



WASTE CONNECTIONS  
*Connect with the Future®*

February 9, 2023

Ms. Erin Chancellor  
Interim Executive Director  
MC-109  
Texas Commission on Environmental Quality  
12100 Park 35 Circle  
Austin, Texas 78753

Re: Fort Worth C&D Landfill  
Major Permit Amendment Application, TCEQ Permit No. MSW-1983E  
Tarrant County

Dear Ms. Chancellor:

Please find enclosed a major permit amendment application to expand the Fort Worth C&D Landfill. Included are four copies of the application for your review and comment. Parts I through IV are included, as required by the Texas Commission on Environmental Quality's (TCEQ) municipal solid waste regulations.

The purpose of this Major Permit Amendment is to secure authorization for an expansion of the existing Fort Worth C&D Landfill, TCEQ Permit No. MSW-1983D. The existing 99.9-acre waste area will be expanded by 22.0 acres. The existing permit boundary is not proposed to be changed by this application. The maximum permitted final cover elevation will be increased from 820 ft-msl to 860 ft-msl. The Fort Worth C&D Landfill has provided for the municipal solid waste (MSW) disposal needs of Tarrant County and surrounding areas for over 30 years. This major permit amendment will ensure that this critical service will continue for the landfill's service area.

Texas Regional Landfill Company, LP is fully committed to operating the Fort Worth C&D Landfill consistent with TCEQ rules for the protection of human health and the environment.



Ms. Erin Chancellor  
February 9, 2023  
Page 2

We appreciate your review of this permit application and look forward to your comments. In the meantime, if you have any questions, please do not hesitate to contact me.

Sincerely,



Gary Bartels  
Southern Region Engineer

Copies submitted: 1 original and 3 copies (4 volumes per set)

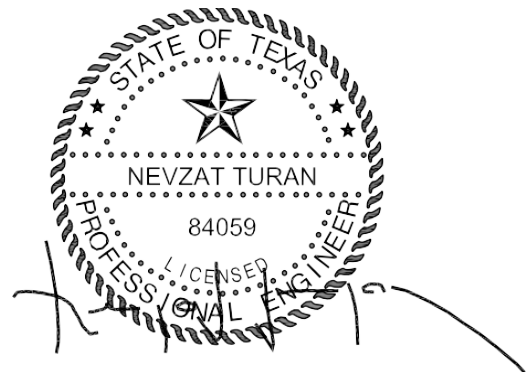
cc: TCEQ Region 4 Office  
Site Operating Record  
Nevzat Turan, P.E., Weaver Consultants Group, LLC

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**VOLUME 1 OF 4**

Prepared for  
Texas Regional Landfill Company, LP  
February 2023



02/09/2023

Prepared by  
**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

WCG Project No. 0771-356-11-35

This document intended for permitting purposes only.

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION  
VOLUME 1 OF 4**

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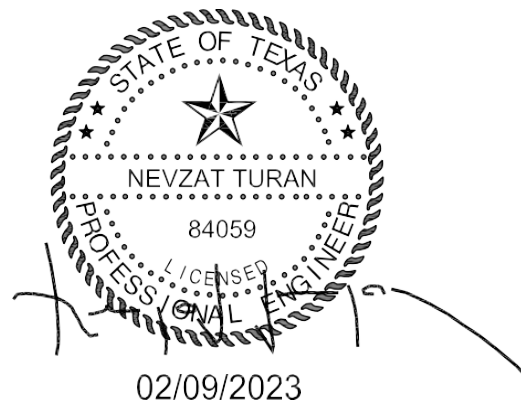
**PART III – SITE DEVELOPMENT PLAN**

Site Development Plan Narrative

Appendix IIIA – Landfill Unit Design Information

Appendix IIIB – Site Life Calculations

Appendix IIIC – Leachate and Contaminated Water Management Plan



**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**APPLICATION TABLE OF CONTENTS**

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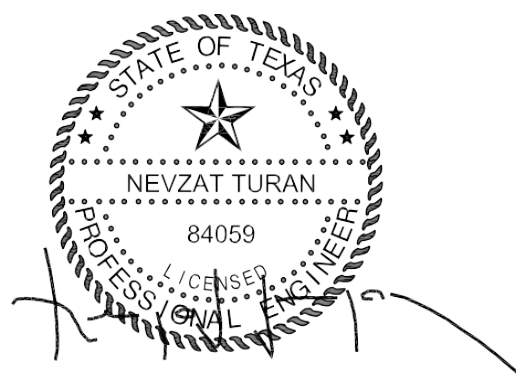
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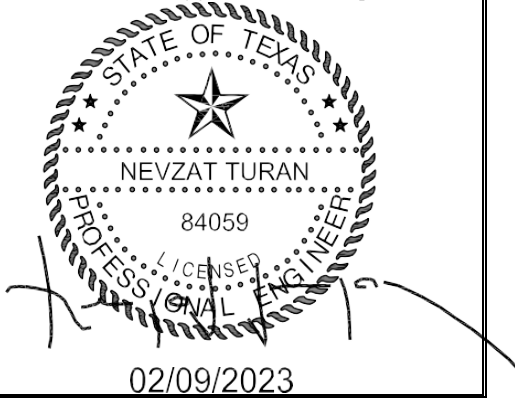
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**FORT WORTH C&D LANDFILL MAJOR PERMIT AMENDMENT APPLICATION  
TCEQ PERMIT NO. MSW-1983E**

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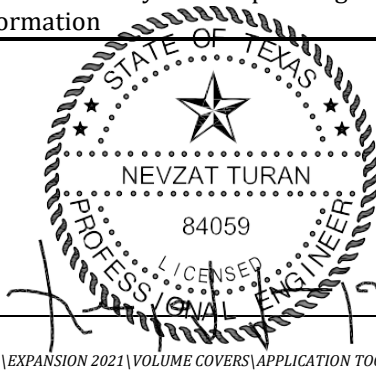
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**FORT WORTH C&D LANDFILL MAJOR PERMIT AMENDMENT APPLICATION  
TCEQ PERMIT NO. MSW-1983E**

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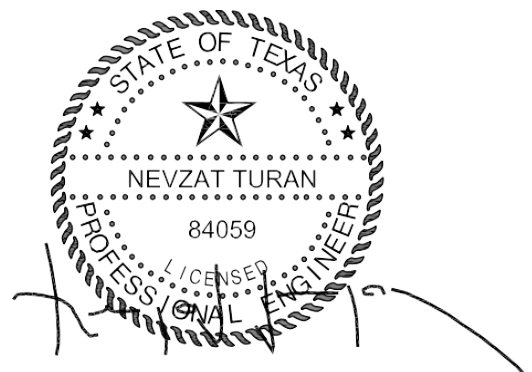


**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**TCEQ PART I APPLICATION FORM, CORE DATA FORM,  
AND MAILING LABELS**

Prepared for  
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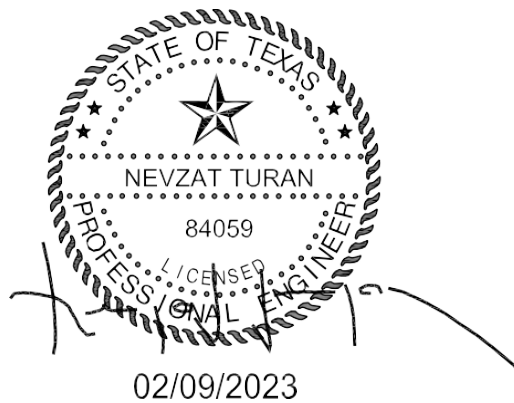
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**PART I FORM**

**CORE DATA FORM**

**MAILING LABELS (flash drive)**





# Texas Commission on Environmental Quality

## Part I Application Form for New Permit, Permit Amendment, or Registration for a Municipal Solid Waste Facility

### Application Tracking Information

Facility Name: Fort Worth C&D Landfill

Permittee or Registrant Name: Texas Regional Landfill Company, LP

MSW Authorization Number: 1983E

Initial Submission Date: February 2023

Revision Date: \_\_\_\_\_

Instructions for completing this Part I Application Form are provided in [TCEQ 00650-instr](#)<sup>1</sup>. Include a [Core Data Form \(TCEQ 10400\)](#)<sup>2</sup> with the application for the facility owner, and another Core Data Form for the operator if different from the owner. If you have questions, contact the Municipal Solid Waste Permits Section by email to [mswper@tceq.texas.gov](mailto:mswper@tceq.texas.gov), or by phone at 512-239-2335.

### Application Data

#### 1. Submission Type

Initial Submission       Notice of Deficiency (NOD) Response

#### 2. Authorization Type

Permit       Registration

#### 3. Application Type

New Permit

Permit Major Amendment       Permit Limited Scope Major Amendment

New Registration

<sup>1</sup> [www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/00650-instr.pdf](http://www.tceq.texas.gov/downloads/permitting/waste-permits/msw/forms/00650-instr.pdf)

<sup>2</sup> [www.tceq.texas.gov/goto/coredata](http://www.tceq.texas.gov/goto/coredata)

#### 4. Application Fee

##### Amount

- \$2,050—New Landfill Permits, and Landfill Permit Major Amendments Described in 30 TAC [305.62\(j\)\(1\)](#)
- \$150—Other Permits, Landfill Limited Scope Major Amendments, Permit Amendments for Storage and Processing Facilities, and Registrations

##### Payment Method

- Check
- Online through ePay portal [www3.tceq.texas.gov/epay/](http://www3.tceq.texas.gov/epay/)

If paid online, enter ePay Trace Number: 582EA000527629

#### 5. Application URL

For applications other than those for arid exempt landfills, provide the URL address of a publicly accessible internet web site where the application and all revisions to the application will be posted.

http://ftwweaverboos.com

#### 6. Party Responsible for Publishing Notice

Indicate who will be responsible for publishing notice:

- Applicant                       Agent in Service                       Consultant

Contact Name: Nevzat Turan, P.E.

Title: Senior Engineer

Email Address: nturan@wcgrp.com

#### 7. Alternative Language Notice

Use the Alternative Language Checklist on Public Notice Verification Form TCEQ-20244-Waste-NORI, TCEQ-20244-Waste-NAPD, or TCEQ-20244-Waste-NAORPM available at [www.tceq.texas.gov/permitting/waste\\_permits/msw\\_permits/msw\\_notice.html](http://www.tceq.texas.gov/permitting/waste_permits/msw_permits/msw_notice.html) to determine if an alternative language notice is required.

Is an alternative language notice required for this application?

- Yes       No

Indicate the alternative language: Spanish

### 8. Public Place for Copy of Application

Name of the Public Place: Kennedale Public Library  
Physical Address: 316 W. 3rd Street  
City: Kennedale County: Tarrant State: TX Zip Code: 76060  
Phone Number: 817-985-2136

### 9. Consolidated Permit Processing

Is this submittal part of a consolidated permit processing request, in accordance with 30 TAC Chapter 33?

Yes  No

If "Yes", indicate the other TCEQ program authorizations requested:

### 10. Confidential Documents

Does the application contain confidential documents?

Yes  No

If "Yes", reference the confidential documents in the application, but submit the confidential documents as an attachment in a separate binder marked "CONFIDENTIAL."

### 11. Permits and Construction Approvals

Mark the following table to indicate status of other permits or approvals.

**Table 1. Permits and Construction Approvals.**

Permit or Approval	Received	Pending	Not Applicable
Hazardous Waste Management Program under Texas Solid Waste Disposal Act			X
Underground Injection Control Program under Texas Injection Well Act			X
National Pollutant Discharge Elimination System Program under Clean Water Act; Waste Discharge Program under Texas Water Code, Chapter 26	X		
Prevention of Significant Deterioration Program under Federal Clean Air Act (FCAA); Nonattainment Program under the FCAA			X
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA			X

Permit or Approval	Received	Pending	Not Applicable
Ocean Dumping Permits under Marine Protection Research and Sanctuaries Act			X
Dredge or Fill Permits under Clean Water Act			X
Licenses under the Texas Radiation Control Act			X
Other (describe): Air, Stormwater, Petroleum Storage Tank	X		
Other (describe):			

## 12. Facility General Information

Facility Name: Fort Worth C&D Landfill

Contact Name: Gary Bartels Title: Southern Region Engineer

MSW Authorization Number (if existing): 1983D

Regulated Entity Reference Number: **RN** 101478790

Physical or Street Address (if available): 4144 Dick Price Road

City: Kennedale County: Tarrant State: TX Zip Code: 76140

Phone Number: 817-516-7777

Latitude (Degrees, Minutes Seconds): N 32° 37' 51"

Longitude (Degrees, Minutes Seconds): W 97° 14' 04"

Benchmark Elevation (above mean sea level): 654.77 feet

Description of facility location with respect to known or easily identifiable landmarks:

The facility is located approximately 15 miles southeast of downtown Fort Worth, and approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W.

