/01/2012  
Number of Days to Update: 146

Source: Department of Energy  
Telephone: 505-845-0011  
Last EDR Contact: 09/09/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Varies

## LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/07/2016  
Date Data Arrived at EDR: 04/07/2016  
Date Made Active in Reports: 09/02/2016  
Number of Days to Update: 148

Source: Environmental Protection Agency  
Telephone: 703-603-8787  
Last EDR Contact: 07/08/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001  
Date Data Arrived at EDR: 10/27/2010  
Date Made Active in Reports: 12/02/2010  
Number of Days to Update: 36

Source: American Journal of Public Health  
Telephone: 703-305-6451  
Last EDR Contact: 12/02/2009  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

## US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/20/2015  
Date Data Arrived at EDR: 10/27/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 69

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

## US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/20/2015  
Date Data Arrived at EDR: 10/27/2015  
Date Made Active in Reports: 01/04/2016  
Number of Days to Update: 69

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 09/26/2016  
Next Scheduled EDR Contact: 01/09/2017  
Data Release Frequency: Annually

## US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/05/2016  
Date Data Arrived at EDR: 09/01/2016  
Date Made Active in Reports: 09/23/2016  
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration  
Telephone: 303-231-5959  
Last EDR Contact: 09/01/2016  
Next Scheduled EDR Contact: 12/12/2016  
Data Release Frequency: Semi-Annually

## US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.



# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005	Source: USGS
Date Data Arrived at EDR: 02/29/2008	Telephone: 703-648-7709
Date Made Active in Reports: 04/18/2008	Last EDR Contact: 09/02/2016
Number of Days to Update: 49	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 09/02/2016
Number of Days to Update: 97	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/20/2015	Source: EPA
Date Data Arrived at EDR: 09/09/2015	Telephone: (312) 353-2000
Date Made Active in Reports: 11/03/2015	Last EDR Contact: 09/07/2016
Number of Days to Update: 55	Next Scheduled EDR Contact: 12/19/2016
	Data Release Frequency: Quarterly

## UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2015	Source: Department of Defense
Date Data Arrived at EDR: 01/29/2016	Telephone: 571-373-0407
Date Made Active in Reports: 04/05/2016	Last EDR Contact: 09/19/2016
Number of Days to Update: 67	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Varies

## DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/02/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/03/2016	Telephone: 202-564-0527
Date Made Active in Reports: 09/02/2016	Last EDR Contact: 08/24/2016
Number of Days to Update: 91	Next Scheduled EDR Contact: 12/12/2016
	Data Release Frequency: Varies

## AIRS: Permit and Emissions Inventory Data

Permit and emissions inventory data.

Date of Government Version: 06/21/2016	Source: Dept of Environmental Quality
Date Data Arrived at EDR: 06/24/2016	Telephone: 517-373-7074
Date Made Active in Reports: 09/01/2016	Last EDR Contact: 09/19/2016
Number of Days to Update: 69	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Varies

## BEA: Baseline Environmental Assessment Database

A BEA is a document that new or prospective property owners/operations disclose to the DEQ identifying the property as a facility pursuant to Part 201 and Part 213. The Inventory of BEA Facilities overlaps in part with the Part 201 Projects facilities and Part 213 facilities. There may be more than one BEA for each facility.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/21/2013  
Date Data Arrived at EDR: 08/23/2013  
Date Made Active in Reports: 09/12/2013  
Number of Days to Update: 20

Source: Dept of Environmental Quality  
Telephone: 517-373-9541  
Last EDR Contact: 08/10/2016  
Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: No Update Planned

## COAL ASH: Coal Ash Disposal Sites

Coal fired power plants in Southeast Michigan that have coal ash handling on site.

Date of Government Version: 07/07/2016  
Date Data Arrived at EDR: 07/18/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 45

Source: Dept of Environmental Quality  
Telephone: 586-753-3754  
Last EDR Contact: 06/30/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## DRYCLEANERS: Drycleaning Establishments

A listing of drycleaning facilities in Michigan.

Date of Government Version: 07/20/2016  
Date Data Arrived at EDR: 07/25/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 38

Source: Dept of Environmental Quality  
Telephone: 517-335-4586  
Last EDR Contact: 07/15/2016  
Next Scheduled EDR Contact: 10/31/2016  
Data Release Frequency: Annually

## LEAD CERT: Lead Safe Housing Registry

A listing of Michigan properties included in the Lead Safe Housing Registry.

Date of Government Version: 09/15/2015  
Date Data Arrived at EDR: 09/16/2015  
Date Made Active in Reports: 09/30/2015  
Number of Days to Update: 14

Source: Department of Community Health  
Telephone: 517-335-9699  
Last EDR Contact: 09/06/2016  
Next Scheduled EDR Contact: 09/19/2016  
Data Release Frequency: Quarterly

## NPDES: List of Active NPDES Permits

General information regarding NPDES (National Pollutant Discharge Elimination System) permits and NPDES Storm Water permits.

Date of Government Version: 05/04/2016  
Date Data Arrived at EDR: 07/07/2016  
Date Made Active in Reports: 09/01/2016  
Number of Days to Update: 56

Source: Dept of Environmental Quality  
Telephone: 517-241-1300  
Last EDR Contact: 07/07/2016  
Next Scheduled EDR Contact: 10/17/2016  
Data Release Frequency: Varies

## UIC: Underground Injection Wells Database

A listing of underground injection well locations. The UIC Program is responsible for regulating the construction, operation, permitting, and closure of injection wells that place fluids underground for storage or disposal.

Date of Government Version: 05/09/2016  
Date Data Arrived at EDR: 05/11/2016  
Date Made Active in Reports: 08/02/2016  
Number of Days to Update: 83

Source: Dept of Environmental Quality  
Telephone: 517-241-1515  
Last EDR Contact: 07/22/2016  
Next Scheduled EDR Contact: 11/07/2016  
Data Release Frequency: Varies

## WDS: Waste Data System

The Waste Data System (WDS) tracks activities at facilities regulated by the Solid Waste, Scrap Tire, Hazardous Waste, and Liquid Industrial Waste programs.

Date of Government Version: 05/25/2016  
Date Data Arrived at EDR: 05/27/2016  
Date Made Active in Reports: 07/05/2016  
Number of Days to Update: 39

Source: Dept of Environmental Quality  
Telephone: 517-284-6562  
Last EDR Contact: 08/19/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Quarterly

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/24/2016	Source: EPA
Date Data Arrived at EDR: 05/25/2016	Telephone: 800-385-6164
Date Made Active in Reports: 07/13/2016	Last EDR Contact: 08/23/2016
Number of Days to Update: 49	Next Scheduled EDR Contact: 12/05/2016
	Data Release Frequency: Quarterly

## ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/20/2015	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/23/2015	Telephone: 202-564-2280
Date Made Active in Reports: 01/04/2016	Last EDR Contact: 09/20/2016
Number of Days to Update: 103	Next Scheduled EDR Contact: 01/02/2017
	Data Release Frequency: Quarterly

## EDR HIGH RISK HISTORICAL RECORDS

### *EDR Exclusive Records*

#### EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

#### EDR Hist Auto: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

#### EDR Hist Cleaner: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## **EDR RECOVERED GOVERNMENT ARCHIVES**

### ***Exclusive Recovered Govt. Archives***

#### **RGA PART 201: Recovered Government Archive State Hazardous Waste Facilities List**

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 12/24/2013  
Number of Days to Update: 176

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### **RGA LF: Recovered Government Archive Solid Waste Facilities List**

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/13/2014  
Number of Days to Update: 196

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### **RGA LUST: Recovered Government Archive Leaking Underground Storage Tank**

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Quality in Michigan.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 12/24/2013  
Number of Days to Update: 176

Source: Department of Environmental Quality  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

## **OTHER DATABASE(S)**

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

#### **CT MANIFEST: Hazardous Waste Manifest Data**

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013  
Date Data Arrived at EDR: 08/19/2013  
Date Made Active in Reports: 10/03/2013  
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection  
Telephone: 860-424-3375  
Last EDR Contact: 08/10/2016  
Next Scheduled EDR Contact: 11/28/2016  
Data Release Frequency: No Update Planned

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 07/17/2015  
Date Made Active in Reports: 08/12/2015  
Number of Days to Update: 26

Source: Department of Environmental Protection  
Telephone: N/A  
Last EDR Contact: 07/11/2016  
Next Scheduled EDR Contact: 10/24/2016  
Data Release Frequency: Annually

## NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2016  
Date Data Arrived at EDR: 08/03/2016  
Date Made Active in Reports: 09/09/2016  
Number of Days to Update: 37

Source: Department of Environmental Conservation  
Telephone: 518-402-8651  
Last EDR Contact: 08/03/2016  
Next Scheduled EDR Contact: 11/14/2016  
Data Release Frequency: Annually

## PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 07/24/2015  
Date Made Active in Reports: 08/18/2015  
Number of Days to Update: 25

Source: Department of Environmental Protection  
Telephone: 717-783-8990  
Last EDR Contact: 07/18/2016  
Next Scheduled EDR Contact: 10/31/2016  
Data Release Frequency: Annually

## RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013  
Date Data Arrived at EDR: 06/19/2015  
Date Made Active in Reports: 07/15/2015  
Number of Days to Update: 26

Source: Department of Environmental Management  
Telephone: 401-222-2797  
Last EDR Contact: 09/20/2016  
Next Scheduled EDR Contact: 12/05/2016  
Data Release Frequency: Annually

## WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2015  
Date Data Arrived at EDR: 04/14/2016  
Date Made Active in Reports: 06/03/2016  
Number of Days to Update: 50

Source: Department of Natural Resources  
Telephone: N/A  
Last EDR Contact: 09/12/2016  
Next Scheduled EDR Contact: 12/26/2016  
Data Release Frequency: Annually

## Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

## Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

**Sensitive Receptors:** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

# GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

## AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

## Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

## Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

## Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

## Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

## Daycare Centers: Day Care Centers, Group & Family Homes

Source: Bureau of REgulatory Services

Telephone: 517-373-8300

**Flood Zone Data:** This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

**NWI:** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

## State Wetlands Data: Wetlands Inventory

Source: Department of Natural Resources

Telephone: 517-241-2254

## Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## **STREET AND ADDRESS INFORMATION**

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.



## **GEOCHECK<sup>®</sup> - PHYSICAL SETTING SOURCE ADDENDUM**

### **TARGET PROPERTY ADDRESS**

35975 WOODWARD AVENUE  
35975 WOODWARD AVE  
BIRMINGHAM, MI 48009

### **TARGET PROPERTY COORDINATES**

Latitude (North):	42.55351 - 42° 33' 12.64"
Longitude (West):	83.218765 - 83° 13' 7.55"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	317839.1
UTM Y (Meters):	4713406.5
Elevation:	740 ft. above sea level

### **USGS TOPOGRAPHIC MAP**

Target Property Map:	6066350 BIRMINGHAM, MI
Version Date:	2014

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

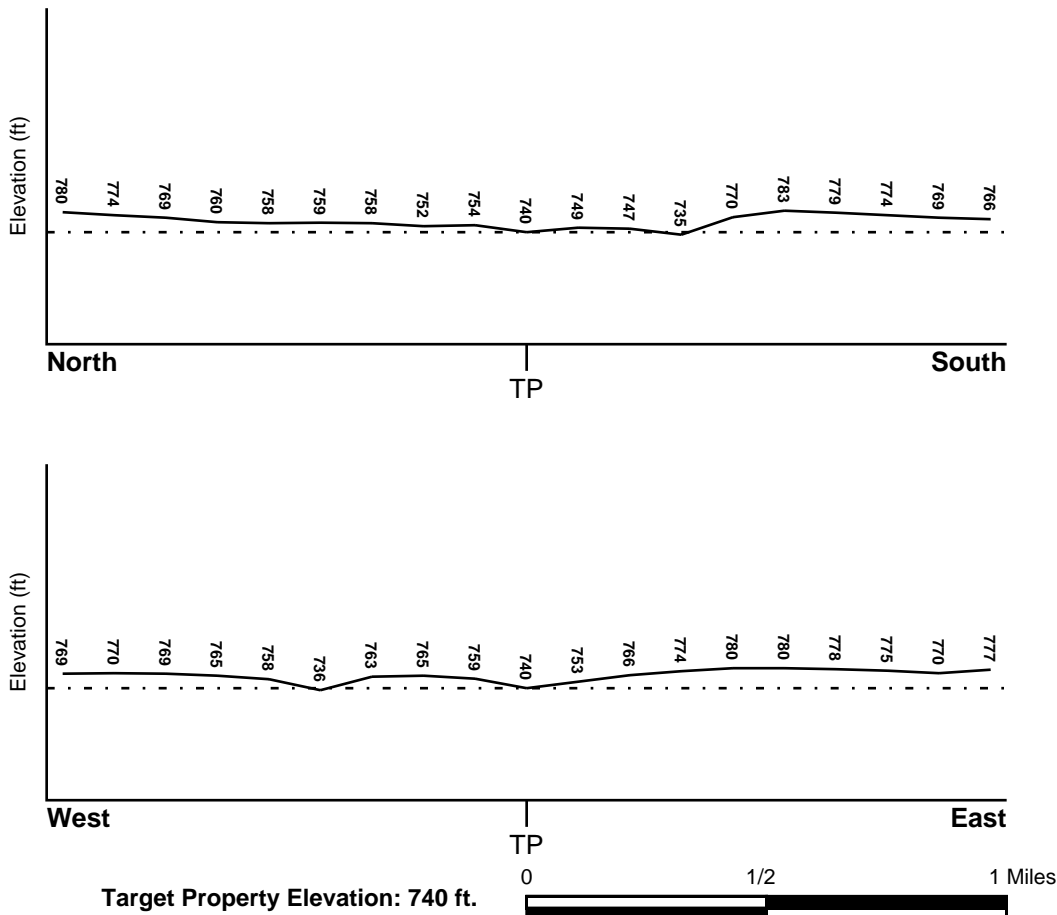
## TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

## TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

## SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

## **FEMA FLOOD ZONE**

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
26125C0536F	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
26125C0528F	FEMA FIRM Flood data
26125C0529F	FEMA FIRM Flood data
26125C0537F	FEMA FIRM Flood data

## **NATIONAL WETLAND INVENTORY**

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
BIRMINGHAM	YES - refer to the Overview Map and Detail Map

## HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### ***Site-Specific Hydrogeological Data\*:***

Search Radius:	1.25 miles
Status:	Not found

## **AQUIFLOW®**

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

#### **ROCK STRATIGRAPHIC UNIT**

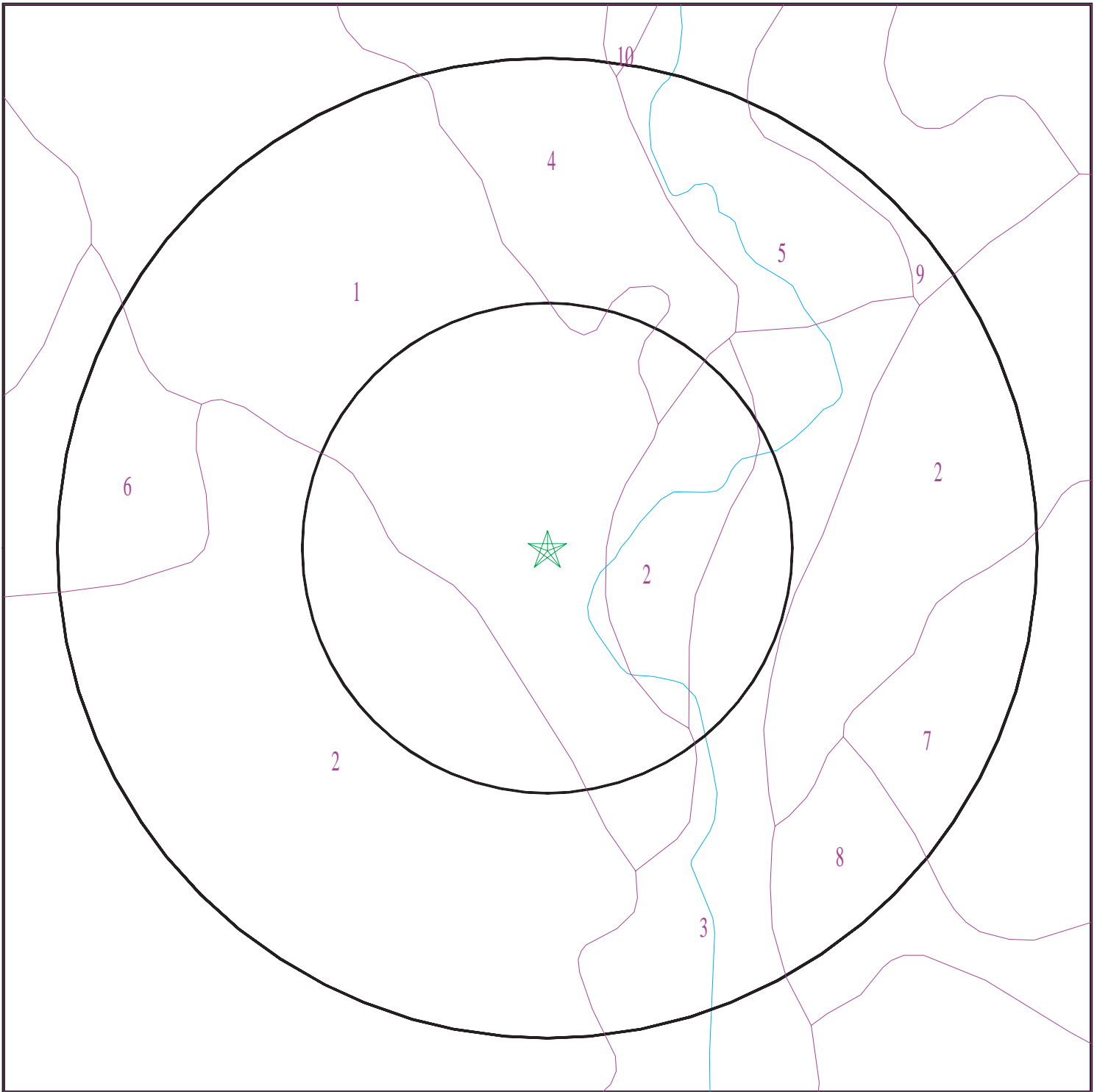
Era:	Paleozoic
System:	Devonian
Series:	Upper Devonian
Code:	D3 ( <i>decoded above as Era, System &amp; Series</i> )

#### **GEOLOGIC AGE IDENTIFICATION**

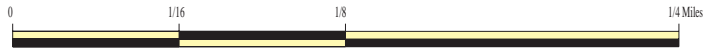
Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 4738860.2s



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: 35975 Woodward Avenue  
ADDRESS: 35975 Woodward Ave  
Birmingham MI 48009  
LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
CONTACT: Christiaan Bon  
INQUIRY #: 4738860.2s  
DATE: September 28, 2016 12:01 pm

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

---

#### Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

---

#### Soil Map ID: 2

Soil Component Name: Urban land

Soil Surface Texture:  
Hydrologic Group: Not reported

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

---

#### Soil Map ID: 3

Soil Component Name: Cohoctah

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained



## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	11 inches	48 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.1
3	48 inches	59 inches	gravelly sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

### Soil Map ID: 4

Soil Component Name: Urban land

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class:  
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 130 inches

No Layer Information available.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

**Soil Map ID: 5**

Soil Component Name: Cohoctah

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.

Soil Drainage Class: Poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 6.1
2	11 inches	48 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 8.4 Min: 6.1
3	48 inches	59 inches	gravelly sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 141 Min: 141	Max: 8.4 Min: 7.4

**Soil Map ID: 6**

Soil Component Name: Spinks

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	9 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 42	Max: 7.3 Min: 5.1
2	9 inches	25 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 141 Min: 14	Max: 7.3 Min: 5.6
3	25 inches	59 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.8 Min: 5.6

**Soil Map ID: 7**

Soil Component Name: Aquents

Soil Surface Texture: variable

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Very poorly drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

### Soil Map ID: 8

Soil Component Name: Urban land

Soil Surface Texture: variable

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:  
Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

No Layer Information available.

### Soil Map ID: 9

Soil Component Name: Capac

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
2	7 inches	31 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 7.3 Min: 5.6
3	31 inches	59 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

### Soil Map ID: 10

Soil Component Name: Dixboro

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 46 inches

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy fine sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 42 Min: 14	Max: 7.3 Min: 5.6
2	7 inches	35 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 7.8 Min: 6.6
3	35 inches	59 inches	stratified fine sand to silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

### FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
10	USGS40000482207	1/2 - 1 Mile NW
11	USGS40000482179	1/2 - 1 Mile SSW
12	USGS40000482170	1/2 - 1 Mile SSW



# GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

## FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

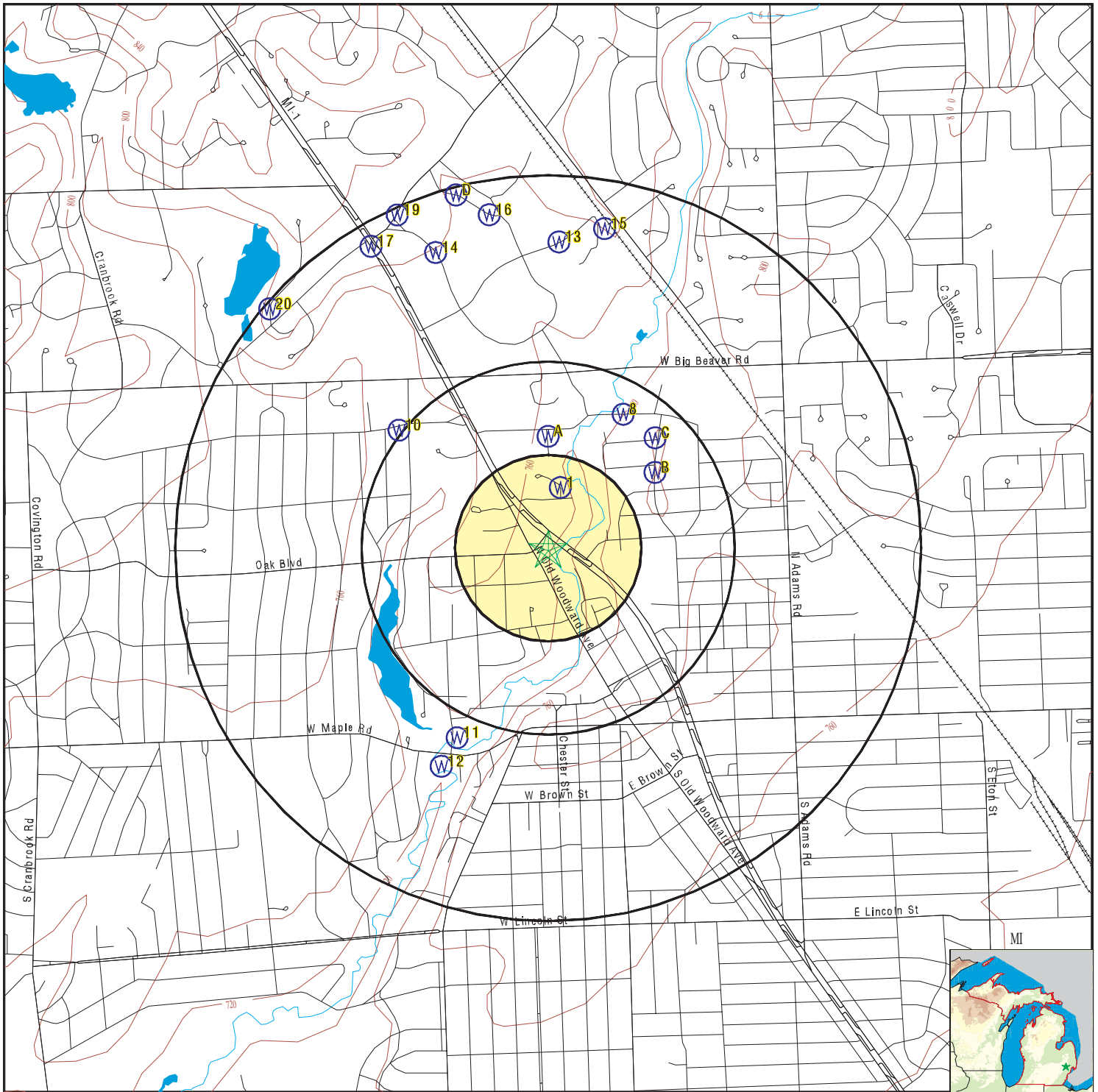
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

## STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	MI3000000095906	1/8 - 1/4 Mile NNE
A2	MI3000000096235	1/4 - 1/2 Mile North
A3	MI3000000096406	1/4 - 1/2 Mile North
A4	MI3000000096414	1/4 - 1/2 Mile North
B5	MI3000000095936	1/4 - 1/2 Mile ENE
B6	MI3000000096148	1/4 - 1/2 Mile NE
C7	MI3000000096323	1/4 - 1/2 Mile NE
8	MI3000000096524	1/4 - 1/2 Mile NNE
C9	MI3000000096345	1/4 - 1/2 Mile NE
13	MI3000000098009	1/2 - 1 Mile North
14	MI3000000097920	1/2 - 1 Mile NNW
15	MI3000000098137	1/2 - 1 Mile North
16	MI3000000098262	1/2 - 1 Mile North
17	MI3000000097970	1/2 - 1 Mile NNW
D18	MI3000000098423	1/2 - 1 Mile NNW
19	MI3000000098260	1/2 - 1 Mile NNW
20	MI3000000097415	1/2 - 1 Mile NW
D21	MI3000000098474	1/2 - 1 Mile NNW

# PHYSICAL SETTING SOURCE MAP - 4738860.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: 35975 Woodward Avenue  
 ADDRESS: 35975 Woodward Ave  
 Birmingham MI 48009  
 LAT/LONG: 42.55351 / 83.218765

CLIENT: Soil & Materials Engineers  
 CONTACT: Christiaan Bon  
 INQUIRY #: 4738860.2s  
 DATE: September 28, 2016 12:01 pm

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**1**  
**NNE**  
**1/8 - 1/4 Mile**  
**Higher**

**MI WELLS      MI300000095906**

Wellid:	63000004238	Import id:	63028025002
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	SCOTT J SELIGMAN TR		
Well addr:	73 JUDY		
Well depth:	150		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	131
Const date:	1967-12-26 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	146		
Screen frm:	146		
Screen to:	150		
Swl:	10		
Test depth:	144		
Test hours:	3		
Test rate:	40	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55586365		
Longitude:	-83.21811452		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	748	Elev dif:	0
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	31		
Pct aq d:	31	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	27
Pct cm d:	27	Pct cm r:	0
Pct pcm:	43	Pct pcm d:	43
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	40	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	140	A pct aq2:	29
A pct maq2:	0	A pct pcm2:	46
A pct cm2:	26	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	30
Pct maq 1:	0	Pct cm 1:	70
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	30
Pct pcm 3:	70	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	60	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	40
Pct na 6:	0	Pct aq 7:	100
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	140		
Horiz Conduct:	7.1488		
Vert Conduct:	.00035		
T2:	1000.8326		
D50plek:	243.77624		

**A2  
North  
1/4 - 1/2 Mile  
Higher**

**MI WELLS MI300000096235**

Wellid:	63000004241	Import id:	63028025005
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	RICHARD J PERRY		
Well addr:	94 MANOR CT		
Well depth:	70		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1984-06-03 00:00:00.000	Case type:	Unknown
Case dia:	4		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	68.5		
Screen frm:	68.5		
Screen to:	70		
Swl:	0		
Test depth:	30		
Test hours:	1.5		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55732465		
Longitude:	-83.21866952		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	SWL = 0		
Elev dem:	751	Elev dif:	3
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	3		
Pct aq d:	3	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	81
Pct cm d:	81	Pct cm r:	0
Pct pcm:	16	Pct pcm d:	16
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	3	A pct aq:	80
A pct maq:	0	A pct pcm:	0
A pct cm:	20	A pct na:	0
A thickns2:	70	A pct aq2:	3
A pct maq2:	0	A pct pcm2:	16
A pct cm2:	81	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	67	A sc lith2:	Clay
A sc lmod2:	Not Reported	A sc lmaq2:	CM
A sc lpct2:	33	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	45
Pct pcm 3:	55	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	70		
Horiz Conduct:	.02907		
Vert Conduct:	.00012		
T2:	2.0347		
D50plek:	.37006		

**A3  
North  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096406**

Wellid:	63000004239	Import id:	63028025003
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	STEPHEN E GLAZEK		
Well addr:	85 MANOR RD		
Well depth:	98		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1967-05-24 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	95.9		
Screen frm:	93		
Screen to:	98		
Swl:	14		
Test depth:	88		
Test hours:	5		
Test rate:	12	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55809805		
Longitude:	-83.21941132		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	758	Elev dif:	10
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	23		
Pct aq d:	23	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	57



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	57	Pct cm r:	0
Pct pcm:	11	Pct pcm d:	11
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	30	A pct aq:	70
A pct maq:	0	A pct pcm:	0
A pct cm:	10	A pct na:	20
A thickns2:	84	A pct aq2:	27
A pct maq2:	0	A pct pcm2:	13
A pct cm2:	52	A pct na2:	7
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	80	A sc lith2:	Clay
A sc lmod2:	Not Reported	A sc lmaq2:	CM
A sc lpct2:	20	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	90
Pct pcm 1:	0	Pct na 1:	10
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	10
Pct maq 3:	0	Pct cm 3:	75
Pct pcm 3:	15	Pct na 3:	0
Pct aq 4:	50	Pct maq 4:	0
Pct cm 4:	10	Pct pcm 4:	40
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**A4**  
**North**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS      MI300000096414**

Wellid:	63000004240	Import id:	63028025004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	SHERYL RYAN		
Well addr:	86 MANOR RD		
Well depth:	255		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1979-01-08 00:00:00.000	Case type:	Unknown
Case dia:	4		
Case depth:	203.8		
Screen frm:	0		
Screen to:	0		
Swl:	25		
Test depth:	150		
Test hours:	9		
Test rate:	11	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55813405		
Longitude:	-83.21818952		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	748	Elev dif:	0
Elev miv:	748	Aq code:	Rock Well
Aq flag:	Not Reported		
Pct aq:	27		
Pct aq d:	9	Pct aq r:	68
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	64
Pct cm d:	78	Pct cm r:	32
Pct pcm:	9	Pct pcm d:	13
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	179
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	15	Pct maq 4:	0
Pct cm 4:	85	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	30
Pct maq 5:	0	Pct cm 5:	70
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	100	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	24
Pct maq 7:	0	Pct cm 7:	76
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	R		
Hit swl:	F		
Athk2:	0		
Horiz Conduct:	.56644		
Vert Conduct:	.00019		
T2:	90.06332		
D50plek:	28.58307		

**B5  
ENE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000095936**

Wellid:	63000004244	Import id:	63028025008
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	DR SAMIR M RAGHEB		
Well addr:	1130 OXFORD		
Well depth:	116		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1969-02-05 00:00:00.000	Case type:	Unknown
Case dia:	6		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	113.3		
Screen frm:	111		
Screen to:	116		
Swl:	48		
Test depth:	100		
Test hours:	5		
Test rate:	55	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55599085		
Longitude:	-83.21317482		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	29
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	20		
Pct aq d:	20	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	43
Pct cm d:	43	Pct cm r:	0
Pct pcm:	37	Pct pcm d:	37
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	6	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	68	A pct aq2:	9
A pct maq2:	0	A pct pcm2:	35
A pct cm2:	56	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine To Medium	A sc lmaq1:	AQ
A sc lpct1:	80	A sc lith2:	Gravel
A sc lmod2:	Not Reported	A sc lmaq2:	AQ
A sc lpct2:	20	Pct aq 1:	85
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	15	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	20	Pct pcm 2:	80
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	100	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	30
Pct pcm 5:	70	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	68		
Horiz Conduct:	1.50359		
Vert Conduct:	.00018		
T2:	102.2438		
D50plek:	13.77063		

**B6  
NE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096148**

Wellid:	63000004243	Import id:	63028025007
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	ANDREW P TRESTRAIL		
Well addr:	1250 OXFORD		
Well depth:	118		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1988-03-16 00:00:00.000	Case type:	Steel-black
Case dia:	4		
Case depth:	118		
Screen frm:	113		
Screen to:	118		
Swl:	34		
Test depth:	52		
Test hours:	4		
Test rate:	35	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.55690875		
Longitude:	-83.21311792		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographic Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	781	Elev dif:	33
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	45		
Pct aq d:	45	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	42

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	42	Pct cm r:	0
Pct pcm:	13	Pct pcm d:	13
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	16	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	84	A pct aq2:	24
A pct maq2:	0	A pct pcm2:	18
A pct cm2:	58	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	65	Pct maq 2:	0
Pct cm 2:	35	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	20	Pct maq 4:	0
Pct cm 4:	80	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	35
Pct pcm 5:	65	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	84		
Horiz Conduct:	2.57327		
Vert Conduct:	.00017		
T2:	216.1549		
D50plek:	34.39996		



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**C7**  
**NE**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS      MI300000096323**

Wellid:	63000004237	Import id:	63028025001
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	THOMAS A HILBORN		
Well addr:	290 HARROW		
Well depth:	147		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1976-03-01 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	136		
Screen frm:	136		
Screen to:	147		
Swl:	24		
Test depth:	133		
Test hours:	3		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55772835		
Longitude:	-83.21330562		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	29
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	13		
Pct aq d:	13	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	76
Pct cm d:	76	Pct cm r:	0
Pct pcm:	8	Pct pcm d:	8
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	11	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	123	A pct aq2:	15
A pct maq2:	0	A pct pcm2:	10
A pct cm2:	75	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	64	A sc lith2:	Sand
A sc lmod2:	Very Fine	A sc lmaq2:	AQ
A sc lpct2:	36	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	75
Pct pcm 1:	0	Pct na 1:	25

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	40	Pct maq 4:	0
Pct cm 4:	60	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	100
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	96	Pct pcm 6:	4
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	123		
Horiz Conduct:	.11019		
Vert Conduct:	.0002		
T2:	13.5536		
D50plek:	3.7634		

8

**NNE**  
**1/4 - 1/2 Mile**  
**Higher**

**MI WELLS**

**MI300000096524**

Wellid:	63000004242	Import id:	63028025006
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	MASAT IZU		
Well addr:	265 MANOR RD		
Well depth:	94		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1976-05-21 00:00:00.000	Case type:	Unknown
Case dia:	6		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	87.7		
Screen frm:	88		
Screen to:	93		
Swl:	18		
Test depth:	50		
Test hours:	4		
Test rate:	80	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.55870845		
Longitude:	-83.21481572		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	751	Elev dif:	3
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	19		
Pct aq d:	19	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	39
Pct cm d:	39	Pct cm r:	0
Pct pcm:	32	Pct pcm d:	32
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	15	A pct aq:	47
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	53
A thickns2:	75	A pct aq2:	9
A pct maq2:	0	A pct pcm2:	31
A pct cm2:	49	A pct na2:	11
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Lithology Unknown
A sc lmod1:	Not Reported	A sc lmaq1:	NA
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	55
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	45	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	100
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	95
Pct pcm 3:	5	Pct na 3:	0
Pct aq 4:	10	Pct maq 4:	0
Pct cm 4:	90	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**C9  
NE  
1/4 - 1/2 Mile  
Higher**

**MI WELLS      MI300000096345**

Wellid:	63000004245	Import id:	63028025009
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	25
Owner name:	BETTIANN ALESSANDRI		
Well addr:	1360 OXFORD		
Well depth:	124		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1997-05-10 00:00:00.000	Case type:	Steel-black
Case dia:	5		
Case depth:	116		
Screen frm:	116		
Screen to:	124		
Swl:	25		
Test depth:	110		
Test hours:	2		
Test rate:	12	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.55785745		
Longitude:	-83.21296502		
Methd coll:	Address Matching-House Number		
Elevation:	748		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	781	Elev dif:	33
Elev miv:	748	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	32

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	32	Pct cm r:	0
Pct pcm:	17	Pct pcm d:	17
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	46	A pct aq:	30
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	70
A thickns2:	99	A pct aq2:	14
A pct maq2:	0	A pct pcm2:	21
A pct cm2:	32	A pct na2:	32
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	15
Pct pcm 1:	0	Pct na 1:	85
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	85
Pct pcm 3:	15	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	90
Pct na 4:	10	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	100
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**10**  
**NW**  
**1/2 - 1 Mile**  
**Higher**

**FED USGS      USGS40000482207**

Org. Identifier:	USGS-MI			
Formal name:	USGS Michigan Water Science Center			
Monloc Identifier:	USGS-423329083133601			
Monloc name:	02N 10E 26AADA 01			
Monloc type:	Well			
Monloc desc:	Not Reported			
Huc code:	04090004	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	Not Reported	Latitude:	42.5580898	
Longitude:	-83.2265978	Sourcemap scale:	Not Reported	
Horiz Acc measure:	5	Horiz Acc measure units:	seconds	
Horiz Collection method:	Interpolated from map			
Horiz coord refsys:	NAD83	Vert measure val:	745	
Vert measure units:	feet	Vertacc measure val:	10	
Vert accmeasure units:	feet			
Vertcollection method:	Interpolated from topographic map			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Sand and gravel aquifers (glaciated regions)			
Formation type:	Pleistocene Series			
Aquifer type:	Not Reported			
Construction date:	19290101	Welldepth:	81	
Welldepth units:	ft	Wellholedepth:	Not Reported	
Wellholedepth units:	Not Reported			

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel
-----		
1929-03-01	6.00	

**11**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000482179**

Org. Identifier:	USGS-MI			
Formal name:	USGS Michigan Water Science Center			
Monloc Identifier:	USGS-423246083132501			
Monloc name:	02N 10E 36BBBA 01			
Monloc type:	Well			
Monloc desc:	Not Reported			
Huc code:	04090004	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	Not Reported	Latitude:	42.5461456	
Longitude:	-83.2235418	Sourcemap scale:	Not Reported	
Horiz Acc measure:	5	Horiz Acc measure units:	seconds	
Horiz Collection method:	Interpolated from map			
Horiz coord refsys:	NAD83	Vert measure val:	725	
Vert measure units:	feet	Vertacc measure val:	10	
Vert accmeasure units:	feet			
Vertcollection method:	Interpolated from topographic map			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Sand and gravel aquifers (glaciated regions)			
Formation type:	Pleistocene Series			



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	96
Construction date:	19210101	Wellholedepth:	Not Reported
Welldepth units:	ft		
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
-----		
1921-01-01	20.00	

**12**  
**SSW**  
**1/2 - 1 Mile**  
**Lower**

**FED USGS      USGS40000482170**

Org. Identifier:	USGS-MI		
Formal name:	USGS Michigan Water Science Center		
Monloc Identifier:	USGS-423242083132801		
Monloc name:	02N 10E 36BBBC 01		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	04090004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	42.5450345
Longitude:	-83.2243751	Sourcemap scale:	Not Reported
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	725
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	207
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**13**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098009**

Wellid:	63000004236	Import id:	63028024012
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	MICHAEL & MARY SCHNEIDER		
Well addr:	251 STRATHMORE		
Well depth:	127		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1981-10-26 00:00:00.000	Case type:	Unknown
Case dia:	4		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	117.4		
Screen frm:	116.4		
Screen to:	127		
Swl:	12		
Test depth:	45		
Test hours:	1		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56540145		
Longitude:	-83.21819022		
Methd coll:	Address Matching-House Number		
Elevation:	758		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	771	Elev dif:	13
Elev miv:	758	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	29		
Pct aq d:	29	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	20
Pct cm d:	20	Pct cm r:	0
Pct pcm:	51	Pct pcm d:	51
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	32	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	115	A pct aq2:	32
A pct maq2:	0	A pct pcm2:	46
A pct cm2:	22	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	53	A sc lith2:	Sand
A sc lmod2:	Wet/Moist	A sc lmaq2:	AQ
A sc lpct2:	47	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	25
Pct pcm 1:	75	Pct na 1:	0
Pct aq 2:	25	Pct maq 2:	0
Pct cm 2:	75	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	100	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	25
Pct maq 5:	0	Pct cm 5:	25
Pct pcm 5:	50	Pct na 5:	0
Pct aq 6:	100	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	115		
Horiz Conduct:	11.95779		
Vert Conduct:	.00039		
T2:	1375.1455		
D50plek:	270.55453		

**14  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097920**

Wellid:	63000024654	Import id:	Not Reported
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	RODD KASMIKHA		
Well addr:	5150 LONGMEADOW DRIVE		
Well depth:	47		
Well type:	Irrigation		
Wssn:	0		
Well num:	Not Reported	Driller id:	1924
Const date:	2004-06-08 00:00:00.000	Case type:	PVC Plastic
Case dia:	5		
Case depth:	42		
Screen frm:	42		
Screen to:	47		
Swl:	15		
Test depth:	15		
Test hours:	2		
Test rate:	20	Test methd:	Air
Grouted:	1	Pmp cpcity:	20
Latitude:	42.564991		
Longitude:	-83.224665		
Methd coll:	Address Matching-House Number		
Elevation:	761		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	16
Elev miv:	761	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	89

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	89	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	5	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	32	A pct aq2:	16
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	84	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand & Gravel
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	100	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	32		
Horiz Conduct:	7.81258		
Vert Conduct:	.00012		
T2:	250.0027		
D50plek:	15.02991		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**15**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI3000000098137**

Wellid:	63000016101	Import id:	63028024401
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	SPRINGDALE GOLF CLUB		
Well addr:	316 STRATHMORE		
Well depth:	168		
Well type:	Type II public		
Wssn:	2196863		
Well num:	Not Reported	Driller id:	1580
Const date:	1992-02-18 00:00:00.000	Case type:	Steel-black
Case dia:	6		
Case depth:	158		
Screen frm:	158		
Screen to:	168		
Swl:	8		
Test depth:	0		
Test hours:	0		
Test rate:	150	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	80
Latitude:	42.5659222149		
Longitude:	-83.2157900499		
Methd coll:	Interpolation-Map		
Elevation:	770		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	784	Elev dif:	14
Elev miv:	770	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	0		
Pct aq d:	0	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	?	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	35	A pct aq:	54
A pct maq:	0	A pct pcm:	46
A pct cm:	0	A pct na:	0
A thickns2:	161	A pct aq2:	14
A pct maq2:	6	A pct pcm2:	12
A pct cm2:	68	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	100
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	13	Pct maq 4:	0
Pct cm 4:	70	Pct pcm 4:	17
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	100
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	28
Pct cm 6:	72	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	4
Pct maq 7:	8	Pct cm 7:	24
Pct pcm 7:	64	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**16**  
**North**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098262**

Wellid:	63000004230	Import id:	63028024006
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	R MICHAEL HAGGERSON		
Well addr:	5070 BROOKDALE		
Well depth:	134		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1984-11-21 00:00:00.000	Case type:	Unknown
Case dia:	4		



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	123.4		
Screen frm:	123		
Screen to:	134		
Swl:	25		
Test depth:	105		
Test hours:	2		
Test rate:	18	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56645905		
Longitude:	-83.22184622		
Methd coll:	Address Matching-House Number		
Elevation:	764		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	768	Elev dif:	4
Elev miv:	764	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	10		
Pct aq d:	10	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	25
Pct cm d:	25	Pct cm r:	0
Pct pcm:	64	Pct pcm d:	64
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	14	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	109	A pct aq2:	13
A pct maq2:	0	A pct pcm2:	79
A pct cm2:	8	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	100
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	70	Pct pcm 2:	30
Pct na 2:	0	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	100	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	20	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	80
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	109		
Horiz Conduct:	3.24616		
Vert Conduct:	.00114		
T2:	353.8309		
D50plek:	71.03735		

**17  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097970**

Wellid:	63000004106	Import id:	63028015013
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	15
Owner name:	FRED MATTHAEI JR		
Well addr:	1945 WOODWARD		
Well depth:	207		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	414
Const date:	1979-08-13 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	207		
Screen frm:	202		
Screen to:	207		
Swl:	68		
Test depth:	95		
Test hours:	2		
Test rate:	40	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56523285		
Longitude:	-83.22805762		
Methd coll:	Address Matching-House Number		
Elevation:	758		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	ELEV_DIF > 20 feet -- Abs(Elevation feet DEM_Elevation) > 20 feet		
Swl flag:	Not Reported		
Elev dem:	787	Elev dif:	29
Elev miv:	758	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	26		
Pct aq d:	26	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	2

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	2	Pct cm r:	0
Pct pcm:	72	Pct pcm d:	72
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	22	A pct aq:	100
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	139	A pct aq2:	18
A pct maq2:	0	A pct pcm2:	82
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Coarse	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	65
Pct maq 1:	0	Pct cm 1:	25
Pct pcm 1:	10	Pct na 1:	0
Pct aq 2:	40	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	60
Pct na 2:	0	Pct aq 3:	35
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	65	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	100
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	100	Pct na 5:	0
Pct aq 6:	12	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	88
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	100	Pct na 7:	0
Pct aq 8:	39	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	61
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	N	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**D18**  
**NNW**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098423**

Wellid:	63000004229	Import id:	63028024005
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	ANTHONY & SARAH EARLEY JR		
Well addr:	5000 BROOKDALE		
Well depth:	164		
Well type:	Public		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1981-10-09 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	160.7		
Screen frm:	158.92		
Screen to:	164		
Swl:	15		
Test depth:	115		
Test hours:	2.5		
Test rate:	50	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56715245		
Longitude:	-83.22324672		
Methd coll:	Address Matching-House Number		
Elevation:	774		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	3
Elev miv:	774	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	11		
Pct aq d:	11	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	14
Pct cm d:	14	Pct cm r:	0
Pct pcm:	38	Pct pcm d:	38
Pct pcm r:	0	Pct na:	1
Pct na d:	1	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	17	A pct aq:	18
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	82
A thickns2:	149	A pct aq2:	12
A pct maq2:	0	A pct pcm2:	42
A pct cm2:	6	A pct na2:	40
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Wet/Moist	A sc lmaq1:	AQ
A sc lpct1:	59	A sc lith2:	Lithology Unknown
A sc lmod2:	Not Reported	A sc lmaq2:	NA
A sc lpct2:	41	Pct aq 1:	10
Pct maq 1:	0	Pct cm 1:	85
Pct pcm 1:	0	Pct na 1:	5

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	10	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	90
Pct na 2:	0	Pct aq 3:	5
Pct maq 3:	0	Pct cm 3:	30
Pct pcm 3:	65	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	35
Pct na 4:	65	Pct aq 5:	50
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	50
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	12
Pct na 6:	88	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	88	Pct na 7:	12
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

**19  
NNW  
1/2 - 1 Mile  
Higher**

**MI WELLS MI300000098260**

Wellid:	63000004232	Import id:	63028024008
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	EDWARD S HURWITZ		
Well addr:	5045 CHARING CROSS		
Well depth:	160		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	27
Const date:	1968-12-12 00:00:00.000	Case type:	Unknown
Case dia:	6		

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Case depth:	160		
Screen frm:	154		
Screen to:	160		
Swl:	60		
Test depth:	65		
Test hours:	4		
Test rate:	20	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56645115		
Longitude:	-83.22668152		
Methd coll:	Address Matching-House Number		
Elevation:	771		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	790	Elev dif:	19
Elev miv:	771	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	76		
Pct aq d:	76	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	24
Pct cm d:	24	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	74	A pct aq:	92
A pct maq:	0	A pct pcm:	0
A pct cm:	8	A pct na:	0
A thickns2:	100	A pct aq2:	72
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	28	A pct na2:	0
A hit swl:	F	A hit top:	F
A hit rock:	F	A sc lith1:	Sand
A sc lmod1:	Fine	A sc lmaq1:	AQ
A sc lpct1:	83	A sc lith2:	Gravel
A sc lmod2:	Coarse	A sc lmaq2:	AQ
A sc lpct2:	17	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0
Pct aq 2:	100	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	0	Pct aq 3:	45
Pct maq 3:	0	Pct cm 3:	55
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	20	Pct maq 4:	0
Pct cm 4:	80	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	70
Pct maq 5:	0	Pct cm 5:	30
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	76	Pct maq 6:	0
Pct cm 6:	24	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	100
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0



## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	D		
Hit swl:	F		
Athk2:	100		
Horiz Conduct:	81.00024		
Vert Conduct:	.00156		
T2:	8100.0244		
D50plek:	1267.92872		

**20  
NW  
1/2 - 1 Mile  
Higher**

**MI WELLS      MI300000097415**

Wellid:	63000004218	Import id:	63028023004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	23
Owner name:	NATHAN SCHLAFER		
Well addr:	228 LAKEWOOD		
Well depth:	102		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1968-03-11 00:00:00.000	Case type:	Unknown
Case dia:	6		
Case depth:	97.3		
Screen frm:	0		
Screen to:	0		
Swl:	25		
Test depth:	81		
Test hours:	2.5		
Test rate:	60	Test methd:	Unknown
Grouted:	0	Pmp cpcity:	0
Latitude:	42.56280165		
Longitude:	-83.23338532		
Methd coll:	Address Matching-House Number		
Elevation:	764		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	784	Elev dif:	20
Elev miv:	764	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	10		
Pct aq d:	10	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	25

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct cm d:	25	Pct cm r:	0
Pct pcm:	40	Pct pcm d:	40
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	0	A pct aq:	0
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	0
A thickns2:	0	A pct aq2:	0
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	0
A hit swl:	F	A hit top:	T
A hit rock:	F	A sc lith1:	Not Reported
A sc lmod1:	Not Reported	A sc lmaq1:	Not Reported
A sc lpct1:	0	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	0
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	100
Pct aq 2:	0	Pct maq 2:	0
Pct cm 2:	20	Pct pcm 2:	50
Pct na 2:	30	Pct aq 3:	15
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	85	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	30	Pct pcm 4:	70
Pct na 4:	0	Pct aq 5:	25
Pct maq 5:	0	Pct cm 5:	75
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database      EDR ID Number

**D21**  
**NNW**  
**1/2 - 1 Mile**  
**Higher**

**MI WELLS      MI300000098474**

Wellid:	63000004228	Import id:	63028024004
County:	Oakland	Township:	Bloomfield
Town range:	02N 10E	Section:	24
Owner name:	ALFONSO MARTINEZ		
Well addr:	4970 BROOKDALE		
Well depth:	48		
Well type:	Household		
Wssn:	0		
Well num:	Not Reported	Driller id:	25
Const date:	1990-08-09 00:00:00.000	Case type:	Steel-black
Case dia:	6		
Case depth:	43		
Screen frm:	43		
Screen to:	45		
Swl:	17		
Test depth:	20		
Test hours:	1		
Test rate:	20	Test methd:	Unknown
Grouted:	1	Pmp cpcity:	0
Latitude:	42.56730265		
Longitude:	-83.22394112		
Methd coll:	Address Matching-House Number		
Elevation:	774		
Elev methd:	Topographoc Map Interpolation	Depth flag:	Not Reported
Elev flag:	Not Reported		
Swl flag:	Not Reported		
Elev dem:	777	Elev dif:	3
Elev miv:	774	Aq code:	Drift Well
Aq flag:	Not Reported		
Pct aq:	69		
Pct aq d:	69	Pct aq r:	0
Pct maq:	0	Pct maq d:	0
Pct maq r:	0	Pct cm:	0
Pct cm d:	0	Pct cm r:	0
Pct pcm:	0	Pct pcm d:	0
Pct pcm r:	0	Pct na:	0
Pct na d:	0	Pct na r:	0
Pct flag:	Not Reported	Rock top:	-1
D r type:	Not Reported	Spc cpcity:	0
A thicknes:	28	A pct aq:	46
A pct maq:	0	A pct pcm:	0
A pct cm:	0	A pct na:	54
A thickns2:	28	A pct aq2:	46
A pct maq2:	0	A pct pcm2:	0
A pct cm2:	0	A pct na2:	54
A hit swl:	T	A hit top:	F
A hit rock:	F	A sc lith1:	Gravel & Sand
A sc lmod1:	Not Reported	A sc lmaq1:	AQ
A sc lpct1:	100	A sc lith2:	Not Reported
A sc lmod2:	Not Reported	A sc lmaq2:	Not Reported
A sc lpct2:	0	Pct aq 1:	100
Pct maq 1:	0	Pct cm 1:	0
Pct pcm 1:	0	Pct na 1:	0

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Pct aq 2:	25	Pct maq 2:	0
Pct cm 2:	0	Pct pcm 2:	0
Pct na 2:	75	Pct aq 3:	0
Pct maq 3:	0	Pct cm 3:	0
Pct pcm 3:	0	Pct na 3:	0
Pct aq 4:	0	Pct maq 4:	0
Pct cm 4:	0	Pct pcm 4:	0
Pct na 4:	0	Pct aq 5:	0
Pct maq 5:	0	Pct cm 5:	0
Pct pcm 5:	0	Pct na 5:	0
Pct aq 6:	0	Pct maq 6:	0
Pct cm 6:	0	Pct pcm 6:	0
Pct na 6:	0	Pct aq 7:	0
Pct maq 7:	0	Pct cm 7:	0
Pct pcm 7:	0	Pct na 7:	0
Pct aq 8:	0	Pct maq 8:	0
Pct cm 8:	0	Pct pcm 8:	0
Pct na 8:	0	Pct aq 9:	0
Pct maq 9:	0	Pct cm 9:	0
Pct pcm 9:	0	Pct na 9:	0
Pct aq 10:	0	Pct maq 10:	0
Pct cm 10:	0	Pct pcm 10:	0
Pct na 10:	0	Pct aq 11:	0
Pct maq 11:	0	Pct cm 11:	0
Pct pcm 11:	0	Pct na 11:	0
Pct aq 12:	0	Pct maq 12:	0
Pct cm 12:	0	Pct pcm 12:	0
Pct na 12:	0	Pct aq 13:	0
Pct maq 13:	0	Pct cm 13:	0
Pct pcm 13:	0	Pct na 13:	0
Within sec:	Y	Loc match:	Y
Aq code 1:	Not Reported		
Hit swl:	Not Reported		
Athk2:	0		
Horiz Conduct:	0		
Vert Conduct:	0		
T2:	0		
D50plek:	0		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

State Database: MI Radon

### Radon Test Results

Zipcode	Test Date	LT Sign	Result
48009	4/21/2007		1.5
48009	1/14/2008		1.5
48009	7/14/2004		1.5
48009	4/7/2006		1.5
48009	4/12/2002		1.4
48009	7/29/2004		1.4
48009	7/27/2009		1.5
48009	10/19/2009		1.5
48009	5/29/2001		1.4
48009	1/29/2009		1.4
48009	4/7/2006		1.4
48009	12/4/2006		1.4
48009	5/28/2003		1.3
48009	1/24/2009		1.3
48009	1/6/1997		1.2
48009	8/22/2002		1.2
48009	5/24/2002		1.2
48009	3/26/2004		1.2
48009	3/26/2004		1.2
48009	3/26/2004		1.2
48009	2/8/2005		1.2
48009	10/13/1995		1.1
48009	7/1/1998		1.1
48009	5/10/2002		1.1
48009	5/31/2002		1.1
48009	2/24/2003		1.1
48009	1/27/2009		1.2
48009	1/24/2009		1.2
48009	2/17/2009		1.2
48009	2/14/2009		1.2
48009	2/2/2009		1.1
48009	3/22/2004		1.1
48009	3/7/2008		1.1
48009	6/8/2002		1.0
48009	2/2/2009		1.1
48009	7/3/1995		1.0
48009	2/26/1999		1.0
48009	2/16/2005		1.9
48009	2/2/2006		1.9
48009	11/15/2001		1.9
48009	4/20/1998		1.9
48009	3/11/2003		1.8
48009	10/13/2008		1.9
48009	10/27/2000		1.9
48009	2/27/2009		1.9
48009	4/3/2009		1.9
48009			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	1/13/1996		1.8
48009	2/21/1995		1.8
48009	11/20/2007		1.8
48009	10/13/1995		1.7
48009	7/29/2003		1.7
48009	4/29/2002		1.7
48009	10/31/2002		1.7
48009	1/18/2003		1.7
48009	1/28/2003		1.7
48009	11/22/2003		1.6
48009	12/30/2003		1.6
48009	2/7/2009		1.7
48009	1/29/2009		1.7
48009	5/11/2007	<	0.3
48009	5/7/2005		0.5
48009	3/8/2004		0.5
48009	1/29/2004	<	0.3
48009	1/12/2004	<	0.3
48009	4/7/2006	<	0.3
48009	6/2/2004	<	0.3
48009	3/21/2007		0.5
48009	8/30/1999		0.5
48009	11/16/2004	<	0.3
48009	3/18/1994		0.5
48009	3/18/1994		0.5
48009	9/26/1998	<	0.3
48009	2/18/1999	<	0.3
48009	1/22/2008	<	0.3
48009	5/20/2003	<	0.3
48009	5/10/2002	<	0.3
48009	5/23/2002	<	0.3
48009	4/15/2002	<	0.3
48009	1/15/2007	<	0.3
48009	1/20/1998		0.8
48009	7/3/1995		0.8
48009	3/15/2004		0.7
48009	3/19/2003		0.8
48009	3/29/2004		0.8
48009	4/17/2004		0.6
48009	3/24/2006		0.8
48009	10/9/2004		0.9
48009	2/9/2004		0.9
48009	2/21/2004		0.9
48009	11/10/2006		0.9
48009	1/21/2008		0.6
48009	1/15/2008		0.6
48009	1/29/2009		0.6
48009	3/13/2009		0.7
48009	2/20/2009		0.6
48009	1/24/2009		0.8
48009	2/7/2009		0.8
48009	1/24/2009		0.6
48009	2/3/2009		0.9
48009	7/1/1998		0.7
48009	3/19/2003		0.6
48009	4/13/2002		0.6
48009			



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	4/1/2002		0.6
48009	1/26/2009		0.9
48009	4/24/2002		0.5
48009	4/22/2003		0.6
48009	1/26/2009		2.6
48009	1/22/2009		2.8
48009	1/7/2002		2.5
48009	11/23/2007		2.4
48009	11/9/2007		2.4
48009	9/28/1999		2.4
48009	10/30/2006		2.2
48009	3/23/2009		2.4
48009	1/26/2009		2.3
48009	12/3/1994		2.2
48009	4/23/2002		2.2
48009	4/29/2002		2.2
48009	2/7/2003		2.2
48009	1/8/2007		2.3
48009	2/25/2002		2.1
48009	12/2/2002		2.7
48009	11/14/2003		2.6
48009	6/10/2002		2.7
48009	1/13/2006		2.6
48009	10/31/2009		3.0
48009	1/3/2004		2.8
48009	11/3/2007		2.7
48009	11/7/2007		3.8
48009	7/28/2008		3.6
48009	5/21/2004		3.5
48009	4/28/2003		3.5
48009	1/2/2010		3.5
48009	9/8/2009		3.5
48009	11/6/2008		3.4
48009	2/25/2004		3.2
48009	4/9/2004		3.3
48009	11/10/2007		3.2
48009	1/24/2009	<	0.3
48009	11/11/2003		3.7
48009	1/25/2010	<	0.3
48009	1/4/1997		3.8
48009	1/14/2002		3.8
48009	6/9/2003		3.8
48009	11/22/1997		3.6
48009	7/16/2007		5.6
48009	7/16/1999		5.5
48009	1/24/2009		5.9
48009	6/12/2004		4.7
48009	10/20/2008		5.0
48009	9/29/2007		5.0
48009	3/13/2002		4.6
48009	5/27/2002		4.6
48009	6/9/2008		6.7
48009	7/6/2007		7.7
48009	4/12/2002		2.0
48009	5/8/2002		2.0
48009	9/17/2001		22.4
48009			

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

## AREA RADON INFORMATION

	3/5/2009	14.4
48009	2/7/2009	12.6
48009	5/27/2002	8.0
48009	6/24/2002	10.8
48009	7/24/1999	8.6
48009	1/24/2009	2.1
48009	11/7/2008	4.2
48009	10/10/2006	4.2
48009	8/19/2008	4.1
48009	2/1/2008	4.5
48009	10/23/2007	4.5

Federal EPA Radon Zone for OAKLAND County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.  
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.  
 : Zone 3 indoor average level < 2 pCi/L.

