



**ALPINE**TX

# Wastewater Workshop

January 16, 2024

Kirt Harle, P.E.

**JACOB | MARTIN**



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# Discussion Topics

1. Wastewater Treatment Plant Evaluation Summary
2. 2024 Wastewater Treatment Plant CIP Project
3. Wastewater Treatment Plant Effluent Reuse



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# Wastewater Treatment Plant Evaluation Summary

## Existing Wastewater Treatment Plant Layout



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 79086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# Wastewater Treatment Plant Evaluation Summary

## Capital Improvement Priority List

Item	Classification	Description	Est. Const. Cost
<b>In Progress</b>			
1	Tertiary Treatment	Flow Paced Injection of Cl2 and SO2	In House
2	Solids Handling	Operational Improvements of existing Belt Press	In House
<b>High Priority (0-2 Years)</b>			
3	Regulatory	Permit Amendment <b>Completed</b>	\$30,000
4	Solids Handling	Reconstruct All 6 existing drying beds and piping <b>2024 CIP</b>	\$250,000.00
5	Electrical Survey	Conduct described electrical survey	\$15,000.00
6	Headworks	Upgrade Lift Station Pumps	\$256,250.00
7	Headworks	Install new bypass with manual bar screen	\$65,000.00
8	Headworks	Install grit removal system	\$437,500.00
9	Secondary Treatment	Replace internal components, bridge and weirs on Clarifier #1 <b>2024 CIP</b>	\$900,000.00
10	Headworks	Conduct Topographical Survey for overflow pipe	\$8,500
11	Secondary Treatment	Replace internal components, bridge, and weirs on Clarifier #2	\$900,000.00
<b>Medium Priority (2-4 Years)</b>			
12	Solids Handling	Provide New Belt Press Facility	\$812,500.00



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# 2024 Wastewater Treatment Plant CIP Project

- WWTP Capital Improvement Project includes the following components:
  1. Solids handling improvements consisting of the reconstruction of all six drying beds.
  2. Secondary treatment improvements consisting of the replacement of all mechanical components of Clarifier #1.
- Opinion of probable cost is \$1.41M which includes engineering services and construction cost.







# Solids Handling Improvements

- Solids handling capacity is not specifically addressed in the permit, but the design capacity is governed by the rules and regulations of the TCEQ. Also, solids handling is critical to the operations of the WWTP
- **Condition:** The existing belt press is configured in a way that provides for an inefficient means to dispose of the sludge and the **drying beds need rehabilitation.**
- **Recommended improvement:** Reconfigure belt press operations, **rehabilitate the drying beds**, and construct new belt press facility
- **Cost:** **\$250,000 (drying beds)** / \$812,500 (belt press)

Sludge Pumps



Drying Beds



Belt Press



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# Secondary Treatment Improvements

- **Capacity (current permitted flow):**  
Does not meet permit
- **Capacity (amended permitted flow):**  
Would meet permit
- **Condition:** In need of rehabilitation
- **Recommended improvement:**  
Replace mechanical components of both clarifiers and apply coating to interior concrete basin walls
- **Cost:** \$1,800,000 (\$900,000 each)



info@jacobmartin.com  
www.jacobmartin.com



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493



# Wastewater Treatment Plant Effluent Reuse

- The City was issued a 210-Authorization in November of 2005
- The 210-Authorization allows for **Type II** reuse of the WWTP effluent for the following purposes:
  - Irrigation of non-food crops, grasslands, landscaped areas, tree farms, and golf courses
  - Dust control
  - Construction water
- The service area is anywhere within the City's ETJ
- The following effluent quality parameters must be met for **Type II** effluent reuse:
  - BOD5 – 20 mg/l
  - Fecal Coliform – 200 CFU/100 ml (geometric mean)
  - Fecal Coliform – 800 CFU/100 ml (single grab sample)
- **The City is currently meeting all these effluent quality parameters so there should not be any issues using the effluent for the purposes listed above.**







# Questions



[info@jacobmartin.com](mailto:info@jacobmartin.com)  
[www.jacobmartin.com](http://www.jacobmartin.com)



3465 Curry Lane  
Abilene, TX 79606  
325.695.1070

1925 Fort Worth Highway  
Weatherford, TX 76086  
817.594.9880

4920 South Loop 289, Suite 104  
Lubbock, TX 79414  
806.368.6375



TBPE Firm #: 2448  
TBAE Firm #: BR 2261  
TBPLS Firm #: 10194493