Access routes from the nearest United States or state highway to the facility:

The site is accessed by Dick Price Road, either from the north or from the south. Access to the site from the north is primarily IH-20 and US (Business) 287 to Dick Price Road. Regional access to the site from the south is primarily by IH-35W to FM 1187 (Rendon Crowley Road), to Rendon New Hope Road, to Dick Price Road.

### Coastal Management Program

Is the facility within the Coastal Management Program boundary?

Yes  No

### 13. Facility Types

- Type I       Type IV       Type V  
 Type IAE     Type IVAE     Type VI

### 14. Activities Conducted at the Facility

- Storage       Processing       Disposal

### 15. Facility Waste Management Units

Check the box for each type of waste management unit proposed.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Landfill Unit(s)   | <input type="checkbox"/> Container(s)                            |
| <input type="checkbox"/> Incinerator(s)  | <input type="checkbox"/> Roll-off Boxes                          |
| <input type="checkbox"/> Class 1 Landfill Unit(s)  | <input type="checkbox"/> Surface Impoundment                     |
| <input type="checkbox"/> Process Tank(s)   | <input type="checkbox"/> Autoclave(s)                            |
| <input type="checkbox"/> Storage Tank(s)   | <input type="checkbox"/> Refrigeration Unit(s)                   |
| <input type="checkbox"/> Tipping Floor   | <input type="checkbox"/> Mobile Processing Unit(s)               |
| <input type="checkbox"/> Storage Area  | <input checked="" type="checkbox"/> Compost Pile(s) or Vessel(s) |
| <input checked="" type="checkbox"/> Other (specify): Large Item/White Goods Area<br>C&D Recyclable Sorting Area<br>Wood Recycling Area |  |

### 16. Description of Proposed Facility or Changes to Existing Facility

Provide a brief description of the proposed activities if application is for a new facility, or the proposed changes to an existing facility or permit conditions if the application is for an amendment.

The purpose of this major permit amendment application is to expand the currently permitted landfill footprint

## 17. Facility Contact Information

### Site Operator (Permittee or Registrant)

Name: Texas Regional Landfill Company, LP

Customer Reference Number: **CN** 601668486

Contact Name: Gary Bartels Title: Southern Region Engineer

Mailing Address: 3 Waterway Square Place, Suite 550

City: The Woodlands County: Montgomery State: TX Zip Code: 77380

Phone Number: (817) 705-6072

Email Address: gary.bartels@wasteconnections.com

Texas Secretary of State (SOS) Filing Number: 0012151910

### Operator (if different from Site Operator)

Name: \_\_\_\_\_

Customer Reference Number: **CN** \_\_\_\_\_

Contact Name: \_\_\_\_\_ Title: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

Texas Secretary of State (SOS) Filing Number: \_\_\_\_\_

### Consultant (if applicable)

Firm Name: Weaver Consultants Group, LLC

Consultant Name: Nevzat Turan

Texas Board of Professional Engineers Firm Registration Number: F-3727

Contact Name: Nevzat Turan, P.E. Title: Senior Engineer

Mailing Address: 6420 Southwest Boulevard, Suite 206

City: Fort Worth County: Tarrant State: TX Zip Code: 76109

Phone Number: (817) 735-9770

Email Address: nturan@wcgrp.com

### Agent in Service (required for out-of-state applicants)

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: TX Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

## 18. Facility Supervisor License

Indicate the level of Municipal Solid Waste Facility Supervisor license, as defined in 30 TAC Chapter 30, Occupational Licenses and Registrations, Subchapter F that the individual who supervises or manages the operations will obtain prior to commencing operations.

Class A Supervisor License     Class B Supervisor License

## 19. Ownership Status of the Facility

### Business Type

- |   |   |
|---|---|
| <input type="checkbox"/> Corporation                    | <input type="checkbox"/> County Government      |
| <input type="checkbox"/> Individual                     | <input type="checkbox"/> State Government       |
| <input type="checkbox"/> Sole Proprietorship            | <input type="checkbox"/> Federal Government     |
| <input type="checkbox"/> General Partnership            | <input type="checkbox"/> Other Government       |
| <input checked="" type="checkbox"/> Limited Partnership | <input type="checkbox"/> Military               |
| <input type="checkbox"/> City Government                | <input type="checkbox"/> Other (specify): _____ |

### Facility Owner

Does the Site Operator (Permittee or Registrant) own all the facility units and all the facility property?

Yes     No

If "No", provide the following information for other owners.

Owner Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ County: \_\_\_\_\_ State: TX Zip Code: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

## 20. Other Government Entities Information

### Texas Department of Transportation

District: Fort Worth District

District Engineer's Name: David M. Salazar Jr., P.E.

Mailing Address: 2501 SW Loop 820

City: Fort Worth County: Tarrant State: TX Zip Code: 76133

Phone Number: (817) 370-6514

Email Address: \_\_\_\_\_



**Local Government Authority Responsible for Road Maintenance (if applicable)**

Government or Agency Name: City of Kennedale  
Contact Person's Name: Kristian Sugrim, Public Works Director  
Mailing Address: 150 N. Little School Road  
City: Kennedale County: Tarrant State: TX Zip Code: 76060  
Phone Number: (817) 985-2170  
Email Address: \_\_\_\_\_

**City Mayor Information**

City Mayor's Name: Jan Joplin  
Mailing Address: 405 Municipal Drive  
City: Kennedale County: Tarrant State: TX Zip Code: 76060  
Phone Number: (817) 985-2105  
Email Address: jjoplin@cityofkennedale.com

**City Health Authority**

Authority Name: \_\_\_\_\_  
Contact Person's Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ County: \_\_\_\_\_ State: TX Zip Code: \_\_\_\_\_  
Phone Number: \_\_\_\_\_  
Email Address: \_\_\_\_\_

**County Judge Information**

County Judge's Name: Tim O'Hare  
Mailing Address: 100 E. Weatherford St.  
City: Fort Worth County: Tarrant State: TX Zip Code: 76196  
Phone Number: (817) 884-1441  
Email Address: \_\_\_\_\_

**County Health Authority**

Agency Name: Tarrant County Public Health  
Contact Person's Name: Veerinder Taneja, Director  
Mailing Address: 1101 S. Main St.  
City: Fort Worth County: Tarrant State: TX Zip Code: 76104  
Phone Number: (817) 321-7400  
Email Address: \_\_\_\_\_

**State Representative Information**

District Number: 96  
State Representative's Name: David Cook  
District Office Mailing Address: 309 E. Broad St.  
City: Mansfield County: Tarrant State: TX Zip Code: 76063  
Phone Number: (817) 473-1960  
Email Address: \_\_\_\_\_

**State Senator Information**

District Number: 10  
State Senator's Name: Phil King  
District Office Mailing Address: P.O. Box 12068  
City: Austin County: Capitol Station State: TX Zip Code: 78711  
Phone Number: (512) 463-0110  
Email Address: \_\_\_\_\_

**Council of Governments (COG)**

COG Name: North Central Texas Council of Governments  
COG Representative's Name: Edith Marvin  
COG Representative's Title: Staff Director, Environ. & Development  
Mailing Address: 616 Six Flags Drive  
City: Arlington County: Tarrant State: TX Zip Code: 76011  
Phone Number: (817) 695-9211  
Email Address: emarvin@nctcog.com

**River Basin Authority**

Authority Name: Trinity River Authority  
Contact Person's Name: J. Kevin Ward, General Manager  
Watershed Sub-Basin Name: Chambers Creek (Headwater North Fork)  
Mailing Address: 5300 S. Collins  
City: Arlington County: Tarrant State: TX Zip Code: 76018  
Phone Number: (817) 467-4343  
Email Address: \_\_\_\_\_

**U.S. Army Corps of Engineers District**

Indicate the U.S. Army Corps of Engineers district in which the facility is located:

- Albuquerque, NM
- Galveston, TX
- Ft. Worth, TX
- Tulsa, OK

**Local Government Jurisdiction**

Within City Limits of: Not Applicable

Within Extraterritorial Jurisdiction of: City of Kennedale

Is the facility located in an area in which the governing body of the municipality or county has prohibited the storage, processing, or disposal of municipal or industrial solid waste?

Yes     No

If "Yes", provide a copy of the ordinance or order as an attachment.


# Signature Page

## Site Operator or Authorized Signatory

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Gary Bartels Title: Southern Region Engineer

Email Address: gary.bartels@wasteconnections.com

Signature:  Date: 2/9/2023

## Operator or Principal Executive Officer Designation of Authorized Signatory

To be completed by the operator if the application is signed by an authorized representative for the operator.

I hereby designate \_\_\_\_\_ as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Operator or Principal Executive Officer Name: \_\_\_\_\_

Email Address: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Notary

SUBSCRIBED AND SWORN to before me by the said Gary Bartels

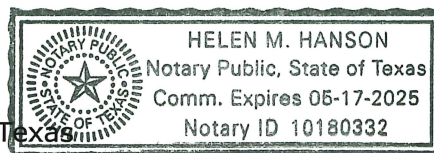
On this 9<sup>th</sup> day of February, 2023

My commission expires on the 17<sup>th</sup> day of May, 2025

Helen M. Hanson

Notary Public in and for

Tarrant County, Texas



Note: Application Must Bear Signature & Seal of Notary Public

## Part I Attachments

Refer to instruction document 00650-instr for professional engineer seal requirements.

### **Attachments Table 1. Required attachments.**

<b>Required Attachments</b>	<b>Attachment Number</b>
Supplementary Technical Report	Part I/II - Section 2
Property Legal Description	Part I/II - Section 13
Property Metes and Bounds Description	Part I/II - Section 13
Facility Legal Description	Part I/II - Section 13
Facility Metes and Bounds Description	Part I/II - Section 13
Metes and Bounds Drawings	Part I/II - Section 13
On-Site Easements Drawing	Part I/II - Section 13
Land Ownership Map	Part I/II - Section 5
Landowners List	Part I/II - Section 5
Mailing Labels (printed and electronic)	Part I/II - In Binder
Texas Department of Transportation (TxDOT) County Map	Part I/II - Section 4
General Location Map	Part I/II - Section 4
General Topographic Map	Part I/II - Section 4
Verification of Legal Status	Part I/II - Section 15
Property Owner Affidavit	Part I/II - Section 14
Evidence of Competency	Part I/II - Section 15

### **Attachments Table 2. Additional attachments as applicable.**

<b>Additional Attachments as Applicable (select all that apply and add others as needed)</b>	<b>Attachment Number</b>
<input checked="" type="checkbox"/> TCEQ Core Data Form(s)	Attached to Cover Letter
<input checked="" type="checkbox"/> Signatory Authority Delegation	Part I/II - Section 17
<input checked="" type="checkbox"/> Fee Payment Receipt	Attached to Form
<input type="checkbox"/> Confidential Documents	
<input type="checkbox"/> Waste Storage, Processing and Disposal Ordinances	
<input checked="" type="checkbox"/> Final Plat Record of Property	Part I/II - Section 13

<b>Additional Attachments as Applicable (select all that apply and add others as needed)</b>	<b>Attachment Number</b>
<input checked="" type="checkbox"/> Certificate of Fact (Certificate of Incorporation)	Part I/II - Section 15
<input type="checkbox"/> Assumed Name Certificate	
Other (describe):	
Other (describe):	
Other (describe):	

### TCEQ ePay Receipt

#### Transaction Information

**Trace Number:** 582EA000527629  
**Date:** 02/10/2023 08:58 AM  
**Payment Method:** CC - Authorization 0000242827  
**ePay Actor:** JOHNNA PUHR  
**TCEQ Amount:** \$2,050.00  
**Texas.gov Price::** \$2,096.38\*

\* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

#### Payment Contact Information

**Name:** JOHNNA PUHR  
**Company:** WEAVER CONSULTANTS GROUP LLC  
**Address:** 35 E WACKER, CHICAGO, TX 60601  
**Phone:** 817-735-9770

#### Cart Items

Voucher	Fee Description	AR Number	Amount
617919	NONHAZARDOUS WASTE PERMIT - NEW & AMENDMENTS (INCLUDING LIMITED SCOPE)		\$2,000.00
617920	30 TAC 305.53B WASTE NOTIFICATION FEE		\$50.00
<b>TCEQ Amount:</b>			<b>\$2,050.00</b>