---

Federal Area Radon Information for Zip Code: 48009

Number of sites tested: 5

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.780 pCi/L	100%	0%	0%

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## TOPOGRAPHIC INFORMATION

### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

### Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

## HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

### State Wetlands Data: Wetlands Inventory

Source: Department of Natural Resources

Telephone: 517-241-2254

## HYDROGEOLOGIC INFORMATION

### AQUIFLOW<sup>R</sup> Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

## GEOLOGIC INFORMATION

### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

### STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

### SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

# PHYSICAL SETTING SOURCE RECORDS SEARCHED

## LOCAL / REGIONAL WATER AGENCY RECORDS

### FEDERAL WATER WELLS

#### PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

#### PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

#### USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

### STATE RECORDS

#### Water Well Data

Source: Department of Environmental Quality

Telephone: 517-335-9218

The data in this file was obtained from Wellogis, the Michigan Department of Environmental Quality Statewide Groundwater Database (SGWD). Wellogis contains approximately 425,000 water well records found within the State of Michigan, and although it represents the best available data, it cannot be considered a complete database of all the wells or well records in existence.

## OTHER STATE DATABASE INFORMATION

#### Michigan Oil and Gas Wells

Source: Department of Environmental Quality

Telephone: 517-241-1528

Locations of oil and gas wells are compiled from permit records on file at the Geological Survey Division (GSD), Michigan Department of Natural Resources.

### RADON

#### State Database: MI Radon

Source: Department of Environmental Quality

Telephone: 517-335-9551

Radon Test Results

#### Michigan Radon Test Results

Source: Department of Environmental Quality

Telephone: 517-335-8037

These results are from test kits distributed by the local health departments and used by Michigan residents. There is no way of knowing whether the devices were used properly, whether there are duplicates (or repeat verification) test (i.e., more than one sample per home), etc.

#### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

### OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

### STREET AND ADDRESS INFORMATION

© 2015 TomTom North America, Inc. All rights reserved. This material is proprietary and the subject of copyright protection and other intellectual property rights owned by or licensed to Tele Atlas North America, Inc. The use of this material is subject to the terms of a license agreement. You will be held liable for any unauthorized copying or disclosure of this material.

## **APPENDIX E**

### **QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL(S)**





## TROY D. HELMICK, CPG

PROJECT CONSULTANT

(248) 982-5149 [helmick@sme-usa.com](mailto:helmick@sme-usa.com)

- Environmental Services
- Regulatory Compliance and Due Diligence
- Site Assessments and Audits
- Project Management

### BACKGROUND

Troy is a Project Consultant and Certified Professional Geologist (CPG) in SME's Plymouth office. As a member of our Environmental Services group, he manages a variety of projects including environmental due diligence, compliance and regulatory requirements associated with petroleum remediation and emergency response activities, underground and aboveground storage tank (UST/AST) assessments and removals, and groundwater and soil contaminant investigations. Troy joined SME in 2016 with 18 years of experience providing comprehensive environmental consulting. His expertise includes onsite vapor, groundwater and soil contaminant investigations.

### RELATED PROJECT EXPERIENCE

Consultant and Project Manager responsible for preparing detailed site assessment and remediation models for client sites regarding environmental regulatory compliance and regulatory closure; and maintaining ongoing relationships with regulatory officers to facilitate regulatory compliance and gain a thorough understanding of the current regulatory climate.

Consultant and Project Manager for diverse oil and gas clients. Responsible for regulatory body compliance reporting; environmental compliance auditing, site inspections and audits; contractor oversight; and safety performance monitoring and reporting. Corrective action experience includes working with soil vapor extraction, air sparge, pump and treat, product skimmers and multi-phase recovery systems.

Due Diligence Manager on ten Part 201 and Part 213 releases. Successfully developed and implemented activities to achieve regulatory No Further Action or Closure.

Project manager for environmental emergency response/remediation modeling projects. Supervised, coordinated and performed environmental spill emergency response activities for multiple petroleum pipeline and toxic chemical releases throughout the country. Provided oversight and coordination of subcontractors during various environmental remedial activities such as remediation system and monitoring well installations, and UST/AST removals, excavations and site decommissioning.

### EDUCATION

B.A., Geological Sciences, Albion College

### REGISTRATIONS AND CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists



## **PROFESSIONAL DEVELOPMENT**

American Petroleum Institute WorkSafe Certified  
Hazard Recognition Plus™

HAZWOPER 40-Hour Training Course

HAZWOPER 8-Hour Refresher Training Course

First Aid/CPR/AED Certified – American Heart Association



*Passionate People Building  
and Revitalizing our World*





## PLAN FOR DUE CARE COMPLIANCE

35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN

SME Project Number: 075099.01  
November 14, 2016



# TABLE OF CONTENTS

<b>1. INTRODUCTION AND LIMITATIONS</b> .....	<b>1</b>
<b>2. PROPERTY INFORMATION</b> .....	<b>2</b>
2.1 PROPERTY DESCRIPTION AND CURRENT USE.....	2
2.2 PROPERTY ENVIRONMENTAL HISTORY .....	2
2.3 PROPERTY REDEVELOPMENT PLAN .....	2
<b>3. KNOWN CONTAMINATION AND EXPOSURE PATHWAY EVALUATION</b> ....	<b>2</b>
3.1 KNOWN CONTAMINATION.....	3
3.2 EVALUATION OF EXPOSURE PATHWAYS.....	3
<b>4. DUE CARE COMPLIANCE</b> .....	<b>4</b>
4.1 PREVENTION OF UNACCEPTABLE HUMAN EXPOSURE TO CONTAMINATED SOIL .....	4
4.2 PREVENTION OF UNACCEPTABLE HUMAN EXPOSURE TO CONTAMINATED GROUNDWATER .....	6
4.3 PREVENTION OF HUMAN EXPOSURE TO CONTAMINATED SOIL GAS .....	6
4.3.1 BUILDING VAPOR MITIGATION SYSTEM DESIGN AND INSTALLATION.....	6
4.3.2 BUILDING VAPOR MITIGATION SYSTEM OPERATIONS AND MAINTENANCE	6
4.4 PROTECTION OF THIRD PARTIES .....	7
4.5 PREVENTION OF EXACERBATION .....	7
4.5.1. DURING CONSTRUCTION .....	7
4.5.2. DURING COMMERCIAL USE .....	8
<b>5. RECORD KEEPING AND NOTIFICATIONS</b> .....	<b>8</b>
5.1 DOCUMENTATION .....	9
5.2 NOTIFICATIONS .....	9
<b>6. OWNER CONTACT</b> .....	<b>10</b>
<b>7. REFERENCES</b> .....	<b>10</b>

## FIGURES

FIGURE 1: PROPERTY LOCATION MAP

FIGURE 2: HUMAN EXPOSURE CONCERN AREAS DIAGRAM – SOIL

## TABLES

TABLE 1: SUMMARY OF ANALYSIS RESULTS – SOIL

TABLE 2: SUMMARY OF ANALYSIS RESULTS – GROUNDWATER

## **APPENDICES**

<b>APPENDIX A:</b>	<b>MDEQ DUE CARE CITIZEN'S GUIDE</b>
<b>APPENDIX B:</b>	<b>RESTRICTIVE COVENANT (DEED RESTRICTION)</b>
<b>APPENDIX C:</b>	<b>SITE CONCEPTUAL DEVELOPMENT PLAN</b>
<b>APPENDIX D:</b>	<b>SOIL, GROUNDWATER, AND SOIL GAS SAMPLE LOCATION DIAGRAMS, AND ANALYSIS DATA SUMMARY TABLES</b>
<b>APPENDIX E:</b>	<b>EXPOSURE BARRIER REPAIR RECORD</b>
<b>APPENDIX F:</b>	<b>HAZARD COMMUNICATION NOTICE</b>
<b>APPENDIX G:</b>	<b>NOTICE OF MIGRATION OF CONTAMINATION DOCUMENTATION</b>



# 1. INTRODUCTION AND LIMITATIONS

August, LLC plans to purchase the property at 35975 Woodward Avenue in Birmingham, Michigan (the Property) in November 2016, and redevelop the site with a commercial building and associated parking areas. Contamination is present in soil, groundwater, and soil gas; therefore, the Owner is obligated to comply with the due care obligations described in Section 20107a of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (NREPA). Section 20107a requires owners and operators who have knowledge that their property is contaminated (i.e., a “facility” as defined in Part 201) to:

- limit unacceptable exposures to hazardous substances, prevent fire and explosion hazards due to hazardous substances, and allow the Property to be used in a way that protects the public health and safety;
- take reasonable precautions against the reasonably foreseeable acts or omissions of a third party;
- prevent worsening or spreading of the known impact;
- provide reasonable cooperation, assistance, and access to persons authorized to conduct response actions on the Property;
- provide all required notifications to the Michigan Department of Environmental Quality (MDEQ) and others; and,
- comply with and not limit the effectiveness of land use or resource use restrictions established to prevent exposure to hazardous substances at the Property.

The plans and procedures the Owner will use to comply with their due care responsibilities during future ownership and use of the Property are described in this Plan for Due Care Compliance (PDCC).

A discussion of the potential for human exposure to impacted soil, groundwater, and soil gas; descriptions of due care response actions to be undertaken to prevent unacceptable exposures; plans and procedures for preventing exacerbation of existing contamination; and important information regarding Due Care documentation, are provided in the following sections of this document. The MDEQ-RRD Due Care Guide *Due Care Obligations: For Owners or Operators of Contaminated Property* (May 2016) provides additional information and is attached in Appendix A.

This PDCC was developed based on the known environmental impact in soil, groundwater, and soil gas on the Property and the planned redevelopment of the Property for commercial use. If the use of the Property changes, or if new environmental information becomes available, this PDCC will be reviewed and revised as needed.

This PDCC is not, and should not be used as, a comprehensive Health and Safety Plan (HASP) for the Property. Contractors and other parties working on the Property are responsible for the health and safety of their employees. They should review the information in this PDCC and prepare a site-specific HASP for their operations and the hazards to which their employees may be exposed.

## 2. PROPERTY INFORMATION

### 2.1 PROPERTY DESCRIPTION AND CURRENT USE

The Property (Figure 1) consists of approximately 0.54 acres of land located at the southwest corner of Woodward Avenue and Oak Avenue in Birmingham, Michigan. At the time this PDCC was prepared, the Property was developed with an asphalt paved parking lot. The Rouge River is present approximately 50 feet southeast of the Property.

### 2.2 PROPERTY ENVIRONMENTAL HISTORY

The Property operated as a gasoline filling station, for towing service, and for rental car service between 1967 and 2012. Eleven underground storage tanks (USTs) for storage of diesel fuel, gasoline, and used oil were historically present on the Property, and were reportedly removed in 1988 and 2013. The Property's structures were demolished in 2013.

A release of gasoline from the product piping of a former UST was reported to the MDEQ in January 1989. Numerous environmental investigations and other environmental investigations of the Property have since been performed by SME and other consultants from 1989 through 2016. Contamination resulting from the 1989 release, and possibly from other historical vehicle service and fueling operations on and near the Property, remains in soil, groundwater, and soil gas. A Restrictive Covenant (RC) limiting future land-use activities to prevent unacceptable human exposure to the remaining contamination was recorded on the Property deed in 1998. A copy of the RC is included in Appendix B. The Restrictive Covenant on the Property's deed included the following due care-related requirements:

- The Property cannot be used for residential purposes.
- Amoco and its representatives retain the right to access the Property for environmental assessment and response purposes.
- No potable wells or wells for other purposes, other than for environmental assessment or response purposes, are to be installed on the Property.
- The Property must remain covered with concrete, asphalt, or other similar impervious surface.

### 2.3 PROPERTY REDEVELOPMENT PLAN

A conceptual site plan drawing is included in Appendix C. August, LLC plans to remove the existing parking lot and redevelop the Property with a two-story commercial building with approximately 11,000 square feet of office space on the first and second floors and a basement for storage. The remainder of the Property will be developed into a paved parking area for building tenants and visitors.

## 3. KNOWN CONTAMINATION AND EXPOSURE PATHWAY EVALUATION

Volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals have been measured in soil and groundwater samples, and VOCs have been measured in soil gas samples, collected from the Property at concentrations that may pose a threat to human health when the Property is redeveloped. An overview of the known contamination and an evaluation of potential exposure pathways, based on the known contamination and planned future use of the Property, are presented in the following subsections. The methods for protecting persons from unacceptable exposures are discussed in Section 4.

### 3.1 KNOWN CONTAMINATION

The site environmental conditions were documented in SME's 2016 Baseline Environmental Assessment (BEA) report for the Property. The BEA summarized the results of SME's October 2016 soil gas assessment and the information contained in the following reports:

- **Baseline Environmental Assessment, 35975 Woodward Avenue, Michigan, April 27, 2006** (PME)
- **Technical Memorandum March 2007 Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, November 1, 2007** (SME)
- **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan, November 16, 2007** (SME)

PME's 2006 BEA includes results from their October 2005 through April 2006 environmental assessments conducted at the Property. SME's 2007 Technical Memorandum provides results from our March 2007 environmental assessment and October 2007 UST removal activities. The cited reports contained tables and figures presenting summaries of results from the historical assessments of soil and groundwater. Figure 2 in Appendix D is an SME Sample Location Diagram. Tables summarizing the soil (Table 1), groundwater (Table 2), and soil gas (Table 3) chemical analyses results are also included in Appendix D. The following is a summary of the findings from these reports.

Approximately six inches of asphalt was encountered across the Property during SME's October 2016 soil gas assessment. The surface material was generally underlain by sand and clay fill extending to depths ranging from approximately 2.5 feet on the north end of the Property, to nearly 30 feet on the south end. In general, the fill thickness increased from north to south, toward the Rouge River, and was noted to contain slag, crushed brick, gravel, coal, glass, and metal and wood fragments. Natural clay was encountered below the fill. Groundwater was encountered at depths of 7 feet to 28 feet below ground surface (bgs), and was generally encountered in perched conditions in the fill overlying the natural clay. Groundwater has been estimated to flow to the southeast, toward the Rouge River.

Results from the chemical analyses performed on soil, groundwater, and soil gas samples collected during SME's 2007 environmental assessments and 2016 soil gas assessment are summarized in the following paragraphs and tabulated in Table 1 (soil), Table 2 (groundwater) and Table 3 (soil gas). Results from PME's 2005-2006 environmental assessments are included in their 2006 BEA report. Concentrations of VOCs, PAHs and metals in soil and groundwater samples were measured above the Part 201 generic residential and nonresidential cleanup criteria. For purposes of this PDCC, the contaminants noted above are assumed to be present in soil and groundwater at locations throughout the Property. In addition, concentrations of VOCs were measured in soil gas samples (in the area of the proposed building) above the vapor intrusion pathway screening levels for residential and nonresidential use.

### 3.2 EVALUATION OF EXPOSURE PATHWAYS

We evaluated human exposure pathways that are complete, or could become complete, during and after redevelopment of the Property by August, LLC. The contaminant concentrations were compared to the nonresidential Part 201 criteria (soil and groundwater), and the nonresidential VI screening levels (soil gas), because the future use scenarios (construction period and commercial use period) for the site are consistent with the assumptions used by the MDEQ to generate the nonresidential cleanup criteria and screening levels. The concentrations of contaminants measured in soil and groundwater samples were compared to the Michigan generic nonresidential cleanup criteria to determine the appropriate due care obligations for the two scenarios.

Complete pathways are human exposure pathways where contaminants are present at levels that may pose a threat to human health during either construction or day-to-day commercial use activities (e.g. site visits, office work). Pathways that may become complete are those where contaminants are present at levels that may pose a threat to human health through non-routine activities such as subsurface utility maintenance or if property conditions change (e.g., pavements are removed for an extended period of time). The analysis of exposure pathways on the Property is based on currently known environmental conditions and is applicable to the planned construction activities and future use of the Property as an office building. Below is a discussion of each human health-related exposure pathway and a discussion for the potential for each pathway to become complete.

**Drinking Water Pathway** – Soil and groundwater are impacted with VOCs, PAHs, and lead at concentrations exceeding the Part 201 nonresidential criteria protective of the drinking water pathway. Groundwater is not currently being used for drinking or irrigation purposes, municipal water is available to the Property, and the use of groundwater onsite is currently prohibited by the RC.

**Vapor Intrusion Pathway** – Concentrations of VOCs were measured in soil and groundwater at concentrations exceeding the MDEQ's nonresidential vapor intrusion (VI) screening levels for soil and groundwater. Additionally, VOCs were measured in soil gas samples collected in the area of the proposed building at concentrations greater than the MDEQ's nonresidential VI screening levels. The VI pathway could become complete if a building is constructed on the Property and no engineering controls are installed to prevent VI.

**Ambient Air Inhalation Pathway** – No concentrations of target analytes in soil exceeded the Part 201 generic nonresidential ambient air inhalation criteria; therefore, this pathway is not complete and will not become complete.

**Particulate Inhalation Pathway**- No concentrations of target analytes in soil exceeded the Part 201 generic nonresidential particulate soil inhalation criteria; therefore, this pathway is not complete and will not become complete.

**Direct Contact Pathway** – Concentrations of lead in soil samples exceeded the Part 201 generic nonresidential direct contact criteria; therefore, this pathway could become complete during construction earthwork activities if the lead-impacted soil is located, or moved to a location, near or at the ground surface or if the impervious surface (asphalt pavement) is removed during future commercial use.

The following subsections summarize the due care activities the Owner will undertake to prevent human exposure to contaminants and prevent the spread of contamination.

## 4. DUE CARE COMPLIANCE

The due care provisions to be implemented at the Property to protect human health, prevent exacerbation, and protect third parties who may come into contact with the contaminated soil and groundwater during future use are described in the following subsections.

### 4.1 PREVENTION OF UNACCEPTABLE HUMAN EXPOSURE TO CONTAMINATED SOIL

Lead was measured at concentrations that exceed the Part 201 generic nonresidential direct contact criteria (DCC) at depths between 9 feet to 20 feet bgs. Unacceptable human exposure to the lead contaminated soil is currently mitigated by the existing site pavements (also required by the RC).

## CONSTRUCTION PERIOD

It is assumed that the existing site pavements will be temporarily removed during the construction period. Contractors will be responsible for the health and safety of their employees. Contractors conducting earthwork construction activities will mitigate unacceptable human exposure to contaminated soils by following good-hygiene practices:

- Where practical, excavation work should be performed with mechanical equipment.
- Personnel who may come into contact with contaminated soil should wear long pants, long-sleeve shirts, and work gloves.
- Tools, equipment, gloves, and boots should be cleaned of soil/mud to prevent the spread of contaminated material beyond the work area.
- Worker entry into excavations and trenches should be minimized, where practical.
- Dust suppression measures will be used to control exposures to airborne dusts.
- No eating or drinking will be allowed on the site, except in designated locations as far removed from construction activities as possible. Contractors must provide hand washing stations in each of these areas, and employees must be instructed to thoroughly wash hands and face prior to eating or drinking.

If environmental conditions other than those described in Section 3.1 are encountered, work in the area will cease and the area will be barricaded or otherwise identified as restricted until an evaluation of potential exposure pathways is performed by the Owner's environmental professional.

## COMMERCIAL USE PERIOD

Prevention of human exposure to contaminated soil that may be present after completion of construction will be accomplished using cover material to separate people from residual, contaminated soil underlying the site. The development plan includes removal of soil from below the building footprint to allow construction of a basement, construction of footings and foundations/foundation systems, and construction of paved driveways and parking areas. The residual, contaminated soil in these areas will be at a depth below that which could be contacted by humans during normal day-to-day activities and will be covered with impervious surfaces. The remaining areas of exposed, contaminated soil will be covered with an **exposure barrier consisting of a demarcation layer (e.g., orange snow fencing, landscaping fabric, or geotextile) and impervious paving materials (concrete or asphalt) or in landscaped areas, a minimum of one foot of clean soil plus landscaping to minimize erosion.** Any loss of integrity of the exposure barrier will be evident by inspection (exposure of the visible demarcation material).

If any portion(s) of the exposure barriers is removed for utility maintenance/construction, landscape management, or other activity, or by soil erosion or other damage (e.g., animal holes), or if the demarcation layer is observed during routine grounds maintenance or other site activities, the exposed or damaged area will be visibly marked with barricades, marking tape, marking paint or other clearly visible boundary identification until the exposure barrier is restored to its original design specifications. Damaged barriers will be repaired/restored within two weeks after discovery or as soon as practical based on contractor availability. Any excavation that exposes soil beneath the demarcation layer will be conducted by authorized parties as described in Section 4.3. Repairs to pavements or the building's concrete will be documented on the form in Appendix E.



## 4.2 PREVENTION OF UNACCEPTABLE HUMAN EXPOSURE TO CONTAMINATED GROUNDWATER

Perched groundwater is present at depths of 7 feet to 28 feet bgs. Potable water is not currently being used on the Property, and no groundwater wells for production of water for drinking or other purposes, other than environmental investigations or management, will be allowed on the Property. The new building will utilize municipal water. Therefore, no unacceptable human exposure to contaminated groundwater is anticipated. Prevention of exacerbating contamination in groundwater is discussed in section 4.5.1.

## 4.3 PREVENTION OF HUMAN EXPOSURE TO CONTAMINATED SOIL GAS

Concentrations of VOCs were measured in soil gas at levels that present an unacceptable human exposure risk through inhalation of contaminated vapors that may migrate into the proposed new building. The design of the vapor mitigation system will accommodate prevention of the exposure risk based on the current screening levels and the proposed more restrictive screening level revisions. A vapor intrusion mitigation system will be installed beneath the building's basement, and along the basement walls, at the time of construction. The system design, installation and operations and maintenance are described in the following subsections.

### 4.3.1 BUILDING VAPOR MITIGATION SYSTEM DESIGN AND INSTALLATION

The vapor intrusion mitigation system beneath the building will consist of a vented layer of porous aggregate fill beneath the floor slab. The vent material will consist of low-profile, venting strips connected to risers that vent just above the building roofline, and the vent risers will be capped with wind turbines. The aggregate venting layer will be capped with a chemical-resistant membrane. The membrane will consist of a layered system that includes geo-textile fabric and a spray-applied membrane material that will bond to the geo-textile layer and create a chemically resistant vapor barrier.

Injection ports may be installed and connected to perforated PVC pipes lying in the gravel bed during construction, so a tracer gas can be injected beneath the barrier to test system performance. Also, soil gas sampling ports may also be installed for future sampling of soil gas beneath the barrier.

### 4.3.2 BUILDING VAPOR MITIGATION SYSTEM OPERATIONS AND MAINTENANCE

The Owner will monitor and maintain the vapor mitigation system in a manner that ensures continued, effective system operation and mitigation of the vapor intrusion exposure pathway. Operations and maintenance activities will include: 1) timely repair of damage to the system and 2) periodic monitoring and inspections to verify proper system operations and effectiveness.

No maintenance is necessary for the sub-slab vapor barrier unless the building floor slab is disturbed. If the slab is penetrated, the vapor barrier must be evaluated and, if necessary, be repaired in the same manner as it was installed by an experienced contractor, and the repair must be inspected per the manufacturer requirements.

The performance of the vapor mitigation system will be evaluated periodically. The evaluation will consist of inspecting the exposed portions of the vent risers above the building roof for damage or deterioration, visually inspecting the wind turbines for proper function and lubricating as necessary, and potentially conducting a tracer gas test to verify connectivity of the sub-slab venting. If system components are inspected and found to be damaged, they will be repaired within 30 days. The specific details of the performance monitoring will be defined prior to construction by the system manufacturer.



## 4.4 PROTECTION OF THIRD PARTIES

Third parties may encounter lead in soil at concentrations that exceed the nonresidential direct contact criteria, or VOC vapors in indoor spaces when subsurface soils are exposed. Third parties that may be exposed to the site contamination include grounds and maintenance workers; subsurface construction and utility workers; and trespassers. Subsurface construction/maintenance contractors who will conduct subsurface work on the Property will be provided a copy of this PDCC and the hazard communication notice included in Appendix F, and will be required to prepare their own site-specific Health and Safety Plan (HASP) to protect themselves from potential site exposures when conducting subsurface activities. When impacted soil or groundwater is exposed, access to the work area will be physically restricted by a temporary construction fence or other effective barrier to minimize the potential for exposure to other third parties.

The Owner and/or third parties planning to conduct subsurface utility and/maintenance work on the Property will be responsible for communicating potential environmental hazards and risks to their employees and subcontractors in conformance with the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the Hazardous Waste Operations and Emergency Response rules (29 CFR 1910.120), as applicable.

The plans and procedures that will be in place to protect authorized third parties and other site users and visitors will also protect trespassers from unacceptable exposures.

## 4.5 PREVENTION OF EXACERBATION

Soil and groundwater on the Property are contaminated at levels requiring the use of special management techniques to prevent the spread (exacerbation) of contamination if excess soil or dewatering effluent is generated during construction or maintenance activities. Prevention of exacerbation includes preventing the spread of contamination on and off the Property and between environmental media (soil, groundwater, and air). For purposes of this PDCC, all soil and groundwater on the Property will be considered contaminated at levels requiring these special handling and management procedures, unless additional soil or groundwater characterization data demonstrates otherwise.

### 4.5.1. DURING CONSTRUCTION

Failure to properly manage excess soil generated during construction activities could result in spreading the existing contamination. The following precautions will be followed when soil is excavated during construction or maintenance activities: Soil erosion and sedimentation controls will be installed prior to excavation, as required by local, state, and federal requirements.

- Storm water run-off will be redirected such that it remains on site and does not result in sheet flows toward exposed soil/fill, stockpiled material, roads or adjoining sites.
- Dust suppression measures will be used to control the release of airborne dusts.
- Soil removed from excavations will be stockpiled on site and returned to the excavation when possible.
- Excess soil from excavations may be relocated on the Property, but will NOT be moved to any other Property. If excess soil is relocated on the Property, it will be relocated in accordance with Part 201 and the Owner and its environmental professional will be consulted.
- Excess soil that cannot be relocated on the Property will be characterized and transported for disposal at a licensed disposal facility in accordance with applicable laws and regulations. Landfill disposal and quantities disposed will be documented using landfill receipts, trip tickets, and/or disposal manifests. Landfill disposal approval should be obtained prior to excavation. Copies of landfill disposal documentation will be provided to the Owner.

- Procedures will be implemented to minimize/control track-out of contaminated soil during subsurface activities. Soil will be removed from on-site vehicles prior to leaving the Property, and vehicles will be visually inspected to verify that soil has been removed. Streets and sidewalks will be cleaned daily, or as needed, to remove soil tracked out from the Property. Street sweepings will be managed in the same manner as excavated soil.

If groundwater is encountered during subsurface activities and needs to be removed (i.e., dewatering during construction), it will be properly characterized and managed according to applicable regulations. Under no circumstances will groundwater be discharged to: 1) a storm sewer or sanitary sewer without obtaining a proper permit, 2) the ground surface, 3) the Rouge River, or 4) in a manner that results in flow off the Property. Groundwater generated from dewatering activities will be:

- containerized on-site, characterized in accordance with disposal site requirements, and transported for proper disposal at an off-site licensed facility; or
- characterized and permitted pursuant to the City of Birmingham's sanitary sewer ordinances and discharged to the sanitary sewer; pretreatment may be required for this discharge.

If new utility conduits (e.g. storm sewer, sanitary sewer) are installed across Property boundaries at depths that may intersect groundwater, the Owner will determine if installation of engineering controls (e.g. clay plug within trench backfill or water-tight piping) are necessary. Appropriate controls will be installed when necessary.

If during construction activities, evidence of environmental impact that is not consistent with known impact is observed, the Owner will be notified, and this PDCC will be evaluated and modified as appropriate. Such impact or conditions will be characterized and managed in accordance with applicable requirements, guidelines, and rules of state and federal law.

Finally, the existing monitoring wells on the Property will be properly abandoned prior to parking lot demolition activities by filling the wells with bentonite or other appropriate plugging material, and cutting them off below grade. Documentation of the well abandonment will be kept in the due care file as described in Section 5.

#### 4.5.2. DURING COMMERCIAL USE

If excavation of soil, other than clean fill imported to the site during redevelopment, is required to support subsurface construction or maintenance/repair activities, soil removed from the excavation will be either returned to the excavation or containerized, characterized, and properly disposed at a licensed disposal facility. After completion of such subsurface excavations, the protective cap material will be restored as described in Section 4.1.

**Under no circumstances will excess soil generated during excavation be relocated on the site, unless the soil is known to be uncontaminated (clean) material imported to the site during redevelopment.**

## 5. RECORD KEEPING AND NOTIFICATIONS

Owners and operators are required to maintain due care documentation and provide certain notifications in accordance with Part 201. The MDEQ may request the owner of a contaminated property provide due care documentation. Due Care records that will be maintained in the Property file are discussed in the following subsections.

## 5.1 DOCUMENTATION

A current copy of this PDCC and other pertinent due care documentation will be maintained in a Due Care file at the Owner's address in Section 6.0. The Due Care file will be readily available to the MDEQ or other appropriate parties as needed and/or upon request. This PDCC and other documentation will be revised as needed when Property conditions and features described in this PDCC change or are found to be different in the future.

The Owner will maintain the documentation of the following in the due care file:

- Documentation of the repairs made to the direct contact exposure barrier. Repairs will be documented on the form provided in Appendix E.
- Soil and/or groundwater removal – If construction or maintenance activities require soil and/or groundwater to be removed, these media will be managed in accordance with applicable regulations and as described in Section 4.5. The Owner will maintain records of the removal and disposal of soil and/or groundwater from the Property. Records include, but are not limited to, manifests and landfill load tickets for soil and manifests and disposal facility receipts for groundwater.
- Soil relocation – The Owner will maintain records of soil relocation on the Property, including: descriptions of the condition and volume of soil that was relocated; the location from which the soil was removed and the location where it was relocated; and a summary of the basis for the determination that the relocation did not cause exacerbation of contamination on the Property.
- Well abandonment – The Owner will maintain records of the well abandonment activities described in Section 4.5.1.

## 5.2 NOTIFICATIONS

In accordance with Part 201, the Property owner is required to make certain notifications to parties that could reasonably be affected by the contamination present on, or emanating from, the Property. A review of the applicability of these notices is summarized below.

### SECTION 20126 – DISCLOSURE OF FACILITY STATUS TO SUBSEQUENT PURCHASERS

The Owner will provide written notice that the Property is a Part 201 facility to a subsequent purchaser prior to property transfer. The Owner will provide a subsequent purchaser with access to, or a copy of, the Baseline Environmental Assessment (BEA) report and this PDCC.

### RULE 1013 NOTICE – UTILITY EASEMENT HOLDERS

No Rule 1013 notice is needed because no utility franchise easements or easements pursuant to severed subsurface mineral rights or severed subsurface formations are known to be present on the Property. Subsurface utility workers conducting activities on the Property will be provided a copy of this DDCC prior to conducting their work.

### RULE 1015 NOTICE – ABANDONED CONTAINERS

No Rule 1015 notice is needed and completion of the Abandoned Container Notice is not required because there were no abandoned containers on the Property. The known USTs were removed from the Property in the 2000's, and no USTs, ASTs, or other containers are known to be present on the Property.

## RULE 1017 NOTICE – MIGRATING CONTAMINATION

A Rule 1017 notice (Notice of Migration of Contamination; NOM) will be sent to affected, adjoining, hydraulically down-gradient Property owners because petroleum-impacted groundwater may be migrating off-site to the southeast, toward the Rouge River. The following parties will be mailed a Notice of Migration of Contamination: south-adjoining dry cleaner (Douglas Cleaners), MDEQ (Rouge River), and MDOT (Woodward Ave.). The NOM documentation, and delivery confirmations for the NOM, will be kept in the due care file.

## RULE 1019 NOTICE – FIRE/EXPLOSION HAZARDS

There are no known fire or explosion hazards related to existing contamination; therefore, a Rule 1019 notice is not required.

## 6. OWNER CONTACT

Questions related to this PDCC should be directed to the Property Owner contact listed below:

Ms. Diane E. Wells  
August, LLC  
1901 St. Antoine Street  
6<sup>th</sup> Floor at Ford Field  
Detroit, Michigan 48226  
Phone: (313) 393-7595

## 7. REFERENCES

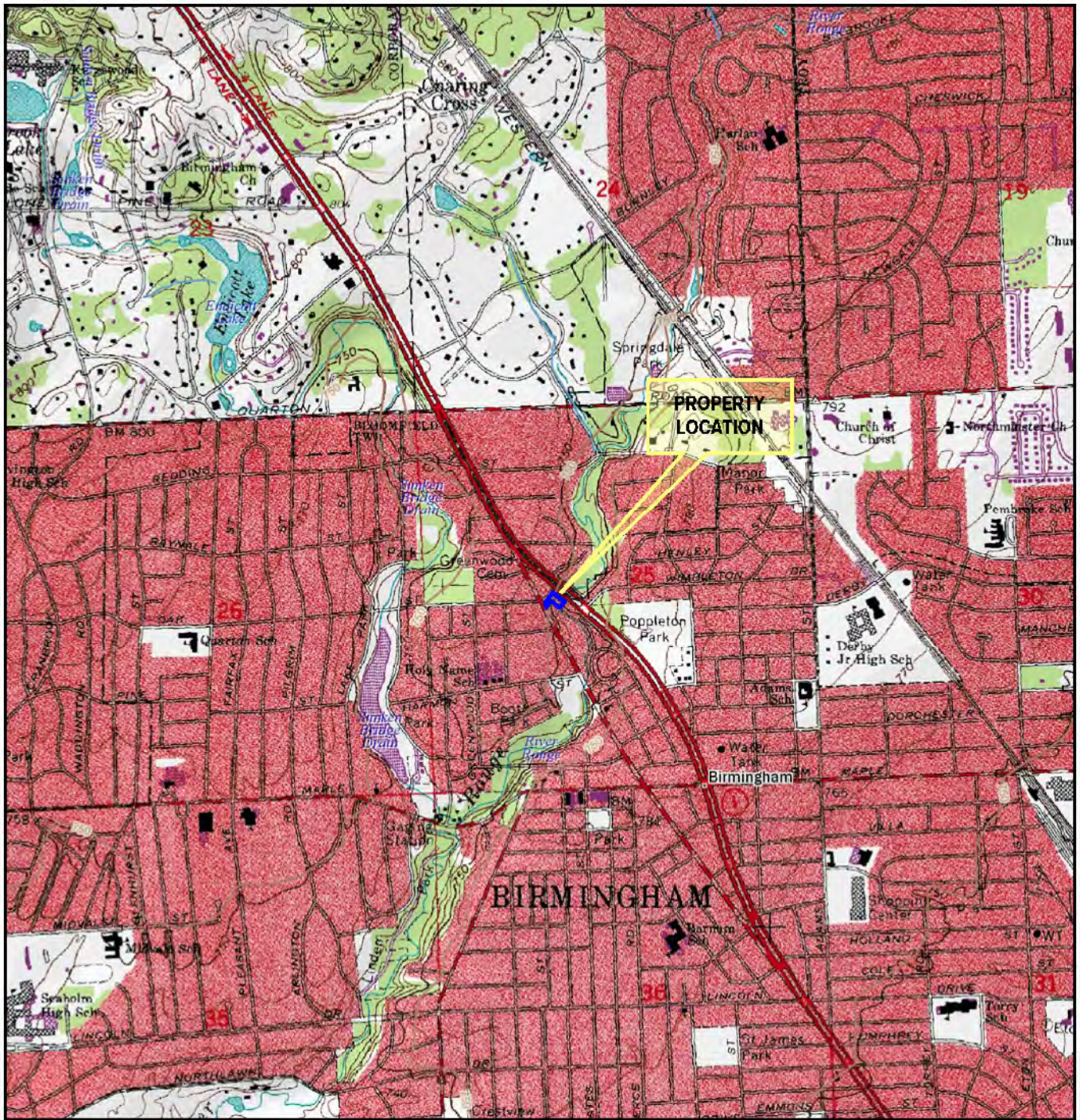
1. **Part 201 of 1994 PA 451, as amended, the Natural Resources and Environmental Protection Act**, and applicable portions of the associated Part 10 Rules in effect at the time the BEA was prepared, December 21, 2002
2. The Michigan Department of Environmental Quality, Promulgated Cleanup Criteria, R299.44, R299.46, R299.48, and R299.49, **Part 201 Generic Residential and Nonresidential Cleanup Criteria and Screening Levels**, December 30, 2013
3. Michigan Department of Environmental Quality, **Guidance Document for the Vapor Intrusion Pathway**, May 2013
4. **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan**, April 27, 2006, 20603161LV (PME)
5. **Technical Memorandum March 2007 Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan**, November 1, 2007 (SME)
6. **Baseline Environmental Assessment, 35975 Woodward Avenue, Birmingham, Michigan**, November 16, 2007, 200703735LV (SME)
7. **Baseline Environmental Assessment Report, 35975 Woodward Avenue, Birmingham, Michigan**, November 14, 2016 (SME)

## **FIGURES**

**FIGURE 1: PROPERTY LOCATION MAP**

**FIGURE 2: HUMAN EXPOSURE CONCERN AREAS DIAGRAM – SOIL**





Base map obtained from © DeLorme Topo North America™ 10.

**LEGEND**



APPROXIMATE  
PROPERTY LOCATION

USGS QUADRANGLE(S) REFERENCED  
BIRMINGHAM (MI) TOPO QUAD - 1981

No.	Revision Date	Date	10-10-16
		Drawn By	GM
		Designed By	CEB
		Scale	1" = 2000'
		Project	075099.01

**PROPERTY LOCATION MAP  
35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN**

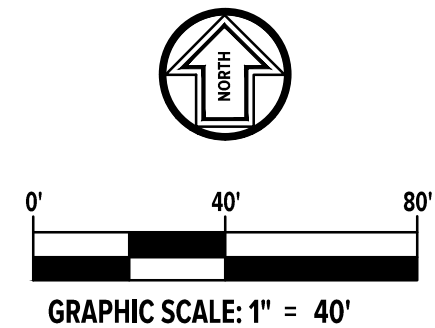
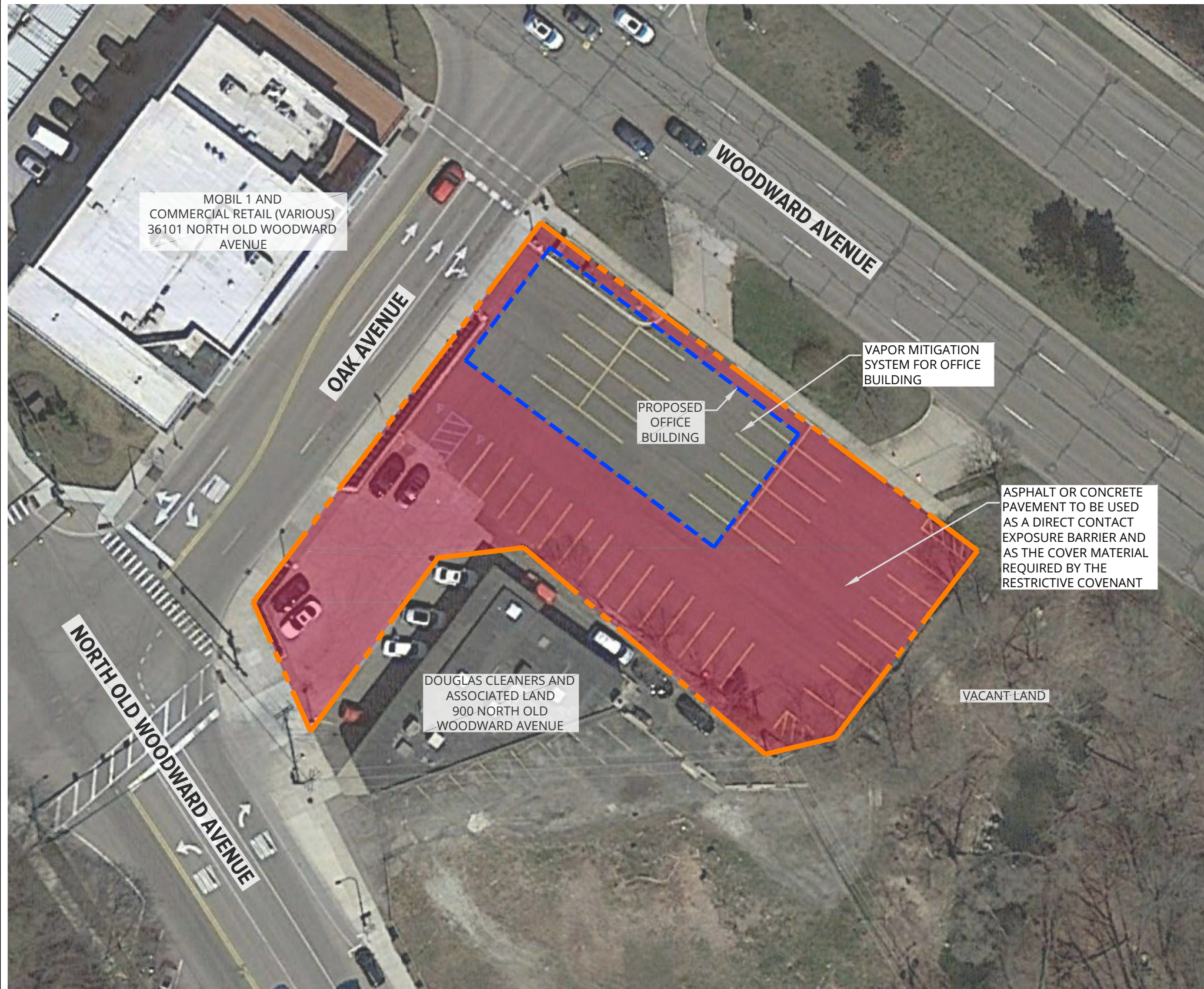


www.sme-usa.com

**Figure No. 1**



Nov 08, 2016 - 5:47pm - jblake  
 FILE LOCATION: \\sme-inc\p\WIP\075099.01\CADD\DWGS\rev\075099.01-DUECARE.dwg  
 PLOT DATE:



Project  
**PROPOSED  
 TWO-STORY  
 OFFICE BUILDING**

Project Location  
**35975 WOODWARD  
 AVENUE  
 BIRMINGHAM,  
 MICHIGAN**

Sheet Name  
**DUE CARE  
 COMPLIANCE  
 MEASURES**

No.	Revision Date

Date	11-4-16
CADD	GM/JAB
Designer	CEB
Scale	1" = 40'
Project	075099.01

Figure No.  
**2**

**LEGEND**

APPROXIMATE PROPERTY BOUNDARY

NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO  
 AND SITE RECONNAISSANCE.

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17"  
 AND WILL SCALE INCORRECTLY IF PRINTED ON ANY  
 OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR  
 CONSENT OF SME  
 © 2016



**APPENDIX A**  
**MDEQ DUE CARE CITIZEN'S GUIDE**

This guide to Due Care describes the obligations of an owner or operator of contaminated property, which are designed so contaminated properties can be safely used.

Section 20107a of Part 201, Environmental Remediation, and Section 21304c, Leaking Underground Storage Tanks, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), requires that owners and operators take measures to ensure that existing contamination on a property does not cause unacceptable risks and is not exacerbated. Such measures include evaluating the contamination and undertaking the necessary actions to address the unacceptable risks. Due care obligations are not related to the owner or operator's liability for the contaminants; they apply to both non-labile parties and liable parties.

### ◀◀ NOTE ▶▶

This is an informational document from the Michigan Department of Environmental Quality (DEQ). A thorough review of the statute, administrative rules, and guidelines should be completed before making site-specific decisions.

The Part 201 and Part 213 statutes, Part 10 Administrative Rules, and guidelines are available electronically at this DEQ Web site: [michigan.gov/deqducare](http://michigan.gov/deqducare)

## **DUE CARE REQUIREMENTS SECTIONS 20107a & 21304c**

An owner or operator of contaminated property shall do all of the following with respect to contamination at the property:

- ▶ Prevent exacerbation of the existing contamination.
- ▶ Prevent unacceptable human exposure and mitigate fire and explosion hazards to allow for the intended use of the facility in a manner that protects the public health and safety.
- ▶ Take reasonable precautions against the

reasonably foreseeable acts or omissions of a third party

- ▶ Provide notifications to the DEQ and others.
- ▶ Provide reasonable cooperation, assistance, and access to the persons that are authorized to conduct response activities or corrective actions at the property.
- ▶ Comply with any land use or resource use restrictions established or relied on in connection with the response activities or corrective actions.
- ▶ Not impede the effectiveness or integrity of any land use or resource use restriction.

Sections 20101 and 21303 of the NREPA define a facility or a site as property with contamination in soil or groundwater at concentrations above Michigan's cleanup criteria for residential property.

An owner or operators "due care" obligations are summarized on the next few pages and are specified in Part 201, Section 20107a and its Administrative Rules 1001-1021 and Part 213, Section 21304c. Further information can be found on the DEQ RRD due care web page ([michigan.gov/deqducare](http://michigan.gov/deqducare)):

- ▶ Part 201 of NREPA
- ▶ Part 201 Administrative Rules (Part 10)
- ▶ Part 201 Residential Cleanup Criteria
- ▶ Part 213 of NREPA
- ▶ DEQ-RRD Citizen's Guides
- ▶ Due Care Brochure, Matrix and Forms

A fact sheet on Michigan's environmental cleanup program from...

Michigan Department of Environmental Quality  
Remediation and Redevelopment Division  
PO Box 30426, Lansing, MI 48909-7926  
Main Telephone: 517-284-5087  
[www.michigan.gov/deqrrd](http://www.michigan.gov/deqrrd)

Rick Snyder, Governor \* Dan Wyant, Director



Revised May 2016

## PREVENTING EXACERBATION

Exacerbation occurs when an activity undertaken by the person who owns or operates the property causes the existing contamination to migrate beyond the property boundaries. Examples of exacerbation can include: the mishandling of excavated contaminated soil such that contamination now migrates off-site; pumping contaminated water from footing drains into a nearby ditch; or creating a new migration pathway by putting a utility line through a zone of highly contaminated groundwater or soil. An owner or operator can also exacerbate contamination by changing the facility conditions in a manner that would increase the response activity or corrective action costs for the liable party. An example might be to place a building over the source of the existing contamination. A person that causes exacerbation would be liable for remediation of the contamination they caused or paying the increase in the response activity or corrective action costs.

## PREVENTING UNACCEPTABLE HUMAN RISK

Owners and operators must evaluate the existing contamination to determine if the people using or working at the property would be exposed to contamination at levels above the appropriate generic or site-specific criteria. Upon the identification of unacceptable risks, the owner and operators must then undertake the actions that are necessary to prevent unacceptable exposures to contamination in order to demonstrate compliance with their due care obligations. Criteria for differing land uses can be found in the Part 201 Administrative Rules (Rules 1-50). For example, if groundwater used for drinking is contaminated above the drinking water criteria then the owner and operator must prevent the use of the contaminated drinking water. If soils are contaminated above the direct contact criteria

for the appropriate land use at the surface of the property, then people must be prevented from coming into contact with those soils by restricting access, installing a barrier to prevent exposure, or removing contaminated soil. Exposure barriers can be clean soil, concrete, paving, etc. In some instances, remediation of the contamination may be the most cost effective response. In addition, if there is a potential unacceptable risk for utility workers or people conducting activities in an easement on the property, then utility and/or easement holders must be notified in writing of the conditions by the owner and operator. If there is a fire and explosion hazard, the local fire department must be notified and the situation must be mitigated.

## TAKING REASONABLE PRECAUTIONS

Taking reasonable precautions against the reasonably foreseeable actions and omissions of a third party means trying to prevent things that could cause a third party to be exposed to an unacceptable risk. This might include: notifying contractors of contamination so they can take proper precautions; preventing trespass that would result in an unacceptable exposure (neighborhood kids playing in a vacant industrial yard that has direct contact hazards); and taking actions to secure abandoned containers so they don't get damaged by traffic, etc.

## PROVIDE REASONABLE COOPERATION, ASSISTANCE, AND ACCESS

Owners and operators must allow a person authorized to take response activities or corrective actions on the property (such as the liable person, or the state) to take such actions as: installing monitor wells, operating a remediation system, and maintaining the integrity of an exposure barrier, etc. However,

the statute specifically states that this shall not be interpreted as providing any right of access not expressly authorized by law. The authorized person must still go through the normal process of acquiring voluntary or court ordered access, including the potential for compensation as the parties and/or court deem reasonable.

## **COMPLY WITH AND NOT IMPEDE THE EFFECTIVENESS OF LAND USE AND RESOURCE USE RESTRICTIONS**

If there are land use or resource use restrictions on the property, owners and operators must comply with those restrictions and not take actions that would impede their effectiveness. Examples of compliance might include: not installing a well if there is a restriction on using the groundwater for drinking water purposes, not allowing a residential use on a property if there is a restriction limiting the property use to nonresidential, not removing a barrier installed to prevent contact with contaminated soil, and not turning off an operating remediation system.

## **EVALUATING THE NEED FOR DUE CARE**

The necessity for conducting response actions are determined by evaluating the current/intended property use and the existing contamination. Based on that evaluation, the actions needed to prevent unacceptable exposures and comply with all due care obligations must be implemented. Environmental professionals often assist with this process (see Environmental Professionals section at end of document).

## **DUE CARE DOCUMENTATION**

Owners and operators must maintain documentation that an evaluation to identify unacceptable risks was conducted, any actions that are needed have been taken and are adequate. Certain response actions (e.g.,

exposure barriers, mitigation system, etc.) will require continued maintenance, inspections, and repair that must also be documented. Documentation requirements are described in the Part 201 Administrative Rule 1003. The documentation does not need to be submitted to the DEQ, but must be available for the DEQ to review upon request within eight (8) months of becoming the owner or operator or of having knowledge that the property is contaminated. You may request and submit for DEQ to review and determination Documentation of Due Care Compliance pursuant to Sections 20114g or 21323n.

## **NOTIFICATION**

The Part 10 (“due care”) Rules require notification to the DEQ and others in the following circumstances:

- ▶ Notify the DEQ if there are discarded or abandoned containers that contain hazardous substances on the property; see Form EQP 4476.
- ▶ Notify the DEQ and adjacent property owners if contaminants are migrating off the property; see Form EQP 4482.
- ▶ Notify the local fire department if there is a fire or explosion hazard.
- ▶ Notify utility and easement holders if contaminants could cause unacceptable exposures and/or fire and explosion hazards.

These notices must be made within 45 days of becoming the owner or operator, or of having knowledge of the conditions. The forms are available at DEQ District Offices and the DEQ Web Page: [michigan.gov/degducare](http://michigan.gov/degducare).

## **EXEMPTIONS/LIMITATIONS**

Parts 201 and 213 provide exemptions to the “due care” obligations to prevent exacerbation, prevent or mitigate unacceptable exposures, and take reasonable precautions for the following entities:

- ▶ An owner or operator of property where the contamination is migrating onto the property.
- ▶ An owner or operator of a utility franchise on the property.
- ▶ An owner or operator of the severed mineral rights to the property.
- ▶ A local unit of government (LUG) that: involuntarily acquires title or control of property by virtue of its governmental functions, or the property is transferred to the LUG from the state or a LUG that is not liable under Part 201 or 213, or by seizure, receivership or forfeiture or court order, or voluntarily acquired the property and conducted a baseline environmental assessment (BEA).
- ▶ A LUG that has an easement interest or holds a utility franchise for a transportation or utility corridor or public right of way, or for conveying or providing goods and services.
- ▶ A LUG that is not liable and is leasing the property to a non-liaible party.

However, if the state or LUG exempted above offers access to the property and makes it available for public use, such as for parks, schools, municipal office buildings, public works operations, etc., then the person, state, or LUG must comply with all due care obligations for that portion of the property that is accessible to the public.

Additionally, the person, state, or LUG that is exempted above still has due care obligations to provide cooperation, assistance, and access, comply with land use or resource use restrictions, and not impede the integrity or effectiveness of the land or resource use restriction. Further, Sections 20107a(6) and 21304c(6) specify utilities and severed mineral right owners must comply with due care in regard to their own activities.

While Parts 201 and 213 provide these exemptions, it may be in the owner or operator's best interest to ensure the property is safe for the intended use and that they do not cause a new release by their actions or exacerbate pre-existing contamination.

## ENVIRONMENTAL PROFESSIONALS

Resources for finding an environmental professional, consultant or engineer, include: online searches for Environmental, Ecological, or Engineering consulting firms; referrals from financial institutions, real estate agencies, or trade associations, etc. It's wise to ask the professional or consultant for references and inquire as to past due care compliance documentation reports they have successfully completed. The DEQ does not provide recommendations for environmental professionals, consultants or engineers.

## SOURCES OF INFORMATION

**DEQ Environmental Assistance Center**  
1-800-662-9278

[michigan.gov/deqducare](http://michigan.gov/deqducare)

**DEQ Remediation and Redevelopment  
Division Web Page**  
[www.michigan.gov/deqrrd](http://www.michigan.gov/deqrrd)

**DEQ Remediation and Redevelopment  
Division Contact**  
Jeanne Schlaufman  
586-753-3823  
[schlaufmanj1@michigan.gov](mailto:schlaufmanj1@michigan.gov)

**DEQ Office of Oil, Gas and Minerals Contact**  
Part 615 (Supervisor of Wells – oil/gas wells) and  
Part 625 (Mineral Wells)  
Janice Smith  
517-242-3134  
[smithj6@michigan.gov](mailto:smithj6@michigan.gov)

Revised May 2016



**APPENDIX B**  
**RESTRICTIVE COVENANT (DEED RESTRICTION)**

HR:16 98 076100

LIB: 18211 238

\$ 17.00 MISCELLANEOUS RECORDING  
\$ 2.00 REAFFIRMATION  
16 MAR 98 8:16 A.M. RECEIPT# 107A  
PAID RECORDED - OAKLAND COUNTY  
LYNN D. ALLEN, CLERK/REGISTER OF DEEDS

**RESTRICTIVE COVENANT**

**DEPT.** MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - UNDERGROUND STORAGE TANK DIVISION

*This information and form is required under Sections 21310a(2) and 21316 of Part 213, Leaking Underground Storage Tanks (LUST), of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Failure to comply with the provisions of this Act may result in civil fines not to exceed \$10,000 for each day the violation continues or failure to comply continues.*

**INSTRUCTIONS:** Use this form for filing the restrictive covenant with the register of deeds. This form is needed when the corrective action is based on a restrictive covenant for institutional controls. This form is not needed if an alternate mechanism is approved by the Department of Environmental Quality (Department) pursuant to Section 21310a(3) and 21310(4) of Part 213. If corrective action is based on the use of institutional controls regarding off-site migration of regulated substances, wait for USTD approval before recording the Restrictive Covenant with the register of deeds for contamination that has migrated or will migrate off-site. If the institutional controls are for on-site contamination, the owner/operator may proceed with recording the Restrictive Covenant with the register of deeds. In all cases, submit a copy of the Restrictive Covenant and proof of recording with the Closure Report (EQP 3843) to the appropriate USTD District Office listed on the back of the Closure Report Cover Sheet. **This form must be completed in its entirety.**

The below listed owner/operator has implemented a corrective action plan requiring institutional controls in the form of a restrictive covenant. The corrective action plan was developed as a result of a release from a Leaking Underground Storage Tank(s) (LUST) and was prepared pursuant to the provisions in Section 21310a(2) of Part 213. Regulated substances were discovered during the investigation and/or removal of Underground Storage Tanks (USTs).

This restrictive covenant is filed with the County Register of Deeds and covers the land identified in the following, and more fully described in Attachment A, attached. *(Attach a legal property description as Attachment A for the land where the restrictive covenant would apply, and a survey map of the areas addressed by this restrictive covenant.)* The restrictive covenant defines the areas addressed by the corrective action plan and the scope of any land use or resource limitations. The survey defining the areas addressed by the corrective action plan is attached. *(Describe the scope of any land use or resource use limitations.)*

Please Refer to Attachment B

The restrictive covenant is being filed by the below listed legal titleholder or with the express written permission of the legal titleholder. *(Attach permission statement from the legal titleholder if he/she is not signing this document.)*

Owner/Operator implementing the corrective action plan: Amoco

17.00  
2.00

Release Date(s): January 13, 1989

County where deed is registered: Oakland County

Common description of land, township/city, County: 905 North Hunter Boulevard, Birmingham, Oakland County, Michigan

O.K. - ML

REF: 18211 239

Now Therefore (Legal Titleholder Name and Address) Amoco Oil Company, 38705 Seven Mile Road  
Suite 360, Livonia, Michigan 48152-1056

(hereinafter referred to as the "titleholder"), hereby imposes restriction on the property and covenants and agrees that:

1. The Titleholder shall restrict activities on the property that may interfere with corrective action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the corrective action.
2. The Titleholder shall restrict activities that may result in exposure to regulated substances above levels established in the corrective action plan.
3. The Titleholder shall prevent a conveyance of title, an easement, or any other interest in the property from being consummated without adequate and complete provision for compliance with the corrective action plan and prevention of exposure to regulated substances described in item 2 above.
4. The Titleholder shall grant to the Department of Environmental Quality (Department) and its designated representatives the right to enter the property at reasonable times for the purpose of determining and monitoring compliance with the corrective action plan, including but not limited to the right to take samples, inspect the operation of the corrective action measures, and inspect records.
5. Soil shall not be removed from the property described herein, unless it is characterized to determine if it can be relocated without posing a threat to the public health, safety, welfare or environment in the new location.
6. The state may enforce the restrictions set forth in the covenant by legal action in a court of appropriate jurisdiction.

The restrictions and other requirements described in this Restrictive Covenant shall run with the land and be binding to the titleholder's successors, assigns, and lessees or their authorized agents, employees or persons acting under their direction or control. The restrictions shall apply until the Department determines that regulated substances no longer present an unacceptable risk to the public health, safety or welfare or to the environment. A copy of this Restrictive Covenant shall be provided to all heirs, successors, assigns, and transferees.

This Restrictive Covenant shall not be amended, modified or terminated except by a written instrument executed by and between the Titleholder at the time of the proposed amendment, modification, or termination, and the Department. Within five (5) days of executing an amendment, modification or termination of the Restrictive Covenant, the Titleholder shall record such amendment, modification or termination with the County Register of Deeds, previously named, and within five (5) days thereafter, the Titleholder shall provide a true copy of the recorded amendment, modification or termination to the Department.

If any provision of this Restrictive Covenant is also the subject of any laws or regulations established by any federal, state or local government, the stricter of the two standards shall prevail.

The undersigned person, if executing this Restrictive Covenant on behalf of the Titleholder, represents and certifies that they are duly authorized and have been fully empowered to execute and deliver this Restrictive Covenant.

I hereby attest to the accuracy of the statements in this document and all attachments. I further certify that the language on this form has not been modified in any way.

M. E. McDermet  
Legal Titleholder or Authorized Representative's Signature

Feb. 23, 1998  
Date

M. E. McDermet - Amoco  
Print Legal Titleholder or Authorized Representative's Name

IN WITNESS WHEREOF, the said Titleholder of the above described property has caused the Restrictive Covenant to be executed on the 23 day of February, 1998.

18211 210

Signed in the presence of:

Lori Sanchez  
Witness

[Signature]  
Witness

LORI Sanchez  
Print Witness' Name

T. STEBNER  
Print Witness' Name

Subscribed and sworn to me before this 23<sup>rd</sup> day of February, 1998, M. Azalia Abney  
Cook County, IL Michigan  
(Insert County) Notary Public

My Commission Expires: \_\_\_\_\_

Drafted by:

\*\*\*\*\*  
"OFFICIAL SEAL"  
M. AZALIA ABNEY  
NOTARY PUBLIC, STATE OF ILLINOIS  
By Commission Expires Mar. 31, 2000  
\*\*\*\*\*

Amoco Marketing Environmental Services  
Company Name

Marilyn A. DeWitt  
Print Name of Drafter

38705 Seven Mile Road, Suite 360, Livonia, Michigan 48152  
Company Address

18211 211

Attachment A

0.452 Acres parcel in part of the Northwest 1/4 of Section 25, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan, described as beginning at a point in the Westerly line of 200 foot Hunter Boulevard, said point located North 88 degrees 16 minutes West 659.12 feet and North 49 degrees 21 minutes West 120.93 feet from Center of said Section 25; thence North 49 degrees 21 minutes West along Westerly line of 200 foot Hunter Boulevard 200 feet to Southerly line of 60 foot Oak Street; thence South 40 degrees 39 minutes West along said Southerly line 100 feet; thence South 49 degrees 21 minutes East 173.19 feet; thence South 88 degrees 16 minutes East along a line parallel to and 15 feet Northerly of the East and West 1/4 Section line and the north line of Assessors Plat No. 29, a distance of 34.45 feet; thence North 40 degrees 39 minutes East 78.36 feet to the point of beginning. Containing 0.452 acres more or less.

pt 19-25-179-001

Attachment B

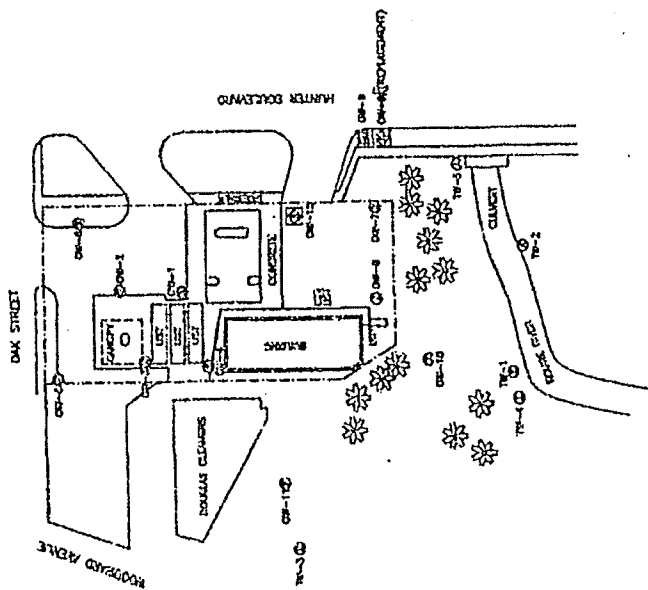
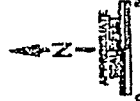
- NO WATER WELLS MAY BE CONSTRUCTED AT THE PROPERTY FOR EITHER POTABLE OR OTHER USE (EXCLUDING WELLS RELATED TO ACTIVITIES OUTLINED IN THE RESTRICTIVE COVENANT).
- THE PROPERTY MUST REMAIN COVERED AND IN GOOD CONDITION WITH AN IMPERMEABLE MATERIAL (ASPHALT, CONCRETE OR OTHER COMPARABLE SURFACE).
- THE PROPERTY USE MUST REMAIN A MINIMUM OF COMMERCIAL SUBCATEGORY III (PER MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY ENVIRONMENTAL RESPONSE DIVISION OPERATIONAL MEMORANDUM #14 (REV. 2), DATED JUNE 6, 1995).
- NO ACTIVITIES PROHIBITED BY OR HINDERING IMPLEMENTATION OR MAINTENANCE OF ACTIONS PROPOSED IN THIS RESTRICTIVE COVENANT SHALL BE PERFORMED. ADDITIONAL ASSESSMENT CAN BE CONDUCTED TO DETERMINE IMPACT OF PROPOSED ACTIVITIES AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ACTIVITIES.
- ANY ADDITIONS OR ALTERATIONS TO CURRENT BUILDINGS OR STRUCTURES MUST FIRST BE ASSESSED FOR ENVIRONMENTAL IMPACT AT THE EXPENSE OF THE OWNER AT THE TIME OF THE ADDITIONS OR ALTERATIONS.
- COSTS INCURRED FROM EXCAVATION, CHARACTERIZATION, AND DISPOSAL OF SOILS OR GROUND WATER REMOVED FROM THE PROPERTY AS A RESULT OF ADDITIONAL SITE CONSTRUCTION ACTIVITIES OR IMPROVEMENTS WILL BE AT THE EXPENSE OF THE OWNER AT THE TIME OF SOILS EXCAVATION OR GROUND WATER REMOVAL.
- AMOCO AND IT'S REPRESENTATIVES RETAIN RIGHT OF ACCESS TO THE PROPERTY TO CONDUCT ACTIVITIES RELATED TO THOSE DESCRIBED IN THIS RESTRICTIVE COVENANT.



USER 18211 213

- CONSTRUCTION WELL
- DETACHED OBSERVATION WELL
- PUMP STATION
- WASTEWATER STORAGE TANK
- MAIN OBSERVATION WELL LOCATION

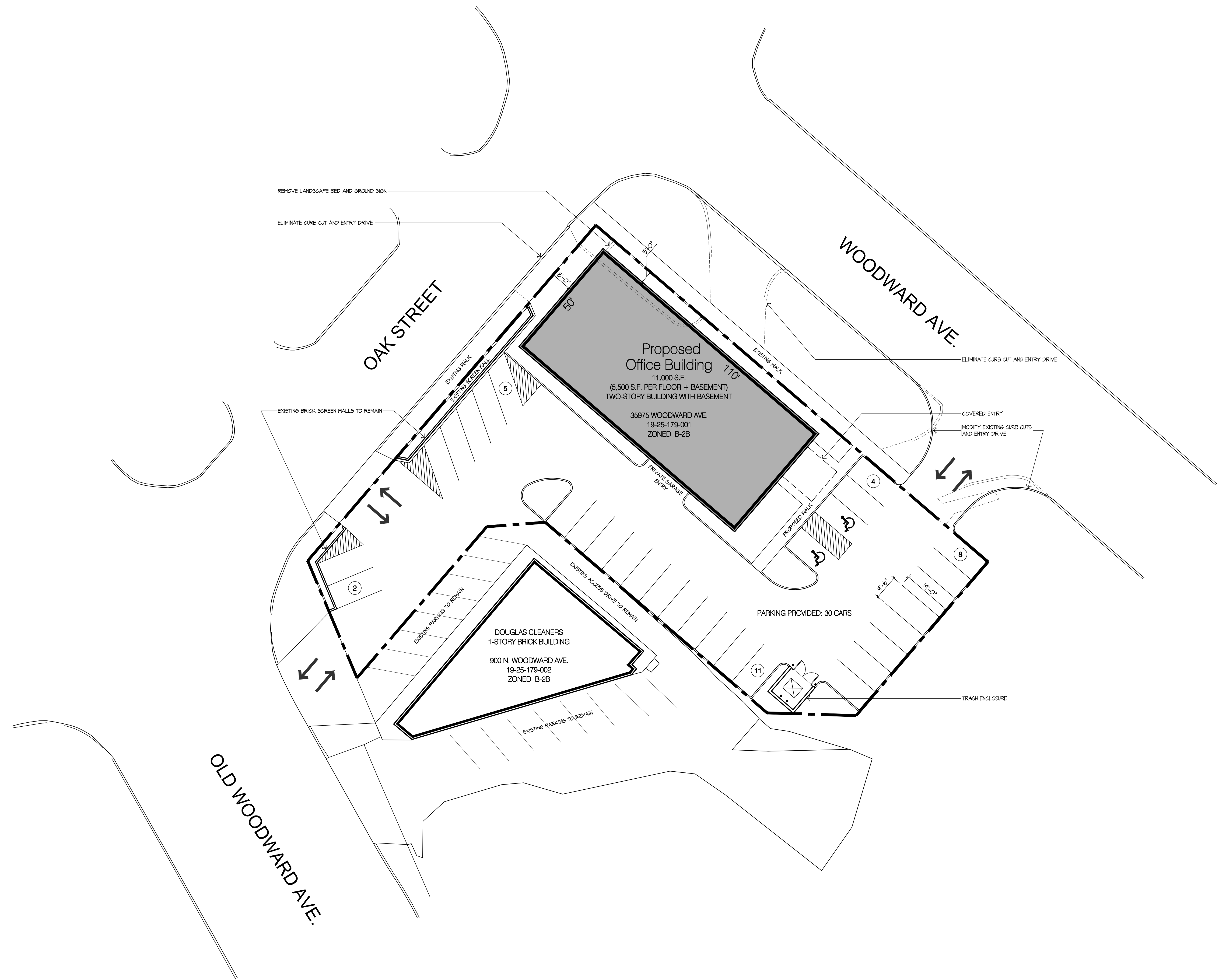
FIGURE 2  
MONITOR WELL LOCATIONS  
905 N. HUNTER BLVD.  
BIRMINGHAM, MICHIGAN



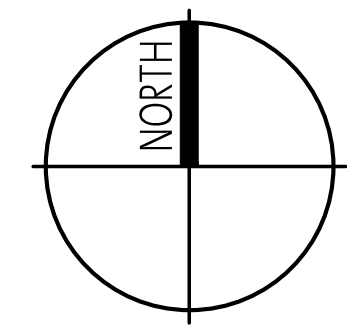
ADAPTED FROM EST. MAP (SCALE, 1940)

**APPENDIX C**  
**SITE CONCEPTUAL DEVELOPMENT PLAN**

A  
B  
C  
D  
E  
F  
G  
H



H6  
A010  
Architectural Site Plan  
SCALE: 1" = 20'-0"



**SAROKI**  
ARCHITECTURE  
430 N. OLD WOODWARD  
BIRMINGHAM, MI 48009  
P. 248.258.5707  
F. 248.258.5515  
SarokiArchitecture.com

**Project:**  
August, LLC  
35975 Woodward Ave.  
Birmingham, Michigan 48009

**Date:** 09-19-2016  
**Issued For:** REVIEW

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

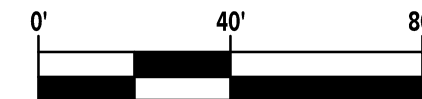
**Sheet No.:**  
**A010**  
ARCHITECTURAL SITE PLAN

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

## **APPENDIX D**

**SOIL, GROUNDWATER, AND SOIL GAS SAMPLE LOCATION DIAGRAMS**

**SOIL, GROUNDWATER, AND SOIL GAS ANALYSIS DATA SUMMARY TABLES**



GRAPHIC SCALE: 1" = 40'

Project

**PROPOSED  
TWO-STORY  
OFFICE BUILDING**

Project Location

**35975 WOODWARD  
AVENUE  
BIRMINGHAM,  
MICHIGAN**

Sheet Name

**SAMPLE LOCATION  
DIAGRAM**

No.	Revision Date

Date **11-4-16**

CADD **GK**

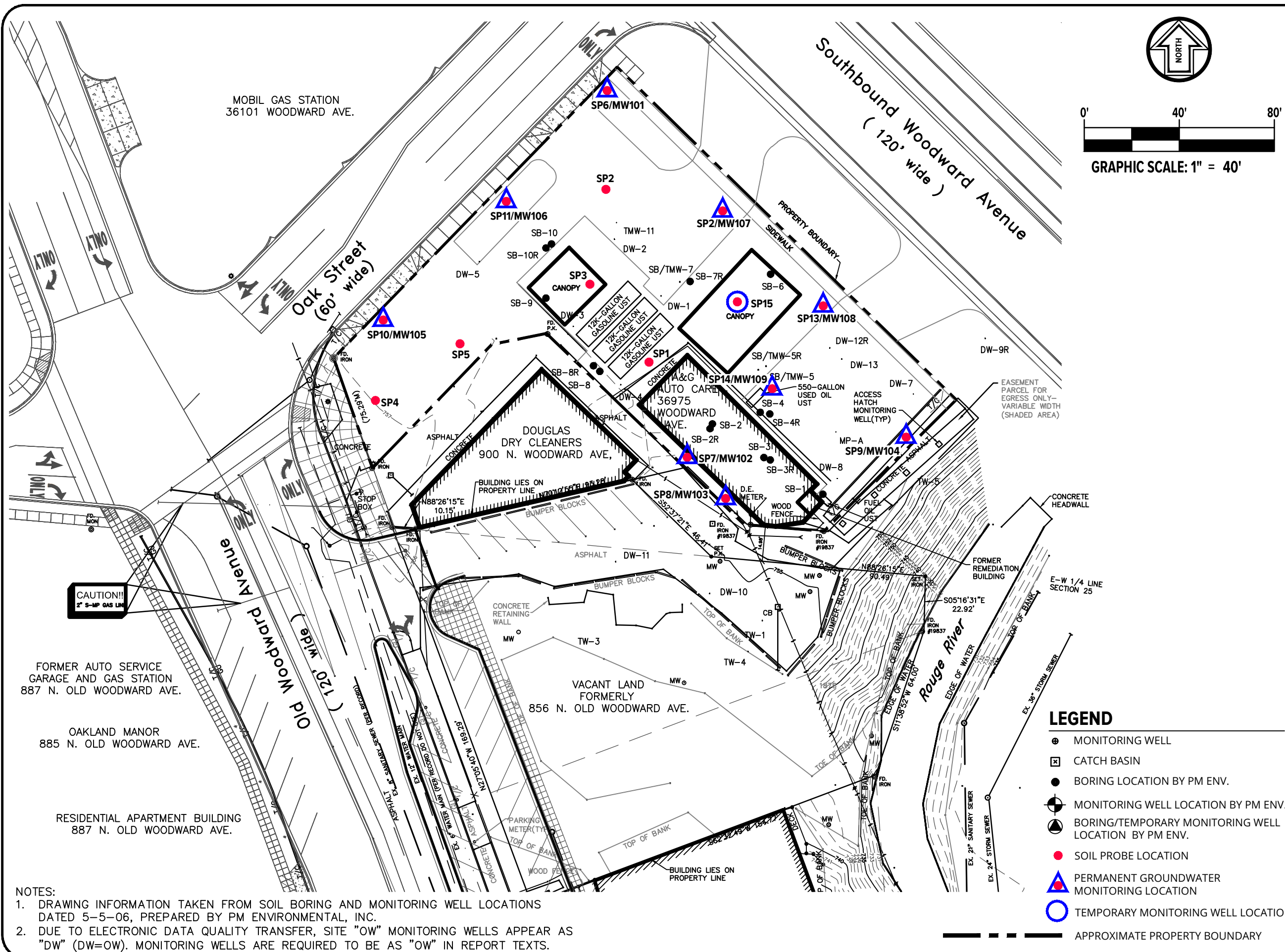
Designer **CEB**

Scale **1" = 40'**

Project **075099.01**

Figure No. **1**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
© 2015



**LEGEND**

- MONITORING WELL
- CATCH BASIN
- BORING LOCATION BY PM ENV.
- MONITORING WELL LOCATION BY PM ENV.
- BORING/TEMPORARY MONITORING WELL LOCATION BY PM ENV.
- SOIL PROBE LOCATION
- PERMANENT GROUNDWATER MONITORING LOCATION
- TEMPORARY MONITORING WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY

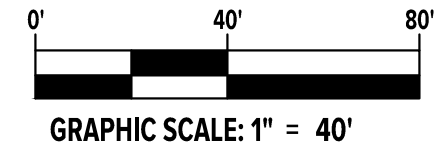
FILE LOCATION: \\sme-inc\pz\WIP\075099.01\CAD\DWGS\rev\075099.01-FIG 1.dwg  
 Nov 04, 2016 - 8:28am - kurdil  
 PLOT DATE:

NOTES:  
 1. DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.  
 2. DUE TO ELECTRONIC DATA QUALITY TRANSFER, SITE "OW" MONITORING WELLS APPEAR AS "DW" (DW=OW). MONITORING WELLS ARE REQUIRED TO BE AS "OW" IN REPORT TEXTS.

**CAUTION!!!**  
2" S-MP GAS LINE



Oct 10, 2016 - 1:59pm - MANDRILA FILE LOCATION: \\sme-inc\p\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg  
 PLOT DATE:



Project  
**AUGUST LLC  
 REDEVELOPMENT  
 PROJECT**

Project Location  
**35975 WOODWARD  
 AVENUE  
 BIRMINGHAM,  
 MICHIGAN**

Sheet Name  
**PROPERTY  
 FEATURES  
 DIAGRAM**

No.	Revision Date

Date **10-10-16**

CADD **GM**

Designer **CEB**

Scale **1" = 40'**

Project **075099.01**

Figure No.  
**2**

**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE OCTOBER 2016 SOIL GAS SAMPLING POINT

NOTE:  
 DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO  
 AND SITE RECONNAISSANCE.

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17"  
 AND WILL SCALE INCORRECTLY IF PRINTED ON ANY  
 OTHER SIZE MEDIA  
 NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR  
 CONSENT OF SME  
 © 2015





**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 1 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification									
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet) Date Collected									
									SB-1 (7' - 8') 02/14/06	SB-2 (9' - 10') 02/14/06	SB-2R (9' - 10') 04/13/06	SB-2R (19' - 20') 04/13/06	SB-3 (19' - 20') 02/14/06	SB-3 (24' - 25') 02/14/06	SB-3R (19' - 20') 04/13/06	SB-3R (24' - 25') 04/13/06	SB-4 (7' - 8') 02/14/06	SB-4 (24' - 25') 02/14/06
<b>VOCs</b>																		
Benzene	71-43-2	NA	100	4,000	8,400	840,000	84.5	<RL	1,100	9,700	56	3,800	91	7,900	<RL	330	<RL	17,000
Ethylbenzene	100-41-4	NA	1,500	360	460,000	71,000,000	3,990	<RL	140	3,000	<RL	5,300	<RL	6,600	<RL	420	<RL	12,000
Isopropylbenzene	92-82-8	NA	260,000	3,200	730,000	80,000,000	304	<RL	<RL	280	<RL	680	<RL	1,100	<RL	78	<RL	1,100
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<RL	200	<RL	980	250	650	<RL	<RL	<RL	<RL	<RL
Naphthalene	91-20-3	NA	100,000	730	470,000	52,000,000	8,940	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	1,000	<RL	7,600
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	NA	<RL	59	<RL	600	<RL	<RL	<RL	410	<RL	NA
n-Propylbenzene	103-65-1	NA	4,600	ID	ID	8,000,000	2,370	<RL	<RL	410	<RL	1,800	<RL	2,100	<RL	260	<RL	3,100
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	NA	<RL	68	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NA
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NA
Tetrahydrofuran	109-99-9	NA	5,400	220,000	2,400,000	9,500,000	11,400	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NA
Toluene	108-88-3	NA	16,000	5,400	610,000	160,000,000	169,000	<RL	220	2,200	<RL	880	<RL	1,800	<RL	1,600	<RL	4,800
1,2,3-Trimethylbenzene	526-73-8	NA	NC	NC	NC	NC	53,500	<RL	<RL	290	<RL	2,300	<RL	2,400	<RL	850	190	9,500
1,2,4-Trimethylbenzene	95-63-6	NA	2,100	570	8,000,000	100,000,000	36,900	<RL	86	1,000	<RL	7,600	74	6,700	<RL	2,900	76	21,000
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	1,100	4,800,000	100,000,000	27,900	<RL	58	1,100	<RL	3,700	<RL	4,200	<RL	760	<RL	7,200
Xylenes	1330-20-7	NA	5,600	820	12,000,000	1,000,000,000	4,890	<RL	290	6,800	<RL	10,000	<RL	14,000	<RL	2,700	180	41,000
Various VOCs	CS	NA	CS	CS	CS	CS	CS	NA	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<RL	<RL	<RL	<RL	330	<RL	<RL	<RL	700	<RL	<RL
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	390	<RL	1,500	<RL	<RL
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	530	<RL	780	<RL	<RL
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	420	<RL	800	<RL	<RL
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	460	<RL	560	<RL	<RL
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	510	<RL	640	<RL	<RL
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<RL	<RL	<RL	<RL	530	<RL	560	<RL	1,400	<RL	<RL
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<RL	<RL	<RL	<RL	620	<RL	680	<RL	2,200	<RL	<RL
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	620	<RL	<RL
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
2-Methylnaphthalene	91-57-6	NA	170,000	4,200	4,900,000	26,000,000	126,000	<RL	<RL	<RL	<RL	430	<RL	630	<RL	16,000	<RL	12,000
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<RL	<RL	<RL	<RL	670	<RL	710	<RL	2,100	<RL	<RL
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<RL	<RL	<RL	<RL	650	<RL	550	<RL	2,200	<RL	<RL
Various PAHs	CS	NA	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS
<b>Metals</b>																		
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	NA	180	430	310	580	200	310	240	200	160	NA
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	NA	10,000	10,000	27,000	7,100	8,300	8,300	22,000	7,100	22,000	NA
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	8,400	27,000	97,000	14,000	2,100,000	24,000	52,000	10,000	44,000	11,000	110,000
Lead, Total (Calculated)*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	11,500	47,000	NA	NA	76,700	87,300	NA	NA	40,700	12,900	NA
Lead, Coarse Fraction*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	6,330	73,200	NA	NA	438,000	38,100	NA	NA	58,500	12,000	NA
Lead, Fine Fraction*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	14,400	34,000	NA	NA	72,400	101,000	NA	NA	37,100	13,200	NA
<b>PCBs</b>																		
All Analyzed PCB Aroclors	CS	NA	NLL	NLL	16,000,000	16000	39,100	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	NA

Notes:  
1. Concentrations reported in micrograms per kilogram (ug/kg).  
2. Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.  
3. Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.  
4. VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.  
5. CS = Criterion is specific to individual constituent.  
6. <RL = Analytical result was less than laboratory reporting limit.  
7. NA = Not analyzed.  
8. NLL = not likely to leach under most soil conditions.  
9. ID = Insufficient data to develop criterion.  
10. NLV = Not likely to volatilize.  
11. \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI.  
Results are presented for surface water receiving bodies not protected as a drinking water source.  
12. *Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 2 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification Depth (feet) Date Collected										
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		SB-4R	SB-5	SB-5R	SB-6	SB-7	SB-7R	SB-7R	SB-8	SB-8	SB-8R	SB-9
									(24' - 25')	(24' - 25')	(9' - 10')	(2' - 3')	(19' - 20')	(8' - 9')	(19' - 20')	(10' - 11')	(17' - 18')	(10' - 11')	(3' - 4')
04/13/06	02/14/06	04/13/06	02/14/06	02/14/06	04/13/06	04/13/06	02/14/06	02/14/06	04/13/06	02/14/06	04/13/06	02/14/06	04/13/06	02/14/06	04/13/06	02/14/06			
<b>VOCs</b>																			
Benzene	71-43-2	NA	<b>100</b>	<b>4,000</b>	8,400	840,000	<b>84.5</b>	<b>580</b>	<RL	<b>72</b>	<RL	<RL	<b>6,800</b>	<RL	<b>1,100</b>	<RL	<b>1,900</b>	<RL	
Ethylbenzene	100-41-4	NA	<b>1,500</b>	<b>360</b>	460,000	71,000,000	3,990	<b>79</b>	<RL	<b>260</b>	<RL	<RL	<b>2,000</b>	<RL	<b>2,600</b>	<RL	<b>1,700</b>	<RL	
Isopropylbenzene	92-82-8	NA	260,000	3,200	730,000	80,000,000	<b>304</b>	<b>90</b>	<RL	<RL	<RL	<RL	<b>100</b>	<RL	<b>950</b>	<RL	<b>410</b>	<RL	
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<RL	<b>330</b>	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Naphthalene	91-20-3	NA	100,000	<b>730</b>	470,000	52,000,000	8,940	<RL	<RL	<b>340</b>	<RL	<RL	<b>470</b>	<RL	<b>5,200</b>	<RL	<b>1,100</b>	<RL	
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	NA	NA	NA	NA	NA	NA	NA	<b>1,200</b>	<RL	<b>320</b>	<RL	
n-Propylbenzene	103-65-1	NA	4,600	ID	ID	8,000,000	<b>2,370</b>	<b>200</b>	<RL	<b>100</b>	<RL	<RL	<b>96</b>	<RL	<b>3,900</b>	<RL	<b>1,400</b>	<RL	
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	NA	NA	NA	NA	NA	NA	NA	<b>400</b>	<RL	<RL	<RL	
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	NA	NA	NA	NA	NA	NA	NA	<RL	<RL	<RL	<RL	
Tetrahydrofuran	109-99-9	NA	5,400	220,000	2,400,000	9,500,000	11,400	NA	NA	NA	NA	NA	NA	NA	<RL	<RL	<RL	<RL	
Toluene	108-88-3	NA	16,000	5,400	610,000	160,000,000	169,000	<RL	<RL	<b>2,200</b>	<RL	<RL	<b>4,600</b>	<RL	<b>150</b>	<RL	<b>240</b>	<RL	
1,2,3-Trimethylbenzene	526-73-8	NA	NC	NC	NC	NC	53,500	<b>110</b>	<RL	<b>1,500</b>	<RL	<RL	<b>81</b>	<RL	<b>11,000</b>	<RL	<b>4,100</b>	<RL	
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	<b>570</b>	8,000,000	100,000,000	36,900	<b>97</b>	<RL	<b>550</b>	<RL	<RL	<b>180</b>	<RL	<b>14,000</b>	<RL	<b>6,900</b>	<RL	
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	1,100	4,800,000	100,000,000	27,900	<b>55</b>	<RL	<RL	<RL	<RL	<b>110</b>	<RL	<b>930</b>	<RL	<b>630</b>	<RL	
Xylenes	1330-20-7	NA	<b>5,600</b>	<b>820</b>	12,000,000	1,000,000,000	<b>4,890</b>	<b>270</b>	<RL	<b>1,400</b>	<RL	<RL	<b>5,200</b>	<RL	<b>5,600</b>	<RL	<b>5,200</b>	<RL	
Various VOCs		NA	CS	CS	CS	CS	CS	NA	NA	NA	NA	NA	NA	NA	<RL	<RL	<RL	<RL	
<b>PAHs</b>																			
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<RL	<RL	<RL	<RL	<RL	<b>450</b>	<RL	<RL	<RL	<RL	<RL	
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	<b>1,000</b>	<RL	<RL	<RL	<b>540</b>	<RL	
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	<b>1,200</b>	<RL	<RL	<RL	<b>770</b>	<RL	
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<RL	<RL	<RL	<RL	<RL	<b>790</b>	<RL	<RL	<RL	<b>720</b>	<RL	
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<RL	<RL	<RL	<RL	<RL	<b>570</b>	<RL	<RL	<RL	<b>510</b>	<RL	
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<RL	<RL	<RL	<RL	<RL	<b>1,400</b>	<RL	<RL	<RL	<b>700</b>	<RL	
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<RL	<RL	<RL	<RL	<RL	<b>1,200</b>	<RL	<RL	<RL	<b>750</b>	<RL	
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<RL	<RL	<b>380</b>	<RL	<RL	<b>2,200</b>	<RL	<RL	<RL	<b>1,100</b>	<RL	
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	<b>450</b>	<RL	<RL	<RL	<b>450</b>	<RL	
2-Methylnaphthalene	91-57-6	NA	170,000	4,200	4,900,000	26,000,000	126,000	<RL	<RL	<b>250</b>	<RL	<RL	<RL	<RL	<b>2,300</b>	<RL	<b>430</b>	<RL	
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<RL	<RL	<RL	<RL	<RL	<b>1,500</b>	<RL	<RL	<RL	<b>550</b>	<RL	
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<RL	<RL	<RL	<RL	<RL	<b>1,600</b>	<RL	<RL	<RL	<b>810</b>	<RL	
Various PAHs		NA	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	
<b>Metals</b>																			
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<RL	
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<RL	
Lead	7439-92-1	21,000	<b>700,000</b>	5,100,000	NLV	<b>900,000</b>	NC	<b>10,000</b>	<b>12,000</b>	<b>1,700,000</b>	<b>55,000</b>	<b>11,000</b>	<b>110,000</b>	<b>12,000</b>	<b>120,000</b>	<b>9,700</b>	<b>34,000</b>	<RL	
Lead, Total (Calculated)*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	NA	NA	NA	NA	NA	NA	NA	NA	<b>10,200</b>	NA	<RL	
Lead, Coarse Fraction*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	NA	NA	NA	NA	NA	NA	NA	NA	<b>10,100</b>	NA	<RL	
Lead, Fine Fraction*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	NA	NA	NA	NA	NA	NA	NA	NA	<b>10,200</b>	NA	<RL	
<b>PCBs</b>																			
All Analyzed PCB Aroclors	CS	NA	NLL	NLL	16,000,000	16000	39,100	NA	NA	<RL	NA	NA	NA	NA	NA	NA	NA	NA	

- Notes:
- Concentrations reported in micrograms per kilogram (ug/kg).
  - Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
  - Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
  - VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
  - CS = Criterion is specific to individual constituent.
  - <RL = Analytical result was less than laboratory reporting limit.
  - NA = Not analyzed.
  - NLL = not likely to leach under most soil conditions.
  - ID = Insufficient data to develop criterion.
  - NLV = Not likely to volatilize.
  - \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
  - Italicized = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 3 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification Depth (feet) Date Collected				
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		SB-8R	SB-9	SB-10	SB-10R	SB-10R
									(24' - 25')	(3' - 4')	(5' - 6')	(4' - 5')	(24' - 25')
								04/13/06	02/14/06	02/14/06	04/13/06	04/13/06	
<b>VOCs</b>													
Benzene	71-43-2	NA	<b>100</b>	<b>4,000</b>	<b>8,400</b>	840,000	<b>84.5</b>	<RL	<RL	<b>10,000</b>	<b>10,000</b>	<RL	
Ethylbenzene	100-41-4	NA	<b>1,500</b>	<b>360</b>	<b>460,000</b>	71,000,000	<b>3,990</b>	<RL	<RL	<b>88,000</b>	<b>50,000</b>	<b>64</b>	
Isopropylbenzene	92-82-8	NA	260,000	<b>3,200</b>	730,000	80,000,000	<b>304</b>	<RL	<RL	<b>7,200</b>	<b>4,300</b>	<RL	
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<RL	<RL	<RL	<RL	<RL	
Naphthalene	91-20-3	NA	100,000	<b>730</b>	470,000	52,000,000	<b>8,940</b>	<RL	<RL	<b>23,000</b>	<b>10,000</b>	<RL	
n-Butylbenzene	104-51-8	NA	<b>4,600</b>	ID	ID	8,000,000	<b>7,560</b>	<RL	NA	NA	<b>9,500</b>	NA	
n-Propylbenzene	103-65-1	NA	<b>4,600</b>	ID	ID	8,000,000	<b>2,370</b>	<RL	<RL	<b>30,000</b>	<b>17,000</b>	<RL	
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	<b>738</b>	<RL	NA	NA	<b>2,200</b>	NA	
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	<RL	NA	NA	<RL	NA	
Tetrahydrofuran	109-99-9	NA	<b>5,400</b>	220,000	2,400,000	9,500,000	<b>11,400</b>	<RL	NA	NA	<b>150,000</b>	NA	
Toluene	108-88-3	NA	<b>16,000</b>	5,400	610,000	160,000,000	<b>169,000</b>	<RL	<RL	<b>23,000</b>	<b>34,000</b>	<RL	
1,2,3-Trimethylbenzene	526-73-8	NA	NC	NC	NC	NC	<b>53,500</b>	<RL	<RL	<b>54,000</b>	<b>33,000</b>	<b>70</b>	
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	<b>570</b>	8,000,000	100,000,000	<b>36,900</b>	<RL	<RL	<b>160,000</b>	<b>100,000</b>	<b>180</b>	
1,3,5-Trimethylbenzene	108-67-8	NA	<b>1,800</b>	<b>1,100</b>	4,800,000	100,000,000	<b>27,900</b>	<RL	<RL	<b>53,000</b>	<b>32,000</b>	<b>57</b>	
Xylenes	1330-20-7	NA	<b>5,600</b>	<b>820</b>	12,000,000	1,000,000,000	<b>4,890</b>	<RL	<RL	<b>300,000</b>	<b>220,000</b>	<b>310</b>	
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	NA	NA	<RL	NA	
<b>PAHs</b>													
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<RL	<RL	<RL	<RL	<RL	
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<RL	<RL	<RL	<RL	<RL	
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<RL	<RL	<RL	<RL	<RL	
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<RL	<RL	<RL	<RL	<RL	
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<RL	<RL	<RL	<RL	<RL	
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<RL	<RL	<RL	<RL	<RL	
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<RL	<RL	<RL	<RL	<RL	
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<RL	<RL	<RL	<RL	<RL	
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<RL	<RL	<RL	<RL	<RL	
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<RL	<RL	<RL	<RL	<RL	
2-Methylnaphthalene	91-57-6	NA	170,000	<b>4,200</b>	4,900,000	26,000,000	126,000	<RL	<RL	<b>14,000</b>	<b>11,000</b>	<RL	
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<RL	<RL	<RL	<RL	<RL	
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<RL	<RL	<RL	<RL	<RL	
Various PAHs		NA	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	
<b>Metals</b>													
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	<b>9,500</b>	<b>4,200</b>	<b>88,000</b>	<b>60,000</b>	<b>11,000</b>	

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NLL = not likely to leach under most soil conditions.
- ID = Insufficient data to develop criterion.
- NLV = Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



TABLE 1  
SUMMARY OF ANALYSIS RESULTS - SOIL  
35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN  
SME PROJECT NO.: 075099.01  
PAGE 4 OF 7

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria					Vapor Intrusion Screening Levels	Sample Identification									
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	Nonresidential Vapor Intrusion Soil Screening Levels		Depth (feet)		Date Collected		SP6 Duplicate					
									SP1	SP1	SP1	SP2		SP2	SP3	SP3	SP4	SP5
								(1' - 2')	(8' - 9')	(10' - 11')	(1' - 2')	(3' - 4')	(1' - 2')	(12' - 13')	(2' - 3')	(1' - 2')	(1' - 2')	(1' - 2')
								03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/07/07	03/08/07	03/07/07	03/07/07	03/07/07	03/07/07
<b>VOCs</b>																		
Benzene	71-43-2	NA	<b>100</b>	4,000	8,400	840,000	<b>84.5</b>	<50	<b>5,400</b>	<b>1,600</b>	<50	<b>270</b>	<50	<b>2,100</b>	<50	<50	<50	<50
Ethylbenzene	100-41-4	NA	<b>1,500</b>	<b>360</b>	460,000	71,000,000	<b>3,990</b>	<50	<b>11,000</b>	<b>31,000</b>	<50	<50	<50	<b>1,800</b>	<50	<50	<50	<50
Isopropylbenzene	92-82-8	NA	260,000	<b>3,200</b>	730,000	80,000,000	<b>304</b>	<250	<b>1,200</b>	<b>3,600</b>	<250	<250	<250	<b>850</b>	<250	<250	<250	<250
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
Naphthalene	91-20-3	NA	100,000	<b>730</b>	470,000	52,000,000	8,940	<330	<330	<b>10,000</b>	<330	<330	<330	<b>550</b>	<330	<330	<330	<330
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
n-Propylbenzene	103-65-1	NA	<b>4,600</b>	ID	ID	8,000,000	<b>2,370</b>	<100	<b>4,900</b>	<b>13,000</b>	<100	<100	<100	<b>2,900</b>	<100	<100	<100	<100
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	108-88-3	NA	16,000	<b>5,400</b>	610,000	160,000,000	169,000	<50	<b>8,700</b>	<b>5,100</b>	<50	<b>68</b>	<50	<b>570</b>	<50	<50	<50	<50
1,2,4-Trimethylbenzene	95-63-6	NA	<b>2,100</b>	<b>570</b>	8,000,000	100,000,000	<b>36,900</b>	<100	<b>37,000</b>	<b>120,000</b>	<100	<100	<100	<b>1,200</b>	<100	<100	<100	<100
1,3,5-Trimethylbenzene	108-67-8	NA	<b>1,800</b>	<b>1,100</b>	4,800,000	100,000,000	27,900	<100	<b>7,000</b>	<b>25,000</b>	<100	<100	<100	<b>410</b>	<100	<100	<100	<100
Xylenes	1330-20-7	NA	<b>5,600</b>	<b>820</b>	12,000,000	1,000,000,000	<b>4,890</b>	<150	<b>62,000</b>	<b>130,000</b>	<150	<150	<150	<b>2,200</b>	<150	<150	<150	<150
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>690</b>	<330	<330
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>850</b>	<330	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,100</b>	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>500</b>	<330	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>410</b>	<330	<330
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>810</b>	<330	<330
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	ND	<330	<330
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,900</b>	<330	<330
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<b>550</b>	<330	<330
2-Methylnaphthalene	91-57-6	NA	170,000	<b>4,200</b>	4,900,000	26,000,000	126,000	<330	<330	<b>10,000</b>	<330	<330	<330	<b>1,500</b>	<330	<330	<330	<330
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,700</b>	<330	<330
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<330	<330	<330	<330	<330	<330	<330	<330	<b>1,500</b>	<330	<330
Various PAHs		NA	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS
<b>Metals</b>																		
Arsenic	7440-38-2	5,800	<b>5,800</b>	<b>5,800</b>	NLV	37,000	NC	NE	NE	NE	NE	5,000	NE	NE	NE	NE	NE	NE
Barium	7440-39-3	75,000	1,300,000	440,000*	NLV	130,000,000	NC	NE	NE	NE	NE	57,000	NE	NE	NE	NE	NE	NE
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	<b>67</b>	<b>370</b>	<b>200</b>	<b>84</b>	<b>410</b>	<b>77</b>	<b>260</b>	<b>150</b>	<b>520</b>	<b>78</b>	<b>87</b>
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	<b>3,400</b>	<b>11,000</b>	<b>12,000</b>	<b>3,900</b>	<b>17,000</b>	<b>4,100</b>	<b>9,700</b>	<b>15,000</b>	<b>12,000</b>	<b>3,500</b>	<b>2,900</b>
Lead, Total (Calculated)*	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	<b>2,500</b>	<b>46,000</b>	<b>25,000</b>	<b>6,300</b>	<b>49,000</b>	<b>3,500</b>	<b>27,000</b>	<b>9,500</b>	<b>66,000</b>	<b>4,000</b>	<b>5,100</b>
Mercury	7439-97-6	130	1,700	<b>130</b>	89,000	580,000	ID	NE	NE	NE	NE	<b>62</b>	NE	NE	NE	NE	NE	NE
Selenium	7782-49-2	410	4,000	<b>410</b>	NLV	9,600,000	NC	NE	NE	NE	NE	<b>660</b>	NE	NE	NE	NE	NE	NE
Silver	7440-22-4	1,000	13,000	<b>1,000</b>	NLV	9,000,000	NC	NE	NE	NE	NE	<b>160</b>	NE	NE	NE	NE	NE	NE

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NLL = not likely to leach under most soil conditions.
- ID = Insufficient data to develop criterion.
- NLV = Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI.
- Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 5 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria					Nonresidential Vapor Intrusion Soil Screening Levels	Sample Identification											
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria	Vapor Intrusion Screening Levels		Depth (feet) Boring Location Date Collected											
									SP6 (7' - 8')	SP7 (4' - 5')	SP7 (18' - 19')	SP8 (0.5' - 1.5')	SP8 (11' - 12')	SP8 (20' - 21')	SP9 (3' - 4')	SP9 (9' - 10')	SP10 (3' - 4')	SP11 (1' - 2')	SP11 (6 - 6.5')	
								03/07/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/08/07	03/09/07	03/09/07	03/09/07	
<b>VOCs</b>																				
Benzene	71-43-2	NA	100	4,000	8,400	840,000	84.5	<50	<50	6,700	<50	350	2,500	220	<50	<50	260	750		
Ethylbenzene	100-41-4	NA	1,500	360	460,000	71,000,000	3,990	<50	<50	7,300	<50	74	1,900	320	77	<50	550	6,100		
Isopropylbenzene	92-82-8	NA	260,000	3,200	730,000	80,000,000	304	<250	<250	<13,000	<250	<250	440	<250	<250	<250	<250	770		
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<250	<250	<13,000	<250	<250	<250	<250	<250	<250	<250	<250		
Naphthalene	91-20-3	NA	100,000	730	470,000	52,000,000	8,940	<330	<330	<17,000	<330	<330	<330	<330	<330	<330	<330	1,400		
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	<50	<50	5,100	<50	<50	56	<50	<50	<50	64	1,100		
n-Propylbenzene	103-65-1	NA	4,600	ID	ID	8,000,000	2,370	<100	<100	8,200	<100	<100	500	130	<100	<100	200	3,000		
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	<50	<50	<2,500	<50	<50	71	<50	<50	<50	<50	300		
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	<50	1,100	<2,500	79	<50	<50	<50	<50	<50	<50	<50		
Toluene	108-88-3	NA	16,000	5,400	610,000	160,000,000	169,000	<50	<50	<2,500	<50	120	470	350	190	<50	480	140		
1,2,4-Trimethylbenzene	95-63-6	NA	2,100	570	8,000,000	100,000,000	36,900	<100	<100	6,900	<100	<100	1,300	320	110	<100	1,800	130		
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	1,100	4,800,000	100,000,000	27,900	<100	<100	<5,000	<100	<100	960	100	<100	<100	560	<100		
Xylenes	1330-20-7	NA	5,600	820	12,000,000	1,000,000,000	4,890	<150	<150	8,200	<150	280	5,300	1,600	390	<150	2,500	740		
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL		
<b>PAHs</b>																				
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330		
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<330	<330	<330	990	<330	<330	<330	<330	<330	<330	<330		
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<330	380	<330	4,300	650	<330	<330	970	<330	<330	<330		
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	5,100	440	<330	<330	1,300	<330	<330	<330		
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<330	340	<330	7,200	650	<330	<330	1,300	<330	<330	<330		
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<330	<330	<330	4,000	400	<330	<330	1,900	<330	<330	<330		
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<330	<330	<330	2,500	<330	<330	<330	440	<330	<330	<330		
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<330	<330	<330	5,300	690	<330	<330	1,300	<330	<330	<330		
Dibenz(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	650	<330	<330	<330	530	<330	<330	<330		
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<330	530	<330	11,000	1,000	<330	<330	1,500	<330	<330	<330		
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330		
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330	4,200	<330	<330	<330	1,100	<330	<330	<330		
2-Methylnaphthalene	91-57-6	NA	170,000	4,200	4,900,000	26,000,000	126,000	<330	<330	570	<330	610	420	<330	1,100	<330	<330	6,900		
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<330	<330	<330	4,600	890	340	<330	1,500	<330	<330	<330		
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<330	460	<330	8,200	970	<330	<330	1,500	<330	<330	<330		
Various PAHs		NA	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS		
<b>Metals</b>																				
Arsenic	7440-38-2	5,800	5,800	5,800	NLV	37,000	NC	NE	NE	NE	NE	NE	NE	NE	19,000	NE	NE	NE		
Barium	7440-39-3	75,000	1,300,000	440,000*	NLV	130,000,000	NC	NE	NE	NE	NE	NE	NE	NE	160,000	NE	NE	NE		
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	160	290	320	1,100	340	380	330	1,300	130	300	260		
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	12,000	11,000	10,000	7,500	11,000	7,000	9,300	14,000	9,700	13,000	7,400		
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	9,200	32,000	71,000	72,000	54,000	56,000	37,000	1,200,000	7,000	61,000	61,000		
Mercury	7439-97-6	130	130	130	ID	89,000	ID	NE	NE	NE	NE	NE	NE	NE	610	NE	NE	NE		
Selenium	7782-49-2	410	410	410	NLV	9,600,000	NC	NE	NE	NE	NE	NE	NE	NE	1,200	NE	NE	NE		
Silver	7440-22-4	1,000	13,000	1,000	NLV	9,000,000	NC	NE	NE	NE	NE	NE	NE	NE	300	NE	NE	NE		

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NLL = not likely to leach under most soil conditions.
- ID = Insufficient data to develop criterion.
- NLV = Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.





**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 6 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria				Nonresidential Vapor Intrusion Soil Screening Levels	Sample Identification Depth (feet) Boring Location Date Collected										
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria		SP12 (1' - 2')	SP12 (11' - 12')	SP12 Duplicate (11' - 12')	SP12 (17' - 18')	SP13 (1' - 2')	SP13 (6' - 7')	SP13 (13' - 14')	SP14 (1' - 2')	SP14 (10' - 11')	SP14 (26' - 27')	SP15 (4' - 6')
								03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07	03/09/07
<b>VOCs</b>																		
Benzene	71-43-2	NA	100	4,000	8,400	840,000	84.5	<50	5,300	5,000	430	250	1,800	2,900	<50	3,100	<50	4,700
Ethylbenzene	100-41-4	NA	1,500	360	460,000	71,000,000	3,990	<50	7,500	9,800	<50	1,500	2,900	4,400	<50	3,200	<50	8,700
Isopropylbenzene	92-82-8	NA	260,000	3,200	730,000	80,000,000	304	<250	1,100	980	<250	<250	<250	280	<250	270	<250	1,600
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
Naphthalene	91-20-3	NA	100,000	730	470,000	52,000,000	8,940	<330	4,200	4,100	<330	<330	410	<330	<330	470	<330	7,800
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	<50	3,300	2,600	<50	1,400	130	87	<50	750	<50	4,700
n-Propylbenzene	103-65-1	NA	4,600	ID	ID	8,000,000	2,370	<100	5,200	4,800	350	1,100	770	690	<100	1,400	<100	8,100
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	<50	480	450	<50	260	<50	<50	<50	120	<50	740
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toluene	108-88-3	NA	16,000	5,400	610,000	160,000,000	169,000	<50	620	610	72	1,100	670	100	<50	1,600	<50	7,300
1,2,4-Trimethylbenzene	95-63-6	NA	2,100	570	8,000,000	100,000,000	36,900	<100	18,000	21,000	140	4,800	4,800	3,000	<100	6,300	<100	10,000
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	1,100	4,800,000	100,000,000	27,900	<100	7,000	6,100	<100	870	1,200	950	<100	1,700	<100	6,300
Xylenes	1330-20-7	NA	5,600	820	12,000,000	1,000,000,000	4,890	<150	16,000	20,000	790	3,600	8,100	8,100	<150	8,800	<150	11,000
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL
<b>PAHs</b>																		
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Dibenz(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330	<330
2-Methylnaphthalene	91-57-6	NA	170,000	4,200	4,900,000	26,000,000	126,000	<330	2,200	1,900	<330	<330	<330	<330	<330	6,900	<330	13,000
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<330	<330	<330	<330	<330	<330	<330	<330	810	<330	<330
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<330	<330	<330	<330	<330	<330	<330	<330	510	<330	<330
Various PAHs		NA	CS	CS	CS	CS	CS	NA	NA	NA	CS	NA	NA	CS	NA	CS	NA	CS
<b>Metals</b>																		
Arsenic	7440-38-2	5,800	5,800	5,800	NLV	37,000	NC	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Barium	7440-39-3	75,000	1,300,000	440,000*	NLV	130,000,000	NC	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	150	170	180	160	320	210	310	93	310	190	240
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	9,700	18,000	16,000	14,000	8,600	15,000	13,000	5,300	6,900	19,000	11,000
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	29,000	16,000	18,000	10,000	120,000	11,000	12,000	6,300	84,000	11,000	58,000
Mercury	7439-97-6	130	1,700	130	89,000	580,000	ID	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Selenium	7782-49-2	410	4,000	410	NLV	9,600,000	NC	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Silver	7440-22-4	1,000	13,000	1,000	NLV	9,000,000	NC	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

- Notes:
- Concentrations reported in micrograms per kilogram (ug/kg).
  - Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
  - Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
  - VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
  - CS = Criterion is specific to individual constituent.
  - <RL = Analytical result was less than laboratory reporting limit.
  - NA = Not analyzed.
  - NLL = not likely to leach under most soil conditions.
  - ID - Insufficient data to develop criterion.
  - NLV - Not likely to volatilize.
  - \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI.
- Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.





**TABLE 1**  
**SUMMARY OF ANALYSIS RESULTS - SOIL**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 7 OF 7**

CONSTITUENT	Chemical Abstract Service Number	Statewide Default Background Levels	Part 201 Generic Nonresidential Cleanup Criteria				Nonresidential Vapor Intrusion Soil Screening Levels	Sample Identification		
			Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Direct Contact Criteria		Depth (feet) Boring Location Date Collected		
								SP15 Duplicate (4' - 6')	SP15 (10' - 11')	SP15 (20' - 22')
							03/12/07	03/12/07	03/12/07	
<b>VOCs</b>										
Benzene	71-43-2	NA	100	4,000	8,400	840,000	84.5	7,000	68,000	590
Ethylbenzene	100-41-4	NA	1,500	360	460,000	71,000,000	3,990	10,000	11,000	<50
Isopropylbenzene	92-82-8	NA	260,000	3,200	730,000	80,000,000	304	1,600	7,600	<250
Methyl-tert-butyl-ether (MTBE)	163-40-44	NA	800	140,000	18,000,000	7,100,000	238,000	<250	<250	270
Naphthalene	91-20-3	NA	100,000	730	470,000	52,000,000	8,940	7,100	40,000	<330
n-Butylbenzene	104-51-8	NA	4,600	ID	ID	8,000,000	7,560	4,500	20,000	<50
n-Propylbenzene	103-65-1	NA	4,600	ID	ID	8,000,000	2,370	7,800	33,000	180
sec-Butylbenzene	135-98-8	NA	4,600	ID	ID	8,000,000	738	700	2,400	<50
Tetrachloroethene	127-18-4	NA	100	1,200	21,000	930,000	50	<50	<50	<50
Toluene	108-88-3	NA	16,000	5,400	610,000	160,000,000	169,000	6,500	910,000	<50
1,2,4-Trimethylbenzene	95-63-6	NA	2,100	570	8,000,000	100,000,000	36,900	14,000	210,000	<100
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	1,100	4,800,000	100,000,000	27,900	6,900	65,000	<100
Xylenes	1330-20-7	NA	5,600	820	12,000,000	1,000,000,000	4,890	13,000	460,000	260
Various VOCs		NA	CS	CS	CS	CS	CS	<RL	<RL	<RL
<b>PAHs</b>										
Acenaphthene	83-32-9	NA	880,000	8,700	350,000,000	130,000,000	7,260,000	<330	<330	<330
Anthracene	120-12-7	NA	41,000	ID	1,000,000,000	7,300,000	598,000,000	<330	<330	<330
Benzo(a)anthracene	56-55-3	NA	NLL	NLL	NLV	80,000	NC	<330	520	<330
Benzo(a)pyrene	50-32-8	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330
Benzo(b)fluoranthene	205-99-2	NA	NLL	NLL	ID	80,000	NC	<330	400	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLL	NLV	7,000,000	NC	<330	<330	<330
Benzo(k)fluoranthene	207-08-9	NA	NLL	NLL	NLV	800,000	NC	<330	<330	<330
Chrysene	218-01-9	NA	NLL	NLL	ID	8,000,000	NC	<330	360	<330
Dibenzo(a,h)anthracene	53-70-3	NA	NLL	NLL	NLV	8,000	NC	<330	<330	<330
Fluoranthene	206-44-0	NA	730,000	5,500	1,000,000,000	130,000,000	NC	<330	1,100	<330
Fluorene	86-73-7	NA	890,000	5,300	1,000,000,000	87,000,000	11,900,000	<330	<330	<330
Indeno(1,2,3-cd)pyrene	193-39-5	NA	NLL	NLL	NLV	80,000	NC	<330	<330	<330
2-Methylnaphthalene	91-57-6	NA	170,000	4,200	4,900,000	26,000,000	126,000	15,000	21,000	<330
Phenanthrene	85-01-8	NA	160,000	2,100	5,100,000	5,200,000	86,300	<330	1,100	<330
Pyrene	129-00-0	NA	480,000	ID	1,000,000,000	84,000,000	1,090,000,000	<330	800	<330
Various PAHs		NA	CS	CS	CS	CS	CS	NA	NA	NA
<b>Metals</b>										
Arsenic	7440-38-2	5,800	5,800	5,800	NLV	37,000	NC	NE	5,100	NE
Barium	7440-39-3	75,000	1,300,000	440,000*	NLV	130,000,000	NC	NE	42,000	NE
Cadmium	7440-43-9	1,200	6,000	3,600*	NLV	2,100,000	NC	160	200	190
Chromium, Total	7440-47-3	18,000	1,000,000,000	1,000,000,000*	NLV	1,000,000,000	NC	25,000	7,900	19,000
Lead	7439-92-1	21,000	700,000	5,100,000	NLV	900,000	NC	14,000	120,000	11,000
Mercury	7439-97-6	130	1,700	130	89,000	580,000	ID	NE	88	NE
Selenium	7782-49-2	410	4,000	410	NLV	9,600,000	NC	NE	380	NE
Silver	7440-22-4	1,000	13,000	1,000	NLV	9,000,000	NC	NE	<100	NE

Notes:

- Concentrations reported in micrograms per kilogram (ug/kg).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.46, Table 3. Soil: Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels, and the MDEQ Guidance Document for the Vapor Intrusion Pathway, Nonresidential Soil Screening Levels, dated May 2013.
- Results greater than reporting limits (RLs) are shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds, PAHs = polynuclear aromatic hydrocarbons, and PCBs = polychlorinated biphenyls. Refer to the analytical report for the full list of VOC, PAH, and PCB analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was less than laboratory reporting limit.
- NA = Not analyzed.
- NLL = not likely to leach under most soil conditions.
- ID = Insufficient data to develop criterion.
- NLV = Not likely to volatilize.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- Italicized* = the respective criterion was less than the Statewide Default Background Level (SDBL) and therefore the value defaulted to the SDBL value.