TCEQ Use Only

# TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

## SECTION I: General Information

<b>1. Reason for Submission</b> <i>(If other is checked please describe in space provided.)</i>		
<input checked="" type="checkbox"/> New Permit, Registration or Authorization <i>(Core Data Form should be submitted with the program application.)</i>		
<input type="checkbox"/> Renewal <i>(Core Data Form should be submitted with the renewal form)</i>	<input type="checkbox"/> Other	
<b>2. Customer Reference Number</b> <i>(if issued)</i>	<a href="#">Follow this link to search for CN or RN numbers in Central Registry**</a>	<b>3. Regulated Entity Reference Number</b> <i>(if issued)</i>
CN 601668486		RN 101478790

## SECTION II: Customer Information

<b>4. General Customer Information</b>	<b>5. Effective Date for Customer Information Updates</b> (mm/dd/yyyy)	02/08/2023	
<input type="checkbox"/> New Customer <input checked="" type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership <input type="checkbox"/> Change in Legal Name <i>(Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)</i>			
<b>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</b>			
<b>6. Customer Legal Name</b> <i>(If an individual, print last name first: eg: Doe, John)</i>		<i>If new Customer, enter previous Customer below:</i>	
Texas Regional Landfill Company, LP			
<b>7. TX SOS/CPA Filing Number</b>	<b>8. TX State Tax ID</b> (11 digits)	<b>9. Federal Tax ID</b> (9 digits)	<b>10. DUNS Number</b> <i>(if applicable)</i>
		752826525	
<b>11. Type of Customer:</b>	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input checked="" type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:	
<b>12. Number of Employees</b>		<b>13. Independently Owned and Operated?</b>	
<input type="checkbox"/> 0-20 <input checked="" type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<b>14. Customer Role</b> <i>(Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following</i>			
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:			
<b>15. Mailing Address:</b>	3 Waterway Square Place, Suite 550		
	City	The Woodlands	State TX      ZIP 77380      ZIP + 4
<b>16. Country Mailing Information</b> <i>(if outside USA)</i>		<b>17. E-Mail Address</b> <i>(if applicable)</i>	
		gary.bartels@wasteconnections.com	
<b>18. Telephone Number</b>	<b>19. Extension or Code</b>	<b>20. Fax Number</b> <i>(if applicable)</i>	
( 817 ) 705-6072		(   ) -	

## SECTION III: Regulated Entity Information

<b>21. General Regulated Entity Information</b> <i>(If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)</i>
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input checked="" type="checkbox"/> Update to Regulated Entity Information
<b>The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).</b>
<b>22. Regulated Entity Name</b> <i>(Enter name of the site where the regulated action is taking place.)</i>
Fort Worth C&D Landfill



23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	4144 Dick Price Rd.							
	City	Fort Worth	State	TX	ZIP	76140	ZIP + 4	7624
24. County	Tarrant							

**Enter Physical Location Description if no street address is provided.**

25. Description to Physical Location:	The facility is located approximately 15 miles southeast of downtown Fort Worth, and approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W.								
26. Nearest City	Kennedale				State	TX	Nearest ZIP Code		76140
27. Latitude (N) In Decimal:	32.6308			28. Longitude (W) In Decimal:	-97.2344				
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds				
32	37	51	-97	14	04				
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)				
4953			562212						
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>									
Construction and Demolition Waste Disposal									
34. Mailing Address:	3 Waterway Square Place, Suite 550								
	City	TheWoodlands	State	TX	ZIP	77380	ZIP + 4		
35. E-Mail Address:	gary.bartels@wasteconnections.com								
36. Telephone Number			37. Extension or Code			38. Fax Number <i>(if applicable)</i>			
( 817 ) 705-6072						( ) -			

**39. TCEQ Programs and ID Numbers** Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.


<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input checked="" type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
			TA3976M	
<input checked="" type="checkbox"/> Municipal Solid Waste	<input checked="" type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input checked="" type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS
1983D	96349		88268, 90197	
<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
	TXR05AP26	1517		
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input checked="" type="checkbox"/> Other: Air New Source
				4843900709

**SECTION IV: Preparer Information**

40. Name:	Nevzat Turan, P.E.		41. Title:	Senior Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
( 817 ) 735-9770		( 817 ) 735-9775	nturan@wcgrp.com	

**SECTION V: Authorized Signature**

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Texas Regional Landfill Company, LP	Job Title:	Southern Region Engineer
Name <i>(In Print)</i> :	Gary Bartels	Phone:	( 817 ) 705- 6072
Signature:		Date:	2/9/2023

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

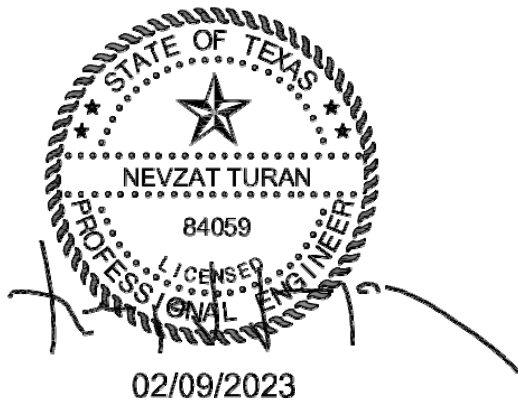
**MAJOR PERMIT AMENDMENT APPLICATION**

**PARTS I/II  
GENERAL APPLICATION REQUIREMENTS**

Prepared for:

Texas Regional Landfill Company, LP

February 2023



Prepared by:

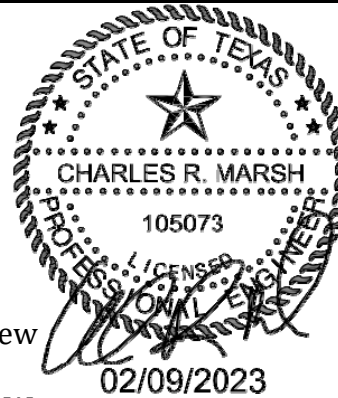
**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

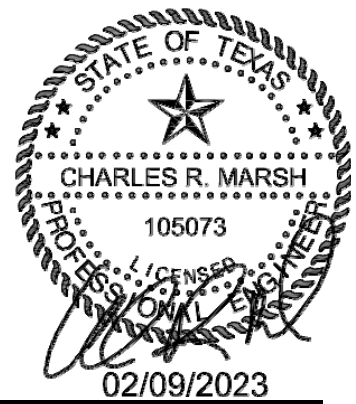
WCG Project No. 0771-356-11-35

This document intended for permitting purposes only.

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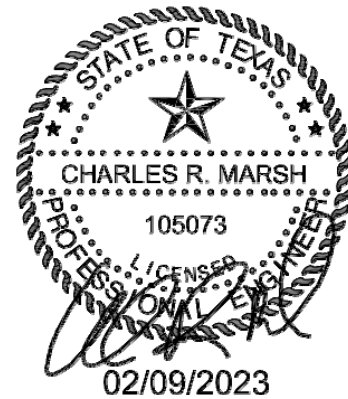
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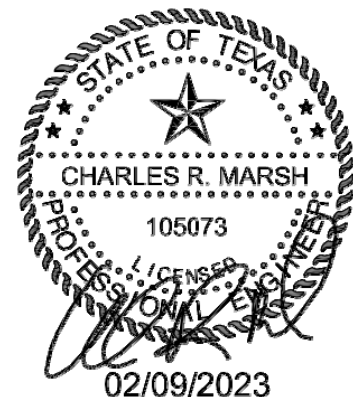
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## LIST OF ACRONYMS

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BMPs – best management practices

CFR – Code of Federal Regulations

CLOMR – Conditional Letter of Map Revision

CWA – Clean Water Act

EDE – Elevation of Deepest Excavation

EPA – Environmental Protection Agency

ETJ – extra territorial jurisdiction

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

ft-msl – feet above mean sea level

FWS – U.S. Fish and Wildlife Service

GWSAP – Groundwater Sampling and Analysis Plan

HDPE – high density polyethylene

LF – landfill

LFG – landfill gas

LQCP – Liner Quality Control Plan

MSGP – multi-sector general permit

MSW – municipal solid waste

MW – monitoring well

## LIST OF ACRONYMNS (Continued)

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NAVD – North American Vertical Datum

NCTCOG - North Central Texas Council of Governments

NESHAP – National Emissions Standards for Hazardous Air Pollutants

NGVD – National Geodetic Vertical Datum

NFIP – National Flood Insurance Program

NOI – Notice of Intent

NSPS/EG – New Source Performance Standards/Emission Guidelines

NWP – Nationwide Permit

PCBs – polychlorinated biphenyls

PI – point of intersection

POC – point of compliance

POTW – publicly owned treatment works

PSD – Prevention of Significant Deterioration

PVI – point of vertical intersection

QA/QC – quality assurance/quality control

SDP – Site Development Plan

SLER – Soil Liner Evaluation Report

SOP – Site Operating Plan

TAC – Texas Administrative Code

TCEQ – Texas Commission on Environmental Quality



## **LIST OF ACRONYMNS (Continued)**

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TDSHS – Texas Department of State Health Services

THC – Texas Historical Commission

TPDES – Texas Pollutant Discharge Elimination System

TPWD – Texas Parks and Wildlife Department

TWC – Texas Water Commission

TWDB – Texas Water Development Board

TxDOT – Texas Department of Transportation

U.S.DA – U.S. Department of Agriculture

USACE – U.S. Army Corps of Engineers

U.S.GS – U.S. Geological Survey

UIC – Underground Injection Control

WCG – Weaver Consultants Group, LLC

# 1 INTRODUCTION

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The purpose of this Major Permit Amendment is to secure authorization for an expansion of the existing Fort Worth C&D Landfill, TCEQ Permit No. MSW-1983D. The existing waste disposal area is permitted as 100.3 acres in the 2020 Major Permit Amendment. Upon further review of the area, it was found that the currently permitted waste disposal area is measured as 99.9 acres. For the purpose of this application the currently permitted area will be referred to as 99.9 acres. The existing 99.9 waste disposal area will be expanded by approximately 22.0 acres to 121.9 acres. No changes will be made to the permit boundary. The maximum permitted final cover elevation will be increased from 820 ft-mean sea level (ft-msl) to 860 ft msl. The increase in height will decrease the size of the top deck of the landfill. The resulting capacity increase for this amendment is 8.4 million cubic yards (refer to Section 2.1 for a detailed project overview). This landfill expansion will provide for the long term disposal needs of Tarrant County and surrounding areas.

*This section addresses § 330.59, § 330.61, and § 305.45.*

The Fort Worth C&D Landfill has provided for the municipal solid waste (MSW) disposal needs of Tarrant County and surrounding areas for over 30 years. This major permit amendment will ensure that this critical service will continue for the landfill's service area.

The General Application Requirements section (Parts I/II) of this permit amendment application for the Fort Worth C&D Landfill has been prepared consistent with the State of Texas requirements set forth in Title 30 Texas Administrative Code (TAC) §330.59, §330.61 and §305.45. Part II has been combined with Part I in accordance with Title 30 TAC §330.57(c)(2). Section 2, Supplementary Technical Report, presents an overview of the project and a detailed facility description as well as the types of waste that will be accepted at the facility. The remaining portions of Parts I/II present information on specific existing conditions on and around the site and regulatory matters related to the application process.

## 2 SUPPLEMENTARY TECHNICAL REPORT

---

### 2.1 Facility Location and Project Overview

#### Site Location

The Fort Worth C&D Landfill is an existing Type IV municipal solid waste (MSW) facility (TCEQ Permit No. MSW-1983D) in Tarrant County. The facility is located approximately 15 miles southeast of downtown Fort Worth and adjacent to the City of Kennedale (and with the portion of the facility where the future relocated entrance facilities, scales, and gate house will be located within the City of Kennedale). The facility is located approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W. A general site location map is provided on Figure I/II-4.1.

*This section addresses  
§ 305.45(a)(7),  
§ 305.45(a)(8),  
§ 330.57(i), § 330.59(b),  
§ 330.61(b), § 330.61(l),  
§ 330.61(o), and  
§ 330.61(p).*

#### Owner and Operator

The existing landfill is owned and operated by Texas Regional Landfill Company, LP, which is a Delaware limited partnership qualified to do business in Texas. Texas Regional Landfill Company, LP's managing general partner is WCN TX GP Corporation, a subsidiary of Waste Connections Lonestar, Inc. For over 30 years, the landfill has been a part of the community and is the main recipient of construction and demolition waste from the residents and businesses in Tarrant County and surrounding areas.

#### Major Permit Amendment Summary

The purpose of this Major Permit Amendment is to secure authorization to horizontally and vertically expand the existing Fort Worth C&D Landfill. Comparisons between (1) the existing permitted and proposed landfill completion plans and (2) the existing permitted and proposed landfill base grading plans are shown on Figure I/II-2.1 and Figure I/II-2.2, respectively. As shown, the permit

boundary will not be changed and the waste footprint will be expanded to the west for this permit amendment.