**TABLE 2**  
**SUMMARY OF ANALYSIS RESULTS - GROUNDWATER**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO. 075099.01**  
**PAGE 1 of 3**

CONSTITUENT	Chemical Abstract Service Number	Part 201 Generic Nonresidential Cleanup Criteria			Vapor Intrusion Screening Levels	Sample Identification Screened Interval (feet) Date Collected												
		Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria		Nonresidential Vapor Intrusion Groundwater Screening Levels	OW-1	OW-1	OW-1	OW-4	OW-4	OW-7	OW-7	OW-11	OW-12R	MP-A	TW-1	TW-4
							(5' - 15')	(5' - 15')	(5' - 15') Duplicate	(5' - 15')	(5' - 15')	(18.5' - 28.5')	(18.5' - 28.5')	(14.5' - 19.5')	(4' - 9')	Unknown	Unknown	Unknown
10/24/05	03/15/07	03/15/07	10/24/05	03/15/07	10/24/05	03/15/07	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05	10/24/05			
<b>VOCs</b>																		
Benzene	71-43-2	5	200	35,000	140	2,100	2,400	1,100	530	91	190	36	<RL	610	460	66	62	
n-Butylbenzene	104-51-8	230	ID	ID	380	<RL	17	<1.0	<RL	1.8	<RL	<1.0	<RL	<RL	<RL	<RL	<RL	
sec-Butylbenzene	135-98-8	230	ID	ID	68	<RL	7.2	7.7	<RL	1.8	<RL	<1.0	<RL	<RL	<RL	<RL	<RL	
Chloromethane	74-87-3	1,100	ID	45,000	1,100	<RL	NA	NA	9.0	NA	<RL	NA	<RL	<RL	<RL	<RL	<RL	
cis-1,2-Dichloroethylene	156-59-2	70	620	210,000	350	<RL	NA	NA	<RL	NA	<RL	NA	<RL	<RL	<RL	1.0	11	
trans-1,2-Dichloroethylene	156-60-5	100	1,500	200,000	1,500	<RL	NA	NA	<RL	NA	<RL	NA	<RL	<RL	<RL	<RL	4.0	
Ethylbenzene	100-41-4	74	18	170,000	2,600	1,600	1,500	4,000	20	3.5	<RL	1.9	<RL	89	53	2.0	<RL	
Isopropyl benzene	98-82-8	2,300	28	56,000	53	87	87	100	12	<5.0	<RL	<5.0	<RL	3.0	16	22	<RL	
Methyl-tert-butyl ether (MTBE)	1634-04-4	40	7,100	47,000,000	1,000,000	<RL	<5.0	<5.0	<RL	<5.0	820	130	<RL	<RL	150	50	35	
Naphthalene	91-20-3	1,500	11	31,000	1,200	45	72	63	<RL	<5.0	<RL	<5.0	<RL	<RL	<RL	<RL	<RL	
n-Propylbenzene	103-65-1	230	ID	ID	390	220	230	240	36	15	<RL	4.8	<RL	6.0	28	44	<RL	
Tetrachloroethylene	127-18-4	5	60	170,000	460	<RL	NA	NA	<RL	NA	<RL	NA	<RL	<RL	<RL	<RL	<RL	
Toluene	108-88-3	790	270	530,000	150,000	120	150	180	6.0	1.1	<RL	1.5	<RL	14	3.0	2.0	<RL	
1,2,3-Trimethylbenzene	526-73-8	NA	NA	NA	10,000	610	NA	NA	46	NA	4.0	NA	<RL	27	<RL	<RL	<RL	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	7.3	360	180	<1.0	17	2	<RL	1.3	<RL	74	<RL	1.0	<RL	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	5.1	170	100	110	6.0	<1.0	<RL	<1.0	<RL	15	<RL	<RL	<RL	
Vinyl chloride	75-01-4	2	13	13,000	52	<RL	NA	NA	<RL	NA	<RL	NA	<RL	<RL	<RL	2.0	29	
Xylenes	1330-20-7	280	41	190,000	10,000	1,000	770	3,900	33	3.4	<RL	10	<RL	260	<RL	3.0	<RL	
Other VOC Constituents	CS	CS	CS	CS	CS	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																		
Acenaphthene	83-32-9	3,800	38	4,200	230,000	NA	<5.0	<5.0	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
Acenaphthylene	208-96-8	150	ID	3,900	62,000	NA	<5.0	<5.0	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
Anthracene	120-12-7	43	ID	43	3,700,000	NA	<5.0	<5.0	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
Benzoanthracene	56-55-3	8.5	ID	NLV	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Benzopyrene	50-32-8	5.0	ID	NLV	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Benzo(a)fluoranthene	205-99-2	1.5	ID	ID	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Benzo(g,h,i)perylene	191-24-2	1.0	ID	NLV	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Benzo(k)fluoranthene	207-08-9	1.0	NA	NLV	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Chrysene	218-01-9	1.6	ID	ID	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Dibenzo(a,h)anthracene	53-70-3	2.0	ID	NLV	NC	NA	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	NA	NA	NA	NA	
Fluoranthene	206-44-0	210	1.6	210	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Fluorene	86-73-7	2,000	12	2,000	300,000	NA	<5.0	<5.0	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	ID	NLV	NC	NA	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	NA	NA	NA	NA	
2-Methylnaphthalene	91-57-6	750	19	25,000	3,900	NA	27	28	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
Phenanthrene	85-01-8	150	2.0	1,000	480	NA	<2.0	<2.0	NA	<2.0	NA	<2.0	NA	NA	NA	NA	NA	
Pyrene	129-00-0	140	ID	140	1,700,000	NA	<5.0	<5.0	NA	<5.0	NA	<5.0	NA	NA	NA	NA	NA	
<b>Metals</b>																		
Cadmium	7440-43-9	5	3.0*	NLV	NC	NA	<1.0	<1.0	NA	<1.0	NA	<1.0	NA	NA	NA	NA	NA	
Chromium**	16065-83-1	100	100*	NLV	NC	NA	<10	<10	NA	<10	NA	<10	NA	NA	NA	NA	NA	
Lead	7439-92-1	4	29*	NLV	NC	8.0	<3.0	<3.0	NA	<3.0	5.0	<3.0	NA	NA	NA	NA	7.0	

**Notes:**

- Concentrations reported in micrograms per liter (ug/L).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.44, Table 1. Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels and the Guidance Document for the Vapor Intrusion Pathway, Nonresidential VI Screening Levels, dated May 2013.
- Detected results shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds and PAHs = polynuclear aromatic hydrocarbons. Refer to the analytical report for the full list of VOC and PAH analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was below laboratory reporting limit(s).
- NA = Not analyzed.
- NC = No criterion.
- ID = Insufficient data to develop criterion.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- \*\* Chromium results were compared to the trivalent chromium criteria because hexavalent was not a constituent of concern for the site.



**TABLE 2**  
**SUMMARY OF ANALYSIS RESULTS - GROUNDWATER**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO. 075099.01**  
**PAGE 2 of 3**

CONSTITUENT	Chemical Abstract Service Number	Part 201 Generic Nonresidential Cleanup Criteria			Vapor Intrusion Screening Levels	Sample Identification Screened Interval (feet) Date Collected												
		Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria		Nonresidential Vapor Intrusion Groundwater Screening Levels	TMW-5	TMW-5R	TMW-7	TMW-11	MW102	MW103	MW104	MW106	MW106	MW107	MW108	MW108
							(8.5' - 13.5')	(8' - 13')	(10' - 15')	(11' - 16')	(16.5'-21.5')	(19.5'-24.5')	(23'-24.5')	(7'-8')	(7'-8') Duplicate	(11'-16')	(6.5'-11.5')	(6.5'-11.5') Duplicate
					02/14/06	04/13/06	02/14/06	02/14/06	03/15/07	03/15/07	03/14/07	03/13/07	03/13/07	03/13/07	03/14/07	03/14/07		
<b>VOCs</b>																		
Benzene	71-43-2	5	200	35,000	140	20,000	21,000	3,700	410	1,800	2,600	3.2	700	690	1,200	1,000	2,100	
n-Butylbenzene	104-51-8	230	ID	ID	380	NA	NA	NA	NA	<1.0	<1.0	<1.0	37	35	11	<1.0	<1.0	
sec-Butylbenzene	135-98-8	230	ID	ID	68	NA	NA	NA	NA	13	<1.0	<1.0	14	14	3.4	5.4	5.4	
Ethylbenzene	100-41-4	74	18	170,000	2,600	4,400	3,600	3,300	94	1,000	830	<1.0	1,200	1,200	210	750	1,100	
Isopropyl benzene	98-82-8	2,300	28	56,000	53	<RL	<RL	110	35	120	72	<5.0	89	88	24	51	51	
Methyl-tert-butyl ether (MTBE)	1634-04-4	40	7,100	47,000,000	1,000,000	<RL	<RL	<RL	<RL	<5.0	<5.0	370	<5.0	<5.0	<5.0	<5.0	<5.0	
Naphthalene	91-20-3	1,500	11	31,000	1,200	<RL	<RL	190	<RL	280	120	<5.0	150	150	19	220	230	
n-Propylbenzene	103-65-1	230	ID	ID	390	340	260	380	91	<10	180	1.2	290	280	76	180	180	
Toluene	108-88-3	790	270	530,000	150,000	33,000	28,000	1,400	9.0	84	49	1.6	62	62	23	850	1,300	
1,2,3-Trimethylbenzene	526-73-8	NA	NA	NA	10,000	990	740	1,100	53	NA	NA	NA	NA	NA	NA	NA	NA	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	7.3	3,200	1,900	3,500	6.0	1,200	700	<1.0	97	95	21	960	1,200	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	5.1	820	510	890	18	230	200	<1.0	38	37	6.2	380	310	
Xylenes	1330-20-7	280	41	190,000	10,000	24,000	16,000	11,000	47	720	540	<3.0	340	340	100	1,800	3,300	
Other VOC Constituents	CS	CS	CS	CS	CS	<RL	NR	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	<RL	
<b>PAHs</b>																		
Acenaphthene	83-32-9	3,800	38	4,200	230,000	45	<RL	<RL	<RL	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	150	ID	3,900	62,000	NR	<RL	<RL	<RL	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	3,700,000	37	<RL	<RL	<RL	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Benzoanthracene	56-55-3	8.5	ID	NLV	NC	33	<RL	<RL	<RL	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	NC	22	<RL	<RL	<RL	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	NC	NR	<RL	<RL	<RL	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0	ID	NLV	NC	NR	<RL	<RL	<RL	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0	NA	NLV	NC	23	<RL	<RL	<RL	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	NC	41	<RL	<RL	<RL	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0	ID	NLV	NC	NR	<RL	<RL	<RL	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	NC	110	<RL	<RL	<RL	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	2,000	12	2,000	300,000	48	<RL	<RL	<RL	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	ID	NLV	NC	NR	<RL	<RL	<RL	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	750	19	25,000	3,900	2,300	130	61	7.0	61	24	<5.0	41	35	11	64	49	
Phenanthrene	85-01-8	150	2.0	1,000	480	140	7.0	<RL	<RL	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	1,700,000	110	<RL	<RL	<RL	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>Metals</b>																		
Cadmium	7440-43-9	5	3.0*	NLV	NC	NA	NA	NA	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chromium**	16065-83-1	100	100*	NLV	NC	NA	NA	NA	NA	<10	<10	<10	<10	<10	<10	<10	<10	
Lead	7439-92-1	4	29*	NLV	NC	1,100	6.3	1,100	45	6.1	3.1	<3.0	3.9	4.3	4.9	10	13	

- Notes:
- Concentrations reported in micrograms per liter (ug/L).
  - Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.44, Table 1. Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels and the Guidance Document for the Vapor Intrusion Pathway, Nonresidential VI Screening Levels, dated May 2013.
  - Detected results shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
  - VOCs = volatile organic compounds and PAHs = polynuclear aromatic hydrocarbons. Refer to the analytical report for the full list of VOC and PAH analytes.
  - CS = Criterion is specific to individual constituent.
  - <RL = Analytical result was below laboratory reporting limit(s).
  - NA = Not analyzed.
  - NC = No criterion.
  - ID = Insufficient data to develop criterion.
  - \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
  - \*\* Chromium results were compared to the trivalent chromium criteria because hexavalent was not a constituent of concern for the site.



**TABLE 2**  
**SUMMARY OF ANALYSIS RESULTS - GROUNDWATER**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO. 075099.01**  
**PAGE 3 of 3**

CONSTITUENT	Chemical Abstract Service Number	Part 201 Generic Nonresidential Cleanup Criteria			Vapor Intrusion Screening Levels	Sample Identification Screened Interval (feet) Date Collected			
		Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Volatilization to Indoor Air Inhalation Criteria		Nonresidential Vapor Intrusion Groundwater Screening Levels	SP15	MW201	MW109
							(6' - 11')	Unknown	(19' - 24')
						03/12/07	03/13/07	03/14/07	
<b>VOCs</b>									
Benzene	71-43-2	5	200	35,000	140	6,600	<1.0	9,800	
n-Butylbenzene	104-51-8	230	ID	ID	380	<1.0	<1.0	<1.0	
sec-Butylbenzene	135-98-8	230	ID	ID	68	<1.0	<1.0	2.4	
Ethylbenzene	100-41-4	74	18	170,000	2,600	1,900	<1.0	280	
Isopropyl benzene	98-82-8	2,300	28	56,000	53	85	<5.0	44	
Methyl-tert-butyl ether (MTBE)	1634-04-4	40	7,100	47,000,000	1,000,000	53	<5.0	87	
Naphthalene	91-20-3	1,500	11	31,000	1,200	120	<5.0	61	
n-Propylbenzene	103-65-1	230	ID	ID	390	190.0	<1.0	89	
Toluene	108-88-3	790	270	530,000	150,000	15,000	<1.0	190	
1,2,4-Trimethylbenzene	95-63-6	63	17	56,000	7.3	1,000	<1.0	85	
1,3,5-Trimethylbenzene	108-67-8	72	45	61,000	5.1	320	<1.0	25	
Xylenes	1330-20-7	280	41	190,000	10,000	7,800	<3.0	390	
Other VOC Constituents	CS	CS	CS	CS	CS	<RL	<RL	<RL	
<b>PAHs</b>									
Acenaphthene	83-32-9	3,800	38	4,200	230,000	<5.0	<5.0	<5.0	
Acenaphthylene	208-96-8	150	ID	3,900	62,000	<5.0	<5.0	<5.0	
Anthracene	120-12-7	43	ID	43	3,700,000	<5.0	<5.0	<5.0	
Benzoanthracene	56-55-3	8.5	ID	NLV	NC	<1.0	<1.0	<1.0	
Benzo(a)pyrene	50-32-8	5.0	ID	NLV	NC	<1.0	<1.0	<1.0	
Benzo(b)fluoranthene	205-99-2	1.5	ID	ID	NC	<1.0	<1.0	<1.0	
Benzo(g,h,i)perylene	191-24-2	1.0	ID	NLV	NC	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0	NA	NLV	NC	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.6	ID	ID	NC	<1.0	<1.0	<1.0	
Dibenzo(a,h)anthracene	53-70-3	2.0	ID	NLV	NC	<2.0	<2.0	<2.0	
Fluoranthene	206-44-0	210	1.6	210	NC	<1.0	<1.0	<1.0	
Fluorene	86-73-7	2,000	12	2,000	300,000	<5.0	<5.0	<5.0	
Indeno(1,2,3-cd)pyrene	193-39-5	2.0	ID	NLV	NC	<2.0	<2.0	<2.0	
2-Methylnaphthalene	91-57-6	750	19	25,000	3,900	31	<5.0	<5.0	
Phenanthrene	85-01-8	150	2.0	1,000	480	<2.0	<2.0	<2.0	
Pyrene	129-00-0	140	ID	140	1,700,000	<5.0	<5.0	<5.0	
<b>Metals</b>									
Cadmium	7440-43-9	5	3.0*	NLV	NC	NA	<1.0	<1.0	
Chromium**	16065-83-1	100	100*	NLV	NC	NA	<10	<10	
Lead	7439-92-1	4	29*	NLV	NC	NA	<3.0	<3.0	

Notes:

- Concentrations reported in micrograms per liter (ug/L).
- Analytical results were compared to December 30, 2013 Promulgated Cleanup Criteria, R 299.44, Table 1. Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels and the Guidance Document for the Vapor Intrusion Pathway, Nonresidential VI Screening Levels, dated May 2013.
- Detected results shown in BOLD. Results exceeding one or more criteria are shaded, as are the criteria.
- VOCs = volatile organic compounds and PAHs = polynuclear aromatic hydrocarbons. Refer to the analytical report for the full list of VOC and PAH analytes.
- CS = Criterion is specific to individual constituent.
- <RL = Analytical result was below laboratory reporting limit(s).
- NA = Not analyzed.
- NC = No criterion.
- ID = Insufficient data to develop criterion.
- \* = GSI Protection was calculated for the indicated metals using the MDEQ spreadsheet for calculating GSI. A default water hardness value of 150 mg/kg as CaCO<sub>3</sub> was used to calculate GSI. Results are presented for surface water receiving bodies not protected as a drinking water source.
- \*\* Chromium results were compared to the trivalent chromium criteria because hexavalent was not a constituent of concern for the site.



**TABLE 3**  
**SUMMARY OF ANALYSIS RESULTS - SOIL GAS**  
**35975 WOODWARD AVENUE**  
**BIRMINGHAM, MICHIGAN**  
**SME PROJECT NO.: 075099.01**  
**PAGE 1 OF 1**

CONSTITUENT	CAS NUMBER	MDEQ NONRESIDENTIAL VAPOR INTRUSION SCREENING LEVELS		CHEMICAL ANALYSES RESULTS				
				Sample Identification				
		Date Collected						
		Depth (feet)						
				SG1	SG2	SG3	SG4	SG5
		Sub-Slab Soil Gas Screening Levels	Deep Soil Gas Screening Levels	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016
				5-5.5	5-5.5	5-5.5	5-5.5	5-5.5
<b>VOCs (TO-15)</b>								
Benzene	71-43-2	<b>650</b>	<b>6,500</b>	<b>2,100</b>	<b>1,100</b>	<b>120</b>	<b>13,000</b>	<b>120,000</b>
Cyclohexane	110-82-7	970,000	9,700,000	<b>150,000</b>	<b>66,000</b>	<b>2,500</b>	<b>170,000</b>	<b>230,000</b>
1,2-Dichloroethane	107-06-2	<b>160</b>	1,600	<130	<150	<37	<b>370</b>	<88
Ethylbenzene	100-41-4	<b>13,000</b>	130,000	<1,600	<1,800	<460	<b>9,100</b>	<b>5,200</b>
n-Heptane	142-82-5	<b>110,000</b>	1,100,000	<b>25,000</b>	<b>28,000</b>	<b>1,500</b>	<b>500,000</b>	<b>270,000</b>
n-Hexane	110-54-3	<b>110,000</b>	<b>1,100,000</b>	<b>230,000</b>	<b>320,000</b>	<b>18,000</b>	<b>1,300,000</b>	<b>1,800,000</b>
Toluene	108-88-3	740,000	7,400,000	<530	<610	<150	<b>3,100</b>	<b>3,300</b>
Trichloroethene	79-01-6	<b>210</b>	2,100	<b>1,100</b>	<59	<15	<160	<35
1,2,4-Trimethylbenzene	95-63-6	25,000	250,000	<530	<610	<150	<670	<b>2,100</b>
1,3,5-Trimethylbenzene	108-67-8	25,000	250,000	<520	<600	<150	<660	<b>730</b>
Xylenes	1330-20-7	13,000	130,000	<4,700	<5,300	<1,400	<5,900	<b>4,500</b>
Other Analyzed VOCs	CS	CS	CS	<RL	<RL	<RL	<RL	<RL

**Notes:**

1. Screening levels taken from MDEQ May 2013 Guidance Document for the Vapor Intrusion Pathway, Appendix D.2 Nonresidential VI Screening Levels.
2. Results exceeding the screening levels are shaded, as are the screening levels exceeded.
3. VOCs -Volatile Organic Compounds; Refer to the analytical report for the full list of VOC analytes.
4. CS - Screening level is specific to individual constituent.
5. <RL - concentrations of all non-listed constituents were below their respective reporting limits.
6. Screening levels and sample results are reported in parts per billion by volume (ppbv).

**APPENDIX E**  
**EXPOSURE BARRIER REPAIR RECORD**



## EXPOSURE BARRIER REPAIR RECORD

35975 WOODWARD AVENUE  
BIRMINGHAM, MICHIGAN

DATE DAMAGE OBSERVED	EXPOSURE BARRIER TYPE	SUMMARY OF DAMAGE OBSERVED	DATE REPAIRED	SUMMARY OF REPAIR ACTIVITIES	NAME OF PERSON MAKING REPAIR

**APPENDIX F**  
**HAZARD COMMUNICATION NOTICE**

# SAMPLE LETTER TO CONTRACTORS

DATE

Mr. or Ms. XXXXX  
Company  
Address  
City, State Zip Code

SUBJECT: OSHA Hazard Communication Standard  
35975 Woodward Avenue  
Birmingham, Michigan

Dear Mr. or Ms. XXXXX:

The Occupational Safety & Health Administration (OSHA) Hazard Communication Standard (29CFR 1910.1200) states that contractors must be informed of the hazardous chemicals to which their employees may be exposed while performing their work. August, LLC is providing you this notification for the above-referenced site. Soil is impacted with lead, and soil, groundwater, and soil gas on the Property is impacted with volatile organic compounds (VOCs), at concentrations exceeding potentially applicable human health protection thresholds developed by the Michigan Department of Environmental Quality (MDEQ). The concentrations of VOCs may cause unacceptable exposures to vapors if working in enclosed spaces with subsurface soil or groundwater exposed. The concentrations of lead in soil may cause unacceptable skin contact exposures.

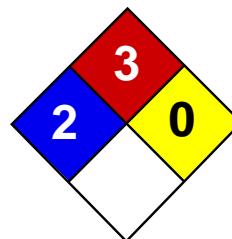
If I can be of further assistance, please contact me at XXX-XXX-XXXX.

Sincerely,

**August, LLC**

Mr. David Larsen  
Owner Representative

Attachment: Safety Data Sheets for VOCs and lead



Health	2
Fire	3
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet

### 1,2-Dichloroethane MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** 1,2-Dichloroethane

**Catalog Codes:** SLD2521, SLD3721

**CAS#:** 107-06-2

**RTECS:** KH9800000

**TSCA:** TSCA 8(b) inventory: 1,2-Dichloroethane

**CI#:** Not available.

**Synonym:** Ethylene dichloride

**Chemical Formula:** C<sub>2</sub>H<sub>4</sub>CL<sub>2</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
{1,2-}Dichloroethane	107-06-2	100

**Toxicological Data on Ingredients:** 1,2-Dichloroethane: ORAL (LD50): Acute: 670 mg/kg [Rat]. 413 mg/kg [Mouse]. DERMAL (LD50): Acute: 2800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 1414.2 ppm 4 hour(s) [Rat].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Extremely hazardous in case of ingestion. Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching.

**Potential Chronic Health Effects:**

Very hazardous in case of ingestion, of inhalation. **CARCINOGENIC EFFECTS:** Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

### Skin Contact:

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

### Ingestion:

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 413°C (775.4°F)

**Flash Points:** CLOSED CUP: 13°C (55.4°F). OPEN CUP: 18°C (64.4°F).

**Flammable Limits:** LOWER: 6.2% UPPER: 15.6%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

### Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks. Slightly flammable to flammable in presence of oxidizing materials.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive to explosive in presence of oxidizing materials.

### Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use alcohol foam, water spray or fog.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Section 7: Handling and Storage****Precautions:**

Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

**Section 8: Exposure Controls/Personal Protection****Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 10 CEIL: 75 (ppm) from ACGIH (TLV) TWA: 40 CEIL: 300 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

**Section 9: Physical and Chemical Properties**

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 98.96 g/mole

**Color:** Not available.

**pH (1% soln/water):** Not available.

**Boiling Point:** 83.5°C (182.3°F)

**Melting Point:** -35.3°C (-31.5°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.2351 (Water = 1)



**Vapor Pressure:** 61 mm of Hg (@ 20°C)

**Vapor Density:** 3.42 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 26 ppm

**Water/Oil Dist. Coeff.:** The product is equally soluble in oil and water;  $\log(\text{oil/water}) = 0$

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, n-octanol, acetone.

**Solubility:**

Easily soluble in methanol, diethyl ether, n-octanol, acetone. Very slightly soluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 413 mg/kg [Mouse]. Acute dermal toxicity (LD50): 2800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1414.2 ppm 4 hour(s) [Rat].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP. The substance is toxic to lungs, the nervous system, liver, mucous membranes.

**Other Toxic Effects on Humans:**

Extremely hazardous in case of ingestion. Very hazardous in case of inhalation. Hazardous in case of skin contact (irritant).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in animal. Excreted in maternal milk in human.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations**

**Waste Disposal:**

**Section 14: Transport Information**

**DOT Classification:** Class 3: Flammable liquid.

**Identification:** : Ethylene dichloride : UN1184 PG: II

**Special Provisions for Transport:** Marine Pollutant

**Section 15: Other Regulatory Information****Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 1,2-Dichloroethane California prop.

65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 1,2-Dichloroethane Pennsylvania RTK: 1,2-Dichloroethane Massachusetts RTK: 1,2-Dichloroethane TSCA 8(b) inventory: 1,2-Dichloroethane CERCLA: Hazardous substances.: 1,2-Dichloroethane

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:****WHMIS (Canada):**

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

**DSCL (EEC):**

R11- Highly flammable. R20/22- Harmful by inhalation and if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 3

**Reactivity:** 0

**Personal Protection:** h

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 3

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

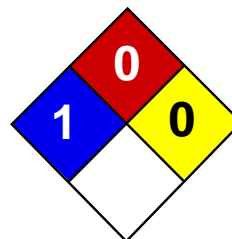
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:17 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*



Health	1
Fire	0
Reactivity	0
Personal Protection	E

## Material Safety Data Sheet

### Lead MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Lead

**Catalog Codes:** SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

**CAS#:** 7439-92-1

**RTECS:** OF7525000

**TSCA:** TSCA 8(b) inventory: Lead

**CI#:** Not available.

**Synonym:** Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

**Chemical Name:** Lead

**Chemical Formula:** Pb

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Lead	7439-92-1	100

**Toxicological Data on Ingredients:** Lead LD50: Not available. LC50: Not available.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (permeator). **CARCINOGENIC EFFECTS:** Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. **MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Some metallic oxides.

**Fire Hazards in Presence of Various Substances:** Non-flammable in presence of open flames and sparks, of shocks, of heat.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** When heated to decomposition it emits highly toxic fumes of lead.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 0.05 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] TWA: 0.03 (mg/m<sup>3</sup>) from NIOSH [United States] TWA: 0.05 (mg/m<sup>3</sup>) [Canada] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Metal solid.)

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 207.21 g/mole

**Color:** Bluish-white. Silvery. Gray

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 1740°C (3164°F)

**Melting Point:** 327.43°C (621.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 11.3 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Insoluble in cold water.

## Section 10: Stability and Reactivity Data



**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, excess heat

**Incompatibility with various substances:** Reactive with oxidizing agents.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungs by mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually absorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, delirium, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead colic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations****Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14: Transport Information**

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

**Section 15: Other Regulatory Information****Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

**HMIS (U.S.A.):**

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

## Section 16: Other Information

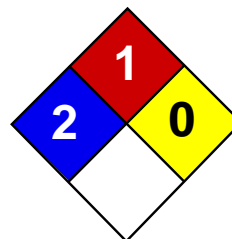
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:21 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*



Health	2
Fire	1
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet Trichloroethylene MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Trichloroethylene

**Catalog Codes:** SLT3310, SLT2590

**CAS#:** 79-01-6

**RTECS:** KX4560000

**TSCA:** TSCA 8(b) inventory: Trichloroethylene

**CI#:** Not available.

**Synonym:**

**Chemical Formula:** C<sub>2</sub>HCl<sub>3</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

**Toxicological Data on Ingredients:** Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse].  
DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

### Section 3: Hazards Identification

**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

**CARCINOGENIC EFFECTS:** Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.

**MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 420°C (788°F)

**Flash Points:** Not available.

**Flammable Limits:** LOWER: 8% UPPER: 10.5%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), halogenated compounds.

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

### Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

**Precautions:**

Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m<sup>3</sup>) from ACGIH Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 131.39 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 86.7°C (188.1°F)

**Melting Point:** -87.1°C (-124.8°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.4649 (Water = 1)

**Vapor Pressure:** 58 mm of Hg (@ 20°C)

**Vapor Density:** 4.53 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 20 ppm

**Water/Oil Dist. Coeff.:** The product is equally soluble in oil and water; log(oil/water) = 0

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, acetone.

**Solubility:**

Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

## Section 10: Stability and Reactivity Data



**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:**

Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in human. Detected in maternal milk in human.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Trichloroethylene : UN1710 PG: III

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

#### DSCL (EEC):

R36/38- Irritating to eyes and skin. R45- May cause cancer.

#### HMIS (U.S.A.):

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** h

#### National Fire Protection Association (U.S.A.):

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

#### Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:54 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*

# Material Safety Data Sheet

## Benzene

ACC# 02610

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Benzene

**Catalog Numbers:** AC167660000, AC167660010, AC167660025, AC167660250, AC167665000, AC168650250, AC295330000, AC295330010, AC295330025, AC295330250, AC296880000, AC296880010, AC296880025, AC296880250, AC610230010, AC610231000, AC611001000, B243-4, B245-4, B245-500, B411-1, B411-4, B412-1, S79920ACS

**Synonyms:** Benzol; Cyclohexatriene; Phenyl hydride.**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
71-43-2	Benzene	> 99	200-753-7

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear colorless liquid. Flash Point: -11 deg C.

**Danger!** Extremely flammable liquid and vapor. Vapor may cause flash fire. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Contains benzene. Benzene can cause cancer. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause blood abnormalities. May cause central nervous system effects.

**Target Organs:** Blood, central nervous system, respiratory system, eyes, bone marrow, immune system, skin.

**Potential Health Effects**

**Eye:** Causes eye irritation.

**Skin:** Causes skin irritation. Harmful if absorbed through the skin. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.

**Ingestion:** May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause effects similar to

those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

**Inhalation:** Causes respiratory tract irritation. May cause drowsiness, unconsciousness, and central nervous system depression. Exposure may lead to irreversible bone marrow injury. Exposure may lead to aplastic anemia. Potential symptoms of overexposure by inhalation are dizziness, headache, vomiting, visual disturbances, staggering gait, hilarity, fatigue, and other symptoms of CNS depression.

**Chronic:** May cause bone marrow abnormalities with damage to blood forming tissues. May cause anemia and other blood cell abnormalities. Chronic exposure to benzene has been associated with an increased incidence of leukemia and multiple myeloma (tumor composed of cells of the type normally found in the bone marrow). Immunodepressive effects have been reported. This substance has caused adverse reproductive and fetal effects in laboratory animals.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

**Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** -11 deg C ( 12.20 deg F)

**Autoignition Temperature:** 498 deg C ( 928.40 deg F)

**Explosion Limits, Lower:** 1.3 vol %

**Upper:** 7.1 vol %

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove

all sources of ignition. Provide ventilation. Approach spill from upwind. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor.

**Storage:** Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. See 29CFR 1910.1028 for the regulatory requirements for the control of employee exposure to benzene.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzene	0.5 ppm TWA; 2.5 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	0.1 ppm TWA 500 ppm IDLH	1 ppm TWA; 10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 25 ppm Ceiling (applies to industry segments exempt from the 1 ppm TWA and 5 ppm STEL of the benzene standard); 0.5 ppm Action Level; 1 ppm TWA; 5 ppm STEL (Cancer hazard, Flammable - see 29 CFR 1910.1028)

**OSHA Vacated PELs:** Benzene: 10 ppm TWA (unless specified in 1910.1028)

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid  
**Appearance:** clear colorless  
**Odor:** sweetish odor - aromatic odor  
**pH:** Not applicable.  
**Vapor Pressure:** 75 mm Hg @ 20 deg C  
**Vapor Density:** 2.8 (air=1)  
**Evaporation Rate:**Not available.  
**Viscosity:** 0.647mPa @ 20 deg C  
**Boiling Point:** 80.1 deg C  
**Freezing/Melting Point:**5.5 deg C  
**Decomposition Temperature:**Not available.  
**Solubility:** 0.180 g/100 ml @ 25°C  
**Specific Gravity/Density:**0.8765 @ 20°C  
**Molecular Formula:**C<sub>6</sub>H<sub>6</sub>  
**Molecular Weight:**78.11

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.  
**Conditions to Avoid:** Ignition sources, excess heat, confined spaces.  
**Incompatibilities with Other Materials:** Strong oxidizing agents.  
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.  
**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 71-43-2: CY1400000

**LD50/LC50:**

CAS# 71-43-2:

Dermal, guinea pig: LD50 = >9400 uL/kg;  
Draize test, rabbit, eye: 88 mg Moderate;  
Draize test, rabbit, eye: 2 mg/24H Severe;  
Draize test, rabbit, skin: 20 mg/24H Moderate;  
Inhalation, mouse: LC50 = 9980 ppm;  
Inhalation, mouse: LC50 = 24 mL/kg/2H;  
Inhalation, rat: LC50 = 10000 ppm/7H;  
Inhalation, rat: LC50 = 34 mL/kg/2H;  
Inhalation, rat: LC50 = 6.5 mL/kg/4H;  
Oral, mouse: LD50 = 4700 mg/kg;  
Oral, rat: LD50 = 930 mg/kg;  
Oral, rat: LD50 = 1 mL/kg;

Oral, rat: LD50 = 1800 Benzene is considered very toxic; probable human oral lethal dose would be 50-500 mg/kg. Human inhalation of approximately 20,000 ppm (2% in air) was fatal in 5-10 minutes. While percutaneous absorption of liquid benzene through intact human skin can be limited (e.g., 0.05% of the applied dose), the absorbed dose via direct dermal contact combined with that received from body surface exposure to benzene in workplace air is such that a substantial fraction (20-40%) of the total exposure is due to skin absorption.



**Carcinogenicity:**

CAS# 71-43-2:

- **ACGIH:** A1 - Confirmed Human Carcinogen
- **California:** carcinogen, initial date 2/27/87
- **NTP:** Known carcinogen
- **IARC:** Group 1 carcinogen

**Epidemiology:** IARC has concluded that epidemiological studies have established the relationship between benzene exposure and the development of acute myelogenous leukemia, and that there is sufficient evidence that benzene is carcinogenic to humans.

**Teratogenicity:** Inhalation, rat: TCLO = 50 ppm/24H (female 7-14 day(s) after conception) Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord) and Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).; Inhalation, mouse: TCLO = 5 ppm (female 6-15 day(s) after conception) Effects on Embryo or Fetus - cytological changes (including somatic cell genetic material) and Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow).

**Reproductive Effects:** Inhalation, rat: TCLO = 670 mg/m<sup>3</sup>/24H (female 15 day(s) pre-mating and female 1-22 day(s) after conception) female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).; Oral, mouse: TDLo = 12 gm/kg (female 6-15 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

**Mutagenicity:** DNA Inhibition: Human, Leukocyte = 2200 umol/L.; DNA Inhibition: Human, HeLa cell = 2200 umol/L.; Mutation Test Systems - not otherwise specified: Human, Lymphocyte = 5 umol/L.; Cytogenetic Analysis: Inhalation, Human = 125 ppm/1Y.; Cytogenetic Analysis: Human, Leukocyte = 1 mmol/L/72H.; Cytogenetic Analysis: Human, Lymphocyte = 1 mg/L.

**Neurotoxicity:** See actual entry in RTECS for complete information.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Mosquito Fish: TLm = 395 mg/L; 24 Hr; Unspecified Fish: Goldfish: LC50 = 46 mg/L; 24 Hr; Modified ASTM D 1345 Fish: Fathead Minnow: LC50 = 15.1 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0) Fish: Rainbow trout: LC50 = 5.3 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0) Fish: Bluegill/Sunfish: LD50 = 20 mg/L; 24-48 Hr; Unspecified If benzene is released to soil, it will be subject to rapid volatilization near the surface and that which does not evaporate will be highly to very highly mobile in the soil and may leach to groundwater. If benzene is released to water, it will be subject to rapid volatilization. It will not be expected to significantly adsorb to sediment, bioconcentrate in aquatic organisms or hydrolyze. It may be subject to biodegradation.

**Environmental:** If benzene is released to the atmosphere, it will exist predominantly in the vapor phase. Gas-phase benzene will not be subject to direct photolysis but it will react with photochemically produced hydroxyl radicals with a half-life of 13.4 days. The reaction time in polluted atmospheres which contain nitrogen oxides or sulfur dioxide is accelerated with the half-life being reported as 4-6 hours. Benzene is fairly soluble in water and is removed from the atmosphere in rain.

**Physical:** Products of photooxidation include phenol, nitrophenols, nitrobenzene, formic acid, and peroxyacetyl nitrate.

**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:**

CAS# 71-43-2: waste number U019 (Ignitable waste, Toxic waste).

## Section 14 - Transport Information

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name:</b>	BENZENE	BENZENE
<b>Hazard Class:</b>	3	3
<b>UN Number:</b>	UN1114	UN1114
<b>Packing Group:</b>	II	II
<b>Additional Info:</b>		FLASHPOINT -11 C

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 71-43-2 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 71-43-2: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogeni

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 71-43-2: immediate, delayed, fire.

#### Section 313

This material contains Benzene (CAS# 71-43-2, > 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

CAS# 71-43-2 is listed as a Hazardous Substance under the CWA. CAS# 71-43-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 71-43-2 is listed as a Toxic Pollutant under the Clean Water Act.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### **STATE**

CAS# 71-43-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

#### **California Prop 65**

**The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:**

WARNING: This product contains Benzene, a chemical known to the state of California to cause cancer. WARNING: This product contains Benzene, a chemical known to the state of California to cause male reproductive toxicity.

California No Significant Risk Level: CAS# 71-43-2: 6.4 æg/day NSRL (oral); 13 æg/day NSRL (inhalation)

#### **European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

T F

**Risk Phrases:**

R 11 Highly flammable.

R 36/38 Irritating to eyes and skin.

R 45 May cause cancer.

R 46 May cause heritable genetic damage.

R 48/23/24/25 Toxic : danger of serious damage to health by prolonged exposure through inhalation, contact with skin and if swallowed.

R 65 Harmful: may cause lung damage if swallowed.

**Safety Phrases:**

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

**WGK (Water Danger/Protection)**

CAS# 71-43-2: 3

**Canada - DSL/NDSL**

CAS# 71-43-2 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 71-43-2 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Additional Information

**MSDS Creation Date:** 6/11/1999

**Revision #8 Date:** 9/11/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*



# Fisher Scientific

Part of Thermo Fisher Scientific

## SAFETY DATA SHEET

Creation Date 06-Aug-2010

Revision Date 10-Feb-2015

Revision Number 3

### 1. Identification

**Product Name** Ethylbenzene  
**Cat No. :** O2751-1  
**Synonyms** Ethylbenzol; Phenylethane  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available  
**Details of the supplier of the safety data sheet**

**Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute Inhalation Toxicity - Vapors	Category 4
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Aspiration Toxicity	Category 1

**Label Elements**

**Signal Word**

Danger

**Hazard Statements**

Highly flammable liquid and vapor  
May be fatal if swallowed and enters airways  
Harmful if inhaled  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of causing cancer  
May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Use only outdoors or in a well-ventilated area  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep container tightly closed  
 Ground/bond container and receiving equipment  
 Use explosion-proof electrical/ventilating/lighting/equipment  
 Use only non-sparking tools  
 Take precautionary measures against static discharge  
 Keep cool

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

**Ingestion**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Storage**

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Harmful to aquatic life with long lasting effects

### 3. Composition / information on ingredients

Component	CAS-No	Weight %
Ethylbenzene	100-41-4	>95

### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention. Aspiration into lungs can produce severe lung damage.

<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms/effects</b>	Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: May cause central nervous system depression
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Do not use a solid water stream as it may scatter and spread fire
<b>Flash Point</b>	15 °C / 59 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	432 °C / 810 °F
<b>Explosion Limits</b>	
<b>Upper</b>	6.8%
<b>Lower</b>	1.2%
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	Yes

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	3	0	N/A

### 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
<b>Environmental Precautions</b>	Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

### 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.



## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethylbenzene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m <sup>3</sup> (Vacated) STEL: 125 ppm (Vacated) STEL: 545 mg/m <sup>3</sup> TWA: 100 ppm TWA: 435 mg/m <sup>3</sup>	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m <sup>3</sup> STEL: 125 ppm STEL: 545 mg/m <sup>3</sup>
Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Ethylbenzene	TWA: 100 ppm TWA: 434 mg/m <sup>3</sup> STEL: 125 ppm STEL: 543 mg/m <sup>3</sup>	TWA: 100 ppm TWA: 435 mg/m <sup>3</sup> STEL: 125 ppm STEL: 545 mg/m <sup>3</sup>	TWA: 20 ppm

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin and body protection

Long sleeved clothing.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	aromatic
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	-95 °C / -139 °F
<b>Boiling Point/Range</b>	136 °C / 276.8 °F
<b>Flash Point</b>	15 °C / 59 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	6.8%
<b>Lower</b>	1.2%
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	No information available
<b>Relative Density</b>	0.860
<b>Solubility</b>	Slightly soluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available

Autoignition Temperature	432 °C / 810 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C8 H10
Molecular Weight	106.17

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylbenzene	3500 mg/kg ( Rat )	15400 mg/kg ( Rabbit )	17.2 mg/L ( Rat ) 4 h

Toxicologically Synergistic Products No information available

#### Products

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	May cause eye, skin, and respiratory tract irritation
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethylbenzene	100-41-4	Group 2B	Not listed	A3	X	Not listed

IARC: (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system Central nervous system (CNS)
STOT - repeated exposure	None known

<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: May cause central nervous system depression
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethylbenzene	2.6 - 11.3 mg/L EC50 72 h 438 mg/L EC50 > 96 h 4.6 mg/L EC50 = 72 h 1.7 - 7.6 mg/L EC50 96 h	9.6 mg/L LC50 96 h 9.1 - 15.6 mg/L LC50 96 h 32 mg/L LC50 96 h 7.55 - 11 mg/L LC50 96 h 4.2 mg/L LC50 96 h 11.0 - 18.0 mg/L LC50 96 h	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	1.8 - 2.4 mg/L EC50 48 h

**Persistence and Degradability** Insoluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

Component	log Pow
Ethylbenzene	3.118

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### TDG

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### IATA

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### IMDG/IMO

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed The product is classified and labeled

according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethylbenzene	X	X	-	202-849-4	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

TSCA 12(b) Not applicable

### SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Ethylbenzene	100-41-4	>95	0.1

### SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

### Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ethylbenzene	X	1000 lb	X	X

### Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylbenzene	X		-

### OSHA Occupational Safety and Health Administration

Not applicable

### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ethylbenzene	1000 lb	-

**California Proposition 65** This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethylbenzene	100-41-4	Carcinogen	54 µg/day 41 µg/day	Carcinogen

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylbenzene	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

Mexico - Grade Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid  
 D2A Very toxic materials

**16. Other information**

Prepared By Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

Creation Date 06-Aug-2010

Revision Date 10-Feb-2015

Print Date 10-Feb-2015

Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of SDS**

**SAFETY DATA SHEET**

Creation Date 14-Sep-2009

Revision Date 15-Feb-2016

Revision Number 2

**1. Identification**

**Product Name** N-HEPTANE  
**Cat No. :** AC610361000  
**Synonyms** Normal heptane.; Heptane  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available  
**Details of the supplier of the safety data sheet**

**Company**  
Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Entity / Business Name**  
Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number**  
For information **US** call: 001-800-ACROS-01  
/ **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 /  
**Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 /  
**Europe**:001-703-527-3887

**2. Hazard(s) identification****Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Blood.	
Aspiration Toxicity	Category 1

**Label Elements**

**Signal Word**  
Danger

**Hazard Statements**  
Highly flammable liquid and vapor  
May be fatal if swallowed and enters airways  
Causes skin irritation  
Causes serious eye irritation  
May cause drowsiness or dizziness  
May cause damage to organs through prolonged or repeated exposure





### Precautionary Statements

#### Prevention

Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep container tightly closed  
 Ground/bond container and receiving equipment  
 Use explosion-proof electrical/ventilating/lighting/equipment  
 Use only non-sparking tools  
 Take precautionary measures against static discharge  
 Keep cool

#### Response

Get medical attention/advice if you feel unwell

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor/physician if you feel unwell

#### Skin

If skin irritation occurs: Get medical advice/attention  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Wash contaminated clothing before reuse

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical advice/attention

#### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
 Do NOT induce vomiting

#### Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

### 3. Composition / information on ingredients

Component	CAS-No	Weight %
n-Heptane	142-82-5	>95

### 4. First-aid measures

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
 Obtain medical attention.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention. Risk of serious damage to the lungs.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms/effects</b>	Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective
<b>Flash Point</b>	-4 °C / 24.8 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	215 °C / 419 °F
<b>Explosion Limits</b>	
<b>Upper</b>	6.7 vol %
<b>Lower</b>	1.05 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Do not allow run-off from fire fighting to enter drains or water courses.

### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
1	3	0	N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
<b>Environmental Precautions</b>	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
<b>Methods for Containment and Clean Up</b>	Remove all sources of ignition. Soak up with inert absorbent material. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

<b>Handling</b>	Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use
-----------------	---

explosion-proof equipment. Take precautionary measures against static discharges. Wash hands before breaks and immediately after handling the product. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

**8. Exposure controls / personal protection**

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
n-Heptane	TWA: 400 ppm STEL: 500 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1600 mg/m <sup>3</sup> (Vacated) STEL: 500 ppm (Vacated) STEL: 2000 mg/m <sup>3</sup> TWA: 500 ppm TWA: 2000 mg/m <sup>3</sup>	IDLH: 750 ppm TWA: 85 ppm TWA: 350 mg/m <sup>3</sup> Ceiling: 440 ppm Ceiling: 1800 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
n-Heptane	TWA: 400 ppm TWA: 1640 mg/m <sup>3</sup> STEL: 500 ppm STEL: 2050 mg/m <sup>3</sup>	TWA: 400 ppm TWA: 1600 mg/m <sup>3</sup> STEL: 500 ppm STEL: 2000 mg/m <sup>3</sup>	TWA: 400 ppm STEL: 500 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** None under normal use conditions.

Personal Protective Equipment

- Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.
- Respiratory Protection** No protective equipment is needed under normal use conditions.
- Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	Petroleum distillates
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	-91 °C / -131.8 °F
<b>Boiling Point/Range</b>	98 °C / 208.4 °F
<b>Flash Point</b>	-4 °C / 24.8 °F
<b>Evaporation Rate</b>	2.8 (Butyl Acetate = 1.0)
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	6.7 vol %
<b>Lower</b>	1.05 vol %
<b>Vapor Pressure</b>	48 mbar @ 20 °C
<b>Vapor Density</b>	3.5
<b>Specific Gravity</b>	0.683

<b>Solubility</b>	Insoluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	215 °C / 419 °F
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	0.4 mPa s at 20 °C
<b>Molecular Formula</b>	C7 H16
<b>Molecular Weight</b>	100.20

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
n-Heptane	>2000 mg/kg (rat)	LD50 = 3000 mg/kg ( Rabbit )	LC50 = 103 g/m <sup>3</sup> ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Irritation</b>	Irritating to eyes and skin
<b>Sensitization</b>	No information available
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
n-Heptane	142-82-5	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)  
**STOT - repeated exposure** Kidney Liver Blood

**Aspiration hazard** Aspiration hazard

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
n-Heptane	Not listed	LC50: = 375.0 mg/L, 96h (Cichlid fish)	Not listed	EC50: >10 mg/L/24h

**Persistence and Degradability** May persist based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** The product is insoluble and floats on water.

Component	log Pow
n-Heptane	4.66

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No UN1206  
 Proper Shipping Name HEPTANES  
 Hazard Class 3  
 Packing Group II

### TDG

UN-No UN1206  
 Proper Shipping Name HEPTANES  
 Hazard Class 3  
 Packing Group II

### IATA

UN-No UN1206  
 Proper Shipping Name Heptanes  
 Hazard Class 3  
 Packing Group II

### IMDG/IMO

UN-No UN1206  
 Proper Shipping Name Heptanes  
 Hazard Class 3  
 Packing Group II

## 15. Regulatory information

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
n-Heptane	X	X	-	205-563-8	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated

polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

**TSCA 12(b)**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA Occupational Safety and Health Administration**  
Not applicable

**CERCLA**  
Not applicable

**California Proposition 65** This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
n-Heptane	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

**U.S. Department of Homeland Security**  
This product does not contain any DHS chemicals.

Other International Regulations

**Mexico - Grade** Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class** B2 Flammable liquid  
D2B Toxic materials



**16. Other information**

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
<b>Creation Date</b>	14-Sep-2009
<b>Revision Date</b>	15-Feb-2016
<b>Print Date</b>	15-Feb-2016
<b>Revision Summary</b>	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**



# SAFETY DATA SHEET

Creation Date 26-Oct-2009

Revision Date 02-Apr-2014

Revision Number 1

## 1. Identification

**Product Name** n-Hexane  
**Cat No. :** AC326920000; AC326920010; AC326920025; AC326921000;  
AC326922500  
**Synonyms** Hex  
**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

### Details of the supplier of the safety data sheet

Company	Entity / Business Name	Emergency Telephone Number
Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Acros Organics One Reagent Lane Fair Lawn, NJ 07410	For information <b>US</b> call: 001-800-ACROS-01 / <b>Europe</b> call: +32 14 57 52 11 Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99 <b>CHEMTREC</b> Tel. No <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Heart, Blood.	
Aspiration Toxicity	Category 1

### Label Elements

**Signal Word**  
Danger

**Hazard Statements**  
Highly flammable liquid and vapor

May be fatal if swallowed and enters airways  
Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of damaging fertility  
Causes damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Wear eye/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Keep cool

#### Response

IF exposed or concerned: Get medical attention/advice

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

If skin irritation occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention.

#### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

#### Fire

In case of fire: Use CO2, dry chemical, or foam for extinction

#### Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Toxic to aquatic life with long lasting effects

### 3. Composition / information on Ingredients

**Haz/Non-haz**

Component	CAS-No	Weight %
Hexane	110-54-3	>95

### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention. Aspiration into lungs can produce severe lung damage.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration.
<b>Most important symptoms/effects</b>	Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
<b>Notes to Physician</b>	Treat symptomatically.

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective, This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.
<b>Flash Point</b>	-22°C / -7.6°F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	223°C / 433.4°F
<b>Explosion Limits</b>	
<b>Upper</b>	7.5 vol %
<b>Lower</b>	1.1 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

**Specific Hazards Arising from the Chemical**

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

**Hazardous Combustion Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

Health  
2

Flammability  
3

Instability  
0

Physical hazards  
N/A

**6. Accidental release measures**

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system. Avoid release to the environment. Collect spillage.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

**7. Handling and storage**

**Handling** Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

**8. Exposure controls / personal protection**

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m <sup>3</sup> TWA: 500 ppm TWA: 1800 mg/m <sup>3</sup>	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hexane	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup> Skin	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup>	TWA: 50 ppm Skin

Legend

*ACGIH - American Conference of Governmental Hygienists*

*OSHA - Occupational Safety and Health Administration*

*NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health*

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	Petroleum distillates
<b>Odor Threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Melting Point/Range</b>	-95°C / -139°F
<b>Boiling Point/Range</b>	69°C / 156.2°F @ 760 mmHg
<b>Flash Point</b>	-22°C / -7.6°F
<b>Evaporation Rate</b>	No information available.
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	7.5 vol %
<b>Lower</b>	1.1 vol %
<b>Vapor Pressure</b>	160 mbar @ 20 °C
<b>Vapor Density</b>	2.97
<b>Relative Density</b>	0.659
<b>Solubility</b>	Insoluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	223°C / 433.4°F
<b>Decomposition temperature</b>	No information available.
<b>Viscosity</b>	0.31 mPa s at 20 °C
<b>Molecular Formula</b>	C6 H14
<b>Molecular Weight</b>	86.18

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available.
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products. Heat, flames and sparks. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents, Halogens
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur
<b>Hazardous Reactions</b>	None under normal processing

## 11. Toxicological information

### Acute Toxicity

### Product Information

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	25 g/kg ( Rat )	3000 mg/kg ( Rabbit )	48000 ppm ( Rat ) 4 h



**Toxicologically Synergistic Products** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Irritating to eyes and skin

**Sensitization** No information available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** Mutagenic effects have occurred in experimental animals.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals.

**Teratogenicity** Teratogenic effects have occurred in experimental animals..

**STOT - single exposure** Respiratory system, Central nervous system (CNS).

**STOT - repeated exposure** Liver, Heart, Blood.

**Aspiration hazard** No information available.

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	2.1 - 2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h

**Persistence and Degradability** Persistence is unlikely, based on information available.

**Bioaccumulation/ Accumulation** No information available

**Mobility** Will likely be mobile in the environment due to its volatility.

Component	log Pow
Hexane	4.11

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. Transport information**

DOT

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

TDG

UN-No UN1208  
 Proper Shipping Name HEXANES  
 Hazard Class 3  
 Packing Group II

IATA

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

IMDG/IMO

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

**15. Regulatory information**

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hexane	X	X	-	203-777-6	-		X	X	X	X	X

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hexane	110-54-3	>95	1.0

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

**OSHA Occupational Safety and Health Administration**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hexane	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

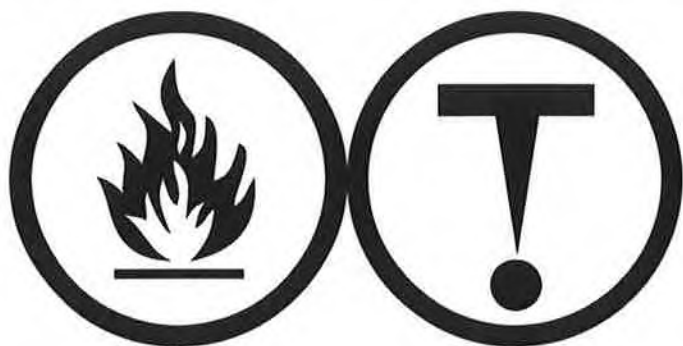
**Other International Regulations**

Mexico - Grade Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class B2 Flammable liquid  
D2A Very toxic materials



## 16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Oct-2009
Revision Date	02-Apr-2014
Print Date	02-Apr-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of SDS**

# Material Safety Data Sheet

## Benzene

ACC# 02610

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Benzene

**Catalog Numbers:** AC167660000, AC167660010, AC167660025, AC167660250, AC167665000, AC168650250, AC295330000, AC295330010, AC295330025, AC295330250, AC296880000, AC296880010, AC296880025, AC296880250, AC610230010, AC610231000, AC611001000, B243-4, B245-4, B245-500, B411-1, B411-4, B412-1, S79920ACS

**Synonyms:** Benzol; Cyclohexatriene; Phenyl hydride.**Company Identification:**

Fisher Scientific  
1 Reagent Lane  
Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
71-43-2	Benzene	> 99	200-753-7

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear colorless liquid. Flash Point: -11 deg C.

**Danger!** Extremely flammable liquid and vapor. Vapor may cause flash fire. Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. Contains benzene. Benzene can cause cancer. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause blood abnormalities. May cause central nervous system effects.

**Target Organs:** Blood, central nervous system, respiratory system, eyes, bone marrow, immune system, skin.

**Potential Health Effects**

**Eye:** Causes eye irritation.

**Skin:** Causes skin irritation. Harmful if absorbed through the skin. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.

**Ingestion:** May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause effects similar to

those for inhalation exposure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

**Inhalation:** Causes respiratory tract irritation. May cause drowsiness, unconsciousness, and central nervous system depression. Exposure may lead to irreversible bone marrow injury. Exposure may lead to aplastic anemia. Potential symptoms of overexposure by inhalation are dizziness, headache, vomiting, visual disturbances, staggering gait, hilarity, fatigue, and other symptoms of CNS depression.

**Chronic:** May cause bone marrow abnormalities with damage to blood forming tissues. May cause anemia and other blood cell abnormalities. Chronic exposure to benzene has been associated with an increased incidence of leukemia and multiple myeloma (tumor composed of cells of the type normally found in the bone marrow). Immunodepressive effects have been reported. This substance has caused adverse reproductive and fetal effects in laboratory animals.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:** In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

**Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Extremely flammable liquid and vapor. Vapor may cause flash fire. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. This liquid floats on water and may travel to a source of ignition and spread fire. May accumulate static electricity.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** -11 deg C ( 12.20 deg F)

**Autoignition Temperature:** 498 deg C ( 928.40 deg F)

**Explosion Limits, Lower:** 1.3 vol %

**Upper:** 7.1 vol %

**NFPA Rating:** (estimated) Health: 2; Flammability: 3; Instability: 0

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Remove



all sources of ignition. Provide ventilation. Approach spill from upwind. Use water spray to cool and disperse vapors, protect personnel, and dilute spills to form nonflammable mixtures.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor.

**Storage:** Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. See 29CFR 1910.1028 for the regulatory requirements for the control of employee exposure to benzene.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Benzene	0.5 ppm TWA; 2.5 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	0.1 ppm TWA 500 ppm IDLH	1 ppm TWA; 10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 25 ppm Ceiling (applies to industry segments exempt from the 1 ppm TWA and 5 ppm STEL of the benzene standard); 0.5 ppm Action Level; 1 ppm TWA; 5 ppm STEL (Cancer hazard, Flammable - see 29 CFR 1910.1028)

**OSHA Vacated PELs:** Benzene: 10 ppm TWA (unless specified in 1910.1028)

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid  
**Appearance:** clear colorless  
**Odor:** sweetish odor - aromatic odor  
**pH:** Not applicable.  
**Vapor Pressure:** 75 mm Hg @ 20 deg C  
**Vapor Density:** 2.8 (air=1)  
**Evaporation Rate:**Not available.  
**Viscosity:** 0.647mPa @ 20 deg C  
**Boiling Point:** 80.1 deg C  
**Freezing/Melting Point:**5.5 deg C  
**Decomposition Temperature:**Not available.  
**Solubility:** 0.180 g/100 ml @ 25°C  
**Specific Gravity/Density:**0.8765 @ 20°C  
**Molecular Formula:**C6H6  
**Molecular Weight:**78.11

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.  
**Conditions to Avoid:** Ignition sources, excess heat, confined spaces.  
**Incompatibilities with Other Materials:** Strong oxidizing agents.  
**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide.  
**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 71-43-2: CY1400000

**LD50/LC50:**

CAS# 71-43-2:

Dermal, guinea pig: LD50 = >9400 uL/kg;  
Draize test, rabbit, eye: 88 mg Moderate;  
Draize test, rabbit, eye: 2 mg/24H Severe;  
Draize test, rabbit, skin: 20 mg/24H Moderate;  
Inhalation, mouse: LC50 = 9980 ppm;  
Inhalation, mouse: LC50 = 24 mL/kg/2H;  
Inhalation, rat: LC50 = 10000 ppm/7H;  
Inhalation, rat: LC50 = 34 mL/kg/2H;  
Inhalation, rat: LC50 = 6.5 mL/kg/4H;  
Oral, mouse: LD50 = 4700 mg/kg;  
Oral, rat: LD50 = 930 mg/kg;  
Oral, rat: LD50 = 1 mL/kg;

Oral, rat: LD50 = 1800 Benzene is considered very toxic; probable human oral lethal dose would be 50-500 mg/kg. Human inhalation of approximately 20,000 ppm (2% in air) was fatal in 5-10 minutes. While percutaneous absorption of liquid benzene through intact human skin can be limited (e.g., 0.05% of the applied dose), the absorbed dose via direct dermal contact combined with that received from body surface exposure to benzene in workplace air is such that a substantial fraction (20-40%) of the total exposure is due to skin absorption.