The facility serves residences and businesses in Tarrant County and surrounding communities. In addition, the landfill accepts waste from private, and public haulers from surrounding communities and counties. This service area is based on current economic conditions. As economic conditions and available landfill disposal capacity change, the landfill may accept waste from areas other than those identified above.

The quantity and types of waste accepted at the landfill and the site design and operations are discussed in the following subsections. Consistent with Title 30 TAC §330.61(b), the sources and characteristics of wastes are detailed in the following sections. In addition, waste screening and acceptance procedures are further discussed in Part IV – SOP. The types of waste to be accepted for disposal per TCEQ Permit No. MSW-1983E will be the same as those currently accepted at the site.

### 2.1.1 Waste Acceptance Plan

The Fort Worth C&D Landfill is currently operated as a Type IV municipal solid waste disposal facility. The facility accepts waste for disposal from both public and private entities in and around Tarrant County and surrounding counties. The proposed expansion of the site will not alter the current service area of the site. The design and operation of the facility considers the characteristics of the waste types discussed in this section.

The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include yard waste, Class 2 and Class 3 industrial waste, construction-demolition waste, and rubbish. Each classification of waste is defined by Title 30 TAC §330.3 as follows:

- **Yard Waste:** Leaves, grass clippings, yard and garden debris, and brush, including clean woody vegetative material not greater than 6 inches in diameter, that results from landscaping maintenance and land-clearing operations. The term does not include stumps, roots, or shrubs with intact root balls.
- **Industrial Waste:** Solid waste resulting from or incidental to any process of industry or manufacturing operations, classified as follows:
  - Class 2 Industrial Solid Waste – any individual solid waste or combination of industrial solid waste that are not described as Nonhazardous Class 1 or Class 3 as defined in Title 30 TAC §335.506 (relating to Class 2 Waste Determination). Consistent with the waste characteristics of construction or demolition waste and/or rubbish means having characteristics like those waste type entries in this table.

- Class 3 Industrial Solid Waste – inert and essentially insoluble industrial solid waste, usually including, but not limited to, materials such as rock, brick, glass, dirt, and certain plastics and rubber, etc., that are not readily decomposable, as further defined in Title 30 TAC §335.507 (relating to Class 3 Waste Determination).
- **Construction-Demolition Waste:** Waste resulting from construction or demolition projects; includes all materials that are directly or indirectly the by-products of construction work or that result from demolition of buildings and other structures, including but not limited to, paper, cartons, gypsum board, wood, excelsior, rubber, and plastics.
- **Rubbish:** Nonputrescible solid waste (excluding ashes), consisting of both combustible and noncombustible waste materials.
- **Non-regulated asbestos-containing materials (non-RACM):** Non-RACM is asbestos-containing material that is not regulated asbestos-containing material as defined in 30 TAC §330.3(126).
- **Empty containers that have been used for pesticides, herbicides, fungicides, or rodenticides:** Empty containers that have been used for pesticides, herbicides, fungicides, or rodenticides must be disposed of in accordance with the following:
  - A) These containers may be disposed of at any landfill provided that:
    - (i) the containers are triple-rinsed prior to receipt at the landfill.
    - (ii) the containers are rendered unusable prior to or upon receipt at the landfill; and
    - (iii) the containers are covered by the end of the same working day they are received.
- **Mechanical shredding waste that is nonhazardous industrial waste contains no free liquids, and is not a hazardous waste:** Nonhazardous industrial solid waste generated by the mechanical shredding of motor vehicles, appliances, or other items of scrap, used, or obsolete metals. The waste must not classify as a hazardous as defined in 30 TAC §330.3(62).
- **Scrap Tire:** Any tire that can no longer be used for its original intended purpose. Slit and quartered or shredded refers to scrap tires that have been cut into smaller pieces, and are no longer whole tires.

The facility will not accept the following wastes: putrescible wastes, conditionally exempt small-quantity generator waste, household wastes, regulated hazardous waste, Class 1 industrial waste, special waste (with the exception of those special wastes allowed by TCEQ regulations at Type IV MSW facilities and noted in the above list of wastes that are allowed to be accepted), regulated asbestos-containing materials (RACM), radioactive waste, prohibited polychlorinated biphenyls (PCB) waste, liquid waste, water and wastewater treatment sludges, grease/grit trap waste, lead acid storage batteries, used motor vehicle oil, used oil filters from internal combustion engines, whole used tires or whole scrap tires for disposal, and wastes incompatible with landfilling activities.

Waste will only be disposed of in the 121.9-acre solid waste disposal footprint described in this permit application. No other waste disposal activities will occur within the 184.3-acre Fort Worth C&D Landfill permit boundary.

### 2.1.2 Disposal Rate and Volume of Waste

The following two subsections detail the volume of waste disposal capacity and the projected disposal rates.

#### Volume of Waste Disposal Capacity

The waste disposal capacity of the site is summarized in Table 2-1.

**Table 2-1  
Waste Disposal Capacity Summary**

Item	Disposal Capacity <sup>1</sup>	
	Permit No. MSW-1983D	Permit No. MSW-1983E
Consumed Airspace	13,000,025	13,000,025
Remaining Airspace	9,887,975	18,287,975
Airspace Gained by Expansion	---	8,400,000
<b>Total Capacity</b>	<b>22,888,000</b>	<b>31,288,000</b>

<sup>1</sup> Disposal capacity is defined as waste and daily cover. The consumed airspace represents the waste that has been placed at the site as of February 17, 2022.

#### Disposal Rate Projections

The disposal rate estimate is based on Texas Regional Landfill Company, LP's knowledge of market conditions, both currently and after the permit is issued.

The disposal rate projections are discussed in detail in Appendix IIIB and summarized in Table 2-2.

**Table 2-2  
Solid Waste Disposal Rate Summary**

Initial Waste Inflow	Average Daily Projected Waste Inflow	Maximum Projected Waste Inflow	Population Equivalent (persons)	Site Life <sup>1</sup> (years)
470,756 tons/year 1,646 tons/day	559,229 tons/year 1,955 tons/day	667,342 tons/year 2,333 tons/day	612,854	15.6

<sup>1</sup> Based on the site projected to receive 1,805 tons/day (based on a 286-day operating schedule) in 2022.

Texas Regional Landfill Company, LP estimates that the waste inflow will increase to 516,507 tons per year (1,805 tons per day based on a 286-day operating schedule) in 2022. After 2022, the waste inflow rate is assumed to increase consistent with the projected growth rate for the facility's general service area.

Operating criteria for a range of waste acceptance rates are included in Part IV – SOP. The above projections are based on current market conditions and may vary as market conditions change. These waste acceptance rates are not a limiting parameter of this permit. The actual yearly waste acceptance rate is a rolling quantity based on the sum of the previous four quarters of waste acceptance (refer to Part IV – SOP for additional information).

The estimated maximum annual waste acceptance rate for the facility for 7 years is shown in the following table.

Year	Waste Acceptance Rate (tons per year)
2022	516,507
2023	562,952
2024	571,492
2025	580,161
2026	588,962
2027	597,896
2028	606,966

The projected waste acceptance rate for other years is summarized in Part III, Appendix IIIB.

### 2.1.3 Solid Waste Containment System

The design objective of the containment system [final cover, in-situ shale liner, or recompacted clay liner] is to isolate the solid waste. The liner system will consist of intact in-situ weathered shale or recompacted clay liner overlain by protective soil cover. A generalized detail of the containment system for the Fort Worth C&D Landfill is shown in Figure 2.1. Design information and the required QA/QC construction procedures for the individual components of the containment system are presented in Part III of this application.

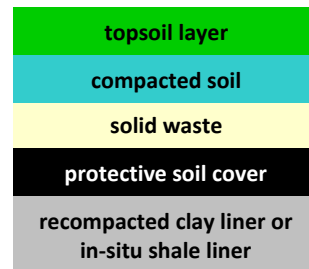


Figure 2.1. The composite liner and cover systems will be designed to meet or exceed all state and federal regulations.

### 2.1.4 Site Development Plan

The site development plan (SDP) is included in Part III of this application. This plan sets forth the overall design and operating characteristics of the landfill. Drawings showing the proposed landfill configuration during site development are presented in Parts I/II, Appendix I/IIA – Facility Layout Maps. A summary of the landfill configuration is provided below (refer to Figures I/II-2.1 and I/II-2.2 for additional information).

- The permit boundary will include an area of 184.3 acres. No increase in the size or configuration of the permit boundary are proposed for this amendment application. The legal description for the permit boundary is included in Section 13 of Parts I/II.
- A summary of the capacity (volume of waste and cover soils) of the site is listed below:
  - Remaining capacity of existing site (TCEQ Permit No. MSW-1983D) = 9.9 million cubic yards (as of February 17, 2022).
  - Increase due to major permit amendment application = 8.4 million cubic yards.
  - Remaining capacity of the site with the proposed expansion (TCEQ Permit No. MSW-1983E) = 18.3 million cubic yards (as of February 17, 2022).
- The maximum elevation of the final cover will be 860.5 ft-msl, and the maximum waste elevation will be 858 ft-msl.
- The elevation of deepest excavation (EDE) for the proposed landfill liner system excavation will be 550 ft-msl (if in-situ liner is used) or 546 ft-msl (if constructed liner is used) (i.e., bottom of liner system in deepest sump), which is the same as the currently approved EDE. This elevation represents the bottom of the liner system.
- The liner system (4-foot-thick intact in-situ unweathered shale or 3-foot-thick recompacted clay liner overlain by 1-foot of protective soil cover) will be constructed according to Title 30 TAC §330.331(d)(1) or (2). Details for the liner is provided in Part III, Appendix IIIA-A – Liner and Final Cover System Details.
- This application includes a horizontal and vertical expansion of the landfill. A containment system design for this area is provided to meet the requirements of Title 30 TAC §330.331(d)(1). The bottom liner design for the MSW lateral expansion area will incorporate an in-situ liner system consisting of unweathered shale that is present at the site or a recompacted clay liner overlain by protective cover soil. The sidewall liner system will consist of a 3-foot-thick recompacted clay liner overlain by a 1-foot-thick protective cover layer. The protective cover layer will be earthen material with a 3-inch diameter maximum particle size and without deleterious material.
- Above grade waste disposal will conform to the lines and grades set forth in Appendix I/IIA, Drawing I/II-A.8 – Landfill Completion Plan. Sideslope grades will not exceed 3H:1V from the toe of the side embankment to the top of the side embankment. The slope of the landfill top deck will be constructed at a five percent maximum slope.
- A final cover system will be constructed over the filled waste material, as shown in Part III, Appendix IIIA-A – Liner and Final Cover System Details.



The final cover system will consist of (from bottom to top) an 18-inch-thick compacted clay infiltration layer meeting the requirements of §330.457(a)(2) and a topsoil layer consisting of 6 or 12 inches of earthen material (depending on soil type) capable of sustaining vegetative growth. The final cover system is designed to minimize stormwater infiltration.

- The proposed expansion includes numerous drainage improvements to the existing permitted drainage system design. The final cover erosion control structures and perimeter channel system have been designed to effectively minimize erosion of final cover soils and increase detention of stormwater before it is discharged from the site. The proposed perimeter drainage system includes detention ponds, channels, and outlet control structures. The perimeter drainage system will be constructed in the general sequence shown in Parts I/II, Appendix I/IIA, Drawings I/II-A.4 through I/II-A.6.

### 2.1.5 Site Monitoring Systems

To verify the integrity of the environmental protection systems, the following existing monitoring systems will be maintained.

- **Groundwater Monitoring System** – The purpose of the groundwater monitoring system is to verify the integrity of the containment systems and to confirm that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining groundwater samples from the monitoring wells on the perimeter of the landfill, which are screened in the uppermost aquifer. The details of the existing and proposed groundwater monitoring system network design are provided in Part III, Appendix IIIH.

The existing groundwater monitoring system (TCEQ Permit No. 1983D) consists of eight detection monitoring wells. This major amendment application proposes revisions to the groundwater monitoring system that include the installation of additional wells and decommissioning of some of the existing wells to accommodate the phased development of the facility's proposed lateral waste disposal expansion areas. The proposed groundwater monitoring system network is further discussed in Part III, Appendix III H.

- **Landfill Gas Monitoring System** – The purpose of the landfill gas monitoring system is to monitor and verify that landfill gas does not migrate off-site. The existing approved landfill gas monitoring system consists of 13 gas probes located along the existing permit boundary. This application proposes to relocate four existing gas probes to accommodate the proposed landfill expansion. The landfill gas monitoring system is discussed more in Part III, Appendix III I.
- **Surface Water Monitoring Requirements** – The Fort Worth C&D Landfill is subject to TCEQ stormwater permit requirements. Fort Worth C&D Landfill has secured coverage under the Texas Pollutant Discharge Elimination System (TPDES) general permit. Texas Regional Landfill Company, LP

maintains a current stormwater pollution prevention plan prepared consistent with multi-sector general permit (TXR05AP26). TCEQ approval for the existing TPDES is included in Appendix I/II.E. Surface water monitoring will be conducted consistent with TPDES requirements.