**Carcinogenicity:**

CAS# 71-43-2:

- **ACGIH:** A1 - Confirmed Human Carcinogen
- **California:** carcinogen, initial date 2/27/87
- **NTP:** Known carcinogen
- **IARC:** Group 1 carcinogen

**Epidemiology:** IARC has concluded that epidemiological studies have established the relationship between benzene exposure and the development of acute myelogenous leukemia, and that there is sufficient evidence that benzene is carcinogenic to humans.

**Teratogenicity:** Inhalation, rat: TCLO = 50 ppm/24H (female 7-14 day(s) after conception) Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord) and Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).; Inhalation, mouse: TCLO = 5 ppm (female 6-15 day(s) after conception) Effects on Embryo or Fetus - cytological changes (including somatic cell genetic material) and Specific Developmental Abnormalities - blood and lymphatic systems (including spleen and marrow).

**Reproductive Effects:** Inhalation, rat: TCLO = 670 mg/m<sup>3</sup>/24H (female 15 day(s) pre-mating and female 1-22 day(s) after conception) female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).; Oral, mouse: TDLo = 12 gm/kg (female 6-15 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

**Mutagenicity:** DNA Inhibition: Human, Leukocyte = 2200 umol/L.; DNA Inhibition: Human, HeLa cell = 2200 umol/L.; Mutation Test Systems - not otherwise specified: Human, Lymphocyte = 5 umol/L.; Cytogenetic Analysis: Inhalation, Human = 125 ppm/1Y.; Cytogenetic Analysis: Human, Leukocyte = 1 mmol/L/72H.; Cytogenetic Analysis: Human, Lymphocyte = 1 mg/L.

**Neurotoxicity:** See actual entry in RTECS for complete information.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Mosquito Fish: TLm = 395 mg/L; 24 Hr; Unspecified Fish: Goldfish: LC50 = 46 mg/L; 24 Hr; Modified ASTM D 1345 Fish: Fathead Minnow: LC50 = 15.1 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0) Fish: Rainbow trout: LC50 = 5.3 mg/L; 96 Hr; Flow-through at 25°C (pH 7.9-8.0) Fish: Bluegill/Sunfish: LD50 = 20 mg/L; 24-48 Hr; Unspecified If benzene is released to soil, it will be subject to rapid volatilization near the surface and that which does not evaporate will be highly to very highly mobile in the soil and may leach to groundwater. If benzene is released to water, it will be subject to rapid volatilization. It will not be expected to significantly adsorb to sediment, bioconcentrate in aquatic organisms or hydrolyze. It may be subject to biodegradation.

**Environmental:** If benzene is released to the atmosphere, it will exist predominantly in the vapor phase. Gas-phase benzene will not be subject to direct photolysis but it will react with photochemically produced hydroxyl radicals with a half-life of 13.4 days. The reaction time in polluted atmospheres which contain nitrogen oxides or sulfur dioxide is accelerated with the half-life being reported as 4-6 hours. Benzene is fairly soluble in water and is removed from the atmosphere in rain.

**Physical:** Products of photooxidation include phenol, nitrophenols, nitrobenzene, formic acid, and peroxyacetyl nitrate.

**Other:** No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:**

CAS# 71-43-2: waste number U019 (Ignitable waste, Toxic waste).

## Section 14 - Transport Information

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name:</b>	BENZENE	BENZENE
<b>Hazard Class:</b>	3	3
<b>UN Number:</b>	UN1114	UN1114
<b>Packing Group:</b>	II	II
<b>Additional Info:</b>		FLASHPOINT -11 C

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 71-43-2 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 71-43-2: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogeni

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 71-43-2: immediate, delayed, fire.

#### Section 313

This material contains Benzene (CAS# 71-43-2, > 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 71-43-2 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

CAS# 71-43-2 is listed as a Hazardous Substance under the CWA. CAS# 71-43-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 71-43-2 is listed as a Toxic Pollutant under the Clean Water Act.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### **STATE**

CAS# 71-43-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

#### **California Prop 65**

**The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:**

WARNING: This product contains Benzene, a chemical known to the state of California to cause cancer. WARNING: This product contains Benzene, a chemical known to the state of California to cause male reproductive toxicity.

California No Significant Risk Level: CAS# 71-43-2: 6.4 æg/day NSRL (oral); 13 æg/day NSRL (inhalation)

#### **European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

T F

**Risk Phrases:**

R 11 Highly flammable.

R 36/38 Irritating to eyes and skin.

R 45 May cause cancer.

R 46 May cause heritable genetic damage.

R 48/23/24/25 Toxic : danger of serious damage to health by prolonged exposure through inhalation, contact with skin and if swallowed.

R 65 Harmful: may cause lung damage if swallowed.

**Safety Phrases:**

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

**WGK (Water Danger/Protection)**

CAS# 71-43-2: 3

**Canada - DSL/NDSL**

CAS# 71-43-2 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D2A, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 71-43-2 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Additional Information

**MSDS Creation Date:** 6/11/1999

**Revision #8 Date:** 9/11/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*



# Fisher Scientific

Part of Thermo Fisher Scientific

## SAFETY DATA SHEET

Creation Date 06-Aug-2010

Revision Date 10-Feb-2015

Revision Number 3

### 1. Identification

**Product Name** Ethylbenzene  
**Cat No. :** O2751-1  
**Synonyms** Ethylbenzol; Phenylethane  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available  
**Details of the supplier of the safety data sheet**

**Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute Inhalation Toxicity - Vapors	Category 4
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Aspiration Toxicity	Category 1

**Label Elements**

**Signal Word**

Danger

**Hazard Statements**

Highly flammable liquid and vapor  
May be fatal if swallowed and enters airways  
Harmful if inhaled  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of causing cancer  
May cause damage to organs through prolonged or repeated exposure



**Precautionary Statements****Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Use only outdoors or in a well-ventilated area  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep container tightly closed  
 Ground/bond container and receiving equipment  
 Use explosion-proof electrical/ventilating/lighting/equipment  
 Use only non-sparking tools  
 Take precautionary measures against static discharge  
 Keep cool

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

**Ingestion**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Storage**

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Harmful to aquatic life with long lasting effects

### 3. Composition / information on ingredients

Component	CAS-No	Weight %
Ethylbenzene	100-41-4	>95

### 4. First-aid measures

<b>General Advice</b>	If symptoms persist, call a physician.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention. Aspiration into lungs can produce severe lung damage.

<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms/effects</b>	Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: May cause central nervous system depression
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Do not use a solid water stream as it may scatter and spread fire
<b>Flash Point</b>	15 °C / 59 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	432 °C / 810 °F
<b>Explosion Limits</b>	
<b>Upper</b>	6.8%
<b>Lower</b>	1.2%
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	Yes

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

#### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	3	0	N/A

### 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
<b>Environmental Precautions</b>	Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.
<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

### 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.
<b>Storage</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethylbenzene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 435 mg/m <sup>3</sup> (Vacated) STEL: 125 ppm (Vacated) STEL: 545 mg/m <sup>3</sup> TWA: 100 ppm TWA: 435 mg/m <sup>3</sup>	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m <sup>3</sup> STEL: 125 ppm STEL: 545 mg/m <sup>3</sup>
Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Ethylbenzene	TWA: 100 ppm TWA: 434 mg/m <sup>3</sup> STEL: 125 ppm STEL: 543 mg/m <sup>3</sup>	TWA: 100 ppm TWA: 435 mg/m <sup>3</sup> STEL: 125 ppm STEL: 545 mg/m <sup>3</sup>	TWA: 20 ppm

### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

### Personal Protective Equipment

#### Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### Skin and body protection

Long sleeved clothing.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	aromatic
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	-95 °C / -139 °F
<b>Boiling Point/Range</b>	136 °C / 276.8 °F
<b>Flash Point</b>	15 °C / 59 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	6.8%
<b>Lower</b>	1.2%
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	No information available
<b>Relative Density</b>	0.860
<b>Solubility</b>	Slightly soluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available

Autoignition Temperature	432 °C / 810 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C8 H10
Molecular Weight	106.17

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylbenzene	3500 mg/kg ( Rat )	15400 mg/kg ( Rabbit )	17.2 mg/L ( Rat ) 4 h

Toxicologically Synergistic Products No information available

#### Products

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	May cause eye, skin, and respiratory tract irritation
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethylbenzene	100-41-4	Group 2B	Not listed	A3	X	Not listed

IARC: (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

A1 - Known Human Carcinogen

A2 - Suspected Human Carcinogen

A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
STOT - single exposure	Respiratory system Central nervous system (CNS)
STOT - repeated exposure	None known

<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: May cause central nervous system depression
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethylbenzene	2.6 - 11.3 mg/L EC50 72 h 438 mg/L EC50 > 96 h 4.6 mg/L EC50 = 72 h 1.7 - 7.6 mg/L EC50 96 h	9.6 mg/L LC50 96 h 9.1 - 15.6 mg/L LC50 96 h 32 mg/L LC50 96 h 7.55 - 11 mg/L LC50 96 h 4.2 mg/L LC50 96 h 11.0 - 18.0 mg/L LC50 96 h	EC50 = 9.68 mg/L 30 min EC50 = 96 mg/L 24 h	1.8 - 2.4 mg/L EC50 48 h

**Persistence and Degradability** Insoluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its volatility.

Component	log Pow
Ethylbenzene	3.118

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### TDG

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### IATA

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

### IMDG/IMO

UN-No	UN1175
Proper Shipping Name	ETHYLBENZENE
Hazard Class	3
Packing Group	II

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed The product is classified and labeled

according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethylbenzene	X	X	-	202-849-4	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

TSCA 12(b) Not applicable

### SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Ethylbenzene	100-41-4	>95	0.1

### SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

### Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Ethylbenzene	X	1000 lb	X	X

### Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Ethylbenzene	X		-

### OSHA Occupational Safety and Health Administration

Not applicable

### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Ethylbenzene	1000 lb	-

**California Proposition 65** This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethylbenzene	100-41-4	Carcinogen	54 µg/day 41 µg/day	Carcinogen



**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethylbenzene	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

Mexico - Grade Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid  
 D2A Very toxic materials

**16. Other information**

Prepared By Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

Creation Date 06-Aug-2010

Revision Date 10-Feb-2015

Print Date 10-Feb-2015

Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of SDS**

**SAFETY DATA SHEET**

Creation Date 14-Sep-2009

Revision Date 15-Feb-2016

Revision Number 2

**1. Identification**

**Product Name** N-HEPTANE  
**Cat No. :** AC610361000  
**Synonyms** Normal heptane.; Heptane  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available  
**Details of the supplier of the safety data sheet**

**Company**  
Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Entity / Business Name**  
Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number**  
For information **US** call: 001-800-ACROS-01  
/ **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 /  
**Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 /  
**Europe**:001-703-527-3887

**2. Hazard(s) identification****Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney, Liver, Blood.	
Aspiration Toxicity	Category 1

**Label Elements**

**Signal Word**  
Danger

**Hazard Statements**  
Highly flammable liquid and vapor  
May be fatal if swallowed and enters airways  
Causes skin irritation  
Causes serious eye irritation  
May cause drowsiness or dizziness  
May cause damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep container tightly closed  
 Ground/bond container and receiving equipment  
 Use explosion-proof electrical/ventilating/lighting/equipment  
 Use only non-sparking tools  
 Take precautionary measures against static discharge  
 Keep cool

#### Response

Get medical attention/advice if you feel unwell

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor/physician if you feel unwell

#### Skin

If skin irritation occurs: Get medical advice/attention  
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Wash contaminated clothing before reuse

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical advice/attention

#### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
 Do NOT induce vomiting

#### Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

### 3. Composition / information on ingredients

Component	CAS-No	Weight %
n-Heptane	142-82-5	>95

### 4. First-aid measures

#### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
 Obtain medical attention.

#### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention. Risk of serious damage to the lungs.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.
<b>Most important symptoms/effects</b>	Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective
<b>Flash Point</b>	-4 °C / 24.8 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	215 °C / 419 °F
<b>Explosion Limits</b>	
<b>Upper</b>	6.7 vol %
<b>Lower</b>	1.05 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Do not allow run-off from fire fighting to enter drains or water courses.

### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
1	3	0	N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
<b>Environmental Precautions</b>	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
<b>Methods for Containment and Clean Up</b>	Remove all sources of ignition. Soak up with inert absorbent material. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Keep in suitable, closed containers for disposal.

## 7. Handling and storage

<b>Handling</b>	Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use
-----------------	---

explosion-proof equipment. Take precautionary measures against static discharges. Wash hands before breaks and immediately after handling the product. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

**8. Exposure controls / personal protection**

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
n-Heptane	TWA: 400 ppm STEL: 500 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1600 mg/m <sup>3</sup> (Vacated) STEL: 500 ppm (Vacated) STEL: 2000 mg/m <sup>3</sup> TWA: 500 ppm TWA: 2000 mg/m <sup>3</sup>	IDLH: 750 ppm TWA: 85 ppm TWA: 350 mg/m <sup>3</sup> Ceiling: 440 ppm Ceiling: 1800 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
n-Heptane	TWA: 400 ppm TWA: 1640 mg/m <sup>3</sup> STEL: 500 ppm STEL: 2050 mg/m <sup>3</sup>	TWA: 400 ppm TWA: 1600 mg/m <sup>3</sup> STEL: 500 ppm STEL: 2000 mg/m <sup>3</sup>	TWA: 400 ppm STEL: 500 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** None under normal use conditions.

Personal Protective Equipment

- Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.
- Respiratory Protection** No protective equipment is needed under normal use conditions.
- Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	Petroleum distillates
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	-91 °C / -131.8 °F
<b>Boiling Point/Range</b>	98 °C / 208.4 °F
<b>Flash Point</b>	-4 °C / 24.8 °F
<b>Evaporation Rate</b>	2.8 (Butyl Acetate = 1.0)
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	6.7 vol %
<b>Lower</b>	1.05 vol %
<b>Vapor Pressure</b>	48 mbar @ 20 °C
<b>Vapor Density</b>	3.5
<b>Specific Gravity</b>	0.683

Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	215 °C / 419 °F
Decomposition Temperature	No information available
Viscosity	0.4 mPa s at 20 °C
Molecular Formula	C7 H16
Molecular Weight	100.20

## 10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under normal conditions.
Conditions to Avoid	Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
n-Heptane	>2000 mg/kg (rat)	LD50 = 3000 mg/kg ( Rabbit )	LC50 = 103 g/m <sup>3</sup> ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Irritating to eyes and skin
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
n-Heptane	142-82-5	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)  
**STOT - repeated exposure** Kidney Liver Blood

**Aspiration hazard** Aspiration hazard

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting



**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
n-Heptane	Not listed	LC50: = 375.0 mg/L, 96h (Cichlid fish)	Not listed	EC50: >10 mg/L/24h

**Persistence and Degradability** May persist based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** The product is insoluble and floats on water.

Component	log Pow
n-Heptane	4.66

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

UN-No UN1206  
 Proper Shipping Name HEPTANES  
 Hazard Class 3  
 Packing Group II

### TDG

UN-No UN1206  
 Proper Shipping Name HEPTANES  
 Hazard Class 3  
 Packing Group II

### IATA

UN-No UN1206  
 Proper Shipping Name Heptanes  
 Hazard Class 3  
 Packing Group II

### IMDG/IMO

UN-No UN1206  
 Proper Shipping Name Heptanes  
 Hazard Class 3  
 Packing Group II

## 15. Regulatory information

### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
n-Heptane	X	X	-	205-563-8	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated

polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

**TSCA 12(b)**

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA Occupational Safety and Health Administration**  
Not applicable

**CERCLA**  
Not applicable

**California Proposition 65** This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
n-Heptane	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

**U.S. Department of Homeland Security**  
This product does not contain any DHS chemicals.

Other International Regulations

**Mexico - Grade** Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class** B2 Flammable liquid  
D2B Toxic materials

**16. Other information**

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
<b>Creation Date</b>	14-Sep-2009
<b>Revision Date</b>	15-Feb-2016
<b>Print Date</b>	15-Feb-2016
<b>Revision Summary</b>	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**



# SAFETY DATA SHEET

Creation Date 26-Oct-2009

Revision Date 02-Apr-2014

Revision Number 1

## 1. Identification

**Product Name** n-Hexane  
**Cat No. :** AC326920000; AC326920010; AC326920025; AC326921000;  
AC326922500  
**Synonyms** Hex  
**Recommended Use** Laboratory chemicals  
**Uses advised against** No Information available

### Details of the supplier of the safety data sheet

Company	Entity / Business Name	Emergency Telephone Number
Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Acros Organics One Reagent Lane Fair Lawn, NJ 07410	For information <b>US</b> call: 001-800-ACROS-01 / <b>Europe</b> call: +32 14 57 52 11 Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99 <b>CHEMTREC</b> Tel. No <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Heart, Blood.	
Aspiration Toxicity	Category 1

### Label Elements

**Signal Word**  
Danger

**Hazard Statements**  
Highly flammable liquid and vapor

May be fatal if swallowed and enters airways  
Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of damaging fertility  
Causes damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Wear eye/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use explosion-proof electrical/ventilating/lighting/equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge  
Keep cool

#### Response

IF exposed or concerned: Get medical attention/advice

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

If skin irritation occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

#### Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

If eye irritation persists: Get medical advice/attention.

#### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

#### Fire

In case of fire: Use CO2, dry chemical, or foam for extinction

#### Storage

Store locked up

Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Toxic to aquatic life with long lasting effects

**3. Composition / information on Ingredients**

Haz/Non-haz

Component	CAS-No	Weight %
Hexane	110-54-3	>95

**4. First-aid measures**

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention. Aspiration into lungs can produce severe lung damage.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration.
<b>Most important symptoms/effects</b>	Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
<b>Notes to Physician</b>	Treat symptomatically.

**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.
<b>Unsuitable Extinguishing Media</b>	Water may be ineffective, This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.
<b>Flash Point</b>	-22°C / -7.6°F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	223°C / 433.4°F
<b>Explosion Limits</b>	
<b>Upper</b>	7.5 vol %
<b>Lower</b>	1.1 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

**Specific Hazards Arising from the Chemical**

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

**Hazardous Combustion Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.



**NFPA**

Health  
2

Flammability  
3

Instability  
0

Physical hazards  
N/A

**6. Accidental release measures**

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system. Avoid release to the environment. Collect spillage.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

**7. Handling and storage**

**Handling** Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

**8. Exposure controls / personal protection**

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m <sup>3</sup> TWA: 500 ppm TWA: 1800 mg/m <sup>3</sup>	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hexane	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup> Skin	TWA: 50 ppm TWA: 176 mg/m <sup>3</sup>	TWA: 50 ppm Skin

Legend

*ACGIH - American Conference of Governmental Hygienists*

*OSHA - Occupational Safety and Health Administration*

*NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health*

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	Petroleum distillates
<b>Odor Threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Melting Point/Range</b>	-95°C / -139°F
<b>Boiling Point/Range</b>	69°C / 156.2°F @ 760 mmHg
<b>Flash Point</b>	-22°C / -7.6°F
<b>Evaporation Rate</b>	No information available.
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
<b>Upper</b>	7.5 vol %
<b>Lower</b>	1.1 vol %
<b>Vapor Pressure</b>	160 mbar @ 20 °C
<b>Vapor Density</b>	2.97
<b>Relative Density</b>	0.659
<b>Solubility</b>	Insoluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	223°C / 433.4°F
<b>Decomposition temperature</b>	No information available.
<b>Viscosity</b>	0.31 mPa s at 20 °C
<b>Molecular Formula</b>	C6 H14
<b>Molecular Weight</b>	86.18

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available.
<b>Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Incompatible products. Heat, flames and sparks. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents, Halogens
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur
<b>Hazardous Reactions</b>	None under normal processing

## 11. Toxicological information

### Acute Toxicity

### Product Information

### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	25 g/kg ( Rat )	3000 mg/kg ( Rabbit )	48000 ppm ( Rat ) 4 h

**Toxicologically Synergistic Products** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** Irritating to eyes and skin

**Sensitization** No information available.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

**Mutagenic Effects** Mutagenic effects have occurred in experimental animals.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals.

**Teratogenicity** Teratogenic effects have occurred in experimental animals..

**STOT - single exposure** Respiratory system, Central nervous system (CNS).

**STOT - repeated exposure** Liver, Heart, Blood.

**Aspiration hazard** No information available.

**Symptoms / effects, both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	2.1 - 2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h

**Persistence and Degradability** Persistence is unlikely, based on information available.

**Bioaccumulation/ Accumulation** No information available

**Mobility** Will likely be mobile in the environment due to its volatility.

Component	log Pow
Hexane	4.11

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. Transport information**

DOT

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

TDG

UN-No UN1208  
 Proper Shipping Name HEXANES  
 Hazard Class 3  
 Packing Group II

IATA

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

IMDG/IMO

UN-No UN1208  
 Proper Shipping Name Hexanes  
 Hazard Class 3  
 Packing Group II

**15. Regulatory information**

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hexane	X	X	-	203-777-6	-		X	X	X	X	X

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hexane	110-54-3	>95	1.0

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard Yes  
 Chronic Health Hazard Yes  
 Fire Hazard Yes  
 Sudden Release of Pressure Hazard No  
 Reactive Hazard No

Clean Water Act Not applicable

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

OSHA Occupational Safety and Health Administration  
 Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hexane	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

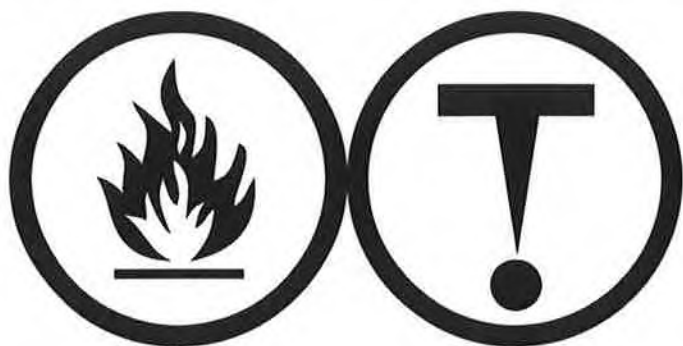
**Other International Regulations**

Mexico - Grade Serious risk, Grade 3

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class B2 Flammable liquid  
 D2A Very toxic materials



## 16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Oct-2009
Revision Date	02-Apr-2014
Print Date	02-Apr-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

### Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of SDS**





Health	2
Fire	3
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet

### 1,2-Dichloroethane MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** 1,2-Dichloroethane

**Catalog Codes:** SLD2521, SLD3721

**CAS#:** 107-06-2

**RTECS:** KH9800000

**TSCA:** TSCA 8(b) inventory: 1,2-Dichloroethane

**CI#:** Not available.

**Synonym:** Ethylene dichloride

**Chemical Formula:** C<sub>2</sub>H<sub>4</sub>CL<sub>2</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
{1,2-}Dichloroethane	107-06-2	100

**Toxicological Data on Ingredients:** 1,2-Dichloroethane: ORAL (LD50): Acute: 670 mg/kg [Rat]. 413 mg/kg [Mouse]. DERMAL (LD50): Acute: 2800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 1414.2 ppm 4 hour(s) [Rat].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Extremely hazardous in case of ingestion. Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching.

**Potential Chronic Health Effects:**

Very hazardous in case of ingestion, of inhalation. CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

### Skin Contact:

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

### Ingestion:

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 413°C (775.4°F)

**Flash Points:** CLOSED CUP: 13°C (55.4°F). OPEN CUP: 18°C (64.4°F).

**Flammable Limits:** LOWER: 6.2% UPPER: 15.6%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

### Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks. Slightly flammable to flammable in presence of oxidizing materials.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive to explosive in presence of oxidizing materials.

### Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use alcohol foam, water spray or fog.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Flammable liquid. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Section 7: Handling and Storage****Precautions:**

Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

**Section 8: Exposure Controls/Personal Protection****Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 10 CEIL: 75 (ppm) from ACGIH (TLV) TWA: 40 CEIL: 300 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

**Section 9: Physical and Chemical Properties**

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 98.96 g/mole

**Color:** Not available.

**pH (1% soln/water):** Not available.

**Boiling Point:** 83.5°C (182.3°F)

**Melting Point:** -35.3°C (-31.5°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.2351 (Water = 1)

**Vapor Pressure:** 61 mm of Hg (@ 20°C)

**Vapor Density:** 3.42 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 26 ppm

**Water/Oil Dist. Coeff.:** The product is equally soluble in oil and water;  $\log(\text{oil/water}) = 0$

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, n-octanol, acetone.

**Solubility:**

Easily soluble in methanol, diethyl ether, n-octanol, acetone. Very slightly soluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 413 mg/kg [Mouse]. Acute dermal toxicity (LD50): 2800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1414.2 ppm 4 hour(s) [Rat].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified 2B (Possible for human.) by IARC. Classified 2 (Reasonably anticipated.) by NTP. The substance is toxic to lungs, the nervous system, liver, mucous membranes.

**Other Toxic Effects on Humans:**

Extremely hazardous in case of ingestion. Very hazardous in case of inhalation. Hazardous in case of skin contact (irritant).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in animal. Excreted in maternal milk in human.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations**

**Waste Disposal:**

**Section 14: Transport Information**

**DOT Classification:** Class 3: Flammable liquid.

**Identification:** : Ethylene dichloride : UN1184 PG: II

**Special Provisions for Transport:** Marine Pollutant

**Section 15: Other Regulatory Information****Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: 1,2-Dichloroethane California prop.

65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: 1,2-Dichloroethane Pennsylvania RTK: 1,2-Dichloroethane Massachusetts RTK: 1,2-Dichloroethane TSCA 8(b) inventory: 1,2-Dichloroethane CERCLA: Hazardous substances.: 1,2-Dichloroethane

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:****WHMIS (Canada):**

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

**DSCL (EEC):**

R11- Highly flammable. R20/22- Harmful by inhalation and if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 3

**Reactivity:** 0

**Personal Protection:** h

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 3

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:17 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*





Health	2
Fire	1
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet Trichloroethylene MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Trichloroethylene

**Catalog Codes:** SLT3310, SLT2590

**CAS#:** 79-01-6

**RTECS:** KX4560000

**TSCA:** TSCA 8(b) inventory: Trichloroethylene

**CI#:** Not available.

**Synonym:**

**Chemical Formula:** C<sub>2</sub>HCl<sub>3</sub>

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

**Toxicological Data on Ingredients:** Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

### Section 3: Hazards Identification

**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

**CARCINOGENIC EFFECTS:** Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH.

**MUTAGENIC EFFECTS:** Not available. **TERATOGENIC EFFECTS:** Not available. **DEVELOPMENTAL TOXICITY:** Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: First Aid Measures

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

**Ingestion:**

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 420°C (788°F)

**Flash Points:** Not available.

**Flammable Limits:** LOWER: 8% UPPER: 10.5%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), halogenated compounds.

**Fire Hazards in Presence of Various Substances:** Not available.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

### Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

**Precautions:**

Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m<sup>3</sup>) from ACGIH Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 131.39 g/mole

**Color:** Clear Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 86.7°C (188.1°F)

**Melting Point:** -87.1°C (-124.8°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 1.4649 (Water = 1)

**Vapor Pressure:** 58 mm of Hg (@ 20°C)

**Vapor Density:** 4.53 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** 20 ppm

**Water/Oil Dist. Coeff.:** The product is equally soluble in oil and water; log(oil/water) = 0

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol, diethyl ether, acetone.

**Solubility:**

Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:**

Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

## Section 11: Toxicological Information

**Routes of Entry:** Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Passes through the placental barrier in human. Detected in maternal milk in human.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Trichloroethylene : UN1710 PG: III

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

#### WHMIS (Canada):

CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

#### DSCL (EEC):

R36/38- Irritating to eyes and skin. R45- May cause cancer.

#### HMIS (U.S.A.):

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** h

#### National Fire Protection Association (U.S.A.):

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

#### Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

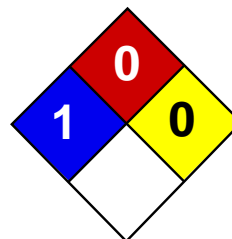
**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:54 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*



Health	1
Fire	0
Reactivity	0
Personal Protection	E

## Material Safety Data Sheet

### Lead MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Lead

**Catalog Codes:** SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

**CAS#:** 7439-92-1

**RTECS:** OF7525000

**TSCA:** TSCA 8(b) inventory: Lead

**CI#:** Not available.

**Synonym:** Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

**Chemical Name:** Lead

**Chemical Formula:** Pb

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Lead	7439-92-1	100

**Toxicological Data on Ingredients:** Lead LD50: Not available. LC50: Not available.

#### Section 3: Hazards Identification

**Potential Acute Health Effects:** Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

#### Section 4: First Aid Measures

**Eye Contact:**



Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact:** Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Serious Skin Contact:** Not available.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** Some metallic oxides.

**Fire Hazards in Presence of Various Substances:** Non-flammable in presence of open flames and sparks, of shocks, of heat.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** When heated to decomposition it emits highly toxic fumes of lead.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill:**

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:** Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 0.05 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] TWA: 0.03 (mg/m<sup>3</sup>) from NIOSH [United States] TWA: 0.05 (mg/m<sup>3</sup>) [Canada] Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Metal solid.)

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** 207.21 g/mole

**Color:** Bluish-white. Silvery. Gray

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 1740°C (3164°F)

**Melting Point:** 327.43°C (621.4°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 11.3 (Water = 1)

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:** Insoluble in cold water.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Incompatible materials, excess heat

**Incompatibility with various substances:** Reactive with oxidizing agents.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Inhalation. Ingestion.

**Toxicity to Animals:**

LD50: Not available. LC50: Not available.

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

**Other Toxic Effects on Humans:** Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungs by mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually absorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, delirium, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead colic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations****Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14: Transport Information**

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

**Section 15: Other Regulatory Information****Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):**

R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

**HMIS (U.S.A.):**

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 1

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:21 PM

**Last Updated:** 05/21/2013 12:00 PM

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.*

**APPENDIX G**  
**NOTICE OF MIGRATION OF CONTAMINATION DOCUMENTATION**



January 16, 2017

Mr. David Underdown  
Douglas Cleaners, Inc.  
900 N. Woodward Avenue  
Birmingham, MI 48009

RE: Notice of Potential Migration of Contamination  
35975 Woodward Avenue  
Birmingham, Michigan

Dear Mr. Underdown:

A Phase II Environmental Site Assessment (ESA) was commissioned for 35975 Woodward Avenue, Birmingham, Michigan (the Site), which sits adjacent to the property of Douglas Cleaners. That study shows that volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs) have been measured in groundwater samples collected near the Site property boundary. While we do not know, it is possible that such substances have migrated onto Douglas Cleaners' property. Additionally, hazardous constituents consistent with dry cleaning activities have been measured in groundwater samples collected on the Site property, which appear to have originated on Douglas Cleaners' property. Contamination will move with the groundwater and may cross property boundaries.

Out of an abundance of caution, we are sending the attached Notice of Migration of Contamination to property owners that may be affected by environmental contamination which has the potential to be emanating from the Site, consistent with Rule 522 (R299.5522) and Rule 1017 (R299.51017) promulgated pursuant to Part 201 of the Michigan Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended, (Part 201). The attached Notice of Migration of Contamination includes a sample location diagram and summary of the levels of contamination for the samples.

If you have further questions regarding this matter, please feel free to contact me.

Sincerely,



Diane E. Wells  
August, LLC



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDIATION AND REDEVELOPMENT DIVISION

For DEQ Use Only	
ITS #	_____
Site ID #	_____
Category Code:	_____

**NOTICE OF MIGRATION OF CONTAMINATION (FORM EQP4482 REV. 4/16)**

*(Under the authority of Part 201, Natural Resources and Environmental Protection Act, 1994 Act 451, as amended, (NREPA) and the Rules promulgated thereunder)*

An owner or operator of property that is a facility, and/or who is subject to MCL324.20107a, and who has reason to believe that a hazardous substance is emanating from, has emanated from, or is likely to be emanating from the property and migrating beyond the boundaries of the property that he or she owns or operates is required under R 299.51017(1) and MCL 324.20114(1)(b)(ii) & (iii) to notify the Michigan Department of Environmental Quality (DEQ) and affected property owners. Submission of this notice does not fulfill the notification requirements of MCL 324.21309a.

The notice must be provided within 45 days (MCL 324.20107a) or within 30 days (MCL 324.20114) after the owner or operator has reason to believe that hazardous substances have migrated, or are likely to have migrated, to or beyond the boundary of his or her property (see R 299.51017 for exceptions that apply to parties subject to MCL 324.20107a).

Use of this form is mandatory for the notice required by R 299.51017(1) and may also be used by parties subject to MCL 324.20114(1)(b)(ii) & (iii). This form may also be used to provide notice to affected property owners as required by those rules.

If a person holds a permit for an oil and gas well under Part 615, Supervisor of Wells, of the NREPA and there is a release from the oil and gas exploration or production activities, that person shall give notice to the DEQ and to the owner of the surface rights of the property.

If a person holds an easement and there is a release from the easement holder's activities, that person shall provide notice to the DEQ and to the grantor of the easement, or the grantor's successor in interest, if any.

Completing this notice in no way relieves a person who is subject to MCL 324.20114 from the responsibility to undertake required response activities.

This notice must be sent to the DEQ office that serves the county in which the property is located. A list of DEQ offices is available at [www.michigan.gov/deqduccare](http://www.michigan.gov/deqduccare), or by calling the Remediation and Redevelopment Division's Lansing office at 517-284-5187. The DEQ will not prepare acknowledgement of receipt of these notices. The sender is responsible for sending the report using a method that provides proof of delivery if such proof is desired. Please label the outside of the envelope "Migration Notice." Additional guidelines for the compliance with the requirements of R 299.51017(1) or MCL 324.20114(1)(b)(ii) & (iii) are available at [www.michigan.gov/deqduccare](http://www.michigan.gov/deqduccare).

THIS NOTICE IS PROVIDED PURSUANT TO:                      R 299.51017                          MCL 324.20114(1)      
*(check both, if applicable)*

Please provide the following information as completely as possible.

- 1. Name and location of the property that hazardous substances are emanating from:
- 2. Status relative to the property:  
(Check one or both, as applicable.)

Name: August LLC  
Address: 35975 Woodward Avenue  
Location: Entire property  
City/County: Birmingham, Oakland  
Property Tax Identification Number, or if applicable, the ward and item number: 19-25-179-011

Owner      
Operator   

Lattitue (decimal degrees): 42.5535                      Longitude (decimal degrees): -83.2187

Reference Point for Latitude and Longitude:  
Center of Site:     Main/front door:     Front gate/main entrance:     Other:

Collection Method: Survey:  Interpolation:  GPS:

2. Provide any additional ID numbers associated with the property (e.g., EPA ID No., BEA No., Part 213 facility ID No., etc.):

Facility ID: 00005681; 2006 BEA #: 20603161LV; 2007 BEA #: 200703735LV

3. Name, address, and telephone number of the property owner, operator, or other party submitting the notice:

Name: August, LLC  
Address: c/o Bodman, PLC 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-259-7777

4. Name, address and telephone number of a contact person familiar with the content of the notice:

Name: Diane E. Wells  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

5. If this Notice is provided pursuant to R 299.51017, provide the address and other location information for the *adjacent* property(s) onto which contamination is migrating, has migrated, or is likely to migrate.

If this Notice is provided pursuant to MCL Section 324.20114(1), provide the address and other location information for *each* property onto which contamination has migrated. Notice should be sent to the property owner of record. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (e.g., a prison, state park, etc.). Notices to the Michigan Department of Transportation (MDOT) for state owned roadways should be sent to Contaminated Site Specialist, Environmental Services Section, MDOT-Bureau of Development, 425 W. Ottawa Street, P.O. Box 30050, Lansing, MI 48909. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (i.e. a prison, state park, etc.).

Address: 900 N. Woodward Avenue  
City/State: Birmingham, Michigan  
Property Tax ID number: 19-25-179-002  
Other: Mr. David Underdown- Douglas Cleaners, Inc.

Notified? No  Yes  Date: [redacted]

Address: [redacted]  
City/State: [redacted]  
Property Tax ID number: [redacted]  
Other: [redacted]

Notified? No  Yes  Date: [redacted]

Address: [redacted]  
City/State: [redacted]  
Property Tax ID number: [redacted]  
Other: [redacted]

Notified? No  Yes  Date: [redacted]

Address: [redacted]  
City/State: [redacted]  
Property Tax ID number: [redacted]  
Other: [redacted]

Notified? No  Yes  Date: [redacted]

Address: [redacted]  
City/State: [redacted]  
Property Tax ID number: [redacted]  
Other: [redacted]

Notified? No  Yes  Date: [redacted]

(Attach additional pages as needed)

6.

Complete the Table on Page 3 of this Form for each hazardous substance which has migrated, or is likely to have migrated, beyond the property boundary at a concentration that exceeds a Generic Residential Cleanup Criterion developed by the DEQ pursuant to MCL 324.20120a(1). Complete and attach additional copies of Page 3, if necessary, to list all hazardous substances that must be reported. Include a scaled map or drawing that shows the location of sampling points identified on the Table on Page 3, the property boundaries, and the adjacent property owners if providing notice pursuant to R 299.1017(1) or all impacted property owners if providing notice pursuant to MCL 324.20114(1).


7. Provide a summary of the information which shows that contamination is emanating from, or has emanated from, and is present beyond the boundary of the source property at a concentration which exceeds the generic residential criteria developed by the DEQ pursuant to MCL 324.20120a(1)(a). This summary shall identify the environmental media affected, specific hazardous substances, and the concentrations of those hazardous substances in all affected environmental media at the property boundary and in any sample locations beyond the property boundary. The summary shall also describe the basis for the conclusion that the contamination is emanating, has emanated, or is present beyond the boundary of the source property, including whether the conclusion is based on groundwater analytical data or fate and transport modeling, both, or neither.

8. If the person making this notice has reason to believe that a migrating hazardous substance has affected, or is likely to affect, a private or public water supply, then that water supply must be identified here:

- |   | YES                                 | NO                                  |
|---|-------------------------------------|-------------------------------------|
| 9. Is this notice being submitted within the timeframes established under R 299.51017 and/or MCL 324.20114(1), as applicable? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 10. Is this notice in addition to a notice that was submitted prior to <i>December 21, 2002</i> ? (R 299.51017(4)(c))         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. Is this notice related to an oil and gas well permit (R 299.51017(2))? Permit #:  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Is this notice related to an easement (R 299.51017(3))? (NOTE: All easement grantors <i>must</i> receive this notice.)    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13. Has surface water been affected (R 299.51017(1)) (If yes, please identify the affected surface water body.)               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**CERTIFICATION:**

*With my signature below, I certify that I am the owner of the facility or that I am legally authorized to execute this notice on behalf of the owner or operator named on this form, and that to the best of my knowledge and belief the above representations are complete and accurate. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.*

Signature  Date 1-16-17  
 (Owner or person legally authorized to bind the person making this report)

Name (Typed or Printed) Diane E. Wells

Title (Typed or Printed) Manager – August, LLC

See Item 6 on Page 3 of this Form for instructions to be used in completing this table. Attach additional pages if necessary. The information to be included in each column of the table is:

- Column A Name of hazardous substance.
- Column B Chemical Abstract Service (CAS) Number for the hazardous substance.
- Column C Maximum hazardous substance concentration measured on the property, expressed in parts per billion (e.g., ug/L or ug/Kg). Report maximum concentration separately for each environmental medium.
- Column D Sample location for Column C (relate to label on map).
- Column E Environmental medium in which concentration reported in Column C was measured (e.g., soil or groundwater).
- Column F Distance from point of maximum measured concentration (Column D) to property boundary, in direction of contaminant migration, if direction is known or can reasonably be inferred. If direction is unknown, list distance to nearest property boundary.
- Column G Direction of contaminant migration, if known.
- Column H Concentration closest to property boundary, if known. If a concentration lower than the maximum concentration reported in Column C has been measured at a point closer to the property boundary in the direction of contaminant migration, use Column I to list the concentration that was measured closest to the property boundary in the direction of contaminant migration.
- Column I Sample location for Column H (relate to label on map).
- Column J Environmental medium for measurement reported in Column H, if applicable.

A Hazardous Substance	B CAS Number	C Maximum Concentra- tion	D Sample Location for "C"	E Environmental Medium for "C"	F Distance to Property Boundary	G Direction of Migration	H Boundary Concentration	I Sample Location for "H"	J Environmental Medium for "H"
<b>See attached Table 1 – Off-Site Migration Notification Summary</b>									

Total Number Samples Collected: 27 Total Number of Samples Exceeding Criteria: 25

**A scaled map or drawing showing these locations and the property boundaries must be submitted with this Notice**

**TABLE 1**  
**OFF-SITE MIGRATION NOTIFICATION SUMMARY**  
**DOUGLAS CLEANERS PROPERTY**

35975 Woodward Avenue  
 Birmingham, Michigan  
 SME Project No. 075099.01

Hazardous Substance	CAS #	Maximum Concentration	Sample Location	Environmental Medium	Distance to Property Boundary	Direction of Migration
Benzene	71-43-2	2,600 ug/L	MW103	Groundwater	5 feet	Southeast
Ethylbenzene	100-41-4	1,000 ug/L	MW102	Groundwater	5 feet	
Isopropylbenzene	98-82-8	120 ug/L	MW102	Groundwater	5 feet	
Lead	7439-92-1	7 ug/L	TW-4	Groundwater	On Property	
Methyl-tert-butyl ether (MTBE)	1634-04-4	50 ug/L	TW-1	Groundwater	On Property	
2-Methylnaphthalene	91-57-6	61 ug/L	MW102	Groundwater	5 feet	
Naphthalene	91-20-3	280 ug/L	MW102	Groundwater	5 feet	
n-Propylbenzene	103-65-1	180 ug/L	MW103	Groundwater	5 feet	
1,2,4-Trimethylbenzene	95-63-6	1,200 ug/L	MW102	Groundwater	5 feet	
1,3,5-Trimethylbenzene	108-67-8	230 ug/L	MW102	Groundwater	5 feet	
Xylenes	1330-20-7	720 ug/L	MW102	Groundwater	80 feet	



Project

**AUGUST LLC  
REDEVELOPMENT  
PROJECT**

Project Location

**35975 WOODWARD  
AVENUE  
BIRMINGHAM,  
MICHIGAN**

Sheet Name

**PROPERTY  
FEATURES  
DIAGRAM**

No.	Revision Date

Date **10-10-16**

CADD **GM**

Designer **CEB**

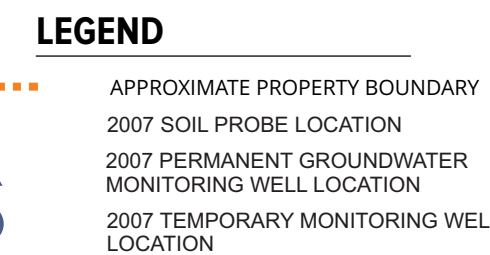
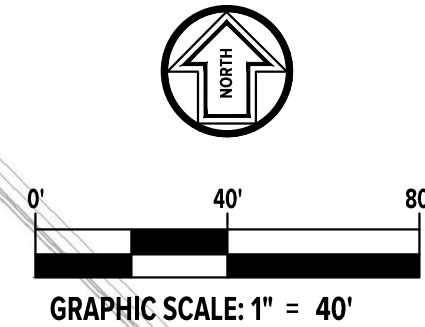
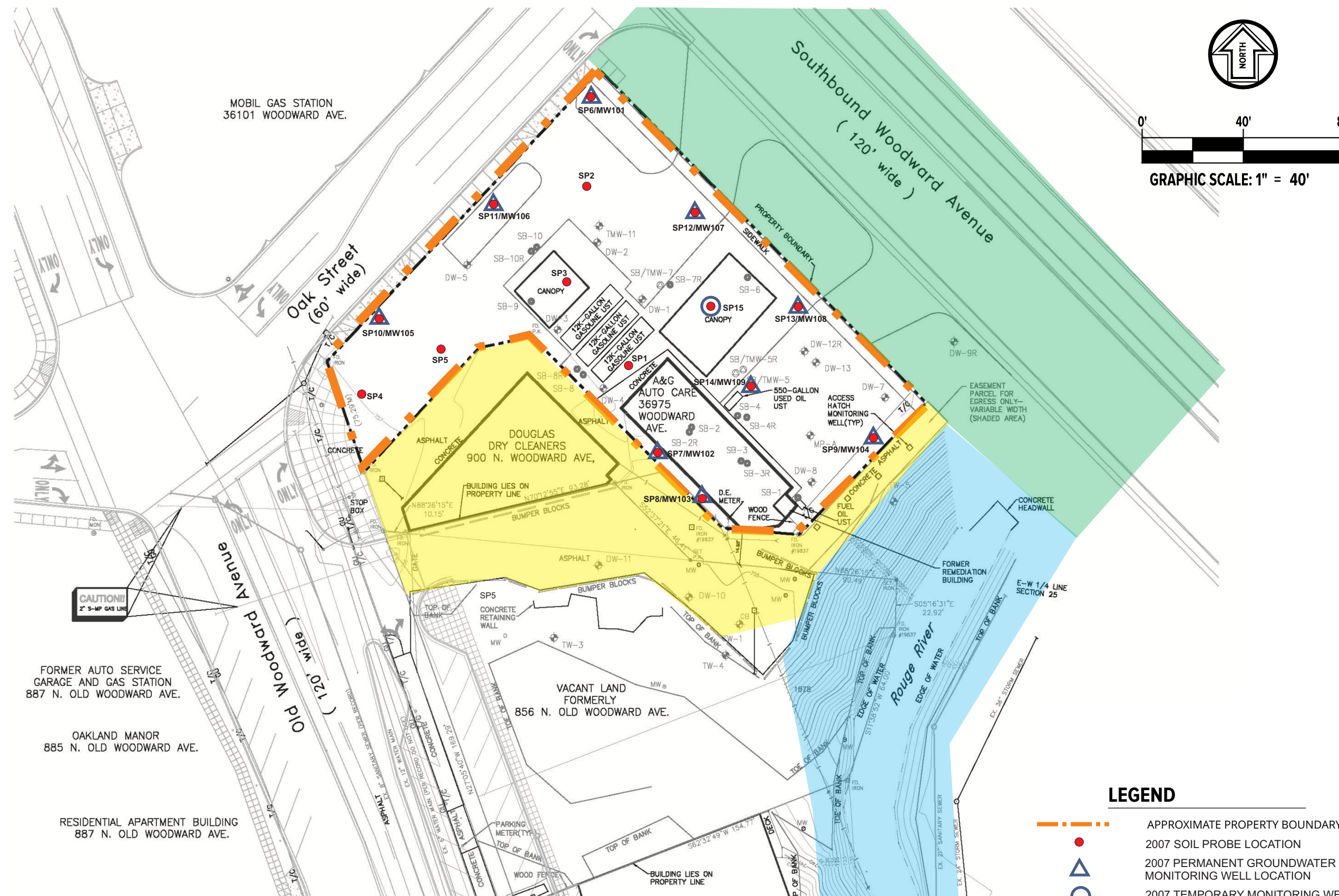
Scale **1" = 40'**

Project **075099.01**

Figure No.

**1**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
© 2015



FILE LOCATION: \\sme-inc\pzw\PI\075099.01\CADD\DWGS\rev0\075099.01-02.dwg

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDIATION AND REDEVELOPMENT DIVISION

For DEQ Use Only	
ITS #	_____
Site ID #	_____
Category Code:	_____

**NOTICE OF MIGRATION OF CONTAMINATION (FORM EQP4482 REV. 4/16)**

*(Under the authority of Part 201, Natural Resources and Environmental Protection Act, 1994 Act 451, as amended, (NREPA) and the Rules promulgated thereunder)*

An owner or operator of property that is a facility, and/or who is subject to MCL324.20107a, and who has reason to believe that a hazardous substance is emanating from, has emanated from, or is likely to be emanating from the property and migrating beyond the boundaries of the property that he or she owns or operates is required under R 299.51017(1) and MCL 324.20114(1)(b)(ii) & (iii) to notify the Michigan Department of Environmental Quality (DEQ) and affected property owners. Submission of this notice does not fulfill the notification requirements of MCL 324.21309a.

The notice must be provided within 45 days (MCL 324.20107a) or within 30 days (MCL 324.20114) after the owner or operator has reason to believe that hazardous substances have migrated, or are likely to have migrated, to or beyond the boundary of his or her property (see R 299.51017 for exceptions that apply to parties subject to MCL 324.20107a).

Use of this form is mandatory for the notice required by R 299.51017(1) and may also be used by parties subject to MCL 324.20114(1)(b)(ii) & (iii). This form may also be used to provide notice to affected property owners as required by those rules.

If a person holds a permit for an oil and gas well under Part 615, Supervisor of Wells, of the NREPA and there is a release from the oil and gas exploration or production activities, that person shall give notice to the DEQ and to the owner of the surface rights of the property.

If a person holds an easement and there is a release from the easement holder's activities, that person shall provide notice to the DEQ and to the grantor of the easement, or the grantor's successor in interest, if any.

Completing this notice in no way relieves a person who is subject to MCL 324.20114 from the responsibility to undertake required response activities.

This notice must be sent to the DEQ office that serves the county in which the property is located. A list of DEQ offices is available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare), or by calling the Remediation and Redevelopment Division's Lansing office at 517-284-5187. The DEQ will not prepare acknowledgement of receipt of these notices. The sender is responsible for sending the report using a method that provides proof of delivery if such proof is desired. Please label the outside of the envelope "Migration Notice." Additional guidelines for the compliance with the requirements of R 299.51017(1) or MCL 324.20114(1)(b)(ii) & (iii) are available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare).

THIS NOTICE IS PROVIDED PURSUANT TO:                      R 299.51017                          MCL 324.20114(1)      
*(check both, if applicable)*

**Please provide the following information as completely as possible.**

- 1. Name and location of the property that hazardous substances are emanating from:
- 2. Status relative to the property:  
(Check one or both, as applicable.)

Name: August LLC  
Address: 35975 Woodward Avenue  
Location: Entire property  
City/County: Birmingham, Oakland  
Property Tax Identification Number, or if applicable, the ward and item number: 19-25-179-011

Owner      
Operator   

Latitude (decimal degrees): 42.5535                      Longitude (decimal degrees): -83.2187

Reference Point for Latitude and Longitude:  
Center of Site:     Main/front door:     Front gate/main entrance:     Other:

Collection Method: Survey:  Interpolation:  GPS:

2. Provide any additional ID numbers associated with the property (e.g., EPA ID No., BEA No., Part 213 facility ID No., etc.):

Facility ID: 00005681; 2006 BEA #: 20603161LV; 2007 BEA #: 200703735LV

3. Name, address, and telephone number of the property owner, operator, or other party submitting the notice:

Name: August, LLC  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

4. Name, address and telephone number of a contact person familiar with the content of the notice:

Name: Diane E. Wells  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

5. If this Notice is provided pursuant to R 299.51017, provide the address and other location information for the *adjacent* property(s) onto which contamination is migrating, has migrated, or is likely to migrate.

If this Notice is provided pursuant to MCL Section 324.20114(1), provide the address and other location information for *each* property onto which contamination has migrated. Notice should be sent to the property owner of record. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (e.g., a prison, state park, etc.). Notices to the Michigan Department of Transportation (MDOT) for state owned roadways should be sent to Contaminated Site Specialist, Environmental Services Section, MDOT-Bureau of Development, 425 W. Ottawa Street, P.O. Box 30050, Lansing, MI 48909. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (i.e. a prison, state park, etc.).

Address: Woodward Avenue  
City/State: Birmingham, Michigan  
Property Tax ID number: NA  
Other: MDOT, Environmental Services Section,  
MDOT-Bureau of Development

Notified? No  Yes  Date: 1/24/2017

Address: Rouge River  
City/State: Birmingham, Michigan  
Property Tax ID number: NA  
Other: State of Michigan, MDEQ - Water Resources  
Division

Notified? No  Yes  Date: 1/24/2017

Address: 900 N. Woodward Avenue  
City/State: Birmingham, Michigan  
Property Tax ID number: 19-25-179-002  
Other: Mr. David Underdown- Douglas Cleaners, Inc.

Notified? No  Yes  Date: 1/24/2017

Address: [REDACTED]  
City/State: [REDACTED]  
Property Tax ID number: [REDACTED]  
Other: [REDACTED]

Notified? No  Yes  Date: [REDACTED]

Address: [REDACTED]  
City/State: [REDACTED]  
Property Tax ID number: [REDACTED]  
Other: [REDACTED]

Notified? No  Yes  Date: [REDACTED]

(Attach additional pages as needed)

6.



Complete the Table on Page 3 of this Form for each hazardous substance which has migrated, or is likely to have migrated, beyond the property boundary at a concentration that exceeds a Generic Residential Cleanup Criterion developed by the DEQ pursuant to MCL 324.20120a(1). Complete and attach additional copies of Page 3, if necessary, to list all hazardous substances that must be reported. Include a scaled map or drawing that shows the location of sampling points identified on the Table on Page 3, the property boundaries, and the adjacent property owners if providing notice pursuant to R 299.1017(1) or all impacted property owners if providing notice pursuant to MCL 324.20114(1).

7. Provide a summary of the information which shows that contamination is emanating from, or has emanated from, and is present beyond the boundary of the source property at a concentration which exceeds the generic residential criteria developed by the DEQ pursuant to MCL 324.20120a(1)(a). This summary shall identify the environmental media affected, specific hazardous substances, and the concentrations of those hazardous substances in all affected environmental media at the property boundary and in any sample locations beyond the property boundary. The summary shall also describe the basis for the conclusion that the contamination is emanating, has emanated, or is present beyond the boundary of the source property, including whether the conclusion is based on groundwater analytical data or fate and transport modeling, both, or neither.

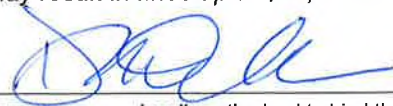
8. If the person making this notice has reason to believe that a migrating hazardous substance has affected, or is likely to affect, a private or public water supply, then that water supply must be identified here:

\_\_\_\_\_

- |   | YES                                 | NO                                  |
|---|-------------------------------------|-------------------------------------|
| 9. Is this notice being submitted within the timeframes established under R 299.51017 and/or MCL 324.20114(1), as applicable?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 10. Is this notice in addition to a notice that was submitted prior to <i>December 21, 2002</i> ? (R 299.51017(4)(c))   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. Is this notice related to an oil and gas well permit (R 299.51017(2))?<br>Permit #:   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Is this notice related to an easement (R 299.51017(3))?<br>(NOTE: All easement grantors <i>must</i> receive this notice.)   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13. Has surface water been affected (R 299.51017(1))?<br>(If yes, please identify the affected surface water body.)<br><u>Rouge River adjacent to 35975 Woodward Avenue, Birmingham, MI</u> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**CERTIFICATION:**

*With my signature below, I certify that I am the owner of the facility or that I am legally authorized to execute this notice on behalf of the owner or operator named on this form, and that to the best of my knowledge and belief the above representations are complete and accurate. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.*

Signature  Date 1-16-17  
(Owner or person legally authorized to bind the person making this report)

Name (Typed or Printed) Diane E. Wells

Title (Typed or Printed) Manager – August LLC

See Item 6 on Page 3 of this Form for instructions to be used in completing this table. Attach additional pages if necessary. The information to be included in each column of the table is:

- Column A Name of hazardous substance.
- Column B Chemical Abstract Service (CAS) Number for the hazardous substance.
- Column C Maximum hazardous substance concentration measured on the property, expressed in parts per billion (e.g., ug/L or ug/Kg). Report maximum concentration separately for each environmental medium.
- Column D Sample location for Column C (relate to label on map).
- Column E Environmental medium in which concentration reported in Column C was measured (e.g., soil or groundwater).
- Column F Distance from point of maximum measured concentration (Column D) to property boundary, in direction of contaminant migration, if direction is known or can reasonably be inferred. If direction is unknown, list distance to nearest property boundary.
- Column G Direction of contaminant migration, if known.
- Column H Concentration closest to property boundary, if known. If a concentration lower than the maximum concentration reported in Column C has been measured at a point closer to the property boundary in the direction of contaminant migration, use Column I to list the concentration that was measured closest to the property boundary in the direction of contaminant migration.
- Column I Sample location for Column H (relate to label on map).
- Column J Environmental medium for measurement reported in Column H, if applicable.

A Hazardous Substance	B CAS Number	C Maximum Concentration	D Sample Location for "C"	E Environmental Medium for "C"	F Distance to Property Boundary	G Direction of Migration	H Boundary Concentration	I Sample Location for "H"	J Environmental Medium for "H"
<b>See attached Table 1 – Off-Site Migration Notification Summary</b>									

Total Number Samples Collected:   27   Total Number of Samples Exceeding Criteria:   25  

**A scaled map or drawing showing these locations and the property boundaries must be submitted with this Notice**

**TABLE 1**  
**OFF-SITE MIGRATION NOTIFICATION SUMMARY**  
35975 Woodward Avenue  
Birmingham, Michigan  
SME Project No. 075099.01

Hazardous Substance	CAS #	Maximum Concentration	Sample Location	Environmental Medium	Distance to Property Boundary	Direction of Migration	Boundary Concentration	Boundary Sample Location
Benzene	71-43-2	20,000 ug/L	TMW-5	Groundwater	80 feet	Southeast	3.2 ug/L	MW104
Benzoanthracene	56-55-3	33 ug/L	TMW-5	Groundwater	80 feet		1.1 ug/L	MW104
Benzopyrene	50-32-8	22 ug/L	TMW-5	Groundwater	80 feet		1.1 ug/L	MW104
Benzo(k)fluoranthene	207-08-9	23 ug/L	TMW-5	Groundwater	80 feet		<1.0 ug/L	MW104
Chrysene	218-01-9	41 ug/L	TMW-5	Groundwater	80 feet		1.1 ug/L	MW104
Ethylbenzene	100-41-4	4,400 ug/L	TMW-5	Groundwater	80 feet		<1.0 ug/L	MW104
Fluoranthene	206-44-0	110 ug/L	TMW-5	Groundwater	80 feet		2.0 ug/L	MW104
Fluorene	86-73-7	48 ug/L	TMW-5	Groundwater	80 feet		<5.0 ug/L	MW104
Isopropylbenzene	98-82-8	120 ug/L	MW102	Groundwater	65 feet		72 ug/L	MW103
Lead	7439-92-1	1,100 ug/L	TMW-5 & TMW-7	Groundwater	80 feet & 160 feet		<3.0 ug/L	MW104
Methyl-tert-butyl ether (MTBE)	1634-04-4	370 ug/L	MW104	Groundwater	5 feet		370 ug/L	MW104
2-Methylnaphthalene	91-57-6	2,300 ug/L	TMW-5	Groundwater	80 feet		<5.0 ug/L	MW104
Naphthalene	91-20-3	280 ug/L	MW102	Groundwater	65 feet		120 ug/L	MW103
Phenanthrene	85-01-8	140 ug/L	TMW-5	Groundwater	80 feet		<2.0 ug/L	MW104
n-Propylbenzene	103-65-1	380 ug/L	TMW-7	Groundwater	160 feet		1.2 ug/L	MW104
1,2,4-Trimethylbenzene	95-63-6	3,500 ug/L	TMW-7	Groundwater	160 feet		<1.0 ug/L	MW104
1,3,5-Trimethylbenzene	108-67-8	890 ug/L	TMW-7	Groundwater	160 feet		<1.0 ug/L	MW104
Xylenes	1330-20-7	24,000 ug/L	TMW-5	Groundwater	80 feet		<3.0 ug/L	MW104



Project

**AUGUST LLC  
REDEVELOPMENT  
PROJECT**

Project Location

**35975 WOODWARD  
AVENUE  
BIRMINGHAM,  
MICHIGAN**

Sheet Name

**PROPERTY  
FEATURES  
DIAGRAM**

No.	Revision Date

Date **10-10-16**

CADD **GM**

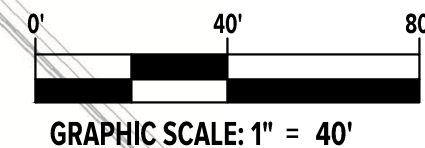
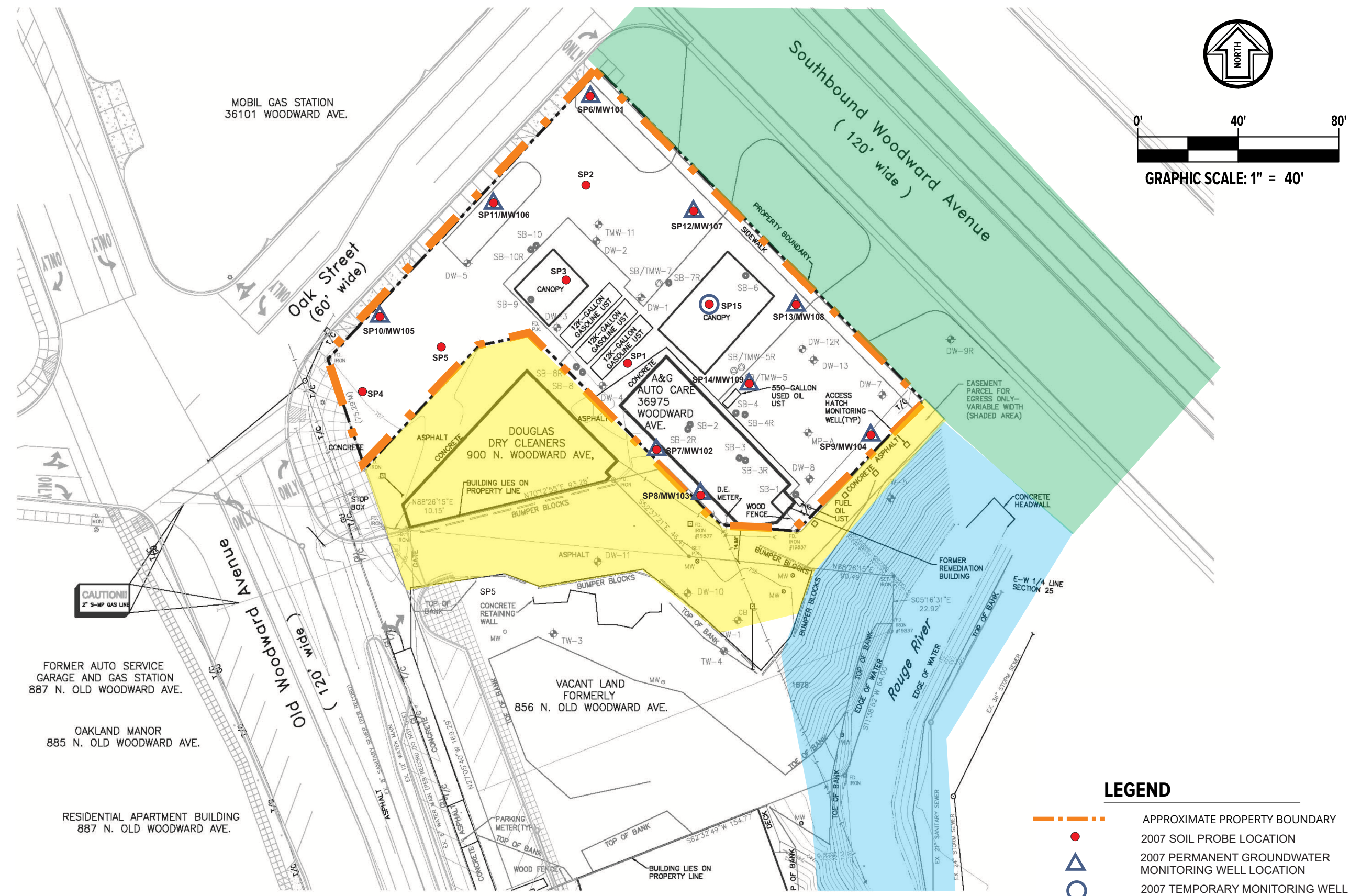
Designer **CEB**

Scale **1" = 40'**

Project **075099.01**

Figure No. **1**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
© 2015



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- 2007 SOIL PROBE LOCATION
- 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
- 2007 TEMPORARY MONITORING WELL LOCATION

FILE LOCATION: \\sme-inc\p2\WIP\075099.01\CADD\DWGS\rev0\075099.01-02.dwg

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDIATION AND REDEVELOPMENT DIVISION

For DEQ Use Only	
ITS #	_____
Site ID #	_____
Category Code:	_____

**NOTICE OF MIGRATION OF CONTAMINATION (FORM EQP4482 REV. 4/16)**

*(Under the authority of Part 201, Natural Resources and Environmental Protection Act, 1994 Act 451, as amended, (NREPA) and the Rules promulgated thereunder)*

An owner or operator of property that is a facility, and/or who is subject to MCL324.20107a, and who has reason to believe that a hazardous substance is emanating from, has emanated from, or is likely to be emanating from the property and migrating beyond the boundaries of the property that he or she owns or operates is required under R 299.51017(1) and MCL 324.20114(1)(b)(ii) & (iii) to notify the Michigan Department of Environmental Quality (DEQ) and affected property owners. Submission of this notice does not fulfill the notification requirements of MCL 324.21309a.

The notice must be provided within 45 days (MCL 324.20107a) or within 30 days (MCL 324.20114) after the owner or operator has reason to believe that hazardous substances have migrated, or are likely to have migrated, to or beyond the boundary of his or her property (see R 299.51017 for exceptions that apply to parties subject to MCL 324.20107a).

Use of this form is mandatory for the notice required by R 299.51017(1) and may also be used by parties subject to MCL 324.20114(1)(b)(ii) & (iii). This form may also be used to provide notice to affected property owners as required by those rules.

If a person holds a permit for an oil and gas well under Part 615, Supervisor of Wells, of the NREPA and there is a release from the oil and gas exploration or production activities, that person shall give notice to the DEQ and to the owner of the surface rights of the property.

If a person holds an easement and there is a release from the easement holder's activities, that person shall provide notice to the DEQ and to the grantor of the easement, or the grantor's successor in interest, if any.

Completing this notice in no way relieves a person who is subject to MCL 324.20114 from the responsibility to undertake required response activities.

This notice must be sent to the DEQ office that serves the county in which the property is located. A list of DEQ offices is available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare), or by calling the Remediation and Redevelopment Division's Lansing office at 517-284-5187. The DEQ will not prepare acknowledgement of receipt of these notices. The sender is responsible for sending the report using a method that provides proof of delivery if such proof is desired. Please label the outside of the envelope "Migration Notice." Additional guidelines for the compliance with the requirements of R 299.51017(1) or MCL 324.20114(1)(b)(ii) & (iii) are available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare).

THIS NOTICE IS PROVIDED PURSUANT TO:                      R 299.51017                          MCL 324.20114(1)      
*(check both, if applicable)*

Please provide the following information as completely as possible.

- |  |  |
|--|--|
| 1. Name and location of the property that hazardous substances are emanating from: | 2. Status relative to the property:<br>(Check one or both, as applicable.) |
|--|--|

Name: August LLC	Owner <input checked="" type="checkbox"/>
Address: 35975 Woodward Avenue	Operator <input type="checkbox"/>
Location: Entire property	
City/County: Birmingham, Oakland	
Property Tax Identification Number, or if applicable, the ward and item number: 19-25-179-011	

Lattitue (decimal degrees): 42.5535                      Longitude (decimal degrees): -83.2187

Reference Point for Latitude and Longitude:  
Center of Site:     Main/front door:     Front gate/main entrance:     Other:

Collection Method: Survey:  Interpolation:  GPS:

2. Provide any additional ID numbers associated with the property (e.g., EPA ID No., BEA No., Part 213 facility ID No., etc.):

Facility ID: 00005681; 2006 BEA #: 20603161LV; 2007 BEA #: 200703735LV

3. Name, address, and telephone number of the property owner, operator, or other party submitting the notice:

Name: August, LLC  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

4. Name, address and telephone number of a contact person familiar with the content of the notice:

Name: Diane E. Wells  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

5. If this Notice is provided pursuant to R 299.51017, provide the address and other location information for the *adjacent* property(s) onto which contamination is migrating, has migrated, or is likely to migrate.

If this Notice is provided pursuant to MCL Section 324.20114(1), provide the address and other location information for *each* property onto which contamination has migrated. Notice should be sent to the property owner of record. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (e.g., a prison, state park, etc.). Notices to the Michigan Department of Transportation (MDOT) for state owned roadways should be sent to Contaminated Site Specialist, Environmental Services Section, MDOT-Bureau of Development, 425 W. Ottawa Street, P.O. Box 30050, Lansing, MI 48909. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (i.e. a prison, state park, etc.).

Address: Woodward Avenue  
City/State: Birmingham, Michigan  
Property Tax ID number: NA  
Other: MDOT, Environmental Services Section,  
MDOT-Bureau of Development

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

(Attach additional pages as needed)

6.



Complete the Table on Page 3 of this Form for each hazardous substance which has migrated, or is likely to have migrated, beyond the property boundary at a concentration that exceeds a Generic Residential Cleanup Criterion developed by the DEQ pursuant to MCL 324.20120a(1). Complete and attach additional copies of Page 3, if necessary, to list all hazardous substances that must be reported. Include a scaled map or drawing that shows the location of sampling points identified on the Table on Page 3, the property boundaries, and the adjacent property owners if providing notice pursuant to R 299.1017(1) or all impacted property owners if providing notice pursuant to MCL 324.20114(1).

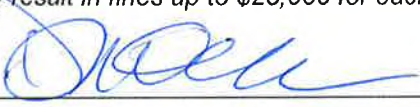
7. Provide a summary of the information which shows that contamination is emanating from, or has emanated from, and is present beyond the boundary of the source property at a concentration which exceeds the generic residential criteria developed by the DEQ pursuant to MCL 324.20120a(1)(a). This summary shall identify the environmental media affected, specific hazardous substances, and the concentrations of those hazardous substances in all affected environmental media at the property boundary and in any sample locations beyond the property boundary. The summary shall also describe the basis for the conclusion that the contamination is emanating, has emanated, or is present beyond the boundary of the source property, including whether the conclusion is based on groundwater analytical data or fate and transport modeling, both, or neither.

8. If the person making this notice has reason to believe that a migrating hazardous substance has affected, or is likely to affect, a private or public water supply, then that water supply must be identified here:

- |   | YES                                 | NO                                  |
|---|-------------------------------------|-------------------------------------|
| 9. Is this notice being submitted within the timeframes established under R 299.51017 and/or MCL 324.20114(1), as applicable? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 10. Is this notice in addition to a notice that was submitted prior to <i>December 21, 2002</i> ? (R 299.51017(4)(c))         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. Is this notice related to an oil and gas well permit (R 299.51017(2))?<br>Permit #:                                       | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Is this notice related to an easement (R 299.51017(3))?<br>(NOTE: All easement grantors <i>must</i> receive this notice.) | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13. Has surface water been affected (R 299.51017(1))?<br>(If yes, please identify the affected surface water body.)           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**CERTIFICATION:**

*With my signature below, I certify that I am the owner of the facility or that I am legally authorized to execute this notice on behalf of the owner or operator named on this form, and that to the best of my knowledge and belief the above representations are complete and accurate. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.*

Signature  Date 1-10-17  
 (Owner or person legally authorized to bind the person making this report)

Name (Typed or Printed) Diane E. Wells  
 Title (Typed or Printed) Manager – August, LLC

See Item 6 on Page 3 of this Form for instructions to be used in completing this table. Attach additional pages if necessary. The information to be included in each column of the table is:

- Column A Name of hazardous substance.
- Column B Chemical Abstract Service (CAS) Number for the hazardous substance.
- Column C Maximum hazardous substance concentration measured on the property, expressed in parts per billion (e.g., ug/L or ug/Kg). Report maximum concentration separately for each environmental medium.
- Column D Sample location for Column C (relate to label on map).
- Column E Environmental medium in which concentration reported in Column C was measured (e.g., soil or groundwater).
- Column F Distance from point of maximum measured concentration (Column D) to property boundary, in direction of contaminant migration, if direction is known or can reasonably be inferred. If direction is unknown, list distance to nearest property boundary.
- Column G Direction of contaminant migration, if known.
- Column H Concentration closest to property boundary, if known. If a concentration lower than the maximum concentration reported in Column C has been measured at a point closer to the property boundary in the direction of contaminant migration, use Column I to list the concentration that was measured closest to the property boundary in the direction of contaminant migration.
- Column I Sample location for Column H (relate to label on map).
- Column J Environmental medium for measurement reported in Column H, if applicable.

A Hazardous Substance	B CAS Number	C Maximum Concentra- tion	D Sample Location for "C"	E Environmental Medium for "C"	F Distance to Property Boundary	G Direction of Migration	H Boundary Concentration	I Sample Location for "H"	J Environmental Medium for "H"
<b>See attached Table 1 – Off-Site Migration Notification Summary</b>									

Total Number Samples Collected: 27 Total Number of Samples Exceeding Criteria: 25

**A scaled map or drawing showing these locations and the property boundaries must be submitted with this Notice**

**TABLE 1**  
**OFF-SITE MIGRATION NOTIFICATION SUMMARY**  
**MDOT - WOODWARD AVENUE**

35975 Woodward Avenue  
 Birmingham, Michigan  
 SME Project No. 075099.01

Hazardous Substance	CAS #	Maximum Concentration	Sample Location	Environmental Medium	Distance to Property Boundary	Direction of Migration
Benzene	71-43-2	2,100 ug/L	MW108	Groundwater	20 feet	Southeast
Ethylbenzene	100-41-4	1,100 ug/L	MW108	Groundwater	20 feet	
Isopropylbenzene	98-82-8	51 ug/L	MW108	Groundwater	20 feet	
Lead	7439-92-1	13 ug/L	MW108	Groundwater	20 feet	
Methyl-tert-butyl ether (MTBE)	1634-04-4	130 ug/L	OW-7	Groundwater	20 feet	
2-Methylnaphthalene	91-57-6	64 ug/L	MW108	Groundwater	20 feet	
Naphthalene	91-20-3	230 ug/L	MW108	Groundwater	20 feet	
n-Propylbenzene	103-65-1	180 ug/L	MW108	Groundwater	20 feet	
1,2,4-Trimethylbenzene	95-63-6	1,200 ug/L	MW108	Groundwater	20 feet	
1,3,5-Trimethylbenzene	108-67-8	380 ug/L	MW108	Groundwater	20 feet	
Xylenes	1330-20-7	3,300 ug/L	MW108	Groundwater	20 feet	



Project

**AUGUST LLC  
REDEVELOPMENT  
PROJECT**

Project Location

**35975 WOODWARD  
AVENUE  
BIRMINGHAM,  
MICHIGAN**

Sheet Name

**PROPERTY  
FEATURES  
DIAGRAM**

No.	Revision Date

Date **10-10-16**

CADD **GM**

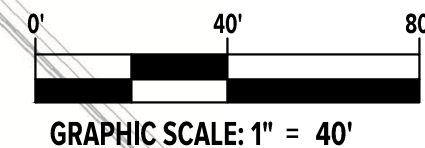
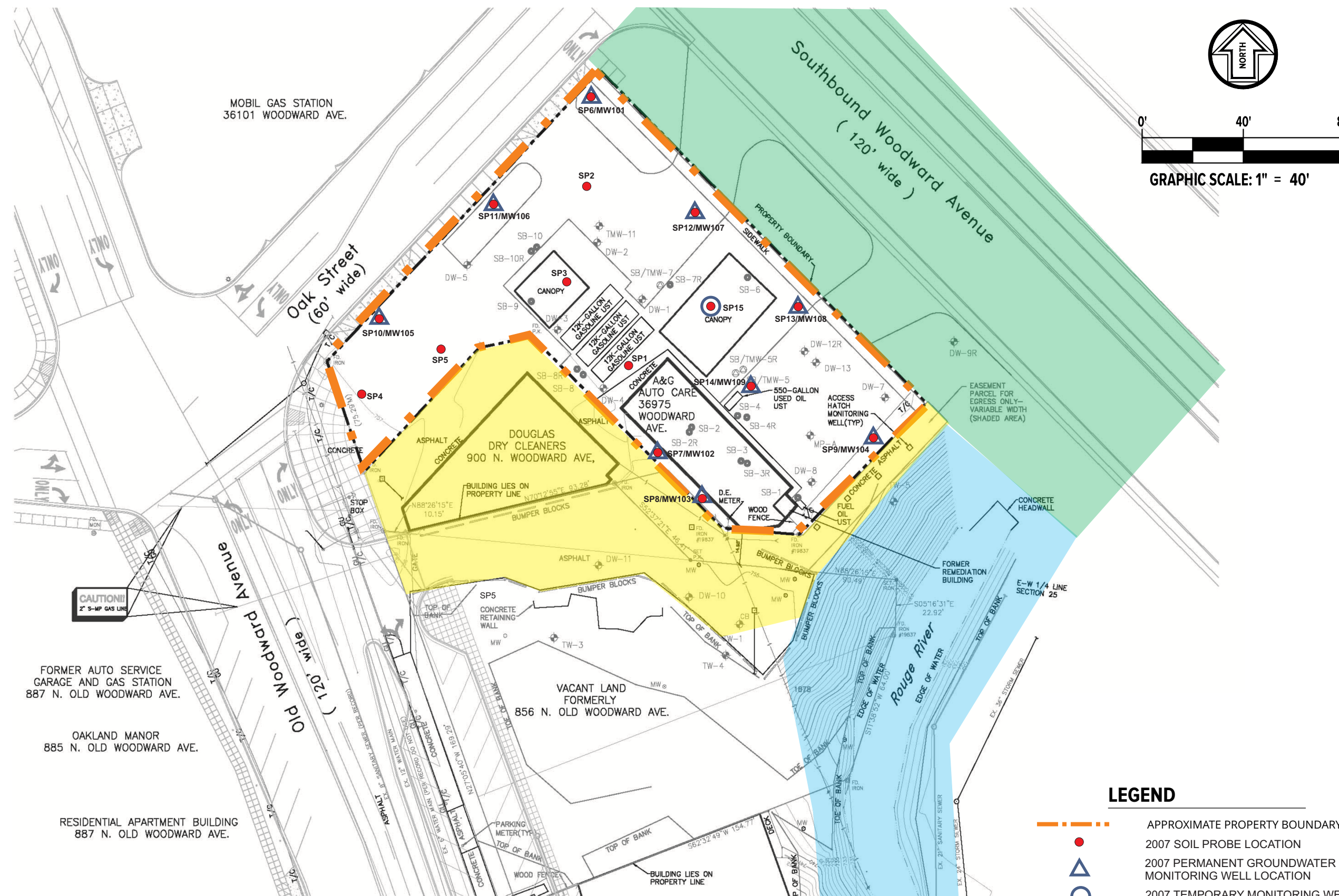
Designer **CEB**

Scale **1" = 40'**

Project **075099.01**

Figure No. **1**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
© 2015



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- 2007 SOIL PROBE LOCATION
- 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
- 2007 TEMPORARY MONITORING WELL LOCATION

FILE LOCATION: \\sme-inc\pz\WIP\075099.01\CAD\DWGS\rev\075099.01-02.dwg

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
REMEDATION AND REDEVELOPMENT DIVISION

For DEQ Use Only	
ITS #	_____
Site ID #	_____
Category Code:	_____

**NOTICE OF MIGRATION OF CONTAMINATION (FORM EQP4482 REV. 4/16)**

*(Under the authority of Part 201, Natural Resources and Environmental Protection Act, 1994 Act 451, as amended, (NREPA) and the Rules promulgated thereunder)*

An owner or operator of property that is a facility, and/or who is subject to MCL324.20107a, and who has reason to believe that a hazardous substance is emanating from, has emanated from, or is likely to be emanating from the property and migrating beyond the boundaries of the property that he or she owns or operates is required under R 299.51017(1) and MCL 324.20114(1)(b)(ii) & (iii) to notify the Michigan Department of Environmental Quality (DEQ) and affected property owners. Submission of this notice does not fulfill the notification requirements of MCL 324.21309a.

The notice must be provided within 45 days (MCL 324.20107a) or within 30 days (MCL 324.20114) after the owner or operator has reason to believe that hazardous substances have migrated, or are likely to have migrated, to or beyond the boundary of his or her property (see R 299.51017 for exceptions that apply to parties subject to MCL 324.20107a).

Use of this form is mandatory for the notice required by R 299.51017(1) and may also be used by parties subject to MCL 324.20114(1)(b)(ii) & (iii). This form may also be used to provide notice to affected property owners as required by those rules.

If a person holds a permit for an oil and gas well under Part 615, Supervisor of Wells, of the NREPA and there is a release from the oil and gas exploration or production activities, that person shall give notice to the DEQ and to the owner of the surface rights of the property.

If a person holds an easement and there is a release from the easement holder's activities, that person shall provide notice to the DEQ and to the grantor of the easement, or the grantor's successor in interest, if any.

Completing this notice in no way relieves a person who is subject to MCL 324.20114 from the responsibility to undertake required response activities.

This notice must be sent to the DEQ office that serves the county in which the property is located. A list of DEQ offices is available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare), or by calling the Remediation and Redevelopment Division's Lansing office at 517-284-5187. The DEQ will not prepare acknowledgement of receipt of these notices. The sender is responsible for sending the report using a method that provides proof of delivery if such proof is desired. Please label the outside of the envelope "Migration Notice." Additional guidelines for the compliance with the requirements of R 299.51017(1) or MCL 324.20114(1)(b)(ii) & (iii) are available at [www.michigan.gov/deqducare](http://www.michigan.gov/deqducare).

THIS NOTICE IS PROVIDED PURSUANT TO:                      R 299.51017                          MCL 324.20114(1)      
*(check both, if applicable)*

Please provide the following information as completely as possible.

- |  |  |
|--|--|
| 1. Name and location of the property that hazardous substances are emanating from: | 2. Status relative to the property:<br>(Check one or both, as applicable.) |
|--|--|

Name: August LLC	Owner <input checked="" type="checkbox"/>
Address: 35975 Woodward Avenue	Operator <input type="checkbox"/>
Location: Entire property	
City/County: Birmingham, Oakland	
Property Tax Identification Number, or if applicable, the ward and item number: 19-25-179-011	

Lattitue (decimal degrees): 42.5535                      Longitude (decimal degrees): -83.2187

Reference Point for Latitude and Longitude:  
Center of Site:     Main/front door:     Front gate/main entrance:     Other:

Collection Method: Survey:  Interpolation:  GPS:

2. Provide any additional ID numbers associated with the property (e.g., EPA ID No., BEA No., Part 213 facility ID No., etc.):

Facility ID: 00005681; 2006 BEA #: 20603161LV; 2007 BEA #: 200703735LV

3. Name, address, and telephone number of the property owner, operator, or other party submitting the notice:

Name: August, LLC  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

4. Name, address and telephone number of a contact person familiar with the content of the notice:

Name: Diane E. Wells  
Address: 1901 St. Antoine Street, 6th Floor  
City/State: Detroit, MI 48226  
Telephone Number: 313-393-7595

5. If this Notice is provided pursuant to R 299.51017, provide the address and other location information for the *adjacent* property(s) onto which contamination is migrating, has migrated, or is likely to migrate.

If this Notice is provided pursuant to MCL Section 324.20114(1), provide the address and other location information for *each* property onto which contamination has migrated. Notice should be sent to the property owner of record. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (e.g., a prison, state park, etc.). Notices to the Michigan Department of Transportation (MDOT) for state owned roadways should be sent to Contaminated Site Specialist, Environmental Services Section, MDOT-Bureau of Development, 425 W. Ottawa Street, P.O. Box 30050, Lansing, MI 48909. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (i.e. a prison, state park, etc.).

Address: Rouge River  
City/State: Birmingham, Michigan  
Property Tax ID number: NA  
Other: State of Michigan, MDEQ - Water Resources Division

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Property Tax ID number: \_\_\_\_\_  
Other: \_\_\_\_\_

Notified? No  Yes  Date: \_\_\_\_\_

(Attach additional pages as needed)

6.



Complete the Table on Page 3 of this Form for each hazardous substance which has migrated, or is likely to have migrated, beyond the property boundary at a concentration that exceeds a Generic Residential Cleanup Criterion developed by the DEQ pursuant to MCL 324.20120a(1). Complete and attach additional copies of Page 3, if necessary, to list all hazardous substances that must be reported. Include a scaled map or drawing that shows the location of sampling points identified on the Table on Page 3, the property boundaries, and the adjacent property owners if providing notice pursuant to R 299.1017(1) or all impacted property owners if providing notice pursuant to MCL 324.20114(1).

7. Provide a summary of the information which shows that contamination is emanating from, or has emanated from, and is present beyond the boundary of the source property at a concentration which exceeds the generic residential criteria developed by the DEQ pursuant to MCL 324.20120a(1)(a). This summary shall identify the environmental media affected, specific hazardous substances, and the concentrations of those hazardous substances in all affected environmental media at the property boundary and in any sample locations beyond the property boundary. The summary shall also describe the basis for the conclusion that the contamination is emanating, has emanated, or is present beyond the boundary of the source property, including whether the conclusion is based on groundwater analytical data or fate and transport modeling, both, or neither.

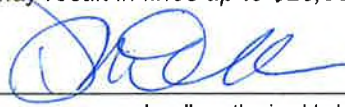
8. If the person making this notice has reason to believe that a migrating hazardous substance has affected, or is likely to affect, a private or public water supply, then that water supply must be identified here:

\_\_\_\_\_

- |  | YES                                 | NO                                  |
|--|-------------------------------------|-------------------------------------|
| 9. Is this notice being submitted within the timeframes established under R 299.51017 and/or MCL 324.20114(1), as applicable?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 10. Is this notice in addition to a notice that was submitted prior to <i>December 21, 2002</i> ? (R 299.51017(4)(c))  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. Is this notice related to an oil and gas well permit (R 299.51017(2))?<br>Permit #:  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Is this notice related to an easement (R 299.51017(3))?<br>(NOTE: All easement grantors <i>must</i> receive this notice.)  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 13. Has surface water been affected (R 299.51017(1))?<br>(If yes, please identify the affected surface water body.)<br>Rouge River adjacent to 35975 Woodward Avenue, Birmingham, MI | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**CERTIFICATION:**

*With my signature below, I certify that I am the owner of the facility or that I am legally authorized to execute this notice on behalf of the owner or operator named on this form, and that to the best of my knowledge and belief the above representations are complete and accurate. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.*

Signature  Date 1-16-17  
 (Owner or person legally authorized to bind the person making this report)

Name (Typed or Printed) Diane E. Wells

Title (Typed or Printed) Manager – August, LLC

See Item 6 on Page 3 of this Form for instructions to be used in completing this table. Attach additional pages if necessary. The information to be included in each column of the table is:

- Column A Name of hazardous substance.
- Column B Chemical Abstract Service (CAS) Number for the hazardous substance.
- Column C Maximum hazardous substance concentration measured on the property, expressed in parts per billion (e.g., ug/L or ug/Kg). Report maximum concentration separately for each environmental medium.
- Column D Sample location for Column C (relate to label on map).
- Column E Environmental medium in which concentration reported in Column C was measured (e.g., soil or groundwater).
- Column F Distance from point of maximum measured concentration (Column D) to property boundary, in direction of contaminant migration, if direction is known or can reasonably be inferred. If direction is unknown, list distance to nearest property boundary.
- Column G Direction of contaminant migration, if known.
- Column H Concentration closest to property boundary, if known. If a concentration lower than the maximum concentration reported in Column C has been measured at a point closer to the property boundary in the direction of contaminant migration, use Column I to list the concentration that was measured closest to the property boundary in the direction of contaminant migration.
- Column I Sample location for Column H (relate to label on map).
- Column J Environmental medium for measurement reported in Column H, if applicable.

A Hazardous Substance	B CAS Number	C Maximum Concentration	D Sample Location for "C"	E Environmental Medium for "C"	F Distance to Property Boundary	G Direction of Migration	H Boundary Concentration	I Sample Location for "H"	J Environmental Medium for "H"
<b>See attached Table 1 – Off-Site Migration Notification Summary</b>									

Total Number Samples Collected: 27 Total Number of Samples Exceeding Criteria: 25

**A scaled map or drawing showing these locations and the property boundaries must be submitted with this Notice**

**TABLE 1**  
**OFF-SITE MIGRATION NOTIFICATION SUMMARY**  
**STATE OF MICHIGAN - ROUGE RIVER WATERSHED**

35975 Woodward Avenue  
 Birmingham, Michigan  
 SME Project No. 075099.01

Hazardous Substance	CAS #	Maximum Concentration	Sample Location	Environmental Medium	Distance to Property Boundary	Direction of Migration
Benzene	71-43-2	2,600 ug/L	MW103	Groundwater	100 feet	Southeast
Ethylbenzene	100-41-4	830 ug/L	MW103	Groundwater	100 feet	
Fluoranthene	206-44-0	2.0 ug/L	MW104	Groundwater	30 feet	
Isopropylbenzene	98-82-8	72 ug/L	MW103	Groundwater	100 feet	
Lead	7439-92-1	7.0 ug/L	TW-4	Groundwater	40 feet	
Methyl-tert-butyl ether (MTBE)	1634-04-4	370 ug/L	MW104	Groundwater	30 feet	
2-Methylnaphthalene	91-57-6	24 ug/L	MW103	Groundwater	100 feet	
Naphthalene	91-20-3	120 ug/L	MW103	Groundwater	100 feet	
n-Propylbenzene	103-65-1	180 ug/L	MW103	Groundwater	100 feet	
1,2,4-Trimethylbenzene	95-63-6	700 ug/L	MW103	Groundwater	100 feet	
1,3,5-Trimethylbenzene	108-67-8	200 ug/L	MW103	Groundwater	100 feet	
Xylenes	1330-20-7	540 ug/L	MW103	Groundwater	100 feet	



Project

**AUGUST LLC  
REDEVELOPMENT  
PROJECT**

Project Location

**35975 WOODWARD  
AVENUE  
BIRMINGHAM,  
MICHIGAN**

Sheet Name

**PROPERTY  
FEATURES  
DIAGRAM**

No.	Revision Date

Date **10-10-16**

CADD **GM**

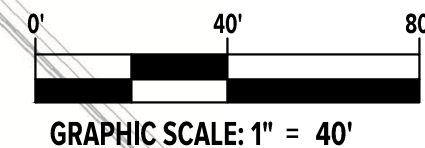
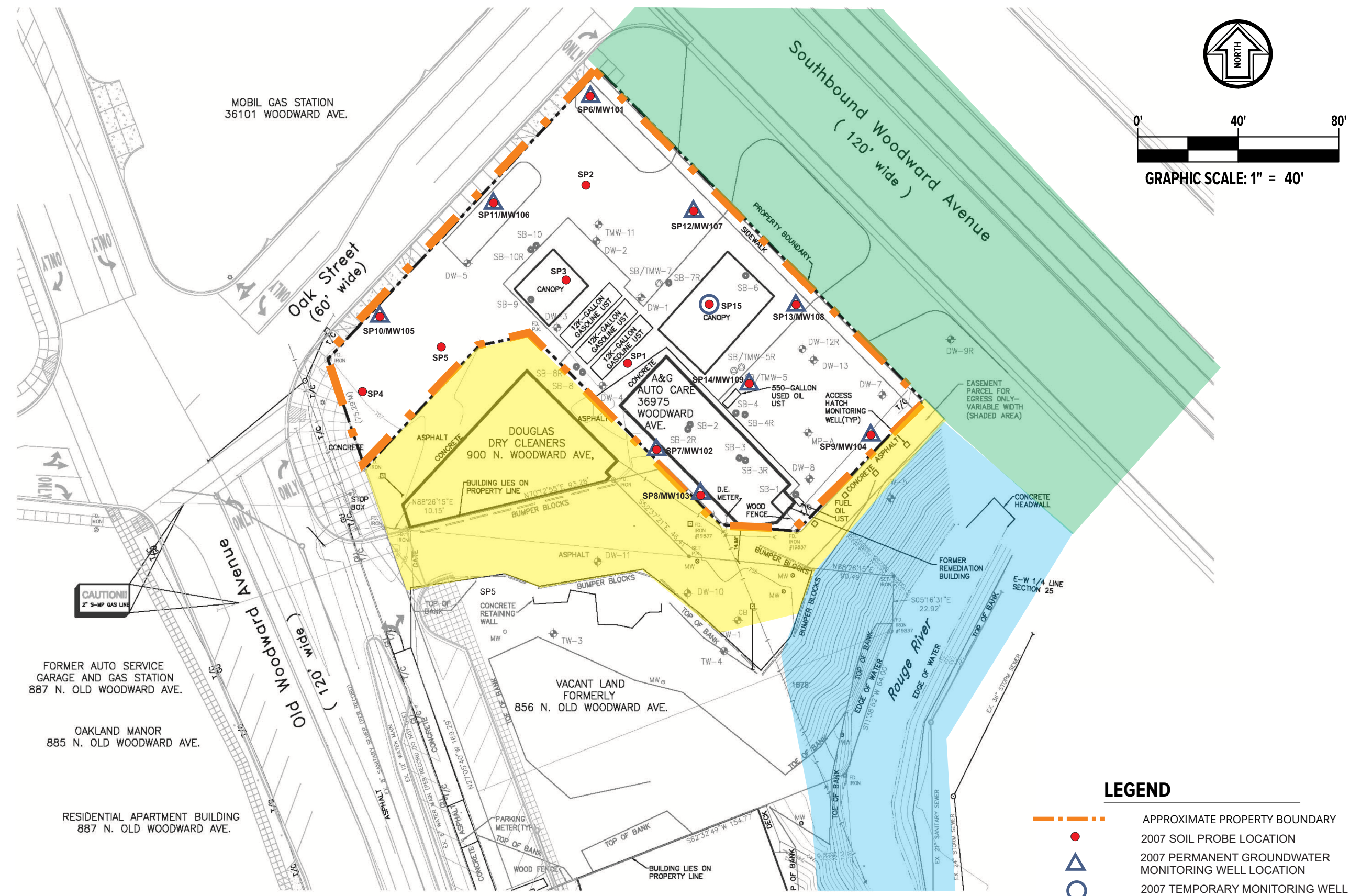
Designer **CEB**

Scale **1" = 40'**

Project **075099.01**

Figure No. **1**

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA  
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR CONSENT OF SME  
© 2015



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- 2007 SOIL PROBE LOCATION
- 2007 PERMANENT GROUNDWATER MONITORING WELL LOCATION
- 2007 TEMPORARY MONITORING WELL LOCATION

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

NOTE: DRAWING INFORMATION TAKEN FROM SOIL BORING AND MONITORING WELL LOCATIONS DATED 5-5-06, PREPARED BY PM ENVIRONMENTAL, INC.

FILE LOCATION: \\sme-inc\p2\WIP\075099.01\CADD\DWGS\rev0\075099.01-02.dwg





*Passionate People Building  
and Revitalizing our World*





# SME

# MEMORANDUM

**TO:** August, LLC Project Team

**FROM:** Matthew Desjardins, PE and Joel Rinkel, PE

**DATE:** April 3, 2017

**SUBJECT:** Auger-cast pile (ACIP) recommendations for August LLC., 35975 Woodward Avenue, Birmingham Michigan

---

## Foreword

The existing fill at the project site ranges in depth from about 8 to 22 feet below the existing ground surface. It appears that the thickness of existing fill increases as one proceeds towards the existing Rouge River (i.e., towards the southwest corner of the site). The existing fill is variable in strength and condition, and it is likely not suitable for building support in some areas. Based on this information, we can surmise that some significant undercutting would be required to support the building on a shallow foundation system. This poses a few issues for construction, as the proposed building location is in close proximity to neighboring properties (e.g. existing right-of-ways). Although these bulleted points (outlined below) have already been discussed, it is helpful to at least put these thoughts on paper for proper consideration and discussion purposes at a later date, if the need should arise.

- Existing fills generated from undercuts will require landfilling, and importing backfill to reestablish proposed bearing elevations will be required. These additional volumes will be “in excess” of estimated volumes required for a conventional excavation. This is expected to add significant cost and schedule to the project.
- There will be some amount of increased dewatering and disposal of accumulated groundwater “in excess” of what would generally be required for a conventional excavation mainly due to the deeper excavation depths that are expected to remove unsuitable, existing fill soils. Similar to the subgrade trucked offsite, it is likely that special handling and disposal of the groundwater would be necessary. For example, the groundwater may need to be pre-treated (or an agreement with the local wastewater treatment plant) prior to discharging offsite.
- Most importantly, to permit the undercutting of poor soils below design bottom of foundation elevations, additional earth retention will be required. If we assume for simplicity (and for discussion purposes) that the proposed basement excavation will extend no deeper than about 15 feet below existing site grades, a cantilevered earth retention system (ERS) can be effectively designed for the project. For walls that are less than about 15 feet tall, a cantilevered system is an effective ERS and it requires no supplemental bracing or ground anchors. However, generally speaking, for walls that are greater than about 15 feet tall, an additional support (such as internal bracing or ground anchors) would be required to maintain stability of the ERS for a deeper excavation. If the existing fill is removed and replaced at this site, it is highly likely that the excavation would extend deeper than 15 feet, which would require a braced system. This is expected to add significant cost and schedule to the project.

For supplemental bracing, tiebacks are desirable to limit conflicts with the progress of the new construction. However, the tiebacks would extend into both City of Birmingham and MDOT Right of Ways, which will likely require several months to obtain the permits and approval (if the acquiring of such easements are even possible). As another option, internal bracing can be used for ERS support (in lieu of tiebacks). However, the internal bracing will slow down the progress of the construction work for the building. Also, either of these systems would need to be installed

prior to reaching the proposed bottom of basement elevation (e.g. before the final depth of the excavation is known). Since the final area/depth of the unsuitable existing fill is unknown, it would be prudent to tieback/brace the entire wall system (rather than only a part of it) so the excavation can proceed downward without jeopardizing the integrity of the ERS.

Based on these potentially costly and time-consuming circumstances, we have recommended to the Project Team to review the possibility of supporting the proposed building on a deep foundation system consisting of auger cast piles (ACIP). With a deep foundation system, the bottom of excavation can be determined during design and the ERS can be designed as a cantilevered system, which is preferred. Therefore, our recommendations for deep foundations are outlined below:

### **Auger cast pile (ACIP) recommendations**

ACIP piles are installed by rotating a hollow-stem, continuous-flight auger into the ground until a specified criterion has been achieved. Subsequently, a sand-cement grout with various admixtures is pumped under pressure through the auger stem as the auger is slowly withdrawn from the hole. Note that due to the variable strength of the fill, and the presence of organics within the existing fill soils, the fill soils were neglected when calculating pile capacities.

For grouped piles, we recommend a minimum pile spacing of not less than three (nominal) pile diameters (center to center).

The key to a successful installation is continuous coordination of the rate of auger withdrawal with an adequate grout head (pressure) to support the hole and ensure that all voids are filled completely with grout. Care should be taken when extracting the augers in the lower strength soils to maintain a relative constant head of grout.

Auger-cast piles are not easily extended through or around obstructions. Although the borings did not encounter subsurface obstructions, auger-cast piles that cannot achieve the required penetration will be assigned a reduced capacity and additional piles could be required to make up the difference. Also, it should be noted that actual pile lengths may vary from the estimated pile lengths, due to variable subsurface conditions, and the contractor should be prepared to extend piles deeper and/or terminate piles at shallower depths based on field conditions. The construction budget should also account for the potential for variations from the foundation design plans (particularly increases in pile depths and/or the need for additional piles) due to varying subsurface conditions and/or obstructions.

The pile capacity will be developed by both side friction and end-bearing. Based on our experience with similar projects, we anticipate that column loads for the subject project will likely be in the range of about 250 to 350 kips along with wall loads in the range of about 4 to 6 klf. However, as the structural design is still preliminary in nature, we have offered the design team a range of terminal pile depths required to achieve a corresponding allowable pile capacity – both in compression and in tension. Based on our experience with similar projects, we have selected both 14-inch and 18-inch diameter piles as these pile diameters are most common for the size of the building proposed. We have also provided calculated pile head deflections based on assumed compression and lateral loads. The information is outlined further below. We expect that once the structural design has progressed and loads further refined, more specific working pile capacities could be selected for the subject project and used for structural design if the working pile capacities listed below do not meet the design requirements. Therefore, we are happy to review alternative loading conditions, if needed. Note that two different pile diameters have been presented. Our recommendations begin on the following page.

**14 INCH DIAMETER ACIP PILE – RECOMMENDED WORKING PILE CAPACITIES  
COMPRESSION (TONS)**

Working Pile Capacity (tons)	Pile Length Below EL. 744 ft.	Estimated Pile Tip Elevation (ft.)
30	25	719
50	35	709
75	50	694
100	60	684**

- \*\* Contractor may encounter “refusal” prior to reaching this target elevation requiring review by the geotechnical engineer of record.

**14 INCH DIAMETER ACIP PILE – RECOMMENDED WORKING PILE CAPACITIES  
TENSION (TONS)**

Working Pile Capacity (tons)	Pile Length Below EL. 744 ft.	Estimated Pile Tip Elevation (ft.)
20	25	719
35	35	709

**18 INCH DIAMETER ACIP PILE – RECOMMENDED WORKING PILE CAPACITIES  
COMPRESSION (TONS)**

Working Pile Capacity (tons)	Pile Length Below EL. 744 ft.	Estimated Pile Tip Elevation (ft.)
30	20	724
50	30	714
75	40	704
100	50	694

**18 INCH DIAMETER ACIP PILE – RECOMMENDED WORKING PILE CAPACITIES  
TENSION (TONS)**

Working Pile Capacity (tons)	Pile Length Below EL. 744 ft.	Estimated Pile Tip Elevation (ft.)
30	25	719
50	35	709

**The working capacities presented above assume the following:**

- The grout for the augercast pile is pressure injected during installation.
- The pile lengths are referenced from EL. 744 feet (about 15 feet below the existing ground surface).
- Capacities are based on a factor of safety of 2.0 and assumes a pile axial load test will be performed to verify the pile capacity.
- The uplift capacity for the ACIP piles is developed from both side friction and weight of the pile.

Based on the working pile compression capacities outlined above, we estimate a total settlement of 1/2 inch or less at the top of the ACIP piles under service load conditions. Differential settlements between similarly loaded piles should be less than 1/4 inch. This settlement estimate is based on the subsurface information reviewed by SME and assumed loading conditions, our experience with similar soils and field verification by SME.

Note that if piles are to extend below the existing natural clays to extend into the existing underlying hardpan soils encountered at about EL. 689 feet, auger refusal could be encountered by the contractor prior to reaching the target pile tip elevation. Auger refusal is defined as less than 1 foot of penetration per minute of drilling under full drilling power. We recommend that if higher working pile capacities are desired with smaller diameter augercast piles subsequently requiring extending the tip of the auger cast pile into the underlying hardpan soils that the project drawings include contacting the geotechnical engineer of record to determine if the pile is adequate for the design working load if in the case “auger refusal” is encountered at higher elevations other than the target elevation outlined above. If, by chance, auger refusal is encountered well above the design tip bearing elevation, or if the pile is knocked out of vertical alignment, it will be necessary to grout the pile from that point and install a new pile. The obstructed pile may either be rejected, or evaluated and assigned a reduced capacity, depending on circumstances and installation records. These situations should be assessed by SME on a case-by-case basis during construction.

As noted above, the working pile capacities outlined above are based on a factor of safety of 2.0 and assumes that appropriate pile load tests will be performed to verify pile capacities. To conduct a pile load test, a test pile is constructed at the site under the same conditions and to the design bearing level of the production piles. The test pile is allowed to cure and loaded by one of several methods. For this project, the pile load test should subject the test pile to at least 2 times the anticipated working load through the application of dead weight or loading from reaction piles. The pile load test is conducted over several hours while movement/settlement of the test pile is carefully recorded by a qualified geotechnical engineer. If a different contractor and equipment is used, we recommend at least one load test to verify the methods used for pile installation. We recommend performing pile load tests prior to installing the remaining production piles so that any necessary design modifications can be made.

With regards to lateral loading we have developed the following table for consideration by the structural engineer. We have provided a range of calculated theoretical pile head deflections based on a corresponding lateral load. The deflections calculated below assume a single-pile fixed-head condition with an applied vertical load of 100 kips and a reinforcement ratio of 1%. Additionally, the calculated lateral deflection neglects the contribution of the passive (and frictional) resistance of the soils around (and below) the proposed pile cap.

**14 INCH DIAMETER ACIP PILE – CALCULATED LATERAL PILE HEAD DEFLECTION**

Applied Lateral Load (kips)	Theoretical Deflection (in.)
4	0.25
5	0.31
7	0.50

**18 INCH DIAMETER ACIP PILE – CALCULATED LATERAL PILE HEAD DEFLECTION**

Applied Lateral Load (kips)	Theoretical Deflection (in.)
5	0.20
10	0.31
14	0.50

All scenarios assume a working load of 100 kips applied to the pile head and a reinforcement ratio of 1 percent. We understand that the structural design is in flux and project needs will vary over the Design Development (DD) phase. Therefore, if needed, lateral load analysis of the ACIP piles can be further refined once additional design input is provided. Design input could also include bending moment and shear applied to the pile top, pile layout for each pile cap, and the allowable lateral deflection permitted by the structural engineer.



With regards to ACIP pile layout for foundation design, we recommend using a minimum design spacing of at least three pile diameters between adjacent piles (center-to-center) within a group. The use of closer pile spacing would require additional evaluation of the group effect. Generally, we recommend using a minimum of three piles per pile group for stability. Groups of one or two piles can be used if grade beams, rigid mats or other suitable methods are used to provide the required lateral structural support.

### **Construction Considerations – ACIP Pile Installation**

During ACIP pile installation, the contractor should carefully sequence operations to avoid damage to an installed pile during installation of an adjacent pile. We recommend adjacent piles closer than approximately 5 feet (edge-to-edge) spacing not be installed until initial set of the grout in the first pile has occurred (about 24 hours). It may be necessary to increase this spacing if interconnection between recently grouted piles is observed during construction.

To prevent loss of ground, and a reduction in support, the contractor should consider the following recommendations to reduce the risk of oversized holes due to decompression, or loss of soil. We recommend the contractor utilize a drill rig with a minimum torque of 75,000 ft-lbs and the ability to utilize full torque at a slow rotational speed. The rate of auger penetration should not exceed two rotations per flight. The contractor should have grout on-site prior to beginning of auger withdrawal. If equipment failure or other unusual factors occur, which require the augers to be withdrawn from an ungrouted pile excavation, the augers should be removed using a slow reverse rotation, and not "dead pulled." The contractor should maintain a minimum grout volume ratio of 1.2, which is the ratio of the actual grout volume to the theoretical pile volume. During auger withdrawal, a minimum pressure head equivalent to 10 feet of grout should be maintained above the groundwater level.

The successful installation of ACIP piles is highly dependent upon the skill, experience, and procedures used by the contractor. Therefore, full-time observation and testing by SME is recommended. SME would be pleased to assist in developing pile specifications, reviewing contractor submittals, and in providing quality control testing and monitoring during construction. The quality control testing should include observing the installation of each pile and preparing a record including:

- Date and time of installation;
- Location of pile;
- Pile diameter and length (design and actual);
- Approximate grout volume;
- Grout pressure;
- Obstructions encountered, depths, and delay time;
- Reinforcing; and
- Grout strength.

If there are any questions regarding the content of this memo, please do not hesitate to contact us.



Jana Ecker &lt;jecker@bhamgov.org&gt;

---

**FW: 35975 Woodward Application**

1 message

---

**Dan Wells** <wellsd@aktpeerless.com>  
To: "Jana L. Ecker" <jecker@bhamgov.org>  
Cc: Bret Stuntz <StuntzB@aktpeerless.com>

Fri, Apr 7, 2017 at 9:02 AM

Hello Jana,

Here are our comments on the Brownfield application for 35975 Woodward.

Proposed Project Description;

- The applicant desires to excavate a basement and states that a restrictive covenant (RC) placed on the deed is not currently in effect. The quit claim deed that was provided (dated 10/4/2005) indicates the RC is in effect. Applicant will need to provide proof that the RC has been lifted in order to receive consideration for basement related costs.
- In jobs discussion, can the applicant estimate a number of permanent, full time jobs?

Part A Initial Screening;

5(a); When the full brownfield plan is submitted, the applicant should provide data or other justification that all of the soil coming out of the basement area contaminated enough to justify all transportation and disposal should be included as a brownfield cost.

- This may be solved with a development plan. At this point, without a development plan, it's difficult to understand exactly where the excavation will take place and the excavated area's potential for contamination.

5(b); Per recent discussions at the BRA, the applicant should prepare cost estimates (ideally two) for excavation, transportation, and disposal unit costs. The cumulative excavation, transportation, and disposal costs seem a bit high in the application, although these costs do vary significantly over time.

6. In general, the BRA will look for the applicant to strengthen the brownfield/greenfield distinction.

- Excavation – it appears that excavation should not be included here as a brownfield cost, since the contemplated structure here has a basement. There's a separate line item for decon of construction equipment, etc, which is likely appropriate but needs additional informational detail.
- Transportation and disposal (tonnages may be adjusted due to the following)
  - Can any soils be reused onsite? More data/site plan will help.
  - Can any soils come off as clean? More data/site plan will help.
  - How does this compare to the cost on a greenfield site?

7. Similar comment as #6, but applied to groundwater. The BRA will want a stronger brownfield/greenfield distinction. The disposal characterization and pre-treatment, if necessary, may be justified due to the contamination. But the non-environmental costs of dewatering may be normal on a greenfield site. If that is the case here (and it appears it is), those costs should be removed.

-Also, the text says there will be transportation, but Table 1 indicated on-site treatment, please clarify the management method.

Part B; Applicant needs to sign the application.

Warranty Deed dated 11/8/2016; "Exhibit B – Permitted Exceptions" is not included, which may explain the Restrictive Covenant status.

Table 1 – please update based on the revisions above.

**Dan Wells**

Senior Project Manager

**AKT Peerless** | [aktpeerless.com](http://aktpeerless.com)

25 Ionia Ave. SW, Suite 506, Grand  
Rapids, MI 49503

P (616) 608-0229

[wellsd@aktpeerless.com](mailto:wellsd@aktpeerless.com)





# MEMORANDUM

---

**DATE:** July 25, 2017

**TO:** Joseph A. Valentine, City Manager

**FROM:** Mark H. Clemence, Police Chief

**SUBJECT:** Repeal Chapter 122 – Vehicles for Hire, Article IV – Taxicabs, Divisions 1, 2, 3, 4 and 5, All Sections: 121,122,131,132,136,137,138,139,140,147,148,149,150,151,152,161,162,163,164,165,166,167,176,177,178,179,180,181,182,183,184,185,186,187,196,197,198,199,200,201,211,212,213,214, 215,216,and 217 from City of Birmingham Code of Ordinances

---

The State of Michigan Legislature passed a new law removing all local control over taxi carriers. Public Act 345 of 2016 prohibits a local unit of government from imposing a tax or fee upon, or requiring a license for, a limousine carrier, taxicab carrier or Transportation Network Company (TNC) such as Uber or Lyft, a limousine driver, taxicab driver or TNC driver, or a limousine, taxicab or personal vehicle, if the tax, fee or license is related to the provision of limousine or taxicab service or TNC prearranged rides.

Under Public Act 346 of 2016, a local unit of government may issue a civil infraction to a limousine, taxicab or TNC driver for a violation of sections of the Act regarding signage, a TNC driver carrying proof of insurance, a TNC driver accepting a request for transportation outside of a TNC's digital network and nondiscrimination. Regulation of all taxicabs, limousine and TNC carriers will now be handled by the State of Michigan Department of Licensing and Regulatory Affairs (LARA). Under this new framework, each entity is required to register with LARA, complete a vehicle safety inspection if the vehicle is five years old or older, post proper signage on the vehicle and ensure that each driver has passed a criminal background check and obtained proper insurance. Additionally, local officers will know what vehicles are state approved because the law requires that all vehicles subject to this act display a consistent and distinctive signage or emblem that is approved by the department at all times that is readable from at least 50 feet, reflective and sufficiently identify the limousine carrier, taxicab carrier or transportation network company with which the vehicle is affiliated.

With the passage of PA 346 of 2016, all applicable ordinances found in the Birmingham City Code that reference taxicabs (Chapter 122, Article IV, Divisions 1,2,3,4 and 5, sections 121 through 217) should be repealed.

Resolution:

To repeal Chapter 122 – Vehicles for Hire, Article IV – Taxicabs, Divisions 1, 2, 3, 4 and 5, All Sections: 121,122,131,132,136,137,138,139,140,147,148,149,150,151,152, 161,162,163,164,165,166,167,176,177,178,179,180,181,182,183, 184,185,186,187,196,197,198,199,200,201,211,212,213,214,215, 216 and 217 from the City of Birmingham Code of Ordinances



**LIMOUSINE, TAXICAB, AND TRANSPORTATION NETWORK COMPANY ACT**  
**Act 345 of 2016**

AN ACT to regulate transportation network companies, taxicabs, and certain limousines in this state; to provide for the powers and duties of certain state officers and entities; to prescribe penalties and provide remedies; and to repeal acts and parts of acts.

History: 2016, Act 345, Eff. Mar. 21, 2017.

*The People of the State of Michigan enact:*

**257.2101 Short title.**

Sec. 1. This act shall be known and may be cited as the "limousine, taxicab, and transportation network company act".

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2102 Definitions.**

Sec. 2. As used in this act:

- (a) "Department" means the department of licensing and regulatory affairs.
- (b) "Dispatch system" means any hardware, software, mobile device, or online-enabled application used by a limousine carrier or a taxicab carrier to connect limousine drivers or taxicab drivers to potential passengers.
- (c) "Dispatch system provider" means a person operating in this state that uses any device, method, means, or arrangement, including a dispatch system, to connect potential passengers with a limousine carrier, taxicab carrier, limousine driver, or taxicab driver. Dispatch system provider does not include a limousine carrier or a taxicab carrier.
- (d) "Limousine" means a self-propelled motor vehicle used in the carrying of passengers and the baggage of the passengers for hire with a seating capacity of 8 passengers or fewer, including the driver. Limousine does not include a commercial vehicle. Limousine also does not include a vehicle operated by any of the following:
  - (i) A county, city, township, or village as provided by law, or other authority incorporated under 1963 PA 55, MCL 124.351 to 124.359.
  - (ii) An authority incorporated under the metropolitan transportation authorities act of 1967, 1967 PA 204, MCL 124.401 to 124.426, or that operates a transportation service pursuant to an interlocal agreement under the urban cooperation act of 1967, 1967 (Ex Sess) PA 7, MCL 124.501 to 124.512.
  - (iii) Operating under a contract entered into under 1967 (Ex Sess) PA 8, MCL 124.531 to 124.536, or 1951 PA 35, MCL 124.1 to 124.13.
  - (iv) An authority incorporated under the public transportation authority act, 1986 PA 196, MCL 124.451 to 124.479, or a nonprofit corporation organized under the nonprofit corporation act, 1982 PA 162, MCL 450.2101 to 450.3192, that provides transportation services.
  - (v) An authority financing public improvements to transportation systems under the revenue bond act of 1933, 1933 PA 94, MCL 141.101 to 141.140.
  - (vi) A person that is only operating limousines to provide the transportation of passengers for funerals.
  - (vii) An employer that is only using the vehicle, or on whose behalf the vehicle is being used, to transport its employees to and from their place of employment.
- (e) "Limousine carrier" means a person who, either directly or through any device, dispatch system, or arrangement, holds himself or herself out to the public as willing to transport passengers for hire by limousine.
- (f) "Limousine driver" means an individual who uses a limousine to provide transportation services to potential passengers.
- (g) "Person" means an individual, sole proprietorship, partnership, corporation, association, or other legal entity.
- (h) "Personal vehicle" means a motor vehicle with a seating capacity of 8 passengers or fewer, including the driver, that is used by a transportation network company driver that satisfies both of the following:
  - (i) The vehicle is owned, leased, or otherwise authorized for use by the transportation network company driver.
  - (ii) The vehicle is not a taxicab, limousine, or commercial vehicle.
- (i) "Taxicab" means a motor vehicle with a seating capacity of 8 passengers or fewer, including the driver, that is equipped with a roof light and that carries passengers for a fee usually determined by the distance traveled. Taxicab does not include a commercial vehicle.