### **2.1.6 Site Operations**

The Fort Worth C&D Landfill is now and will continue to be operated by trained and TCEQ-certified personnel. The site operating plan (SOP) for the Fort Worth C&D Landfill is presented in Part IV of this permit application. The operating plan details, the equipment, personnel, and safety procedures required to operate the site in accordance with Title 30 TAC §330.65. At the end of each working day, the active landfill area will be covered with soil or an approved ADC to prevent potential nuisance conditions such as odors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis for compliance with state regulations.

## **2.2 Regulatory Agency Coordination**

Documentation of coordination with the following regulatory agencies is included in Appendix I/II.B:

- Federal Aviation Administration
- Texas Historical Commission
- Texas Department of Transportation
- Texas Parks and Wildlife Department
- U.S. Army Corps of Engineers
- U.S. Department of the Interior, Fish and Wildlife Service
- North Central Texas Council of Governments

## **2.3 Texas Historical Commission Review**

As noted in Section 2.2, a Texas Historical Commission (THC) coordination letter is included in Appendix I/II.B. THC response will be submitted to TCEQ upon receipt.

## **2.4 North Central Texas Council of Governments**

The expansion of the Fort Worth C&D Landfill is consistent with the North Central Texas Council of Governments' (NCTCOG) Regional Solid Waste Plan. The Fort Worth C&D Landfill is identified as a key part of the NCTCOG Regional Solid Waste Plan. The continued development of the facility will provide a regional facility that will ensure long-term, cost-effective, and environmentally-suitable disposal capacity

for the region. This is a major goal of the NCTCOG Regional Plan. Parts I/II of this application were submitted to the NCTCOG on February 9, 2023. A letter documenting that Parts I/II were submitted to the NCTCOG is included in Appendix I/IIB. The NCTCOG found the application to be consistent with the goals of the Regional Management Plan. NCTCOG letter is included in Appendix I/IIB.

## **2.5 Abandoned Oil and Water Wells**

A search for water wells within a one-mile radius of the site conducted by Environmental Risk Information Services (ERIS) and WCG included review of records from the Texas Water Development Board, the TCEQ, and other database records (refer to Appendix IIIG of Part III for more information). The identified water wells are located outside of the permit boundary. In addition to the database record searches, WCG completed a reconnaissance survey from area roadways to identify apparently unregistered water wells. No apparent unregistered water wells were identified.

At the time of this submittal, there are no known abandoned onsite oil, gas, or water wells documented within the RRC, SSDRD, TCEQ, and TWBD plugged well databases. However, if an abandoned oil, gas, or water well is located during the course of facility development, the Landfill Manager will provide written notification to the TCEQ's Executive Director of their location within 30 days after discovery during the course of facility development. As the site is developed, if any wells are encountered, they will be exposed, the casing cut to a minimum of 2 feet below the excavation, and the well capped and plugged in accordance with all applicable rules and regulations of the TCEQ, the Railroad Commission of Texas, or other applicable state agency.

The Landfill Manager will provide written notification to the Executive Director of the location of any existing or abandoned water wells within the facility upon discovery during site development. Within 30 days of such a discovery, the Landfill Manager will provide written notification and certification to the Executive Director of the TCEQ that all such wells have been capped, plugged, and closed in accordance with all applicable rules and regulations of the TCEQ or other applicable state agency.

For crude oil or natural gas wells, or other wells associated with mineral recovery that are under the jurisdiction of the Railroad Commission of Texas, within 30 days after the plugging of any such well, the Landfill Manager will provide the Executive Director of the TCEQ with written certification that all such wells have been properly capped, plugged, and closed in accordance with all applicable rules and regulations of the Railroad Commission of Texas.

A copy of the well plugging report to be submitted to the appropriate state agency will also be submitted to the executive director of the TCEQ within 30 days after the well has been plugged.

In the event that an abandoned well causes a change to the liner installation plan, a permit modification will be submitted to the Executive Director in accordance with Title 30 TAC §330.131(d).

## **2.6 Internet Posting**

In accordance with Title 30 TAC §330.57(i), a complete copy of this permit application will be posted to the internet at the following publicly accessible website: <http://www.ftwweaverboos.com>. All future revisions or supplements to this permit application will also be posted at the same location. This internet posting is for informational purposes only.

## **2.7 Existing Permits/Authorizations**

In accordance with Title 30 TAC §305.45(a)(7), the existing permits and authorizations for the facility are summarized in Table 2-3.

**Table 2-3  
Existing Permits/Authorizations**

Description		Status
Hazardous Waste Management program under the Texas Solid Waste Disposal Act		No submittal is required nor has been applied for under the Hazardous Waste Management Program under the Texas Solid Waste Disposal Act.
Underground Injection Control (UIC) program under the Texas Injection Well Act		No submittal is required nor has been applied for under the Underground Injection Control Program under the Texas Injection Well Act.
Texas Pollutant Discharge Elimination System (TPDES) program under the Federal Clean Water Act (CWA) and Waste Discharge program under the Texas Water Code, Chapter 26		Refer to Appendix I/IIE for more information regarding the site's Multi-Sector Stormwater Permit (TCEQ Permit No. TXR05AP26).
Prevention of Significant Deterioration (PSD) Program under the Federal Clean Air Act		No submittal for a Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA) is required or has been applied for.
Nonattainment Program under the Federal Clean Air Act (FCAA)		No submittal for a non-attainment permit under the FCAA is required or has been applied for.
National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the FCAA		No submittal is required nor been applied for under the NESHAPS preconstruction approval under the FCAA.
Ocean dumping permits under the Marine Protection Research and Sanctuaries Act		No submittal is required nor have ocean dumping permits been applied for under the Marine Protection Research and Sanctuaries Act.
Dredge or fill permits under the Federal Clean Water Act		No dredge permits are required under the Federal Clean Water Act. Refer to Parts I/II – Section 11 for additional information.
TCEQ Air Quality Permit or Registration		The emission sources at the landfill are currently authorized by 30 TAC §330, Subchapter U Air Standard Permit, No. 96349 issued May 29, 2018. The air authorization will be updated and revised, as needed.
Other Environmental Permits	Petroleum Storage Tank Registration	ID Type: Registration; ID Number: 88268; ID Status: Active, ID Number: 90197 10 Status: Active

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**PERMITTED LANDFILL COMPLETION PLAN**



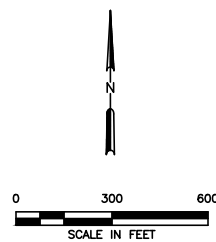
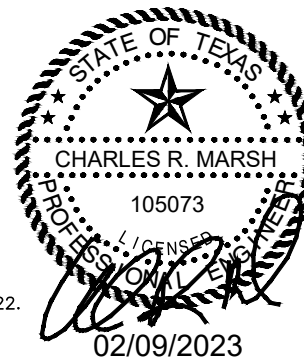
**PROPOSED LANDFILL COMPLETION PLAN**

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- 580 EXISTING CONTOUR (SEE NOTE 1)
- 700 PROPOSED FINAL COVER CONTOUR

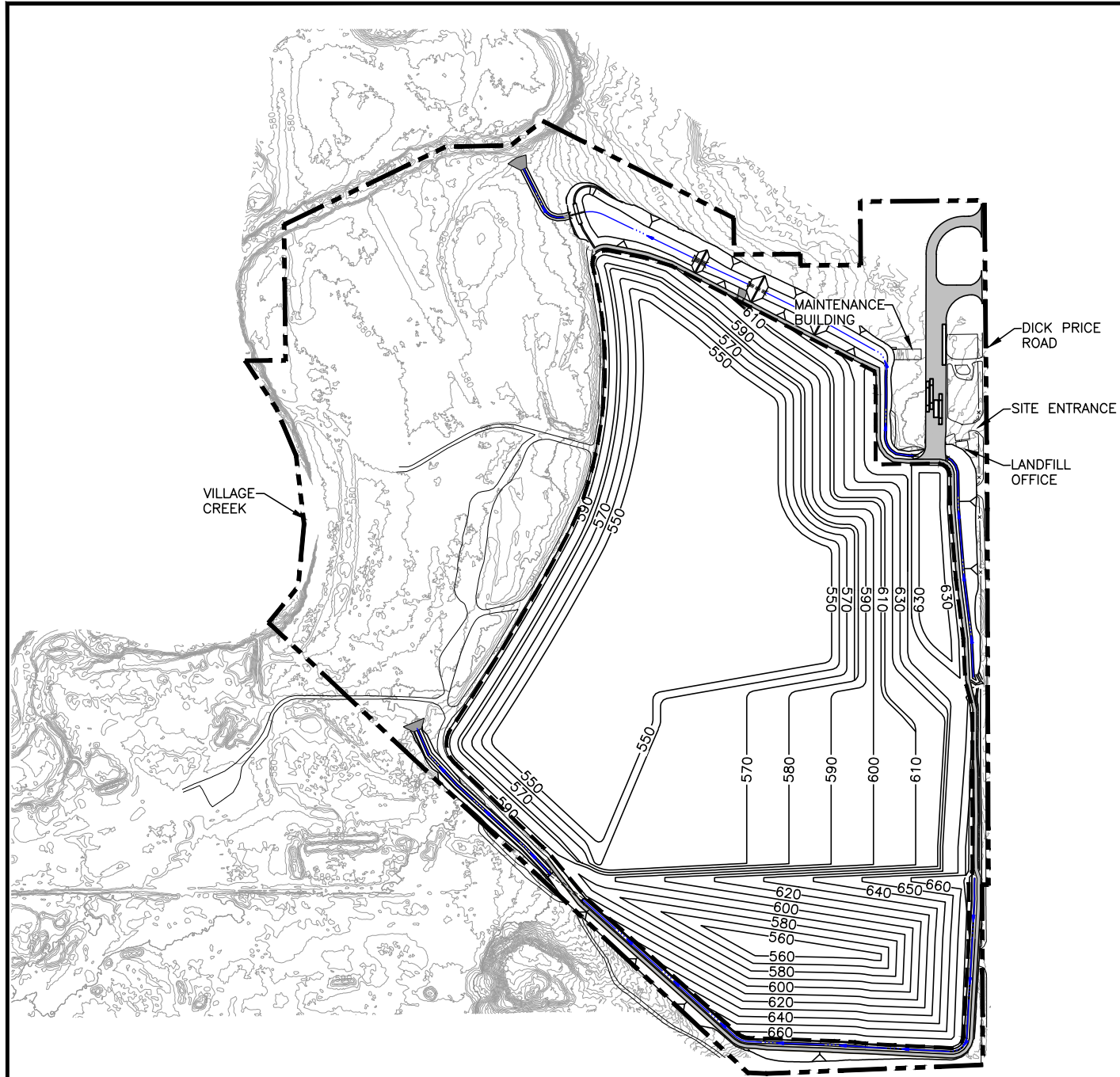
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM	FIGURE 1/II-2.1												

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PERMITTED LANDFILL BASE GRADING PLAN



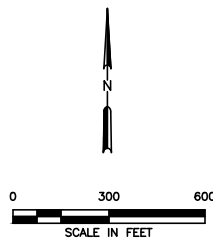
PROPOSED LANDFILL BASE GRADING PLAN

LEGEND

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED BASE GRADING CONTOUR
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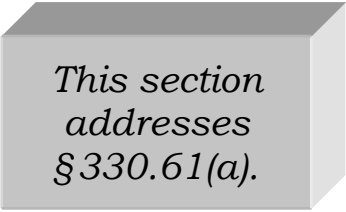
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## 3 EXISTING CONDITIONS SUMMARY

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### 3.1 Site History

The Fort Worth C&D Landfill is an existing 184.3-acre municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) located approximately 15 miles southeast of downtown Fort Worth and adjacent to the City of Kennedale.



*This section  
addresses  
§ 330.61(a).*

The site was originally permitted as a 38.1-acre MSW disposal facility in 1988 (Permit No. MSW-1983). A permit amendment (MSW-1983B) was issued in 2002 which expanded the landfill laterally to 151.73 acres. The permit was again amended in January 2017 to include a vertical expansion (Permit No. MSW-1983C). TCEQ Permit No. MSW-1983D was issued in 2020 to vertically expand the landfill. The current permit boundary size is 184.3 acres and the currently permitted waste disposal footprint is approximately 99.9 acres. An existing site plan is shown on Figure I/II-3.1. The existing permitted (TCEQ Permit No. MSW-1983D) excavation plan and final contour plan are reproduced in Figures I/II-3.2 and I/II-3.3.