(j) "Taxicab carrier" means a person who, either directly or through any device, dispatch system, or arrangement, holds himself or herself out to the public as willing to transport passengers for hire by taxicab.

(k) "Taxicab driver" means an individual who uses a taxicab to provide transportation services to potential passengers.

(l) "Transportation network company" means a person operating in this state that uses a digital network to connect transportation network company riders to transportation network company drivers who provide transportation network company prearranged rides. Transportation network company does not include a taxi service, transportation service arranged through a transportation broker, ridesharing arrangement, or transportation service using fixed routes at regular intervals.

(m) "Transportation network company digital network" means an online-enabled application, website, or system offered or utilized by a transportation network company that enables the prearrangement of rides with transportation network company drivers.

(n) "Transportation network company driver" means an individual who satisfies all of the following:

(i) Receives connections to potential passengers and related services from a transportation network company in exchange for payment of a fee to the transportation network company.

(ii) Uses a personal vehicle to offer or provide transportation network company prearranged rides to transportation network company riders upon connection through a digital network controlled by a transportation network company in return for compensation or payment of a fee.

(o) "Transportation network company prearranged ride" means the provision of transportation by a transportation network company driver to a transportation network company rider, beginning when a transportation network company driver accepts a ride requested by a transportation network company rider through a digital network controlled by a transportation network company, continuing while the transportation network company driver transports the requesting transportation network company rider, and ending when the last requesting transportation network company rider departs from the personal vehicle. Transportation network company prearranged ride does not include a shared-expense carpooling or vanpooling arrangement or transportation provided using a taxicab, limousine, or other vehicle.

(p) "Transportation network company rider" means an individual who uses a transportation network company's digital network to connect with a transportation network company driver who provides a transportation network company prearranged ride to the transportation network company rider in the transportation network company driver's personal vehicle between points chosen by the transportation network company rider.

History: 2016, Act 345, Eff. Mar. 21, 2017.

### 257.2103 Rules.

Sec. 3. The department may promulgate rules to administer this act under the administrative procedures act of 1969, 1969 PA 306, MCL 24.201 to 24.328.

History: 2016, Act 345, Eff. Mar. 21, 2017.

### 257.2104 Limousine carrier, taxicab carrier, or transportation network company; registration required; fees; application; expiration; renewal; records; audit; public record; exception; application as void; cessation of fees.

Sec. 4. (1) A limousine carrier, taxicab carrier, or transportation network company shall not operate in this state without first having registered with the department under this act.

(2) An application for registration shall be made on a form provided by the department and accompanied by a fee of \$25.00 if the applicant registers 10 or fewer vehicles under this section, a fee of \$50.00 if the applicant registers between 11 and 25 vehicles under this section, and a \$100.00 application fee if the applicant registers more than 25 vehicles under this section.

(3) The department shall issue a registration to an applicant that meets the requirements of this act and pays the application fee described in subsection (2) and an annual registration fee of \$100.00 for the first vehicle registered under this act and \$50.00 per vehicle for the second through ninth vehicles registered under this act. If the applicant registers more than 9 vehicles under this act, the applicant shall pay a registration fee according to the following schedule:

10 vehicles.....	\$ 550.00
11 to 25 vehicles.....	\$ 1,000.00
26 to 100 vehicles.....	\$ 2,500.00
101 to 500 vehicles.....	\$ 5,000.00
501 to 1,000 vehicles.....	\$ 10,000.00
More than 1,000 vehicles.....	\$ 30,000.00

The department shall expend money received from registration fees under this subsection to defray the costs of enforcing and administering this act.

(4) Fees collected by the department under this act shall be retained by the department to enforce and administer this act, and shall not lapse to the general fund.

(5) To obtain a registration under this act, a limousine carrier, taxicab carrier, or transportation network company shall submit an application, on a form developed by the department, to the department that includes all of the following information:

(a) Proof that the applicant has satisfied the insurance requirements of this act.

(b) Whether the applicant is an individual, a sole proprietorship, a partnership, a corporation, a limited liability company, or other type of business entity. An applicant that is a sole proprietorship or a general partnership shall be registered at the county level and shall provide to the department a copy of its certificate of conducting business under an assumed name or certificate of co-partnership. If the applicant is a business entity, the applicant shall be a Michigan entity in good standing or a foreign entity that has a certificate of authority and is authorized to do business in this state, and shall provide to the department its full legal name, a copy of its articles of incorporation, articles of organization, or certificate of authority, and its federal employer identification number.

(c) The name, telephone number, mailing address, and electronic mail address of a designated contact person for the applicant.

(d) The number of vehicles the applicant operates, according to the following schedule:

(i) Zero to 10.

(ii) 11 to 25.

(iii) 26 to 100.

(iv) 101 to 500.

(v) 501 to 1,000.

(vi) More than 1,000.

(e) If applicable, proof that the applicant has satisfied any penalties or conditions imposed by disciplinary action in this state.

(6) A registration granted under this section expires on August 31 of each year. The department shall renew a registration granted under this section upon payment of the annual registration fee provided for in subsection (1) and receipt of a completed renewal form provided by the department. The department may request any additional information it deems necessary for the administration of this act at the time of renewal.

(7) The department may audit the records of a registrant under this act, including, but not limited to, conducting a random sample of the registrant's records related to drivers, subject to all of the following:

(a) The audit described in this subsection may be conducted no more than 2 times per year.

(b) The audit may take place at a third-party location agreed upon by the department and the registrant.

(8) Subject to subsection (9), records obtained by the department or filed under this act, including a record contained in or filed with an application or report, are public records and shall be made available for public examination.

(9) All of the following records are not public record and shall not be made available for public examination as provided in subsection (8):

(a) A record obtained by the department in connection with an audit required under subsection (7).

(b) Part of a report prepared in connection with an audit under subsection (7) that contains trade secrets or confidential information, if the registrant has asserted a claim of confidentiality or privilege that is authorized by law.

(c) A record that is not required to be provided to the department or filed under this act and is provided to the department only on the condition that the record will not be subject to public examination or disclosure.

(10) Unless otherwise provided by this act or rules promulgated under this act, an applicant for registration under this act shall complete all requirements for registration within 1 year after receipt of the registration application by the department or mailing of a notice of an incomplete registration to the last known address on file with the department, whichever is later. If the applicant does not complete the requirements of this act within the time period provided in this subsection, any fees paid by the applicant are forfeited to the department and the application for registration is void. An applicant whose application is void under this subsection and who wishes to register under this act shall submit a new application and fees and shall meet the standards in effect on the date of receipt by the department of the new application for registration.

(11) Beginning 3 years after the effective date of this act, the department shall cease to impose the fees provided for in this section.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2105 Disclosure of information.**

Sec. 5. A limousine carrier, taxicab carrier, or transportation network company shall disclose to the department on an annual basis and in the event of a material reduction in insurance coverage maintained by the limousine carrier, taxicab carrier, or transportation network company on behalf of each driver providing transportation services for that limousine carrier, taxicab carrier, or transportation network company all of the following information:

(a) The automobile insurance coverage, including the types of coverage and limits for each type of coverage, that the limousine carrier, taxicab carrier, or transportation network company maintains on behalf of each driver while he or she operates a limousine, operates a taxicab, or uses a personal vehicle in connection with a transportation network company's digital network.

(b) If the person subject to this act is a transportation network company, whether the transportation network company maintains comprehensive and collision insurance that covers a transportation network company driver's personal vehicle and, if such coverage is maintained by the transportation network company, the limits of coverage, applicable deductible, and conditions under which the coverage applies to a vehicle operated by a transportation network company driver.

(c) As used in this section, "material reduction in insurance coverage" does not include the replacement of insurance coverage with substantially similar insurance coverage from a different insurer by a transportation network company.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2107 Operation of limousine or taxicab on behalf of carrier or company; application; submission; requirements; duties of carrier or company; operation prohibited; conditions; records subject to audit.**

Sec. 7. (1) Before an individual may operate a limousine or taxicab on behalf of a limousine carrier or taxicab carrier or accept transportation network company prearranged ride requests as a transportation network company driver using a transportation network company's digital network, he or she shall submit an application to the limousine carrier, taxicab carrier, or transportation network company. The application required under this subsection shall include, but is not limited to, the applicant's name, address, age, operator's license number, driving history, motor vehicle registration information, and automobile liability insurance information. A limousine carrier, taxicab carrier, or transportation network company receiving an application under this subsection shall do both of the following before allowing the applicant to operate a limousine or taxicab or accept transportation network company prearranged ride requests as a transportation network company driver using the transportation network company's digital network:

(a) Annually conduct, or use a third party to annually conduct, a local and national criminal background check of the applicant. The background checks required under this subdivision shall include a search of all of the following:

(i) A multistate or multijurisdiction criminal records locator or similar commercial nationwide database with validation.

(ii) The national sex offender registry database.

(b) Annually obtain and review a driving history research report for the applicant.

(2) A limousine carrier, taxicab carrier, or transportation network company shall not allow an individual to operate a limousine or taxicab or accept transportation network company prearranged ride requests as a transportation network company driver using its digital network if any of the following apply:

(a) The individual has had more than 4 moving violations or 1 major violation in the 3-year period before the date of the application. As used in this subdivision, "major violation" includes, but is not limited to, attempting to evade the police, reckless driving, or driving on a suspended or revoked license.

(b) The individual has a felony conviction within 5 years before the date of the application of any of the following:

(i) Driving under the influence of drugs or alcohol.

(ii) Fraud.

(iii) A sexual offense.

(iv) Use of a motor vehicle to commit a felony.

(v) A crime involving property damage.

(vi) Theft.

(vii) An act of violence.

(viii) An act of terror.

(c) The individual is listed on the national sex offender registry database.

(d) The individual does not possess a valid operator's license issued under the Michigan vehicle code, 1949 PA 300, MCL 257.1 to 257.923, or a valid operator's license issued by another state.

(e) The individual does not possess proof of registration issued under the Michigan vehicle code, 1949 PA 300, MCL 257.1 to 257.923, or proof of registration issued by another state for each personal vehicle that he or she intends to use to provide transportation network company prearranged rides. This subdivision applies only to a transportation network company.

(f) The individual does not possess proof of automobile liability insurance for each personal vehicle that he or she intends to use to provide transportation network company prearranged rides. This subdivision applies only to a transportation network company.

(g) The individual is under 19 years of age.

(3) All background records of drivers described in this section are subject to audit by the department at any time.

**History:** 2016, Act 345, Eff. Mar. 21, 2017.

### **257.2109 Vehicle safety inspection.**

Sec. 9. (1) A limousine carrier or taxicab carrier shall not operate a limousine or taxicab, and a transportation network company shall not allow a transportation network company driver to accept trip requests through that transportation network company's digital network, unless the limousine, taxicab, or personal vehicle has undergone a safety inspection conducted annually by a mechanic licensed by this state before being used to provide transportation services. Each limousine carrier and taxicab carrier shall maintain, and each transportation network company driver shall provide to the transportation network company, documentation of the inspection required by this section showing that all of the following vehicle components were inspected:

- (a) Foot brakes.
- (b) Parking brakes.
- (c) Steering mechanism.
- (d) Windshield.
- (e) Rear window and other glass.
- (f) Windshield wipers.
- (g) Headlights.
- (h) Taillights.
- (i) Brake lights.
- (j) Front seat adjustment mechanism.
- (k) Doors.
- (l) Turn signal lights.
- (m) Horn.
- (n) Speedometer.
- (o) Bumpers.
- (p) Muffler and exhaust system.
- (q) Tires, including tread depth.
- (r) Interior and exterior mirrors.
- (s) Safety belts.
- (t) Defrosting system.

(2) The vehicle inspections described in this section are subject to audit by the department at any time.

(3) The vehicle inspections described in this section only apply to vehicles that are 5 years old or older.

**History:** 2016, Act 345, Eff. Mar. 21, 2017.

### **257.2111 Signage or emblem.**

Sec. 11. A vehicle subject to this act shall display a consistent and distinctive signage or emblem that is approved by the department at all times while the vehicle is being used to provide transportation services or while the vehicle is being used by a transportation network company driver for a transportation network company prearranged ride or while the transportation network company driver is available to receive a transportation request. The signage or emblem shall satisfy all of the following:

(a) The signage or emblem shall be sufficiently large and color-contrasted to be readable during daylight hours from a distance of at least 50 feet.

(b) The signage or emblem shall be reflective.

(c) The signage or emblem shall sufficiently identify the limousine carrier, taxicab carrier, or transportation network company with which the vehicle is affiliated.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2113 Records.**

Sec. 13. A limousine driver, taxicab driver, or transportation network company shall maintain all of the following records, as applicable:

(a) Individual trip records. A limousine driver, taxicab driver, or a transportation network company shall maintain an individual trip record for a period of at least 1 year after the date the trip was provided. An individual trip record shall contain all of the following information:

- (i) Pickup and drop-off location.
- (ii) Duration of the trip, distance traveled, and fee.

(b) Individual records of limousine, taxicab, or transportation network company drivers. An individual driver record shall be maintained for a period of at least 1 year after the driver ceases to operate a limousine or taxicab for a limousine carrier or taxicab carrier or the driver ceases to provide transportation network company prearranged rides using the transportation network company's digital network. An individual driver record shall contain all of the following information:

- (i) The name and contact information of the driver.
- (ii) The make, model, and registration plate number of the vehicle operated by the driver.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2115 Imposition of tax, fee, or license by local unit of government; validity of existing article of incorporation; applicability of subsection.**

Sec. 15. (1) A local unit of government shall not impose a tax or fee upon or require a license for a limousine carrier, taxicab carrier, or transportation network company, a limousine driver, taxicab driver, or transportation network company driver, or a limousine, taxicab, or personal vehicle, if the tax, fee, or license is related to the provision of limousine or taxicab service or transportation network company prearranged rides. Except as otherwise provided in this section, a local unit of government shall not enact or enforce an ordinance regulating a limousine carrier, taxicab carrier, limousine driver, taxicab driver, or transportation network company. A local unit of government may issue a civil infraction to a limousine, taxicab, or transportation network company driver for a violation of section 11, 23(8), 41, or 45.

(2) Notwithstanding any other provision of this act, an article of incorporation in existence upon passage of this act covering a transportation network company, limousine carrier, or taxicab carrier by an authority created to regulate limousines, taxicabs, or transportation network companies under the municipal partnership act, 2011 PA 258, MCL 124.111 to 124.123, or the public transportation authority act, 1986 PA 196, MCL 124.451 to 124.479, shall remain valid. This subsection does not apply after 4 years after the effective date of this act.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2116 Enactment of ordinances and regulations by airport; "airport" defined.**

Sec. 16. An airport may enact ordinances and regulations governing a limousine carrier, taxicab carrier, or transportation network company that adopt reasonable procedures and fees for operations conducted by that limousine carrier, taxicab carrier, or transportation network company on airport property. An ordinance or regulation described in this section shall be consistent with industry standards, shall not impose requirements that have the effect of unreasonably impeding service, and shall not duplicate or contradict the requirements of this act. As used in this section, "airport" means 1 of the following:

(a) An airport as that term is defined in section 2 of the aeronautics code of the state of Michigan, 1945 PA 327, MCL 259.2.

(b) A public airport authority created under section 110 of the aeronautics code of the state of Michigan, 1945 PA 327, MCL 259.110.

(c) A regional airport authority created under section 137 of the aeronautics code of the state of Michigan, 1945 PA 327, MCL 259.137.

(d) A community airport created under section 1 of 1957 PA 206, MCL 259.621.

(e) An airport authority created under section 1 of 1970 PA 73, MCL 259.801.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2117 Summary suspension of registration.**

Sec. 17. (1) If the insurance coverage required under section 19, 21, or 23 is canceled for any reason, or if, after an audit, the department determines that a registrant's violation of this act poses a threat to the public health, safety, or welfare, the department shall issue an order summarily suspending the registration issued to that limousine carrier, taxicab carrier, or transportation network company, based on an affidavit by an

individual who is familiar with the facts set forth in the affidavit, or, if appropriate, based on an affidavit made on information and belief that an imminent threat to the public health, safety, or welfare exists.

(2) A limousine carrier, taxicab carrier, or transportation network company whose registration is summarily suspended under this section may petition the department to dissolve the order. The department may grant or deny the petition without a hearing, or may immediately schedule a hearing to decide whether to grant or deny the petition.

(3) At a hearing described in subsection (2), an administrative law hearings examiner shall dissolve the summary suspension order unless sufficient evidence is presented that an imminent threat to the public health, safety, or welfare exists that requires emergency action and continuation of the department's summary suspension order.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2119 Limousine carrier; insurance coverage.**

Sec. 19. A limousine carrier shall acquire the following insurance coverage for acts or omissions of the applicant as a limousine carrier:

(a) Bodily injury and property damage liability insurance with a minimum combined single limit of \$1,000,000.00 for all persons injured or for property damage.

(b) Personal protection insurance and property protection insurance as required by chapter 31 of the insurance code of 1956, 1956 PA 218, MCL 500.3101 to 500.3179. A limousine carrier shall maintain the insurance described in this section as a condition of maintaining a license issued under this act.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2121 Taxicab carrier; Insurance coverage.**

Sec. 21. A taxicab carrier shall acquire all of the following insurance coverage for acts or omissions of the applicant as a taxicab carrier:

(a) Bodily injury and property damage liability insurance with a minimum combined single limit of \$300,000.00 for all persons injured or for property damage.

(b) Personal protection insurance and property protection insurance as required by chapter 31 of the insurance code of 1956, 1956 PA 218, MCL 500.3101 to 500.3179.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2123 Transportation network company driver or transportation network company on driver's behalf; automobile insurance.**

Sec. 23. (1) Beginning on the effective date of this act, a transportation network company driver, or a transportation network company on a transportation network company driver's behalf, shall maintain primary automobile insurance on a personal vehicle that recognizes that the transportation network company driver uses the vehicle as a transportation network company driver or otherwise uses a vehicle to transport passengers for compensation and covers the transportation network company driver while he or she is logged on to the transportation network company's digital network or while he or she is engaged in a transportation network company prearranged ride.

(2) During the time that a transportation network company driver is logged on to the transportation network company's digital network and is available to receive transportation requests but is not engaged in a transportation network company prearranged ride, all of the following types of automobile insurance are required:

(a) Residual third party automobile liability insurance as required under section 3101 of the insurance code of 1956, 1956 PA 218, MCL 500.3101, in the amount of at least \$50,000.00 per person for death or bodily injury, \$100,000.00 per incident for death or bodily injury, and \$25,000.00 for property damage.

(b) Personal protection insurance and property protection insurance in the amounts and of the types of coverage required by chapter 31 of the insurance code of 1956, 1956 PA 218, MCL 500.3101 to 500.3179.

(3) During the time that a transportation network company driver is engaged in a transportation network company prearranged ride, all of the following types of automobile insurance are required:

(a) Residual third party automobile liability insurance with a minimum combined single limit of \$1,000,000.00 for all bodily injury or property damage.

(b) Personal protection insurance and property protection insurance in the amounts and of the types of coverage required by chapter 31 of the insurance code of 1956, 1956 PA 218, MCL 500.3101 to 500.3179.

(4) The requirements of subsections (2) and (3) may be satisfied by automobile insurance maintained by a transportation network company driver or a transportation network company, or a combination of both.

(5) If the insurance required by subsection (2) or (3) lapses or does not provide the required coverage,



insurance maintained by a transportation network company shall provide the coverage required by this section, beginning with the first \$1.00 of a claim, and the transportation network company's insurer shall defend the claim.

(6) Coverage provided under an automobile insurance policy maintained by a transportation network company shall not be dependent upon a personal automobile insurer denying the claim first and shall not require a personal automobile insurer to deny the claim first.

(7) All of the following apply to the automobile insurance described in subsections (2) and (3):

(a) It may be placed with an insurer licensed under chapter 4 of the insurance code of 1956, 1956 PA 218, MCL 500.402 to 500.480, or, if the insurance is maintained by a transportation network company, an eligible unauthorized insurer under chapter 19 of the insurance code of 1956, 1956 PA 218, MCL 500.1901 to 500.1955.

(b) The insurance policy satisfies the financial responsibility requirements described in chapter V of the Michigan vehicle code, 1949 PA 300, MCL 257.501 to 257.532.

(8) A transportation network company driver shall carry proof of the insurance required under subsections (2) and (3) with him or her at all times during his or her use of a personal vehicle in connection with a transportation network company's digital network. The transportation network company driver may provide proof of insurance by a paper or electronic copy of the certificate of insurance. If an accident occurs during the time that a transportation network company driver is using a personal vehicle in connection with a transportation network company's digital network, he or she shall provide all of the following information upon request to directly interested parties, automobile insurers, and investigating law enforcement officers as required under section 328 of the Michigan vehicle code, 1949 PA 300, MCL 257.328:

(a) Insurance coverage information.

(b) Whether he or she was logged on to the transportation network company's digital network or on a transportation network company prearranged ride at the time of the accident.

(9) If a transportation network company's insurer makes a payment for a claim covered under comprehensive coverage or collision coverage, the transportation network company's insurer shall issue the payment directly to the business repairing the vehicle or jointly to the owner of the vehicle and the primary lienholder on the vehicle.

(10) A transportation network company shall disclose all of the following information in writing to a transportation network company driver before that transportation network company driver may accept a request for a transportation network company prearranged ride on that transportation network company's digital network:

(a) The insurance coverage, including the types of coverage and limits for each type of coverage, that the transportation network company provides while the transportation network company driver uses a personal vehicle in connection with the transportation network company's digital network.

(b) That, depending on the terms of the policy, the transportation network company driver's personal automobile insurance policy might not provide coverage while the transportation network company driver is logged on to the transportation network company's digital network or is engaged in a prearranged ride.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2125 Terms of service; disclosure by transportation network company to prospective driver.**

Sec. 25. A transportation network company shall disclose prominently, with a separate acknowledgment of acceptance for subdivisions (a) and (c), to a prospective transportation network company driver in the transportation network company driver's written terms of service all of the following before that driver may accept a request for a transportation network company prearranged ride on the transportation network company's digital network:

(a) "Most personal auto insurance policies in Michigan exclude comprehensive and collision coverage while you carry passengers for charge in your motor vehicle and are logged into a transportation network company's digital network. I acknowledge that my personal auto insurance policy may exclude comprehensive and collision coverage while my motor vehicle is carrying passengers for charge."

(b) "Is your motor vehicle subject to a lease, loan, or lien? Please indicate Yes or No: \_\_\_\_\_."

(c) "Most auto loans and leases in Michigan require the borrower to ensure that the motor vehicle is protected by comprehensive and collision coverage. If your written agreement with your lessor or loan provider requires you to maintain comprehensive and collision insurance on the motor vehicle, using the motor vehicle while logged onto a transportation network company's digital network may violate your legal obligation to your lessor or loan provider under Michigan law. I acknowledge that I may breach the terms of my auto loan or lease if I fail to secure appropriate or additional comprehensive and collision coverage during

the term of the loan or lease, while I carry passengers for charge in my motor vehicle."

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2127 Carrier or company as common, motor, or contract carrier; registration of personal vehicle as commercial or for-hire vehicle not required; "motor carrier" defined.**

Sec. 27. (1) A limousine carrier, taxicab carrier, transportation network company, limousine driver, taxicab driver, or transportation network company driver shall not be considered a common carrier, motor carrier, or contract carrier, or to provide commercial vehicle service.

(2) A transportation network company driver is not required to register his or her personal vehicle as a commercial or for-hire vehicle.

(3) As used in this section, "motor carrier" means that term as defined in section 1 of the motor carrier act, 1933 PA 254, MCL 475.1.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2129 Service of process; agent.**

Sec. 29. A transportation network company operating under a license issued under this act shall maintain an agent authorized to receive service of process in this state.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2131 Charging and collecting fee on behalf of transportation network company driver; conditions.**

Sec. 31. On behalf of a transportation network company driver, a transportation network company may charge and collect a fee for services provided to a transportation network company rider, if all of the following are satisfied:

(a) The transportation network company discloses the fee calculation method on its website or within the software application service.

(b) The transportation network company provides the transportation network company rider with the applicable rate being charged and the option to receive an estimated fee before the transportation network company rider enters the transportation network company driver's personal vehicle.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2133 Display of picture and registration plate number by transportation network digital network.**

Sec. 33. A transportation network company digital network shall display a picture of the transportation network company driver and the registration plate number of the personal vehicle to be used for the transportation network company prearranged ride before the transportation network company rider enters the personal vehicle.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2135 Electronic receipt; information.**

Sec. 35. Within a reasonable period of time after a transportation network company prearranged ride is completed, a transportation network company shall transmit an electronic receipt to the transportation network company rider listing all of the following information:

(a) The origin and destination of the trip.

(b) The total time and distance of the trip.

(c) An itemization of the total fee paid, if any.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2137 Transportation network company driver as independent contractor; conditions.**

Sec. 37. (1) A transportation network company driver shall be considered an independent contractor, and not an employee of a transportation network company, if all of the following conditions are met:

(a) The transportation network company does not prescribe the specific hours during which the transportation network company driver is required to be logged in to the transportation network company's digital network.

(b) The transportation network company does not impose any restrictions on the transportation network company driver's ability to use other transportation network companies' digital networks.

(c) The transportation network company does not assign a transportation network company driver a particular territory within this state in which he or she may provide transportation network company prearranged rides.

Rendered Friday, July 14, 2017

Page 9

Michigan Compiled Laws Complete Through PA 64 of 2017

(d) The transportation network company does not restrict a transportation network company driver from engaging in any other occupation or business.

(e) The transportation network company and the transportation network company driver agree in writing that the transportation network company driver is an independent contractor.

(2) A transportation network company shall not be deemed to control, direct, or manage a personal vehicle or a transportation network company driver who connects to its digital network, unless the parties have agreed otherwise in a written contract.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2139 Zero-tolerance policy.**

Sec. 39. (1) A limousine carrier, taxicab carrier, or transportation network company shall develop and implement a zero-tolerance policy regarding a limousine, taxicab, or transportation network company driver's activities while providing transportation services or accessing the transportation network company's digital network. The zero-tolerance policy required under this subsection shall address the use of drugs or alcohol while a driver is providing transportation services or a transportation network company prearranged ride or is logged in to a transportation network company's digital network and available to receive a transportation request.

(2) A limousine carrier, taxicab carrier, or transportation network company, or the parent company if the limousine carrier, taxicab carrier, or transportation network company does not have a website, shall provide notice of the zero-tolerance policy required under subsection (1) on its website, and shall also provide on its website a procedure for a passenger to report a complaint about a driver who the passenger reasonably suspects was under the influence of drugs or alcohol during a trip or a transportation network company prearranged ride.

(3) Upon receipt of a complaint described in subsection (2), a limousine carrier, taxicab carrier, or transportation network company shall immediately suspend the driver and, if applicable, the driver's access to the transportation network company's digital network, and shall investigate the incident. The driver's suspension shall last for the duration of the investigation.

(4) A limousine carrier, taxicab carrier, or transportation network company shall maintain records of a passenger complaint for at least 2 years after the date the complaint was received by the limousine carrier, taxicab carrier, or transportation network company.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2141 Acceptance of transportation request.**

Sec. 41. A transportation network company driver shall not accept a request for transportation unless the request is accepted through the transportation network company's digital network.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2143 Payments for transportation.**

Sec. 43. (1) A transportation network company driver shall not solicit or accept cash payments from transportation network company riders for transportation network company prearranged rides.

(2) A payment for a transportation network company prearranged ride shall only be made electronically using a transportation network company's digital network.

(3) A transportation network company shall adopt a policy prohibiting a transportation network company driver from soliciting or accepting cash payments from transportation network company riders, and shall notify transportation network company drivers using its digital platform of the policy required by this subsection.

History: 2016, Act 345, Eff. Mar. 21, 2017.

#### **257.2145 Nondiscrimination; accommodation of service animals; services to passenger with physical disability.**

Sec. 45. (1) A limousine carrier, taxicab carrier, and transportation network company shall adopt a policy of nondiscrimination with respect to passengers and potential passengers and shall notify limousine drivers, taxicab drivers, and transportation network company drivers of the policy adopted under this subsection.

(2) A limousine driver, taxicab driver, and transportation network company driver shall comply with all applicable laws regarding nondiscrimination against a passenger or potential passenger.

(3) A limousine driver, taxicab driver, and transportation network company driver shall comply with all applicable laws regarding accommodation of service animals.

(4) A limousine carrier, taxicab carrier, and transportation network company shall not impose an additional

charge for providing services to a passenger with a physical disability because of his or her disability.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2147 Lease of limousine or taxicab; informing person of act requirements.**

Sec. 47. A lessor shall be required to inform any person leasing any limousine or taxicab for the transportation of passengers for hire of the requirements of this act on a motor vehicle lease agreement.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2149 Certain conduct as misdemeanor; fine; proceeding.**

Sec. 49. (1) A limousine carrier, taxicab carrier, or transportation network company, or an officer or agent of a limousine carrier, taxicab carrier, or transportation network company who requires or knowingly permits a driver to drive or operate a limousine, taxicab, or personal vehicle in violation of this act, or a rule promulgated under this act, is guilty of a misdemeanor punishable by a fine of not more than \$1,000.00 per violation or imprisonment for not more than 90 days, or both.

(2) In addition to the fine authorized by this section, the department may assess a fine against a person who violates this act that covers the actual cost to the department of the investigation and enforcement of the violation, including attorney fees.

(3) A proceeding held under this act shall be held under chapter 4 of the administrative procedures act of 1969, 1969 PA 306, MCL 24.271 to 24.287.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2151 Violation of act or rules.**

Sec. 51. All of the following apply to a person that violates this act or rules or an order promulgated or issued under this act:

(a) The person is subject to denial of a registration or renewal of a registration.

(b) The attorney general or the proper prosecuting attorney may institute appropriate criminal proceedings under this act against the person with or without reference from the department.

(c) The department or any other person, to enforce compliance with this act, may bring an action in a circuit court in any county in which the limousine carrier, taxicab carrier, or transportation network company has solicited or sold its services, whether or not that person purchased or used the limousine carrier's, taxicab carrier's, or transportation network company's services or is personally aggrieved by a violation of this act. The court may award damages, issue equitable orders in accordance with the Michigan court rules to restrain conduct in violation of this act, and award reasonable attorney fees and costs to a prevailing party.

History: 2016, Act 345, Eff. Mar. 21, 2017.

**257.2153 Cease and desist order.**

Sec. 53. (1) The director of the department or his or her designee may order a limousine carrier, taxicab carrier, or transportation network company to cease and desist from a violation of this act, a rule promulgated under this act, or an order issued under this act.

(2) A limousine carrier, taxicab carrier, or transportation network company that receives an order to cease and desist described in subsection (1) may request a hearing before the department if the limousine carrier, taxicab carrier, or transportation network company files a written request for a hearing no later than 30 days after the effective date of the cease and desist order.

(3) If a limousine carrier, taxicab carrier, or transportation network company violates an order to cease and desist issued under subsection (1), the attorney general may apply to a court of competent jurisdiction to restrain and enjoin, either temporarily or permanently, that limousine carrier, taxicab carrier, or transportation network company from further violating the order to cease and desist.

History: 2016, Act 345, Eff. Mar. 21, 2017.

The city manager or his designee may order any license issued under this division suspended when a licensee fails to comply and to maintain compliance with, or laws, ordinances or regulations. Upon written request of the licensee, a hearing to appeal such suspension shall be held before the city commission. Upon receipt of a written appeal, the commission shall set a hearing date within ten days. Notice of such hearing shall be given in writing by first class mail to the appellant at least three days prior to the date of the hearing thereon. The notice shall state the grounds of the complaint against the licensee and shall state the time and place where such hearing shall be held.

(Code 1963, § 7.214)

Secs. 122-96—122-120. - Reserved.

## ARTICLE IV. - TAXICABS<sup>[2]</sup>

### Footnotes:

--- (2) ---

*Editor's note— Ordinance No. 1583, adopted March 21, 1994 amended article IV to read as herein set out. Formerly, such article pertained to taxicabs and derived from §§ 7.81, 7.86—7.91, 7.96—7.101, 7.106—7.131, 7.136—7.157, 7.161—7.173, 7.177—7.180, 7.185—7.189, 7.194—7.198, 7.203, 7.205 of the 1963 Code.*

## DIVISION 1. - GENERALLY

Sec. 122-121. - Definitions.

In the interpretation of this article, the following definitions shall apply, except where the context clearly indicates a different meaning:

*Commission* means the duly elected legislative body of the city.

*Company* means a person, firm or corporation owning or operating one or more taxicabs in the city.

*Department* means the police department of the city.

*Driver* means the person operating a taxicab.

*License* means a permit issued by the city for the operation of a taxicab or taxicabs, and for driving of a taxicab.

*Manifest* means a daily record, prepared by a taxicab driver and dispatcher of all trips made by such driver, showing time and place of origin, destination and amount of fare on each trip.

*Owner* means the person, firm or corporation representing himself or itself as the owner of one or more taxicabs.

*Person* means an individual, a corporation or other legal entity, a partnership, and any unincorporated association. The masculine shall include the feminine, and the singular the plural.

*Police chief* means the official head of the police department or his designee.

*Rate card* means a card approved by the department for display in each taxicab setting forth the rates of fare then in force.

*Taxicab* means a licensed public motor vehicle for hire which is designated and constructed to seat not more than ten persons and which is operated as a common carrier on call or demand.

*Taximeter* means a device attached to a taxicab which accurately measures mechanically the distance driven and the waiting time upon which additional charges are based.

*Waiting time* means the time when a taxicab is not in motion from the time of acceptance of a passenger to the time of discharge, but does not include any time that the taxicab is not in motion if due to any cause other than the request, act or fault of a passenger or passengers.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-122. - Duties of police chief.

It shall be the duty of the police chief to pass on all matters in dispute pertaining to the supervision, control, licensing, and operation of taxicabs in the city, the licensing of companies, and the supervision, licensing and controlling of taxicab drivers, and to revoke licenses issued hereunder.

(Ord. No. 1583, 3-21-94)

#### Secs. 122-123—122-130. - Reserved.

### DIVISION 2. - LICENSES

#### Subdivision I. - In General

#### Sec. 122-131. - Issuance.

The city clerk shall issue licenses for taxicabs, taxicab companies and taxicab drivers in accordance with the terms of this article.

(Ord. No. 1583, 3-21-94)



Sec. 122-132. - Insurance required.

All companies shall file with the city clerk certificates of insurance as set forth in the schedule of fees, charges, bonds, and insurance.

It shall be unlawful for any person to operate any taxicab without having complied with the requirements of this section, or to operate any taxicab after any such insurance policy has been suspended, revoked, or declared in default.

(Ord. No. 1583, 3-21-94; Ord. No. 2014, 2-8-10)

Secs. 122-133—122-135. - Reserved.

Subdivision II. - Company Licenses

Sec. 122-136. - Required.

No person shall engage in the business of operating one or more taxicabs in the city without securing a company license. Such license shall be in addition to the individual taxicab license hereinafter required and shall not be issued until the applicant has paid a fee as provided in the schedule of fees, charges, bonds and insurance.

(Ord. No. 1583, 3-21-94; Ord. No. 2010, 2-8-10)

Sec. 122-137. - Application.

An application for a company license shall be made to the city clerk on forms prescribed by the department and shall include:

- (1) The full name and present address of the company;
- (2) If the applicant is a partnership, the names and residence addresses of each of the partners, including limited partners;
- (3) If the applicant is a corporation, the names and residence addresses of each of the officers and directors of the corporation, and of each stockholder owning more than ten percent of the corporation;
- (4) The number of taxicabs for which licenses shall be requested by the company;
- (5) The make and type of taxicab to be used;
- (6) A description of the color, insignia or other distinguishing markings on such taxicabs; and
- (7) Such other identification and information as the police chief may require.

(Ord. No. 1583, 3-21-94)

Sec. 122-138. - Issuance.

Upon approval of such application by the police chief and subject to payment of license fees, the city clerk shall issue a company license. Such company license shall remain in force until revoked by order of the police chief and the same shall not be transferable.

(Ord. No. 1583, 3-21-94)

Sec. 122-139. - Color or insignia.

Such license shall specify the color of taxicabs, insignia or other distinguishing markings to be used by such company, and all taxicabs licensed to such company shall be identical as to such items.

(Ord. No. 1583, 3-21-94)

Sec. 122-140. - Duties.

It shall be the duty of a company to operate the full number of taxicabs covered by its license in accordance with the requirements of this article. Failure to do so shall constitute grounds for revocation of such license and all individual taxicab licenses issued to such company.

(Ord. No. 1583, 3-21-94)

Secs. 122-141—122-146. - Reserved.

Subdivision III. - Taxicab Licenses

Sec. 122-147. - Required.

No person shall operate a taxicab in the city unless the same has been licensed as hereinafter provided. Provisions of this section shall be applicable to all taxicabs licensed to any company.

(Ord. No. 1583, 3-21-94)

Sec. 122-148. - Application.

Application for such taxicab license shall be made to the city clerk on forms prescribed by the department and shall contain all information required on an application for a company license, except that where a company license has been issued, or application made therefor, application for a taxicab license shall be deemed sufficient if it contains the name of the company. In addition, such application shall set

forth the make and type of the taxicab, the vehicle identification number (VIN), and the number assigned thereto by the owner. If such vehicle is new equipment, the information herein required shall be filed with the department as soon as the same is available to the applicant.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-149. - Inspection.

Upon receipt of an application, the department shall inspect the vehicle. Upon completion of its inspection, the police chief shall forward such application to the city clerk with his approval or disapproval and any recommendation noted thereon.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-150. - Issuance.

Upon return of such application as approved, and subject to payment of license fees and the filing of a certificate of insurance as herein provided, the clerk shall issue a license for such taxicab. Such license shall terminate on December 31 next following its issuance. If the application is not approved by the police chief, the clerk shall notify the applicant, who may, within five days of such notification, file an application for a substituted vehicle, or may take steps to remedy any matters serving as the basis for disapproval of the police chief or may appeal to the city commission. No license shall be issued without approval of the police chief.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-151. - Form; display; alteration.

Such license shall be on a form prescribed by the department and shall contain the name and address of the licensee, the name and type of the vehicle licensed, and its serial, engine and state license plate numbers. Such license shall be affixed in some conspicuous place in the interior of such taxicab and shall not be removed for any purpose during the term of such license. No licensee or other person shall alter or deface any license issued hereunder.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-152. - Transfers.

No taxicab company or driver's license shall be transferable. However, if any taxicab is permanently removed from service, the taxicab licensee may apply to the department for a transfer of such license to a substitute vehicle, and a new license for such substituted vehicle may be issued by the city clerk upon filing

of department approval, and a proper certificate showing a transfer of applicable insurance for the vehicle previously licensed to such substituted vehicle.

(Ord. No. 1583, 3-21-94)

Secs. 122-153—122-160. - Reserved.

#### Subdivision IV. - Taxicab Driver's Licenses

Sec. 122-161. - Required.

No person shall drive and operate any taxicab for hire in the city unless such person has in his possession a valid chauffeur's license issued by the State of Michigan and a taxicab driver's license issued by the city clerk.

(Ord. No. 1583, 3-21-94)

Sec. 122-162. - Qualifications of drivers.

Each applicant for a taxicab driver's license must be of the age of 18 years or over, be able to speak, read and write the English language and shall otherwise comply with the requirements of this article.

(Ord. No. 1583, 3-21-94)

Sec. 122-163. - Application.

Application for a taxicab driver's license shall be made to the city clerk on forms prescribed by the department, and shall include the following:

- (1) The full name and address of the applicant, age, sex, weight, and height, color of eyes and hair, as well as any distinguishing marks or features;
- (2) The date of issuance and license number of his or her state chauffeur's license, or operator's license if no chauffeur's license has yet been issued;
- (3) The employment of applicant over a period of five years preceding the date of the application;
- (4) The names and addresses of at least two character references;
- (5) A statement [as to] whether or not the applicant has been convicted of any felony or misdemeanor, or any traffic law violations, and the date and place of any such offense or violation;
- (6) Such other information as the department may require in order to properly determine the qualifications of the applicant;
- (7)

Three recent photographs of the applicant, of a size to be determined by the department, shall be attached to the application, one of which shall be affixed to the license if issued;

- (8) A signed waiver, authorizing a background check; and
- (9) The application shall be signed and sworn to by the applicant before some officer authorized to administer oaths, and shall contain no false or misleading statement.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-164. - Approval.

No taxicab driver's license shall be issued by the city clerk until the applicant has been approved by the department.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-165. - Issuance.

Upon approval by the department, and payment of license fees, the city clerk shall issue a taxicab driver's license to the applicant. Such license shall terminate on December 31 next following its issuance; provided, however, that all licenses issued during the month of December shall be valid for the balance of the calendar year in which issued and for the next succeeding calendar year.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-166. - Renewal.

A taxicab driver's license may be renewed by the city clerk, subject to approval of the department, from year to year upon filing of a renewal application which shall contain, among other things, a sworn statement by the applicant that there has been no change during the past year in his physical condition such as to render him unfit to drive a motor vehicle, the filing of new photographs, the payment of license renewal fees and in the absence of any showing of a changed condition or any violation by the driver during the previous year of any state law or city ordinance.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-167. - Display; alteration.

Each licensed taxicab driver shall display his or her license in a conspicuous place in the taxicab operated by him at all times when in charge of such taxicab. No licensee or any other person shall alter or deface any license issued hereunder.

(Ord. No. 1583, 3-21-94)

Secs. 122-168—122-175. - Reserved.

### DIVISION 3. - OPERATION

Sec. 122-176. - Maintenance.

All licensed taxicabs shall be kept and maintained in good mechanical condition at all times.

(Ord. No. 1583, 3-21-94)

Sec. 122-177. - Cleanliness.

All licensees shall at all times keep and maintain their vehicles in a clean, sanitary and presentable condition, both as to the exterior and interior thereof.

(Ord. No. 1583, 3-21-94)

Sec. 122-178. - Inspection.

All licensees shall permit any police officer to inspect their vehicles at any time, except when actually engaged in the transportation of a passenger. It shall be the duty of all licensees to promptly comply with all lawful orders of the department relating to the mechanical or physical condition of their vehicles. Orders of the department shall be given either orally or in writing by the chief of police.

(Ord. No. 1583, 3-21-94)

Sec. 122-179. - Taximeter—Required.

All taxicabs and standby vehicles shall be equipped with a taximeter of a type approved by the department, such taximeter to be so attached to such taxicab as to register the fare and waiting times to be charged a passenger.

(Ord. No. 1583, 3-21-94)

Sec. 122-180. - Same—Visibility.

Such taximeter shall be so located as to make the recording area thereof plainly visible to passengers using such taxicab and shall have the face thereof illuminated or lighted during the hours of between sunset and sunrise.

(Ord. No. 1583, 3-21-94)



Sec. 122-181. - Same—Operation.

No licensee or any driver shall operate a taxicab when engaged in transportation of passengers without first engaging the taximeter. Such meter shall be disengaged immediately upon discharge of a passenger and such passenger shall be charged not more than the fare and waiting time thereon. If a passenger shall so request, he shall be given a receipt by the driver showing the charges made.

(Ord. No. 1583, 3-21-94)

Sec. 122-182. - Passengers.

No taxicab shall carry more passengers than its rated capacity.

(Ord. No. 1583, 3-21-94)

Sec. 122-183. - Additional passengers—Consent required.

The passenger first engaging a taxicab shall have the exclusive use thereof, within the limitations of this article, until the same is discharged. Such taxicab shall not take other or additional passengers without the express consent of the passenger first engaging such cab.

(Ord. No. 1583, 3-21-94)

Sec. 122-184. - Same—Charges.

If additional passengers are accepted with the consent of the passenger first engaging the taxicab, the fares therefor shall be computed as follows: The driver shall engage the meter upon the hiring of this taxicab by the original passenger and shall disengage the same and charge the fare shown thereon upon discharge of such taxicab by such original passenger. If the additional passenger leaves such taxicab at the same point, no further charge shall be made. If, however, such additional passenger remains in such taxicab, the driver shall reengage the meter and shall charge such additional passenger from that point to his or her point of destination. The foregoing procedure shall be repeated until the last passenger has discharged such taxicab.

(Ord. No. 1583, 3-21-94)

Sec. 122-185. - Records.

Every company and every owner of a licensed taxicab shall keep full and complete records of its or their taxicab operations showing all receipts, disbursements, and costs resulting from, or incurred in connection with, the operation of taxicabs.

(Ord. No. 1583, 3-21-94)

Sec. 122-186. - Driver's manifests.

Every driver shall maintain a daily manifest, upon forms to be provided by the owner, and to be approved by the chief of police, upon which shall be shown all trips made by such driver, the time and place, or origin and destination of each trip and the amount of fare and waiting times received therefor. All completed manifests shall be returned to the owner on completion of the driver's tour of duty. Every licensee shall retain and preserve all driver's manifests in a safe place for at least the calendar year next preceding the current year, and thereafter, which manifest shall be made readily available for examination by the chief of police at all reasonable times.

(Ord. No. 1583, 3-21-94)

Sec. 122-187. - Route of travel.

It shall be the duty of all licensees to transport passengers to their destination by the shortest practicable traveled route, having in mind weather conditions and the condition of the streets and highways, except where such route cannot be used due to a lawful order of some authorized police officer.

(Ord. No. 1583, 3-21-94)

Secs. 122-188—122-195. - Reserved.

DIVISION 4. - REGULATION OF DRIVERS

Sec. 122-196. - Lost articles.

All drivers shall, within two hours, turn over to the department all lost articles found by them in any taxicab, together with information available to them as to the name or identity of the possible owner of such article. Provisions of this section shall be inapplicable if such article is claimed by the lawful owner within such two-hour period.

(Ord. No. 1583, 3-21-94)

Sec. 122-197. - Use of liquor, narcotics.

No driver shall imbibe any intoxicating liquor, specifically including, but not restricted to, beer and wine, during the hours of his or her tour of duty, nor within six hours immediately prior thereto. No driver shall, at any time, take or use any narcotic drugs.

(Ord. No. 1583, 3-21-94)

Sec. 122-212. - Unclean taxicabs.

When any police officer shall find any taxicab to be in an untidy or unclean condition, or which is not maintained as required by this article, he shall notify the owner or driver to remedy any defects, and, upon failure of the owner to so remedy defects and to bring such taxicab into full compliance with requirements of this article within 24 hours, shall report such findings to the chief of police, who shall take steps for the enforcement of provisions of this article.

(Ord. No. 1583, 3-21-94)

Sec. 122-213. - Inspection required; approval.

All licensees shall report annually to the department and submit all taxicabs licensed to him for inspection. If such taxicabs are found to comply in all respects to requirements of this article, the officer making such inspection shall affix to some portion of such vehicle a sticker of a design approved by the chief of police, showing such approval. Such sticker shall be visible from the exterior of such taxicab, and shall not be removed or altered except by the department.

(Ord. No. 1583, 3-21-94)

Sec. 122-214. - Applicability to taxicabs outside limits.

Provisions of this article shall not be applicable to taxicabs from other municipalities when discharging passengers from outside points within the city, provided such taxicabs shall not pick up passengers within the city. Where taxicabs licensed hereunder shall go outside the corporate limits, rules and regulations hereof shall be binding on such licensees immediately upon entering the city and while operating therein.

(Ord. No. 1583, 3-21-94)

Sec. 122-215. - Continuance of licenses.

All licenses heretofore issued for taxicabs and drivers which are in good standing on the effective date of this Code shall continue in force as licenses issued hereunder without added fees.

(Ord. No. 1583, 3-21-94)

Sec. 122-216. - Revocation.

The police chief may revoke or suspend, for a period not to exceed five days, any taxicab license, company license or taxicab driver's license for incompetency, the making of any false or misleading statement in any application required under this article, or the violation of any laws of the state or any

Sec. 122-198. - Transporting liquor.

No driver shall knowingly carry or transport in his taxicab any liquor of any type. Provisions of this section shall not be applicable to bottles of liquor carried by a passenger of such taxicab.

(Ord. No. 1583, 3-21-94)

Sec. 122-199. - Conduct.

No driver shall engage in any lewd or immoral conduct or act, nor shall he use any indecent or loud or profane language. No driver shall molest or insult any passenger.

(Ord. No. 1583, 3-21-94)

Sec. 122-200. - Duty to receive passenger.

No driver shall neglect or refuse to accept any sober and orderly passenger, at any time, except when his taxicab has been engaged in accordance with the provisions of this article.

(Ord. No. 1583, 3-21-94)

Sec. 122-201. - Compliance with police requests.

All drivers shall comply with all lawful requests of a police officer or the department and shall permit the inspection of their taxicabs at all reasonable times.

(Ord. No. 1583, 3-21-94)

Secs. 122-202—122-210. - Reserved.

DIVISION 5. - ENFORCEMENT

Sec. 122-211. - Removal of unsafe cabs.

Where, on inspection by a police officer, it shall appear that any taxicab is mechanically unsafe, he is hereby authorized and directed to order the owner of such taxicab to forthwith discontinue operation, and to refrain from operating such taxicab until necessary repairs have been made, and such taxicab restored to a safe mechanical condition. If repairs required are such as cannot be completed within 24 hours, the owner of such taxicab shall secure permission of the substitution of another vehicle or the temporary cessation of service.

(Ord. No. 1583, 3-21-94)

provision of the city code. If any such licenses are suspended for five days and are not then reinstated by the police chief, the same shall be deemed to have been revoked. The provisions of section 26-42 regarding license suspension and revocation shall not apply to licenses issued under this article.

(Ord. No. 1583, 3-21-94)

#### Sec. 122-217. - Appeal.

Upon written request of any person considering himself aggrieved by any order of the police chief, a hearing to appeal such suspension or revocation shall be held before the city commission. Upon receipt of a written appeal, the commission shall set a hearing date within a reasonable period. Notice of such hearing shall be given in writing by first class mail to the appellant at least five days prior to the date of the hearing thereon. The notice shall state the grounds for the suspension or revocation of the licensee and shall state the time and place where such hearing shall be held.

(Ord. No. 1583, 3-21-94)



# MEMORANDUM

Finance Department

**DATE:** August 8, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Mark Gerber, Finance Director  
**SUBJECT:** Amendment to the 2016-2017 Capital Projects Budget

In October 2016, the City refinanced three of its bonds (2008 Park Bonds, 2006 Park Refunding Bonds, and the 2004 Sewer Refunding Bonds) with the 2016 Refunding Bond issue. This bond issue was approved by the City Commission at its meeting on July 25, 2016. Generally accepted accounting principles (GAAP) requires that the proceeds from the bond sale be recorded as revenue and the defeasement of the old bonds as expenditures for the portion of the bond sale related to the two park bonds. This transaction was not considered when the 4<sup>th</sup> quarter budget amendment was presented to the City Commission on June 12, 2017. As a result, the Capital Projects Fund will be over budget.

This issue was discussed with our auditors, Plante & Moran. They stated most communities with large unexpected budget variances will do an amendment after year end to address these types of situations. While the State does not require a budget for the Capital Projects Fund, it is prudent and good practice for the City Commission to address this budget overage with a budget amendment reaffirming the action it took on July 25, 2016.

The transactions related to the two park bond issues are as follows:

	<u>2008 Park Bonds</u>	<u>2006 Park Ref. Bonds</u>	<u>Total</u>
Bond Proceeds	\$ 2,791,885	\$ 8,553,720	\$ 11,345,605
Bond Disbursements:			
Bond Costs	\$ 27,727	\$ 81,613	\$ 109,340
Bond Defeasance	<u>2,764,158</u>	<u>8,472,107</u>	<u>11,236,265</u>
Total	<u>\$ 2,791,885</u>	<u>\$ 8,553,720</u>	<u>\$ 11,345,605</u>

**Suggested Action:** To approve the appropriation and budget amendment to the 2016-2017 Capital Project's Fund budget as follows:

Capital Project Fund

Revenues:

Other Revenue – Bond Proceeds	401-751.000-698.0001	\$11,345,605
-------------------------------	----------------------	--------------

Expenditures:

Capital Projects Fund – Bond Costs	401-751.000-824.0300	\$ 109,340
Capital Projects Fund – Debt Retirement	401-751.000-994.0000	<u>11,236,265</u>
Total Expenditures		<u>\$11,345,605</u>



**\$2,420,000**  
*City of Birmingham*  
*County of Oakland, State of Michigan*  
*2016 Refunding Bonds*

**Refunding Summary**

Dated 10/18/2016 | Delivered 10/18/2016

**Sources Of Funds**

Par Amount of Bonds.....	\$2,420,000.00
Reoffering Premium.....	371,885.15
<b>Total Sources.....</b>	<b>\$2,791,885.15</b>

**Uses Of Funds**

Total Underwriter's Discount (0.248%).....	6,001.60
Costs of Issuance.....	19,301.08
Deposit to Net Cash Escrow Fund.....	2,764,157.83
Rounding Amount.....	2,424.64
<b>Total Uses.....</b>	<b>\$2,791,885.15</b>

**Flow of Funds Detail**

State and Local Government Series (SLGS) rates for.....	9/28/2016
Date of OMP Candidates.....	
Net Cash Escrow Fund Solution Method.....	Net Funded
Total Cost of Investments.....	\$2,764,157.83
Interest Earnings @ 0.727%.....	38,342.17
Total Draws.....	\$2,802,500.00

**Issues Refunded And Call Dates**

Series 2008 Recreation Bonds.....	10/01/2018
-----------------------------------	------------

**PV Analysis Summary (Net to Net)**

Net PV Cashflow Savings @ 1.287%(Bond Yield).....	242,667.56
Contingency or Rounding Amount.....	2,424.64
Net Present Value Benefit.....	\$245,092.20
Net PV Benefit / \$2,600,000 Refunded Principal.....	9.427%
Net PV Benefit / \$2,420,000 Refunding Principal.....	10.128%

**Bond Statistics**

Average Life.....	7.901 Years
Average Coupon.....	3.8153414%
Net Interest Cost (NIC).....	1.9017968%
Bond Yield for Arbitrage Purposes.....	1.2873730%
True Interest Cost (TIC).....	1.7352887%
All Inclusive Cost (AIC).....	1.8353271%

2016 Ref Series 04 CG OS | Ref Series 2008 Recreation | 9/28/2016 | 11:39 AM

**\$7,940,000**  
*City of Birmingham*  
*County of Oakland, State of Michigan*  
*2016 Refunding Bonds*

**Refunding Summary**

Dated 10/18/2016 | Delivered 10/18/2016

**Sources Of Funds**

Par Amount of Bonds.....	\$7,940,000.00
Reoffering Premium.....	613,720.30
<b>Total Sources.....</b>	<b>\$8,553,720.30</b>

**Uses Of Funds**

Total Underwriter's Discount (0.248%).....	19,691.20
Costs of Issuance.....	63,326.68
Deposit to Current Refunding Fund.....	8,472,107.01
Rounding Amount.....	(1,404.59)
<b>Total Uses.....</b>	<b>\$8,553,720.30</b>

**Flow of Funds Detail**

State and Local Government Series (SLGS) rates for.....	9/28/2016
Date of OMP Candidates.....	
Current Refunding Escrow Solution Method.....	Net Funded
Total Cost of Investments.....	\$8,472,107.01
Interest Earnings @ 0.163%.....	1,151.27
Total Draws.....	\$8,473,258.28

**Issues Refunded And Call Dates**

Series 2006 Recreation - Refunding Bonds.....	11/18/2016
---	------------

**PV Analysis Summary (Net to Net)**

Net PV Cashflow Savings @ 1.287%(Bond Yield).....	798,394.89
Contingency or Rounding Amount.....	(1,404.59)
Net Present Value Benefit.....	\$796,990.30
Net PV Benefit / \$8,430,000 Refunded Principal.....	9.454%
Net PV Benefit / \$7,940,000 Refunding Principal.....	10.038%

**Bond Statistics**

Average Life.....	3.967 Years
Average Coupon.....	3.2000005%
Net Interest Cost (NIC).....	1.3138978%
Bond Yield for Arbitrage Purposes.....	1.2873730%
True Interest Cost (TIC).....	1.2468070%
All Inclusive Cost (AIC).....	1.4451500%

**07-242-16                    REFINANCING OF BONDS**

Finance Director Gerber explained the analysis by the City's municipal finance advisor detailing where the City could save approximately \$960,000 by refinancing the City's two park bonds. Additionally after the report was assembled, the City's finance advisor noted that the 2004 sewer bond refunding could possibly be lumped into this as well.

Pat McGow, the City's bond counsel with Miller Canfield, explained that these are the only remaining three bond issues that the City has outstanding. He explained that the resolution would essentially refinance that debt by taking advantage of lower interest rates. He explained that each issue is refinanced for the same period as the existing issue so there is no stretching of the debt service.

**MOTION:**     Motion by Sherman, seconded by DeWeese:

To authorized issuance of 2016 Unlimited Tax General Obligation Refunding Bonds:

WHEREAS, the City of Birmingham, County of Oakland, State of Michigan (the "City") has previously issued its 2004 Unlimited Tax General Obligation Refunding Bonds in the original principal amount of \$9,930,000 (the "2004 Bonds") to refinance a portion of the City's 2000 Unlimited Tax General Obligation Bonds which were originally issued to pay the cost of acquiring, constructing, furnishing and equipping sewer and drainage facility improvements, including new mains, replacement mains and other relief and rehabilitation improvements and related work together with all necessary rights of way, interests in land and all appurtenances and attachments; and

WHEREAS, the City has previously issued its 2006 Unlimited Tax General Obligation Recreation Refunding Bonds in the original principal amount of \$8,920,000 (the "2006 Bonds") to refinance a portion of the City's 2002 Unlimited Tax General Obligation Bonds which were originally issued to pay the cost of acquiring, constructing, furnishing, equipping and renovating parks and recreation improvements, including land acquisition, facilities acquisition and related site improvements in the City (the "Recreation Projects"); and

WHEREAS, the City has previously issued its 2008 Unlimited Tax General Obligation Bonds in the original principal amount of \$4,000,000 (the "2008 Bonds", together with the 2004 Bonds and the 2006 Bonds are referred to as the "Prior Bonds") to pay part of the cost of the Recreation Projects; and

WHEREAS, the City has been advised that it may achieve interest costs savings through the refunding of the Prior Bonds; and

WHEREAS, the Revised Municipal Finance Act, Act 34, Public Acts of Michigan, 2001, as amended ("Act 34"), permits the City to refund and advance refund all or part of the outstanding securities of the City; and

WHEREAS, it is the determination of the City Commission that the City should issue refunding bonds in the principal amount of not to exceed Fifteen Million Nine Hundred Thousand Dollars (\$15,900,000) to refund all or a portion of the Prior Bonds to achieve interest cost savings for the benefit of the taxpayers of the City.

**NOW, THEREFORE, BE IT RESOLVED THAT:**

1. Authorization of Refunding Bonds; Bond Terms, Bonds of the City designated 2016 UNLIMITED TAX GENERAL OBLIGATION REFUNDING BONDS (the "Bonds") are authorized to be issued in the aggregate principal sum of not to exceed Fifteen Million Nine Hundred Thousand Dollars (\$15,900,000) for the purpose of paying the

costs of refunding all or a portion of the Prior Bonds, including the costs incidental to the issuance, sale and delivery of the Bonds.

The issue shall consist of bonds in fully-registered form of the denomination of \$5,000, or multiples thereof not exceeding for each maturity the maximum principal amount of that maturity, numbered consecutively in order of registration. The Bonds will be dated as of the date of delivery or such other date as determined at the time of sale by the City Manager or Finance Director (each, an "Authorized Officer"), be payable on October 1st in the years 2017 to 2028, inclusive, in the annual amounts determined at the time of sale and may be subject to redemption in the manner and at the times and prices to be determined at the time of sale.

The Bonds shall bear interest at a rate or rates to be determined at the time of sale, payable on April 1, 2017 and semi-annually thereafter by check or draft mailed by the Transfer Agent (as hereinafter defined) to the registered owner of record as of the 15th day of the month prior to the payment date for each interest payment. The record date of determination of registered owner for purposes of payment of interest as provided in this paragraph may be changed by the City to conform to market practice in the future.

2. Execution of Bonds; Book-Entry-Only Form. The Bonds of this issue shall be executed in the name of the City with the facsimile signatures of the Mayor and Clerk of the City and shall have the seal of the City, or a facsimile thereof, printed or impressed on the Bonds. No Bond shall be valid until authenticated by an authorized officer or representative of the Transfer Agent. The principal of the Bonds shall be payable at the designated corporate trust office of The Bank of New York Mellon Trust Company, N.A., Detroit, Michigan, as registrar and transfer agent for the Bonds (the "Transfer Agent").

The Bonds may be issued in book-entry-only form through the Depository Trust Company in New York, New York ("DTC") and the Authorized Officers are authorized to execute such custodial or other agreement with DTC as may be necessary to accomplish the issuance of the Bonds in book-entry-only form and to make such changes in the Bond form within the parameters of this resolution as may be required to accomplish the foregoing.

Unless waived by any registered owner of Bonds to be redeemed, official notice of redemption shall be given by the Transfer Agent on behalf of the City. Such notice shall be dated and shall contain at a minimum the following information: original issue date; maturity dates; interest rates; CUSIP numbers, if any; certificate numbers (and in the case of partial redemption) the called amounts of each certificate; the redemption date; the redemption price or premium; the place where Bonds called for redemption are to be surrendered for payment; and that interest on Bonds or portions thereof called for redemption shall cease to accrue from and after the redemption date.

In addition, further notice shall be given by the Transfer Agent in such manner as may be required or suggested by regulations or market practice at the applicable time, but no defect in such further notice nor any failure to give all or any portion of such further notice shall in any manner defeat the effectiveness of a call for redemption if notice thereof is given as prescribed herein.

3. Transfer of Bonds. The Transfer Agent shall keep the books of registration for this issue on behalf of the City. Any Bond may be transferred upon such registration books by the registered owner of record, in person or by the registered owner's duly

authorized attorney, upon surrender of the Bond for cancellation, accompanied by delivery of a duly executed written instrument of transfer in a form approved by the Transfer Agent. Whenever any Bond or Bonds shall be surrendered for transfer, the City shall execute and the Transfer Agent shall authenticate and deliver a new Bond or Bonds, for like aggregate principal amount. The Transfer Agent shall require the payment by the bondholder requesting the transfer of any tax or other governmental charge required to be paid with respect to the transfer.

4. Debt Retirement Fund; Defeasance of Bonds. The City Treasurer is hereby authorized to open a separate depository account with a bank or trust company designated 2016 UNLIMITED TAX GENERAL OBLIGATION REFUNDING BONDS DEBT RETIREMENT FUND (the "Debt Retirement Fund"), the moneys to be deposited into the Debt Retirement Fund to be specifically earmarked and used solely for the purpose of paying principal of and interest on the Bonds as they mature. All proceeds from taxes levied for the Debt Retirement Fund shall be deposited into the Debt Retirement Fund as collected. Commencing with the year 2017, there shall be levied upon the tax rolls of the City for the purpose of the Debt Retirement Fund each year, in the manner required by the provisions of Act 34, Public Acts of Michigan, 2001, as amended ("Act 34"), an amount sufficient so that the estimated collection therefrom will be sufficient to promptly pay, when due, the principal of and interest on the Bonds becoming due prior to the next annual tax levy; provided, however, that if at the time of making any such annual tax levy there shall be surplus moneys on hand in the Debt Retirement Fund for the payment of principal of and interest on the Bonds, then credit therefor may be taken against such annual levy for the Debt Retirement Fund.

In the event cash or direct obligations of the United States or obligations the principal of and interest on which are guaranteed by the United States, or a combination thereof, the principal of and interest on which, without reinvestment, come due at times and in amounts sufficient to pay the principal of and interest on the Bonds when due, shall be deposited in trust, this Resolution shall be defeased and the owners of the Bonds shall have no further rights under this Resolution except to receive payment of the principal of and interest on the Bonds from the cash or securities deposited in trust and the interest and gains thereon and to transfer and exchange Bonds as provided herein.

5. Use of Proceeds. The proceeds of the Bonds shall be used to pay the costs of issuance of the Bonds and to secure payment of the Prior Bonds as provided in this paragraph. Upon receipt of the proceeds of sale of the Bonds, the accrued interest, if any, shall be deposited in the Debt Retirement Fund for the Bonds. From the proceeds of the Bonds there shall next be set aside a sum sufficient to pay the costs of issuance of the Bonds in a fund designated 2016 UNLIMITED TAX GENERAL OBLIGATION REFUNDING BOND ISSUANCE FUND (the "Issuance Fund"). Moneys in the Issuance Fund shall be used solely to pay expenses of issuance of the Bonds. Any amounts remaining in the Issuance Fund after payment of issuance expenses shall be transferred to the Debt Retirement Fund for the Bonds.

The balance of the proceeds of the Bonds together with any moneys transferred by the City at the time of sale of the Bonds from the debt retirement funds for the Prior Bonds and any other available funds of the City, shall be held as cash or invested in direct obligations of or obligations the principal of and interest on which are unconditionally guaranteed by the United States of America or other obligations the principal of and interest on which are fully secured by the foregoing (the "Escrow Fund") and used to pay principal of and interest on the Prior Bonds to be refunded (the "Refunded Bonds"). The Escrow Fund shall be held by a bank or trust company

to be selected as escrow agent (the "Escrow Agent") pursuant to an escrow agreement (the "Escrow Agreement") which shall irrevocably direct the Escrow Agent to take all necessary steps to call for redemption the Refunded Bonds, including publication and mailing of redemption notices, on any call date, as specified by the City. The investments held in the Escrow Fund shall be such that the principal and interest payments received thereon will be sufficient, without reinvestment, to pay the principal of and interest on the Refunded Bonds as they become due pursuant to maturity or the call for redemption required by this paragraph. Following establishment of the Escrow Fund, any amounts remaining in the debt retirement funds for the Prior Bonds shall be transferred to the Debt Retirement Fund for the Bonds. Each of the Authorized Officers is hereby authorized to select and appoint a bank or trust company qualified to serve as Escrow Agent and to negotiate the terms of and execute and deliver an Escrow Agreement on behalf of the City. Each Authorized Officer is authorized and directed to purchase or cause to be purchased, Escrow Securities, including United States Treasury Obligations – State and Local Government Series (SLGS), in an amount sufficient to fund the Escrow Fund.

6. Bond Form. The Bonds shall be in substantially the following form with such changes as may be required to conform to the final terms of the Bonds established by the Sale Order:

UNITED STATES OF AMERICA  
STATE OF MICHIGAN  
COUNTY OF OAKLAND  
CITY OF BIRMINGHAM

2016 UNLIMITED TAX GENERAL OBLIGATION  
REFUNDING BOND

Date of			
Interest Rate		Maturity Date	Original Issue
		CUSIP	
Registered Owner:		October 1, 20__	_____ 1, 2016
Principal Amount:	Dollars		

The City of Birmingham, County of Oakland, State of Michigan (the "City"), acknowledges itself to owe and for value received hereby promises to pay to the Registered Owner specified above, or registered assigns, the Principal Amount specified above, in lawful money of the United States of America, unless redeemed prior to maturity, on the Maturity Date specified above with interest thereon until paid from the Date of Original Issue specified above or such later date to which interest has been paid, at the Interest Rate per annum specified above (computed on the basis of a 360 day year consisting of twelve 30-day months), first payable on April 1, 2017 and semiannually thereafter. Principal of this bond is payable at the designated corporate trust office of the Bank of New York Mellon Trust Company, Detroit, Michigan, or such other transfer agent as the City may hereafter designate by notice mailed to the registered owner not less than sixty (60) days prior to any interest payment date (the "Transfer Agent"). Interest on this bond is payable to the registered owner of record as of the 15th day of the month preceding the interest payment date as shown on the registration books of the City kept by the Transfer Agent by check or draft mailed by the Transfer Agent to the registered owner of record at the registered address. For prompt payment of this bond, both principal and interest, the full faith, credit and resources of the City are hereby irrevocably pledged.



This bond is one of a series of bonds aggregating the principal sum of \$\_\_\_\_\_, issued for the purpose of refunding all or part of the City's outstanding 2004 Unlimited Tax General Obligation Refunding Bonds, 2006 Unlimited Tax General Obligation Recreation Refunding Bonds and 2008 Unlimited Tax General Obligation Recreation Bonds.  
[Insert redemption provisions]

This bond is transferable only upon the registration books of the City kept by the Transfer Agent by the registered owner of record in person, or by the registered owner's attorney duly authorized in writing, upon the surrender of this bond together with a written instrument of transfer satisfactory to the Transfer Agent duly executed by the registered owner or the registered owner's attorney duly authorized in writing, and thereupon a new registered bond or bonds in the same aggregate principal amount and of the same maturity shall be issued to the transferee in exchange therefor as provided in the resolution authorizing this bond and upon the payment of the charges, if any, therein prescribed.

This bond is payable out of the City's Debt Retirement Fund for this issue and in order to make such payment, the City is required each year to levy taxes on all taxable property within the boundaries of the City for such payment without limitation as to rate or amount. It is hereby certified and recited that all acts, conditions and things required by law to be done, precedent to and in the issuance of this bond and the series of bonds of which this is one, exist and have been done and performed in regular and due form and time as required by law, and that the total indebtedness of the City, including this bond and the series of bonds of which this is one, does not exceed any constitutional, statutory or charter debt limitation.

This bond is not valid or obligatory for any purpose until the Transfer Agent's Certificate of Authentication on this bond has been executed by the Transfer Agent.

IN WITNESS WHEREOF, the City, by its City Commission, has caused this bond to be signed in the name of the City by the facsimile signatures of its Mayor and City Clerk and a facsimile of its corporate seal to be printed hereon, all as of the Date of Original Issue.

CITY OF BIRMINGHAM  
County of Oakland  
State of Michigan

By:           Its:    Mayor (SEAL)  
By:           Its:    City Clerk  
(Form of Transfer Agent's Certificate of Authentication)

CERTIFICATE OF AUTHENTICATION

This bond is one of the bonds described in the within-mentioned resolution.

Bank of New York Mellon Trust Company, Detroit, Michigan  
Transfer Agent

By:  
Authorized:

DATE OF REGISTRATION:

7. Negotiated Sale. The City Council has considered the option of selling the Bonds through a competitive sale and a negotiated sale, and pursuant to the requirements of Act 34, determines that a negotiated sale of the Bonds will allow more flexibility in accessing the municipal bond market, and to price and sell the Bonds at the time that is expected to best achieve the most advantageous interest rates and costs to

the City, and will provide the City with greater flexibility in structuring bond maturities and adjusting terms for the Bonds.

8. Bond Purchase Agreement; Delegation to Authorized Officer; Sale Order. The Authorized Officers are each hereby authorized to select an underwriter for the Bonds (the "Underwriter"), negotiate the sale of the Bonds with the Underwriter, negotiate and execute a Bond Purchase Agreement, execute a Sale Order specifying the final terms of the Bonds and take all other necessary actions required to effectuate the sale, issuance and delivery of the Bonds within the parameters authorized in this resolution.
9. Adjustment of Bond Terms. The Authorized Officers are each hereby authorized to adjust the final bond details as set forth herein to the extent necessary or convenient to complete the sale of the Bonds and in pursuance of the forgoing are each authorized to exercise the authority and make the determinations pursuant to Sections 315(1)(d) of Act 34, including but not limited to determinations regarding interest rates, prices, discounts, maturities, principal amounts, denominations, date of issuance, interest payment dates, redemption rights and other matters within the parameters established by this resolution; provided that the principal amount of Bonds issued shall not exceed the principal amount authorized in this resolution, the interest rate per annum on the Bonds shall not exceed six percent (6.00%) per annum, the Bonds shall be sold at a price not less than 98.00% of their par value, the underwriter's discount shall not exceed 0.5% of the par amount of the Bonds and the refunding of the Prior Bonds shall result in net present value savings to the City.
10. Tax Covenant. The City shall, to the extent permitted by law, take all actions within its control necessary to maintain the exemption of the interest on the Bonds from general federal income taxation (as opposed to any alternative minimum or other indirect taxation) under the Internal Revenue Code of 1986, as amended (the "Code"), including, but not limited to, actions relating to any required rebate of arbitrage earnings and the expenditure and investment of Bond proceeds and moneys deemed to be Bond proceeds.
11. Continuing Disclosure Undertaking. The City agrees to enter into an undertaking for the benefit of the holders and beneficial owners of the Bonds pursuant to Rule 15c2-12 of the U.S. Securities and Exchange Commission and the Authorized Officers are each hereby authorized to execute such undertaking prior to delivery of the Bonds.
12. Authorization of other Actions. The Authorized Officers are each hereby authorized and directed to (a) approve the circulation of a preliminary official statement describing the Bonds and to deem the preliminary official statement "final" for purposes of Rule 15c2-12 of the SEC; (b) approve the circulation of a final official statement describing the Bonds and to execute the same on behalf of the City; (c) obtain ratings for the Bonds; and (d) do all other acts and take all other necessary procedures required to effectuate the sale, issuance and delivery of the Bonds.
13. Bond Counsel. Miller, Canfield, Paddock and Stone, P.L.C. is hereby approved as bond counsel for the Bonds, notwithstanding periodic representation in unrelated matters of parties or potential parties to the transaction contemplated by this resolution, including the Underwriter.
14. Financial Advisor. The City hereby appoints Bendzinski & Co. as financial advisor with respect to the Bonds.





# MEMORANDUM

Engineering Dept.

**DATE:** August 3, 2017  
**TO:** Joseph Valentine, City Manager  
**FROM:** Paul T. O'Meara, City Engineer  
**SUBJECT:** Woodward Ave. Resurfacing  
Quarton Rd. to 14 Mile Rd.  
Noise Ordinance Waiver Request

In June, the Engineering Dept. prepared the attached memo and related materials, advising the Commission of resurfacing plans being prepared for the Birmingham segment of Woodward Ave. As was referenced at that time, the MI Dept. of Transportation (MDOT) had prepared preliminary plans to complete a resurfacing project for Woodward Ave. to be completed in the spring and summer of 2018. The timing was based on two factors:

1. MDOT's plans to reduce traffic capacity on I-75 in Troy from Coolidge Hwy. to Crooks Rd. in 2019.
2. Birmingham's plans to close Old Woodward Ave. to all traffic in the spring of 2017 for its reconstruction project.

Completing the project in 2018 would allow MDOT to complete its work without conflicting with Birmingham's project. MDOT also sees Woodward Ave. having higher than normal traffic flows when I-75 is under construction, and feels it is important that this section of Woodward Ave. be in better condition before those demands are put on it.

Once Birmingham postponed its Old Woodward Ave. project to 2018, MDOT had to revise its strategy as best as it could. A two contract approach is now being pursued, designed in such a way that the work that is most disruptive to peak traffic demand periods will be done in the fall of 2017 prior to the start of the work on Old Woodward so any conflict is minimized. The remaining work that must be done in 2018 concurrent to Birmingham's project will be structured to minimize lane closures on Woodward Ave. open and available during peak traffic periods, however a portion of the work will coincide with the Old Woodward project. Staff requested that they reconsider this approach, and avoid conducting any work on Woodward Ave. during the time Old Woodward Ave. is closed. While they considered this request, they did not feel that it could be supported, for the following reasons:

1. The volume of work required on Woodward Ave. is such that it cannot be successfully completed if they were required to wait until at least July (for the completion of the Old Woodward Ave. project). Such a large project cannot be started in July due to the annual Woodward Ave. Dream Cruise event, which means the project would have to wait until after Labor Day. If the job waited until then there would not be enough days of good weather to assure completion of the project.

2. Funding for these contracts is available in the current MDOT fiscal year. If the work was postponed until after the 2019 I-75 project, obtaining funding would be uncertain.
3. Improving Woodward Ave. prior to the I-75 project is an important regional goal for MDOT.
4. The 2018 project can be structured in such a way that peak traffic flows will generally be maintained, as described below.

With the above as background, the following projects are now planned by MDOT for Woodward Ave.

#### Fall, 2017 MDOT Contract

Due to the short time frame that MDOT had to prepare and advertise this contract, the main focus will be to perform full depth pavement removal and replacement in spots where the existing pavement conditions warrant a full depth concrete patch. Concrete patching is difficult work with respect to maintaining traffic, therefore, the following structure is planned:

- The work will begin after Labor Day, and extend to approximately the end of October.
- MDOT estimates that a total of six weekends of work will be required.
- The Contractor will begin removals on Friday evenings at 9 PM, with the goal of repairing two lanes at a time. All concrete patching will be complete about the middle of the following Saturday.
- While work is underway (on Friday evenings /Saturday mornings) three lanes will be closed in one direction. (Two lanes would be repaired, and the third lane is a safety buffer while workers are in the roadway.) Once the concrete is placed, two lanes will remain closed for the remainder of the weekend until 6 AM Monday morning.
- All four lanes in each direction will be opened back to full usage during the work week, with the cycle repeating again the following Friday evening.

#### Spring/Summer, 2018 MDOT Contract

The 2018 work will contain more categories of work, and more significant improvements. Please see Appendix A for a summary of what is planned.

With respect to traffic management, the majority of concrete work will have been completed in the previous contract, with the exception of handicap ramp and adjacent curb replacements. With that in mind, the following lane closures are planned for this project:

- Asphalt milling, joint repairs, and resurfacing will be completed two lanes at a time, starting at 9 PM any night of the week, and completed by 6 AM the following morning (work hours will be extended to 9 AM on Saturday mornings, and 10 AM on Sunday mornings). For the safety of the workers, although two lanes will be getting repaved, three lanes in one direction will be closed, leaving just one lane open for traffic through the night.
- No more than one lane (either the far left or far right lane) will be allowed to stay closed into the daytime. Lane closures must be allowed due to concrete curb replacements at handicap ramps crossing Woodward Ave., as the concrete will take about 3 days to cure.

The contract stipulates that a maximum of one out of the eight lanes can be closed during daytime hours.

- The heavy duty asphalt milling and resurfacing operation, which would be the main body of night time work to complete, would be compressed into a two to three week period within the longer contract time frame, which is expected to last between April and August, 2018.

Section 50-74 of the Birmingham City Code prohibits construction work outside of the normal working hours of 7 AM to 7 PM, six days a week. Due to the high impact such lane closures will have not only on Birmingham, but the entire region, MDOT has written these contracts with the assumption that the City Commission will approve the attached request to waive the local noise ordinance, allowing this work to be completed when traffic demands are lightest, and allowing the road to remain open and available to the public to the highest extent possible during the day, particularly weekdays.

Woodward Ave. was last resurfaced in 2007. The work was similar in nature, wherein the asphalt surface was removed and replaced relatively quickly. The noise ordinance was waived for that project as well, allowing the majority of the work to occur during the night, under triple lane closures. Feedback from residents was generally minor in nature, as the majority of the public understood that the disruption was to be of a short term nature, and was in the best interest of the region at large. Staff concurs that this plan is again in the best interest of the City of Birmingham, and recommends that the noise ordinance be waived to allow this work to proceed as planned.

To help communicate to the public what is planned, MDOT is currently preparing an informational brochure for distribution to the public. An Open House is scheduled at the Baldwin Library on Tuesday, August 29, from 4:30 to 6:30 PM. MDOT staff will be present to display plans, answer questions, and give a short presentation to be repeated as necessary depending on attendance. A second, similar Open House event is tentatively planned for next January to again inform the public, focusing more on the 2018 project.

A suggested resolution follows:

**SUGGESTED RESOLUTION:**

To grant a waiver of Section 50-74(b) of the Birmingham City Code to the Michigan Dept. of Transportation pertaining to the repair and resurfacing of Woodward Ave. (M-1) from September, 2017 to August, 2018 so that MDOT may allow its contractors to operate under lane closures at those times of day that traffic demands are relatively light.



## APPENDIX A

### MICHIGAN DEPT. OF TRANSPORTATION WOODWARD AVE. RESURFACING PROJECT QUARTON RD. TO 14 MILE RD.

#### SUMMARY OF IMPROVEMENTS

The Michigan Dept. of Transportation (MDOT) plans to resurface the above section of Woodward Ave. in 2018. After reviewing plans with City staff, the following work is now planned:

1. All eight vehicle lanes will be repaired, milled, and resurfaced to provide a new asphalt driving surface. Approaches to adjacent City streets that are in poor condition will be milled and resurfaced as well.
2. All handicap ramps within the project area that are not in compliance with current Americans with Disabilities Act (ADA) requirements will be removed and replaced. The Maple Rd. and 14 Mile Rd. intersections will be skipped in 2018, as funding for these intersections is coming from a different source. (The traffic signals are scheduled for complete replacement, as well as sidewalk upgrades, in 2019.) MDOT will install all pavement markings using the 24" wide continental pavement markings spaced at 24" apart. The walking surface in higher traffic areas will be widened to include an 8 foot wide ramp and 10 foot wide pavement markings, at the following intersections:

Oak St.  
Oakland Ave.  
Maple Rd. (Concrete work postponed to 2019)  
Brown St./Forest Ave.  
Bowers St.  
Lincoln Ave.

The remaining crossings will be installed with the standard 6 ft. wide ramps and pavement markings.

3. Using funding from a Transportation Alternatives Program (TAP) grant awarded to the City, a new traffic signal with pedestrian signals will be installed at the Oak St. intersection, providing a designated pedestrian crossing area on the south side of this intersection. A new median landscaped feature will be included. An agreement with MDOT will be coming to the Commission at a later date.
4. As requested, the existing northbound crosswalk at Oakland Ave. will be relocated to the south side of the intersection, reducing potential vehicle/pedestrian conflicts at this intersection.

Overall, the project will represent a big improvement for pedestrian accessibility through the Woodward Ave. corridor.



STATE OF MICHIGAN  
**DEPARTMENT OF TRANSPORTATION**  
OAKLAND TRANSPORTATION SERVICE CENTER

RICK SNYDER  
GOVERNOR

KIRK T. STEUDLE  
DIRECTOR

August 3, 2017

Paul T. O'Meara, P.E.  
151 Martin Street P.O. Box 3001  
Birmingham, MI 48012

**RE: Request for a Variance of the City's Noise Ordinance  
For Resurfacing and Sidewalk upgrades on M-1 from 14 Mile to Quarton Rd.  
CS 63051, JN 200434A, M71745, M71746**

Dear Mr. O'Meara,

With this letter, the Michigan Department of Transportation (MDOT) is requesting a variance to City Of Birmingham Noise Ordinance to allow for construction activities on M-1 (Woodward Ave) from 14 Mile to Quarton Road to occur during night and weekend hours.

The construction projects will be performed in 2017 and 2018. The 2017 project (**M71745 & M71746**) from September 6, 2017 to October 31, 2017 will include full depth concrete pavement repairs, Detail 7 joint repairs, miscellaneous curb and gutter replacement, and drainage Structure Repair. The 2018 project (**200434A**) from April 15, 2018 to August 10, 2018 will include 1.5 inches of cold milling and resurfacing the existing hot mix asphalt (HMA) surface, detail 7 joint and crack repair, miscellaneous project layout, drainage structure adjustment, traffic signal modernization, ADA sidewalk ramp and curb upgrades, and application of permanent pavement markings. Both projects will require nightly double and triple lane closures starting at 9:00pm. Double lane closures will be allowed Sunday through Thursday nights from 9:00 pm to 6:00 am, and Friday and Saturday from 9:00 pm to 9:00 am. Triple lane closures will be allowed Friday and Saturday nights from 9:00 pm to 9:00 am. Single Lane closures of the outside lanes will be allowed at any time except for holiday shutdowns in only one direction at a time. The 2017 project will also allow continuous triple lane closures on M-1 (Woodward Avenue) only on weekends from Friday 9:00 PM to Monday 6:00 AM to facilitate curing for the concrete patching

Provisions have been included in the project to restrict the contractor from working during the Memorial Day, Fourth of July, Labor Day, Thanksgiving, Christmas and New Year's holiday periods. The project will also be coordinated with the Woodward Dream Cruise.

Whenever possible, MDOT tries to construct projects mainly at night and on weekends to reduce motorist delay, reduce inconvenience to adjacent businesses, and shorten the duration of construction. Due to the heavy traffic volumes along M-1, nights and weekends provide the best opportunity to complete the work minimizing the impact to motorists.

MDOT appreciates your consideration in this matter and looks forward to your reply. If you have any questions or need additional information, please contact me at (248) 451-2424 or at [Seifg@michigan.gov](mailto:Seifg@michigan.gov)

Sincerely,

George Seif  
Traffic Operations Engineer  
MDOT-Oakland TSC



# MEMORANDUM

Engineering Dept.

**DATE:** June 19, 2017

**TO:** Joseph Valentine, City Manager

**FROM:** Paul T. O'Meara, City Engineer

**SUBJECT:** MDOT Construction Update for Woodward Ave.  
Quarton Rd. to 14 Mile Rd.

---

---

Earlier this year, the Engineering Dept. was notified that the MI Dept. of Transportation (MDOT) had rearranged the timing of its multi-year I-75 projects. Reconstruction work is now planned for late 2018 in the segment of Coolidge Hwy. to Wattles Rd. in Troy. MDOT has determined it is best for regional traffic needs if Woodward Ave. capacity is not compromised while this work on I-75 is underway. However, they consider the condition of the pavement on the Birmingham section to be a priority, given its current condition. They had made plans for their work to be postponed until after the City's Old Woodward Ave. project was finished. However, now that the City's project has been delayed, they have rearranged their work so that Woodward Ave. can still be rehabilitated no later than the first half of 2018, even with Old Woodward Ave. also being closed in early 2018.

While it appears that MDOT is attempting to organize the work such that Woodward Ave. is completely open to traffic during hours of peak demand when our 2018 Old Woodward Ave. project is underway, there may be days when a single lane closure during peak demand hours may be needed. With that in mind, we have asked MDOT to consider rescheduling the 2018 work to another time, as per the attached letter.

Aside from the timing, we see the resurfacing project as an excellent opportunity to upgrade crosswalks on Woodward Ave. throughout the entire corridor, which is also referenced in the attached letter. We have also confirmed that the City has been awarded a Transportation Alternatives Program (TAP) grant to replace the signal and install a pedestrian crosswalk at the Oak St. intersection. MDOT has offered to include this improvement in their resurfacing project. We expect to see an agreement between the City and MDOT in the future making the City responsible for the local cost of this work, so that this crosswalk can be implemented relatively soon.

As of this writing, we have not seen a response from MDOT regarding the letter.



June 7, 2017

Mr. Steve Minton, PE  
MI Dept. of Transportation  
Oakland TSC  
800 Vanguard Dr.  
Pontiac, MI 48341

**RE: Woodward Ave. Resurfacing  
Quarton Rd. to 14 Mile Rd.  
MDOT Jobs #200538 & #200434**

Dear Mr. Minton,

Thank you for sending us updated information relative to the two rehabilitation projects planned for Woodward Ave. We appreciate your interest in working with us both from traffic management and coordination for our planned downtown Old Woodward Ave. project, as well as taking this opportunity to improve pedestrian accessibility along the corridor. The following summarizes our concerns at this time:

**MDOT Job #200538 (Fall, 2017)**

Implementation

It is our understanding that this project will focus on catch basin and concrete repairs. Since no work is planned on Old Woodward Ave. in 2017, MDOT will take this opportunity to conduct these repairs that will require lane closures. No more than one lane will be closed at a time during peak hours. Double or triple lane closures may be required during evenings and weekends. Approval for work at night will be required from the City of Birmingham City Commission.

**MDOT Job #200434 (Spring - Summer, 2018)**

Implementation

It is our understanding that this project will include complete resurfacing, ADA ramp upgrades, and a new traffic signal at Woodward Ave. & Oak St. Since the City's Old Woodward Ave. reconstruction is planned for construction at the same time, it is the City's request to change the timing of this work by MDOT until the Fall of 2018 or postpone this work until 2019. If this request cannot be accommodated, it is our further request that MDOT maintains all Woodward

Ave. travel lanes during weekday, daytime hours. Further, it is requested that any lane closures be set up during off peak and nighttime hours to allow for this project to be accomplished. It is anticipated that if the MDOT project commences, the City will endorse a request for working night time hours in order to allow a coordinated approach for these jobs to be completed concurrently as similar approvals have been provided in the past.

### Design

Birmingham is working to create a pedestrian-friendly environment throughout the City, but particularly in its business districts. The Birmingham City Commission has recently adopted new standards for design of crosswalks on City streets. It is requested that the following design elements that have been adopted by the City be included in your plans relative to ADA ramp and crosswalk design:

1. All crosswalks shall be marked using the 24 inch wide bars running parallel to the vehicular traffic, spaced at 24 inches apart, using long-lasting materials such as thermoplastic pavement markings.
2. In accordance with Birmingham standards, we request that all truncated domes installed in Birmingham be of the plain cast iron variety, as manufactured by EJ.
3. The Central Business District and the Triangle District both are adjacent to segments of the subject section of Woodward Ave. While some crossings have significant pedestrian demand currently, growth is anticipated at other locations as well. With that in mind, the following widths are requested for the walking surface, including both the handicap ramp, truncated domes, and pavement markings, from north to south:
  - Quarton Rd. (south side) – 6 feet wide
  - Oak St. (south side only) – 12 feet wide
  - Oakland Ave. (relocated as noted in #4 below) – 12 feet wide
  - Maple Rd. – 12 feet wide
  - Brown St./Forest Ave. (see note in #6 below) – 12 feet wide
  - Bowers St. – 12 feet wide
  - Lincoln Ave. – 12 feet wide
  - Chapin Ave. – 6 feet wide
  - 14 Mile Rd. – 6 feet wide

In addition to the adoption of these design standards, the City has been in discussions regarding other enhancements to areas along Woodward Avenue that I would like to bring to your attention and request your cooperation on.

1. Birmingham's Multi-Modal Transportation Master Plan has suggested a relocation of the northbound crosswalk at the Oakland Ave. intersection, per the attached aerial photo plan. The move would increase safety both for bicyclists and pedestrians, by reducing conflicts with right turning traffic from westbound Oakland Ave. Since we are in the

process of implementing this intersection as part of a bicycle connector route, we request that this change be implemented with this project.

2. We appreciate your offer to implement TAP grant monies in this project to allow the replacement of the traffic signal at Oak St. to proceed, and to facilitate the installation of a new sidewalk similar to the plan presented on the attached aerial photo. We understand that there will be local match responsibility for this work to be completed, and we look forward to working with you to better determine the nature of these costs.
3. It is important to bring to your attention an ongoing safety issue that exists for both vehicles and pedestrians in the area of the Brown St./Forest Ave. intersections. About 8 years ago, talks were held with the Traffic Dept. of the Oakland TSC regarding the safety issues inherent in the southbound crossover south of Maple Rd. and the unsignalized pedestrian crosswalk on the northbound lanes at the same location. The lack of storage at this crossover results in frequent peak hour traffic backups into the left southbound lane, and the existing crosswalk does not provide a safe crossing option for pedestrians who cross the southbound lanes while traffic is stopped at a signal, and then dodge northbound traffic that does not stop at a signal or warning beacon. It was our understanding that MDOT agreed that a new signal for northbound traffic is warranted at this location to better process this large turning demand and to enhance the safety of the pedestrian crossing of the northbound lanes, but we have seen no action on this issue in many years. We understand that there are difficulties with where to locate this signal, given the large number of local streets and driveways in the immediate area. We request an update on where this issue stands, and the willingness of MDOT to improve the crosswalk in the area of Forest Ave. that currently exists, if no signal is going to be installed in the near future.

Thank you for inviting me to your planning meetings to date on these projects. Based on the additional information above, feel free to contact me by phone or email to provide any feedback to the above, or if I can answer any questions. We look forward to working with your office to improve the Woodward Ave. corridor to the best extent possible.

Sincerely,



Paul T. O'Meara, P.E.  
City Engineer

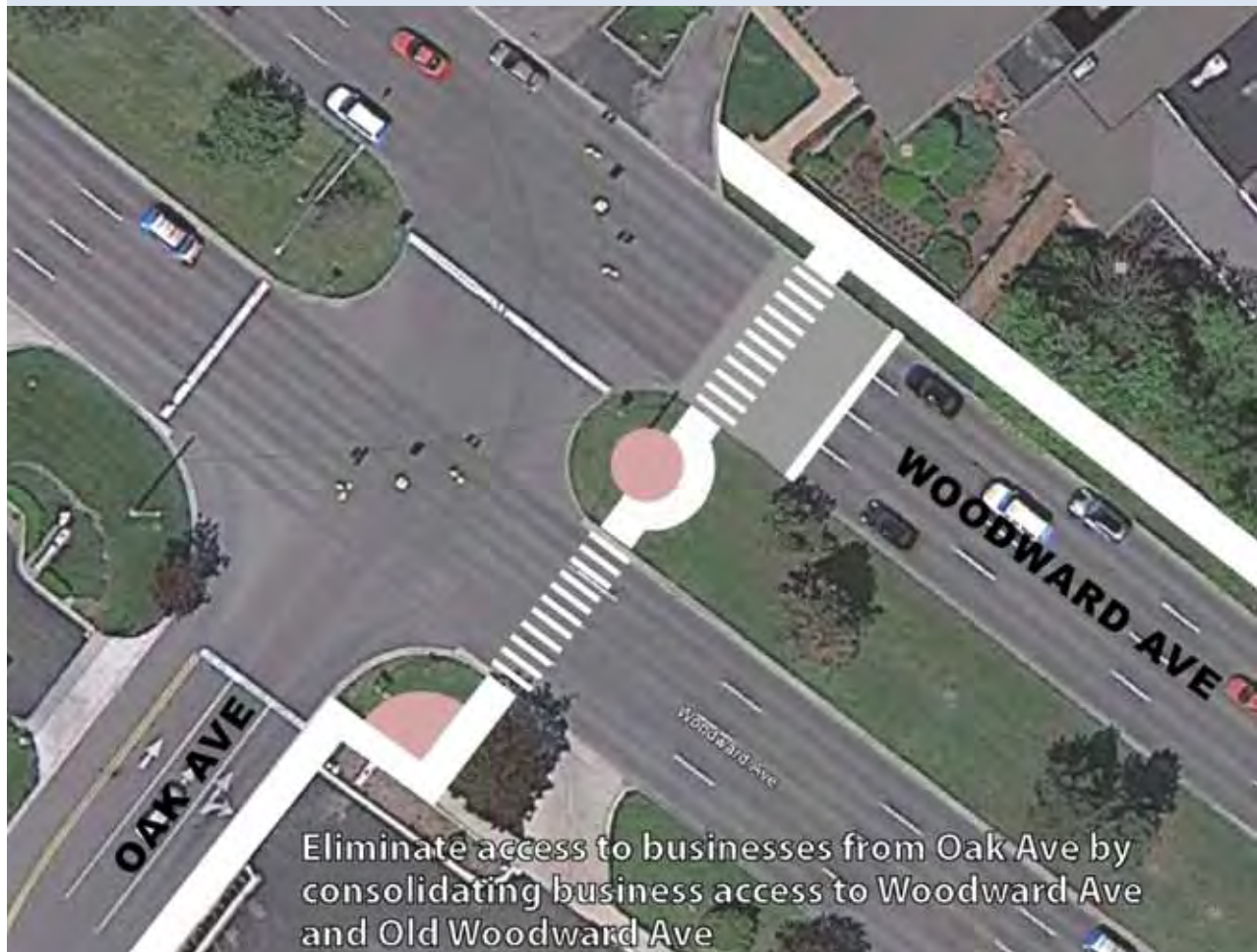
[pomeara@bhamgov.org](mailto:pomeara@bhamgov.org)  
248-530-1836



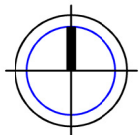
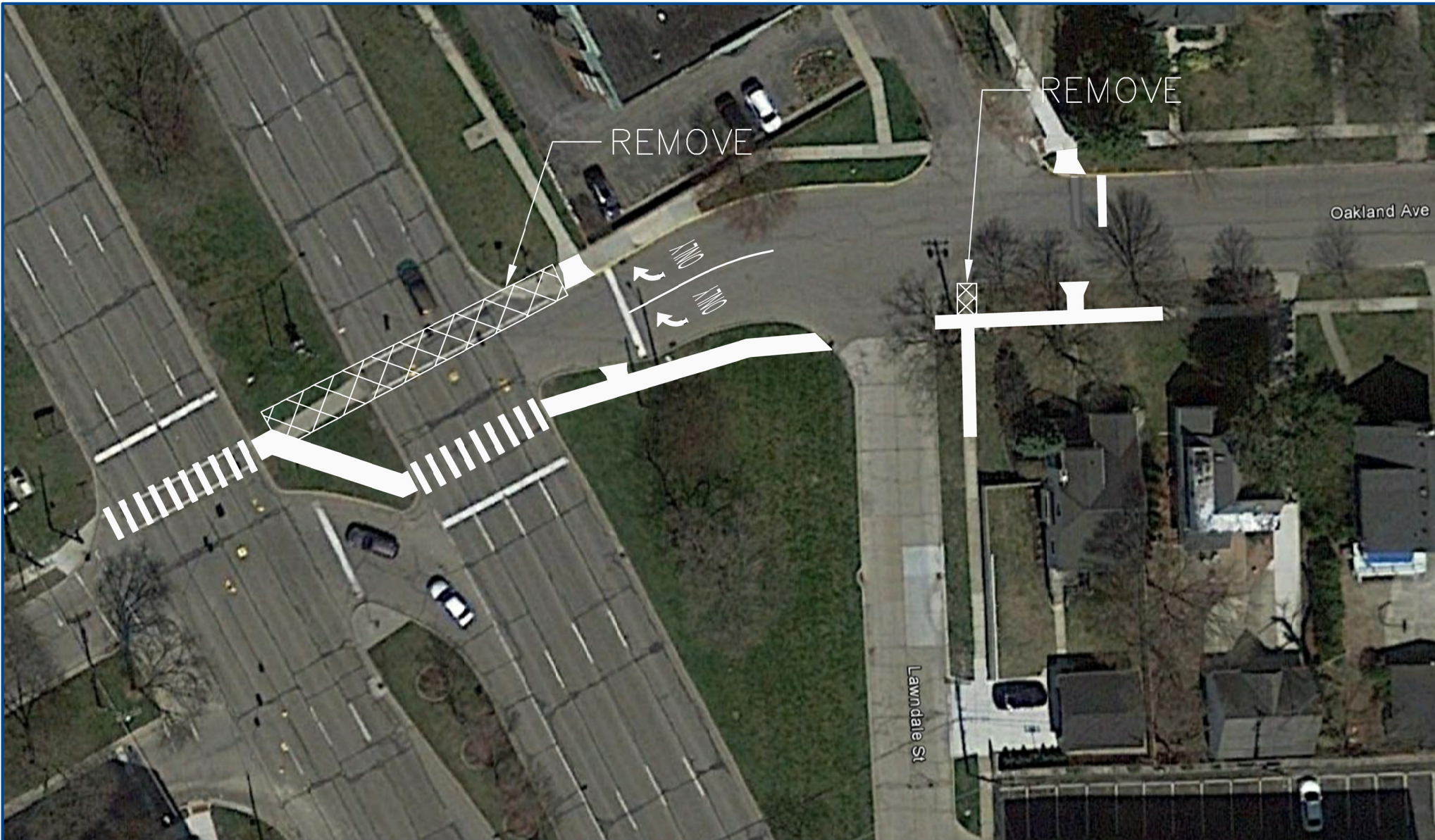
**A new pedestrian signal is proposed at Oak Avenue to help pedestrians and bicyclists cross Woodward Avenue.**

Currently, there is a signal at Oak Avenue on Woodward Avenue but no pedestrian crossing. It is important to provide a crossing here, as it is part of the east-west neighborhood connector route along Oak Avenue and Derby Road that provides an alternative to Maple Road. Also, there are limited road crossing opportunities on Woodward Avenue between Maple Road and Quarton Road.

**CONCEPTUAL ROUTING:**







NORTH

## PEDESTRIAN FACILITIES IMPROVEMENTS

### LAWNDALE AVE PAVING - OAKLAND BLVD TO WOODWARD AVE

BIRMINGHAM, MI





# MEMORANDUM

Office of the City Manager

**DATE:** August 11, 2017  
**TO:** City Commission  
**FROM:** Joseph A. Valentine, City Manager  
**SUBJECT:** Request for Closed Session  
Attorney-Client Privilege

---

It is requested that the city commission meet in closed session pursuant to Section 8(h) of the Open Meetings Act to discuss an attorney/client privilege communication.

**SUGGESTED RESOLUTION:**

To meet in closed session to discuss an attorney/client privilege communication in accordance with Section 8(h) of the Open Meetings Act.

**(A roll call vote is required and the vote must be approved by a 2/3 majority of the commission. The commission will adjourn to closed session after all other business has been addressed in open session and reconvene to open session, after the closed session, for purposes of taking formal action resulting from the closed session and for purposes of adjourning the meeting.)**



**NOTICE OF INTENTION TO APPOINT TO  
BOARD OF ZONING APPEALS**

At the regular meeting of Monday, September 11, 2017 the Birmingham City Commission intends to appoint three (3) regular members to the Board of Zoning Appeals to serve three-year terms to expire October 10, 2020.

Interested parties may recommend others or themselves for these positions by submitting a form available from the City Clerk's office. Applications must be submitted to the city clerk's office on or before noon on Wednesday, September 6, 2017. Applications will appear in the public agenda at which time the commission will discuss recommendations, and may make nominations and vote on appointments.

Duties of Board

The Board of Zoning Appeals acts on questions arising from the administration of the zoning ordinance, including the interpretation of the zoning map. The board hears and decides appeals from and reviews any order, requirement, decision or determination made by the building official.

<b>Criteria/Qualifications of Open Position</b>	<b>Date Applications Due (by noon)</b>	<b>Date of Interview</b>
Members shall be property owners of record and registered voters.	9/6/17	9/11/17

*NOTE: All members of boards and commissions are subject to the provisions of City of Birmingham City Code Chapter 2, Article IX, Ethics and the filing of the Affidavit and Disclosure Statement.*



# MEMORANDUM

Finance Department

**DATE:** August 4, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Mark Gerber, Director of Finance/Treasurer  
**SUBJECT:** Annual Perpetual Care Fund Investment Report

City Ordinance 34-29(f) requires an annual accounting of the perpetual care funds be provided to the City Commission on a fiscal year basis. The perpetual care funds should be administered according to the Perpetual Care Funds Investment Policy adopted by the City Commission on September 12, 2016.

The main objectives of the perpetual care funds are the preservation of principal, provision for consistent income, and market appreciation. To accomplish these objectives, the funds have been invested using a 60%/40% allocation of funds in bond mutual funds and equity mutual funds, respectively.

Perpetual care funds are accounted for in two categories: principal and income. Principal includes funds received from the sale of graves, net gains or losses from the sale of investments, and unrealized market gains or losses. Income represents dividend and interest income received on the investment of the perpetual care funds. Only the income from investments may be used for the care and maintenance of the cemetery.

As the attached report shows, the City received \$196,124.25 in proceeds from grave sales in the 2016-2017 fiscal year. In addition, the perpetual care funds earned \$4,937.33 in investment income during the year. There were no disbursements of income funds during the year. At June 30, 2017, the Perpetual Care Fund had \$469,993.08 in principal and \$6,200.21 in unspent income funds.

At June 30, 2017, the perpetual care funds were invested in:

	<u>Amount</u>	<u>%</u>
City's Pooled Cash	\$ -0-	0%
Bond Mutual Funds	281,362.67	59%
Equity Mutual Funds	<u>194,830.62</u>	41%
Total	\$ 476,193.29	

CITY OF BIRMINGHAM  
 PERPETUAL CARE FUNDS  
 INVESTMENT REPORT  
 6/30/2017

	PRINCIPAL	INCOME	TOTAL
BEGINNING BALANCE 6/30/2016	\$ 261,375.00	\$ 1,262.88	\$ 262,637.88
SALE OF GRAVES	196,124.25	-	196,124.25
CAPITAL GAINS (LOSSES)	3,270.12	-	3,270.12
INTEREST/DIVIDENDS	-	4,937.33	4,937.33
CHANGE IN MARKET VALUE	<u>9,223.71</u>	<u>-</u>	<u>9,223.71</u>
ENDING BALANCE 6/30/2017	<u>\$ 469,993.08</u>	<u>\$ 6,200.21</u>	<u>\$ 476,193.29</u>
<u>INVESTMENTS</u>			
CITY'S POOLED CASH	\$ -		
BOND MUTUAL FUNDS	281,362.67	59.1%	
EQUITY MUTUAL FUNDS	<u>194,830.62</u>	40.9%	
TOTAL	<u>\$ 476,193.29</u>		





# MEMORANDUM

Building Department

**DATE:** July 21, 2017  
**TO:** Joseph A. Valentine, City Manager  
**FROM:** Bruce R. Johnson, Building Official  
**SUBJECT:** High-Rise Building Fire Protection

---

---

Recent fires in high-rise buildings have generated media attention about fire safety requirements within building codes. The fire at the Grenfell Tower, a high-rise residential building in London quickly spread engulfing the entire building resulting in many lives lost. This high-rise building did not have a fire sprinkler system installed in it and was constructed with only one emergency exit stair. A more recent fire at the Marco Polo apartments in Honolulu only spread through a couple of floors but smoke reportedly spread through much more of the building. This building also lacked a fire sprinkler system. Investigations into these fires are still ongoing. However, the lack of passive and active fire protection systems definitely contributed to the loss at both buildings.

Passive fire protection involves using noncombustible materials to separate areas in high-rise buildings to limit how far a fire can spread. There are also fire resistive ratings applied to wall and floor ceiling assemblies separating fire areas, building uses, corridors and emergency exit stairs. "Active" fire protection includes fire sprinkler systems, smoke alarms, and fire alarm pull stations used to extinguish or reduce a fire and to warn building occupants to evacuate if a fire occurs.

The building codes in Birmingham have required passive and active fire protection for many decades to limit losses in the event of fire. While the codes evolve over the years and high-rise buildings recently constructed in Birmingham comply with the latest requirements, the existing buildings in town all have noncombustible exterior walls, at least two remote emergency exit stairways separated from the remainder of the building and have fire sprinkler and alarm systems that met code the code requirements at the time they were constructed.

The severity of the fire at the Grenfell Tower is related to the combustible foam materials used in the exterior wall cladding. The lack of other passive and active fire protection systems also likely contributed to the loss. While existing high-rise buildings in Birmingham might not meet all of today's new code requirements, they did meet the codes in effect at the time they were constructed that would not allow an event like that to occur here.

R10E2



July 26, 2017

Ms. Laura Pierce, Clerk  
City of Birmingham  
151 Martin St.  
Birmingham, MI 48012-3001

Dear Ms. Pierce,

As part of our ongoing commitment to keep you updated on issues that concern our customers in Birmingham, we would like to let you know that in the coming days we will be notifying our customers of updates to our Comcast Agreement for Residential Services as well as providing a copy of the updated agreement with their August bill.

The Comcast Agreement for Residential Services provides the terms and conditions for our Xfinity TV, Internet and Voice services and can be viewed at:

[www.xfinity.com/Corporate/Customers/Policies/SubscriberAgreement.html](http://www.xfinity.com/Corporate/Customers/Policies/SubscriberAgreement.html). Key updates include the following.

- We've identified additional ways for us to notify customers of changes to our services, including by email and online on our website.
- We've moved some material related to our Internet and Voice services to our website.
- We require customers to notify us of changes to their telephone number and other contact information so we can ensure that we are contacting the correct person in accordance with applicable laws.
- We've updated portions of our arbitration provision to make its terms more clear.

A sample customer notification is attached for your reference.

If I can be of any further assistance, please contact me at 734-254-1557.

Sincerely,

Kyle V. Mazurek  
Manager of External Affairs  
Comcast, Heartland Region  
41112 Concept Drive  
Plymouth, MI 48170

Attachment: Customer Notice Sample

**INFORMATION ONLY**



## We've made updates to our Comcast Agreement for Residential Services

We want to let you know that we're updating our customer terms of service. You can view the agreement [here](#), and you also will receive a copy with your upcoming bill. You don't need to take any action.

You should review the agreement, but here are a few of the key updates:

- We've identified additional ways for us to notify you of changes to our services, including by email and online on our website.
- We've moved some material related to our Internet and Voice services to our website. They may be viewed [here](#).
- Under the new agreement we require you to notify us of changes to your telephone number and other contact information so we can ensure that we are contacting the correct person in accordance with applicable laws.
- We've updated portions of our arbitration provision to make its terms more clear.

Thank you for being an XFINITY customer.



All part of our commitment to you



This is a service-related email. Comcast will occasionally send you service-related emails to inform you of service upgrades or new benefits.

Please do not reply to this email, it is not monitored. If you'd like to contact us, please visit our website [here](#).

Comcast respects your privacy. For a complete description of our privacy policy, [click here](#).

© 2017 Comcast. All rights reserved. All trademarks are the property of their respective owners.

Comcast Cable, One Comcast Center 1701 JFK Boulevard, Philadelphia, PA 19103  
Attn: Email Communications

RECEIVED BY

JUL 24 2017

CITY CLERK'S OFFICE  
CITY OF BIRMINGHAM

STATE OF MICHIGAN  
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION  
NOTICE OF HEARING  
FOR THE ELECTRIC CUSTOMERS OF  
DTE ELECTRIC COMPANY  
CASE NO. U-18262

- DTE Electric Company requests Michigan Public Service Commission approval of its biennial review of its Energy Waste Reduction (“EWR”) Plan and authority to implement EWR surcharges.
- The information below describes how a person may participate in this case
- You may call or write DTE Electric Company, One Energy Plaza, 688 WCB, Detroit, Michigan 48226-1279, (800) 477-4747, for a free copy of its application. Any person may review the application at the offices of DTE Electric Company.
- A public hearing will be held:

**DATE/TIME:** Tuesday, August 15, 2017, at 9:30 a.m.  
This hearing will be a prehearing conference to set future hearing dates and decide other procedural matters.

**BEFORE:** Administrative Law Judge **Sharon L. Feldman**

**LOCATION:** Michigan Public Service Commission  
7109 West Saginaw Highway  
Lansing, Michigan

**PARTICIPATION:** Any interested person may attend and participate. The hearing site is accessible, including handicapped parking. Persons needing any accommodation to participate should contact the Commission's Executive Secretary at (517) 284-8090 in advance to request mobility, visual, hearing or other assistance.

The Michigan Public Service Commission (Commission) will hold a public hearing to consider DTE Electric Company's (DTE Electric) June 29, 2017 application requesting 1) that their Biennial EWR Plan is reasonable and prudent, and that it meets all relevant requirements of Act 295, as amended by PA 342; 2) approval of the proposed 2018-2019 EWR Plan surcharges and the Performance Incentive Mechanism and associated charges; 3) approval of the necessary accounting authority; and 4) other relief.

**INFORMATION ONLY**

All documents filed in this case shall be submitted electronically through the Commission's E-Dockets website at: [michigan.gov/mpscedockets](http://michigan.gov/mpscedockets). Requirements and instructions for filing can be found in the User Manual on the E-Dockets help page. Documents may also be submitted, in Word or PDF format, as an attachment to an email sent to: [mpscedockets@michigan.gov](mailto:mpscedockets@michigan.gov). If you require assistance prior to e-filing, contact Commission staff at (517) 284-8090 or by email at: [mpscedockets@michigan.gov](mailto:mpscedockets@michigan.gov).

Any person wishing to intervene and become a party to the case shall electronically file a petition to intervene with this Commission by August 8, 2017. (Interested persons may elect to file using the traditional paper format.) The proof of service shall indicate service upon DTE Electric's attorney, Richard P. Middleton, One Energy Plaza, 688 WCB, Detroit, Michigan 48226-1279.

Any person wishing to appear at the hearing to make a statement of position without becoming a party to the case may participate by filing an appearance. To file an appearance, the individual must attend the hearing and advise the presiding administrative law judge of his or her wish to make a statement of position. All information submitted to the Commission in this matter becomes public information, thus available on the Michigan Public Service Commission's website, and subject to disclosure. Please do not include information you wish to remain private.

Requests for adjournment must be made pursuant to the Michigan Administrative Hearing System's Administrative Hearing Rules R 792.10422 and R 792.10432. Requests for further information on adjournment should be directed to (517) 284-8130.

A copy of DTE Electric's request may be reviewed on the Commission's website at: [michigan.gov/mpscedockets](http://michigan.gov/mpscedockets), and at the office of DTE Electric Company. For more information on how to participate in a case, you may contact the Commission at the above address or by telephone at (517) 284-8090.

Jurisdiction is pursuant to 1909 PA 106, as amended, MCL 460.551 et seq.; 1919 PA 419, as amended, MCL 460.54 et seq.; 1939 PA 3, as amended, MCL 460.1 et seq.; 1969 PA 306, as amended, MCL 24.201 et seq.; 1982 PA 304, as amended, MCL 460.6j et seq.; 2008 PA 295, MCL 460.1001 et seq., and the Michigan Administrative Hearing System's Administrative Hearing Rules, 2015 AC, R 792.10401 et seq.

July 14, 2017

---

## SEMCOG invites public comment on reaffirmation of the 2040 Regional Transportation Plan for Southeast Michigan

---

**SEMCOG Public Notice** <communications@semcog.org>  
Reply-To: communications@semcog.org  
To: jvalentine@bhamgov.org

Wed, Aug 9, 2017 at 9:51 AM

Problem viewing this email? [Click here](#) for our online version



A message from SEMCOG, the Southeast Michigan Council of Governments

**August 9, 2017**

**Contact: SEMCOG Information Center, 313-324-3330**

### SEMCOG invites public comment on reaffirmation of the 2040 Regional Transportation Plan for Southeast Michigan

SEMCOG, the Southeast Michigan Council of Governments, announces the public comment period for reaffirmation of the 2040 Regional Transportation Plan for Southeast Michigan (2040 RTP).

The 2040 RTP is Southeast Michigan's long-range vision to invest in regional transportation in order to improve its quality and reliability, increase economic prosperity, move the system towards fiscal sustainability, broaden access to vital destinations, enhance community quality of life, and protect our environment. The plan includes policies, initiatives, performance measures, and projects that can be funded and implemented between its adoption in June 2013 and the plan's 2040 horizon year.

According to federal regulations, regional transportation plans must be reviewed and updated at least every four years to confirm their validity and consistency with the current forecast trends and to extend the planning horizon if necessary. SEMCOG has reviewed the 2040 RTP and found that it remains valid and consistent with the current forecast trends. Therefore, it is not necessary at this time to extend the planning horizon beyond 2040.

Furthermore, SEMCOG is currently developing a new plan, the 2045 Regional Transportation Plan for Southeast Michigan, which will incorporate new travel and demographic forecasts, public outreach, and data analysis. The 2045 Regional Transportation Plan for Southeast Michigan is scheduled for adoption in March 2019.

For more information on how the 2040 RTP forecast tracks with observed trends and key 2040 RTP implementation activities, please visit SEMCOG's website or contact SEMCOG's Information Center at 313-324-3330

#### How to comment

Please address written comments to SEMCOG Information Center, 1001 Woodward Avenue, Suite 1400,

**INFORMATION ONLY**




Detroit, MI 48226; send faxes to 313-961-4869; call 313-324-3330, or e-mail [InfoCenter@semcog.org](mailto:InfoCenter@semcog.org).  
Comments can also be made in person at the following meeting where the reaffirmation will be considered:

- Executive Committee, Friday, September 8, 2017, 1 p.m., SEMCOG offices.

-##-

*SEMCOG is the only organization in Southeast Michigan that brings together all governments to solve regional challenges and enhance the quality of life.  
To learn more about what SEMCOG does, [click here](#).*

 Send to a friend

---

SEMCOG - Southeast Michigan Council of Governments • 1001 Woodward Avenue, Suite 1400, Detroit, Michigan 48226  
313-961-4266 • Fax: 313-961-4869 • Staff e-mail: [lastName@semcog.org](mailto:lastName@semcog.org) • [www.semcog.org](http://www.semcog.org)

To opt-out of future *SEMCOG Public Notices*, [click here](#).  
To unsubscribe from receiving any SEMCOG information, [click here](#).

Powered by  informz