### 3.2 Existing Liner System

The filled areas of the existing landfill were constructed consistent with the permit requirements in effect at that time. The existing site consists of a liner system with in-situ unweathered shale or recompacted clay liner, which are the prescribed liner systems allowed for a Type IV MSW landfill per 30 TAC 330.331 (d) (1) or (2).

### 3.3 Groundwater Monitoring System

The existing groundwater monitoring system was approved by the TCEQ as part of a Major Permit Amendment for TCEQ permit No. 1983D. The site is monitored by 8 monitoring wells which include two upgradient background wells (MW-1A and MSW-4) and 6 downgradient point of compliance wells (MW-2, MW-5, MW-6, MW-7, MSW-8, and MW-9A).



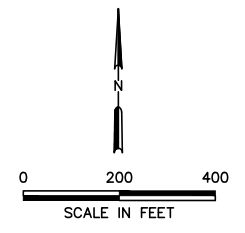
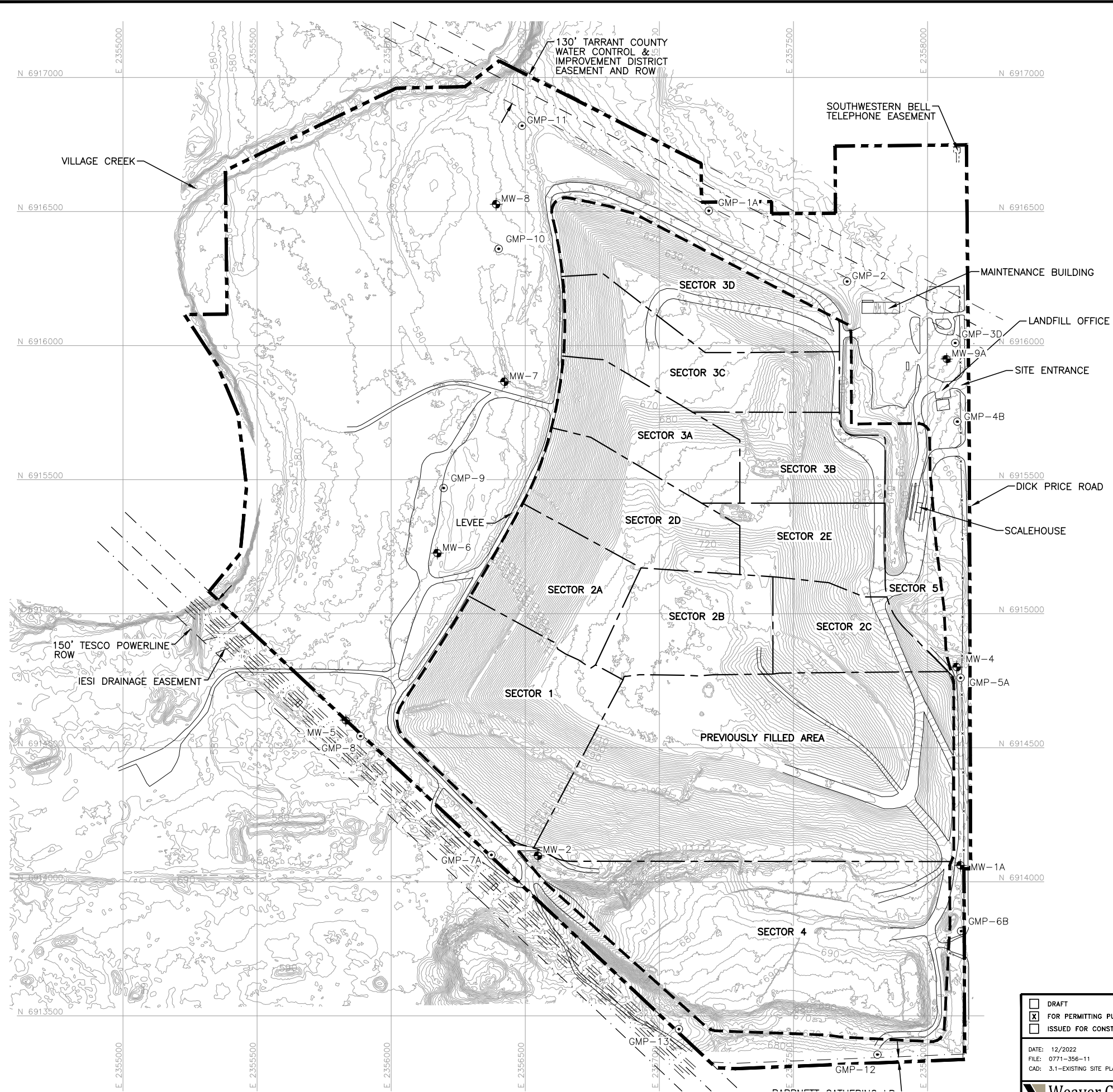
The screened intervals of the monitoring wells is based on the technical demonstration submitted as part of the 2008 well spacing permit modification and was designed to optimize detection of a potential release from the landfill unit. All wells monitor the uppermost aquifer. This permit amendment proposes revisions to the groundwater monitoring system that include the installation of additional wells and decommissioning of existing wells to accommodate the phased development of the facility's proposed lateral waste disposal expansion areas. The proposed groundwater monitoring system network is further discussed in Part III, Appendix IIIH. At the time of this submittal all wells are in detection monitoring status and there are no monitoring wells in assessment or corrective action monitoring status. The groundwater monitoring system is further discussed in Appendix IIIH and Appendix IIIG of Part III.

### **3.4 Landfill Gas Monitoring System**

The existing, TCEQ-approved landfill gas monitoring system consists of eleven gas probes (GMP-1, GMP-2, GMP-3C, GMP-4A, GMP-5, GMP-6A, GMP-7, GMP-8, GMP-9, GMP-10, and GMP-11) located along the permit boundary. Monitoring of these probes is conducted quarterly.

### **3.5 Existing Landfill Air Permits**

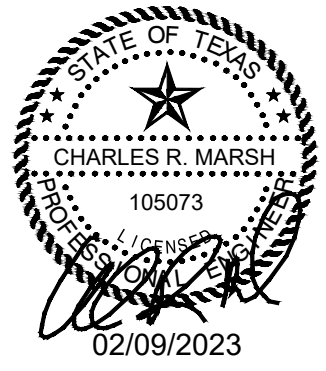
The site currently has a Subchapter U Air Standard Permit approved on May 29, 2018, Permit No. 96349.



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EASEMENT
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE

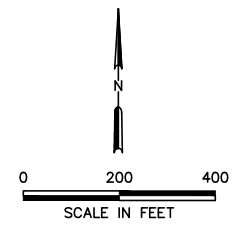
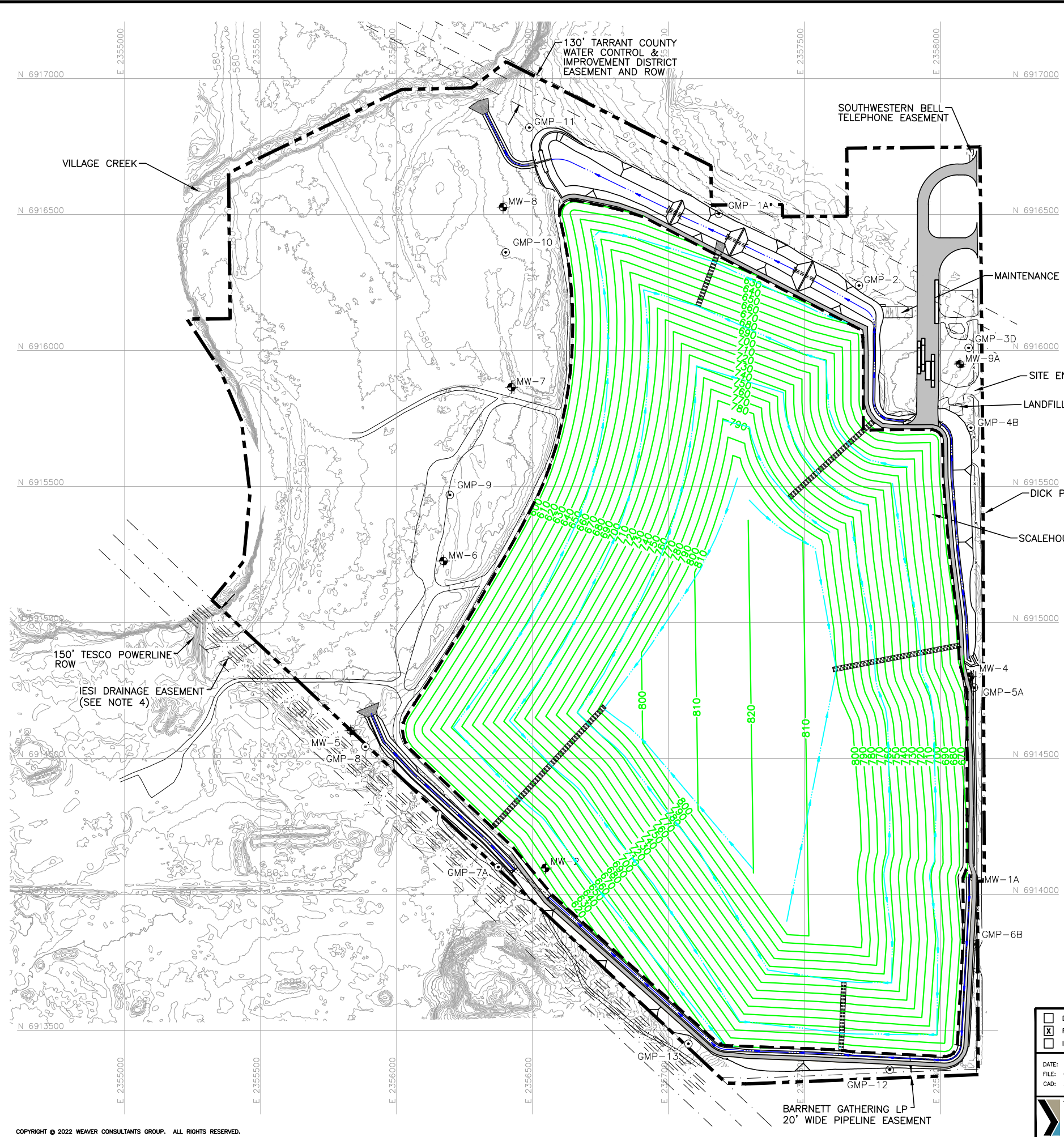
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**MAJOR PERMIT AMENDMENT  
 EXISTING SITE PLAN  
 (TCEQ PERMIT NO. MSW-1983D)  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS**

WWW.WCGRP.COM      **FIGURE 1/II-3.1**

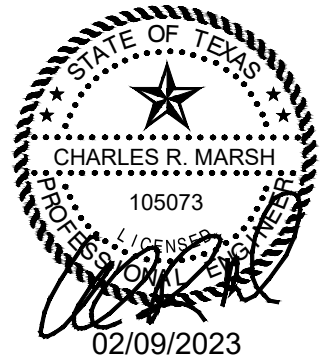


**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	PERMITTED FINAL COVER GRADE
	EASEMENT
	EXISTING/PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE

**NOTES:**

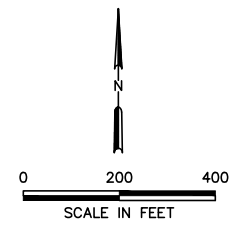
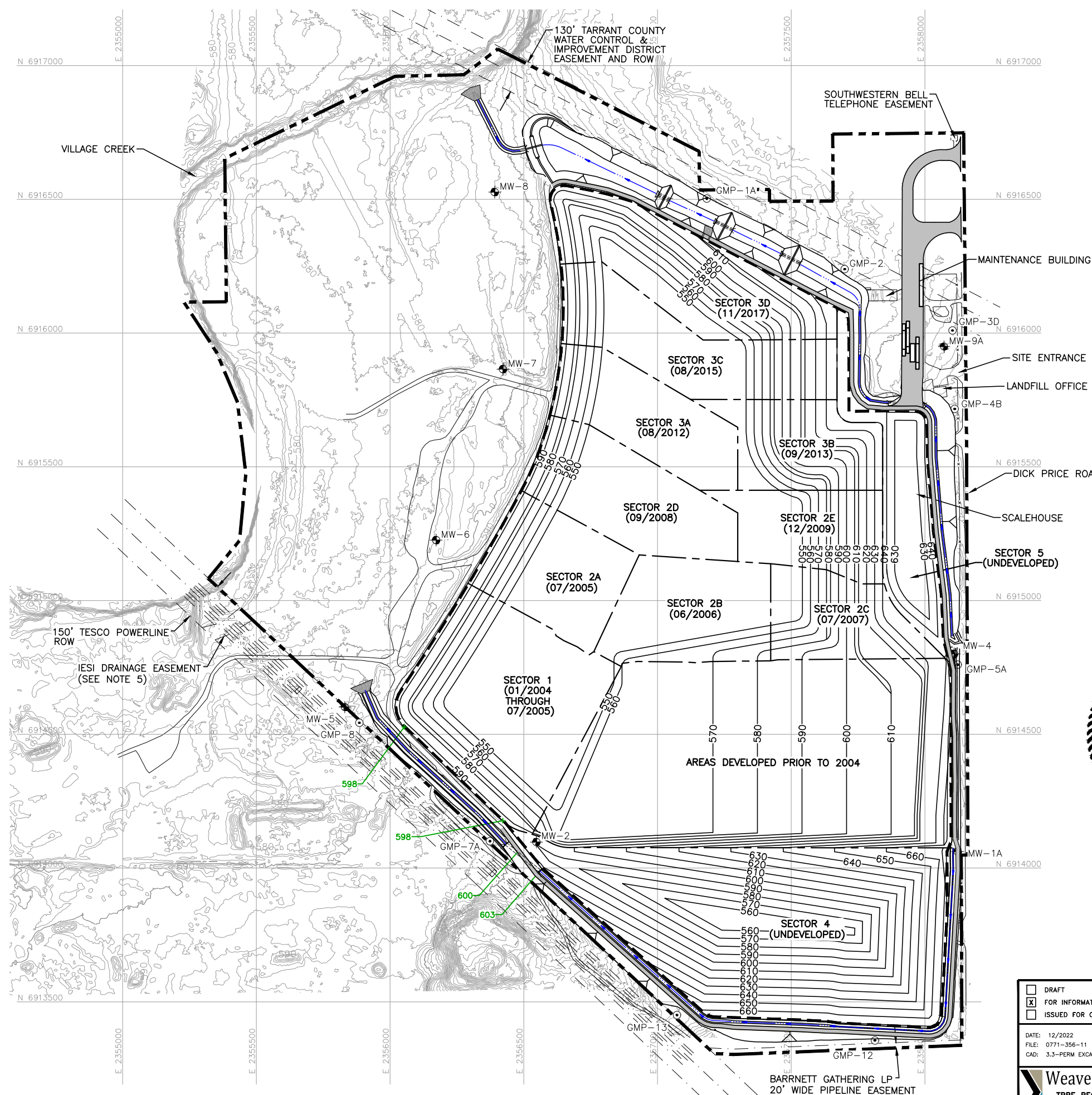
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
- THE EXPANSION LIMIT OF WASTE IS LOCATED A MINIMUM OF 125-FT FROM THE PERMIT BOUNDARY.
- REFER TO "ENVIRONMENTAL MONITORING" SECTION FOR INFORMATION REGARDING LANDFILL PERIMETER GROUNDWATER AND LFG MONITORING NETWORKS.
- THE TESCO EASEMENT IS ADJACENT TO THE PERMIT BOUNDARY (i.e., IS NOT ATTACHED TO THE DEEDS OF THE LANDFILL PROPERTY), THE IESI DRAINAGE EASEMENT PROVIDES CONVEYANCE OF FLOW FROM THE SOUTHERN PROPERTY THROUGH THE TESCO EASEMENT. FLOW FROM THE IESI DRAINAGE EASEMENT WILL BE DISCHARGED INTO THE ONSITE FLOODPALIN STORAGE AREA. HOWEVER, THIS FLOW IS CONSIDERED PART OF VILLAGE CREEK'S FLOW, AS THIS CHANNEL IS INUNDATED BY THE CREEK'S BASE FLOW.
- THE ENVIRONMENTAL MONITORING NETWORK SHOWN WAS REPRODUCED FROM THE APPROVED 2020 GEOSYNTEC PERMIT AMENDMENT APPLICATION.



<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP												
<input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY														
<input type="checkbox"/> ISSUED FOR CONSTRUCTION														
DATE: 12/2022	DESIGNED BY: JWP	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION						
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CAD: 3.2-PERM FINAL COVER PLAN.DWG	REVIEWED BY: CRM													
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

MAJOR PERMIT AMENDMENT PERMITTED FINAL COVER PLAN (TCEQ PERMIT NO. MSW-1983D)		
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS		
WWW.WCGRP.COM	FIGURE 1/II-3.2	

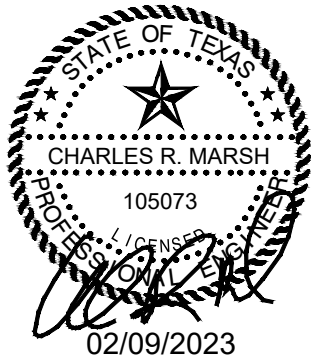
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**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	PERMITTED BASE GRADE (SEE NOTE 4)
	EASEMENT
	EXISTING/PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
  - THE EXPANSION LIMIT OF WASTE IS LOCATED A MINIMUM OF 125-FT FROM THE PERMIT BOUNDARY.
  - REFER TO "ENVIRONMENTAL MONITORING" SECTION FOR INFORMATION REGARDING LANDFILL PERIMETER GROUNDWATER AND LFG MONITORING NETWORKS.
  - BASE GRADES SHOWN ARE THE TOP OF PROTECTIVE COVER COMPONENT OF THE CONSTRUCTED LINER SYSTEM OR THE TOP OF THE IN-SITU LINER SYSTEM. THE ELEVATION OF DEEPEST EXCAVATION (EDE) FOR THE FACILITY IS 550 FT, MSL BASED ON USE OF IN-SITU LINER (OR ELEVATION 546 FT, MSL IF CONSTRUCTED LINER IS USED).
  - THE TESCO EASEMENT IS ADJACENT TO THE PERMIT BOUNDARY (i.e., IS NOT ATTACHED TO THE DEEDS OF THE LANDFILL PROPERTY), THE IESI DRAINAGE EASEMENT PROVIDES CONVEYANCE OF FLOW FROM THE SOUTHERN PROPERTY THROUGH THE TESCO EASEMENT. FLOW FROM THE IESI DRAINAGE EASEMENT WILL BE DISCHARGED INTO THE ONSITE DETENTION POND. HOWEVER, THIS FLOW IS CONSIDERED PART OF VILLAGE CREEK'S FLOW, AS THIS CHANNEL IS INUNDATED BY THE CREEK'S BASE FLOW.
  - THE ENVIRONMENTAL MONITORING NETWORK SHOWN WAS REPRODUCED FROM THE APPROVED 2020 GEOSYNTEC PERMIT AMENDMENT APPLICATION.
  - DATES LISTED BELOW SECTOR LABELS REPRESENT SLER APPROVAL DATES.



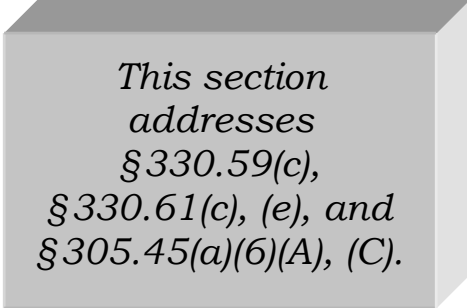
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>MAJOR PERMIT AMENDMENT          PERMITTED EXCAVATION PLAN          (TCEQ PERMIT NO. MSW-1983D)</b>  <b>FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>
	TEXAS REGIONAL LANDFILL COMPANY, LP		
DATE: 12/2022 FILE: 0771-356-11 CAD: 3.3-PERM EXCAVATION PLAN.DWG	DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM	REVISIONS	
		NO.	DATE
		DESCRIPTION	
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM	FIGURE 1/II-3.3

## 4 MAPS

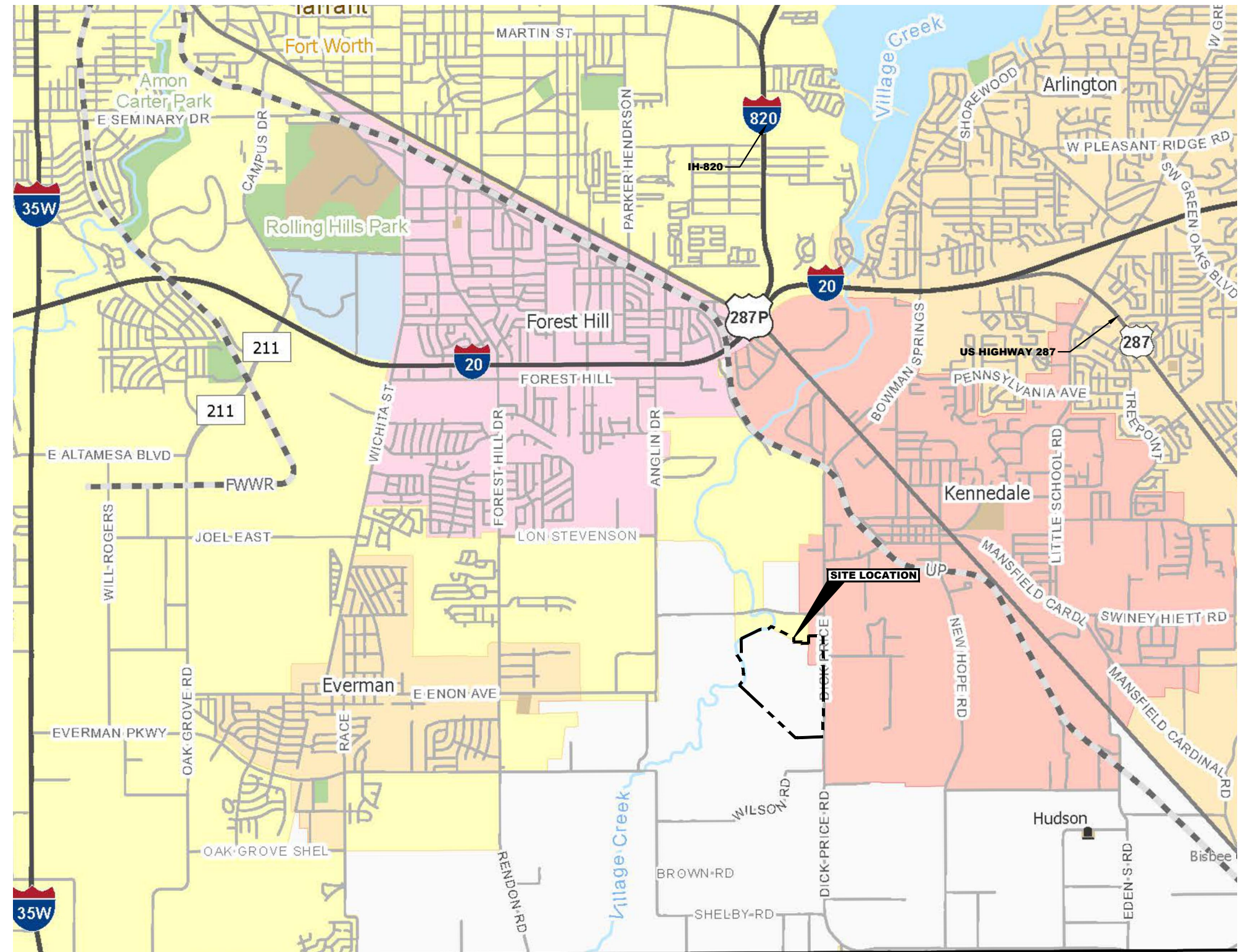
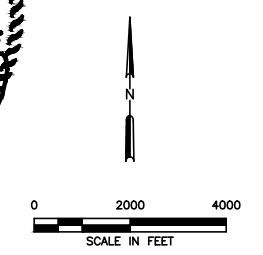
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A site location map and general topographic map are presented on Figures I/II-4.1 and I/II-4.2. Structures and inhabitable buildings located within 500 feet, as well as the nearest residence, are shown on Figure I/II-4.3.

Figure I/II-4.1 and Figure I/II-4.2 show surface water bodies in accordance with Title 30 TAC §330.59(c)(1) and §305.45(a)(6)(A). As noted on Figure I/II-4.2, no springs have been documented within a 1-mile radius of the site. Water wells within 500 feet are shown on Figure I/II-4.3.



*This section  
addresses  
§330.59(c),  
§330.61(c), (e), and  
§305.45(a)(6)(A), (C).*



- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⊠ Cemetery
  - ⊠ Cemetery (Inside City)
  - ⊕ Deep Draft Port
  - ⊕ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

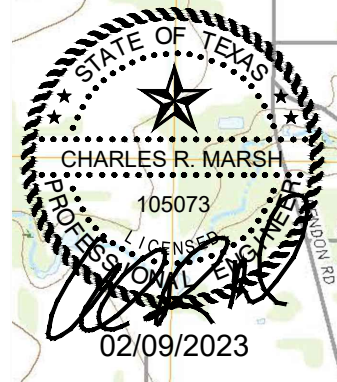
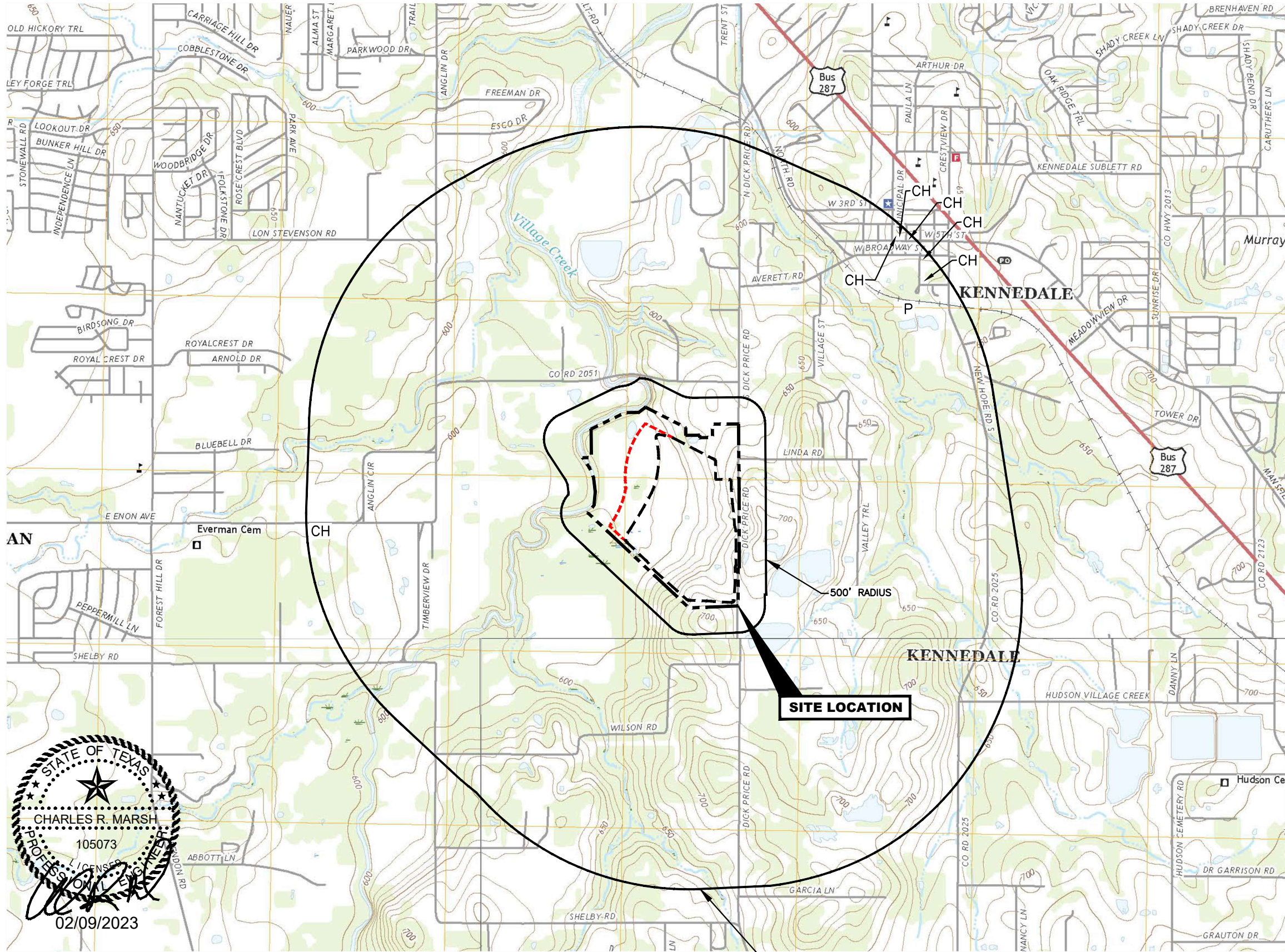
**NOTES:**

- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.

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REVISIONS														
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

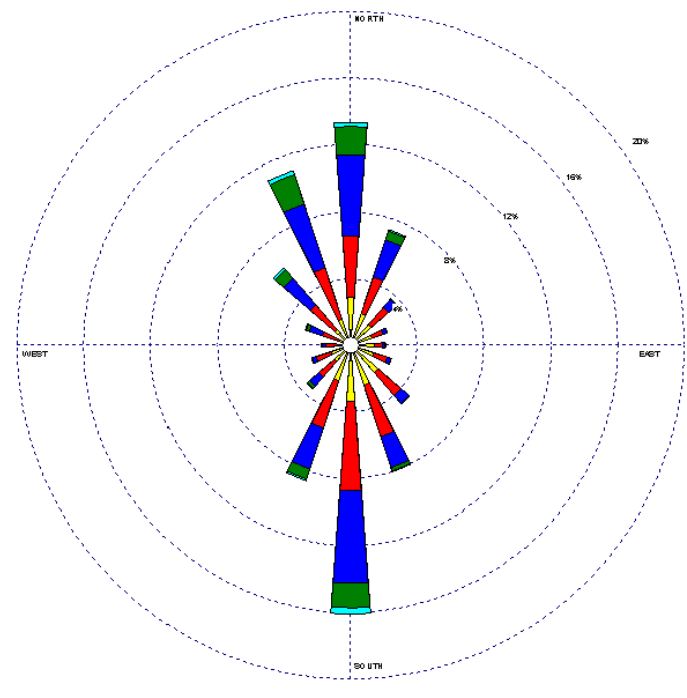
<b>MAJOR PERMIT AMENDMENT SITE LOCATION MAP</b>	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 1/II-4.1

G:\0771\356\EXPANSION 2022\PARTS 1-11\4.1-SITE LOCATION MAP.dwg - jwilson, 1:2



- NOTES:**
- ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).
  - SEE FIGURE 1/II-5.1 FOR PROPERTY OWNERS WITHIN 1/4-MILE OF THE SITE.
  - SEE SECTION 7.2 FOR DISCUSSION OF WATER WELLS. WATER WELLS LOCATED WITHIN 500 FEET OF THE PERMIT BOUNDARY ARE SHOWN ON FIGURE 1/II-4.3. REFER TO APPENDIX III G WATER WELLS WITHIN ONE MILE OF THE PERMIT BOUNDARY.
  - THERE ARE 6 CHURCHES WITHIN ONE MILE OF THE PROPOSED PERMIT BOUNDARY. THE CLOSEST CHURCH IS LOCATED APPROXIMATELY 5,000 FEET NORTHEAST OF THE PERMIT BOUNDARY. THERE ARE NO KNOWN SCHOOLS, HISTORIC SITES, DAY CARE CENTERS, KNOWN ARCHEOLOGICALLY SIGNIFICANT SITES, CEMETERIES OR SITES OF EXCEPTIONAL AESTHETIC QUALITY LOCATED WITHIN ONE MILE OF THE PERMIT BOUNDARY. REFER TO SECTION 7 FOR ADDITIONAL INFORMATION.
  - NO SPRINGS ARE DOCUMENTED WITHIN ONE-MILE OF THE PERMIT BOUNDARY.
  - REFER TO FIGURE 4.3 FOR LOCATION OF THE NEAREST RESIDENCE.
  - REFER TO SECTION 8 FOR AIRPORTS LOCATED WITHIN 6-MILES OF THE PERMIT BOUNDARY.
  - REFER TO APPENDIX 1/IIA, DRAWING 1/IIA.1 FOR EASEMENT INFORMATION AND DRAWING 1/IIA.11 FOR ACCESS CONTROL INFORMATION.
  - THE WIND ROSE IS REPRODUCED FROM THE TEXAS AUTOMATED SURFACE OBSERVING SYSTEM (ASOS) AT THE DFW AIRPORT. THE ASOS IS A JOINT PROGRAM OF THE NATIONAL WEATHER SERVICE, THE FEDERAL AVIATION ADMINISTRATION AND THE DEPARTMENT OF DEFENSE.

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



**LEGEND**

— — — — — PERMIT BOUNDARY  
 - - - - - PERMITTED LIMIT OF WASTE  
 - - - - - PROPOSED LIMIT OF WASTE

CH CHURCH  
 P PARK

**ROAD CLASSIFICATION**

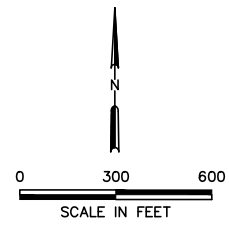
Expressway ——— Local Connector ———  
 Secondary Hwy ——— Local Road ———  
 Ramp ——— 4WD ———  
 Interstate Route US Route State Route

— 1-MILE RADIUS

0 1000 2000  
 SCALE IN FEET

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          GENERAL TOPOGRAPHIC MAP</b>
DATE: 12/2022 FILE: 0771-356-11 CAD: 4.2-GENERAL TOPO MAP.DWG	DRAWN BY: SRF DESIGN BY: JBP REVIEWED BY: CRM	
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM      FIGURE 1/II-4.2

G:\0771\356\EXPANSION 2022\PARTS 1-IV\4.2-GENERAL TOPO MAP.dwg - jwilson, 1:2

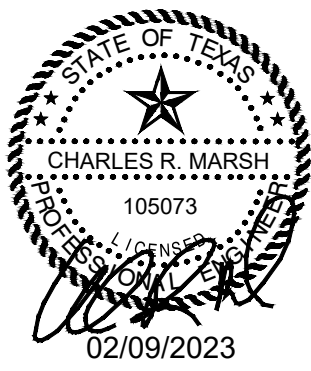


**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- WATER WELL IDENTIFIED BY WELL SEARCH (SEE NOTE 4)
- RESIDENTIAL BUILDING (SEE NOTE 2)
- AGRICULTURAL BUILDING (INCLUDING SCATTERED RESIDENCES, SEE NOTE 2)
- INDUSTRIAL BUILDING (SEE NOTE 2)

**NOTES:**

1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
2. ALL STRUCTURES WITHIN 500 FEET ARE SHOWN ON THIS FIGURE. EACH STRUCTURE IS ASSUMED TO BE HABITABLE. LAND USE WITHIN A 500 FOOT RADIUS OF THE SITE CONSISTS OF RESIDENTIAL, INDUSTRIAL AND AGRICULTURAL AREAS.
3. REFER TO APPENDIX III G FOR ADDITIONAL WATER WELL INFORMATION.
4. A SEARCH TO IDENTIFY WATER WELLS WITHIN A 1-MILE RADIUS OF THE LANDFILL PERMIT BOUNDARY WAS COMPLETED BY ENVIRONMENTAL RISK INFORMATION SERVICES (ERIS) AND WCG IN SEPTEMBER 2022.



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<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	
DATE: 12/2022	DRAWN BY: SRF
FILE: 0771-356-11	DESIGN BY: JBP
CAD: 4.3-STRUCTURES AND BUILDINGS.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

REVISIONS		
NO.	DATE	DESCRIPTION

<b>MAJOR PERMIT AMENDMENT STRUCTURES, INHABITABLE BUILDINGS, AND WATER WELLS WITHIN 500 FEET</b>	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 1/II-4.3

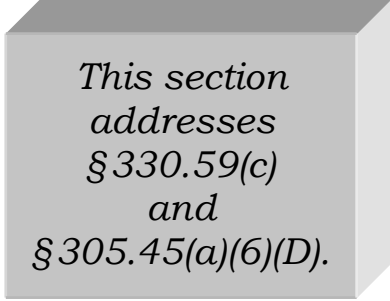
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## 5 PROPERTY OWNERS LIST AND MAP

---

The following list and figure provide the names, mailing addresses, and locations of the “Adjacent and Potentially Affected Landowners” within ¼ mile of the Fort Worth C&D Landfill. The numbers on the property owners list correspond to the numbers listed on Figure I/II-5.1. The list is based on records of the Tarrant County Appraisal District as of August 2022. Refer to Figure I/II-5.1, Property Owners Map, for location of the properties. Based on a discussion with the Tarrant County Appraisal District, they do not maintain mineral interest ownership records.



*This section  
addresses  
§ 330.59(c)  
and  
§ 305.45(a)(6)(D).*

**TABLE 5-1**  
**PROPERTY OWNERS LIST**

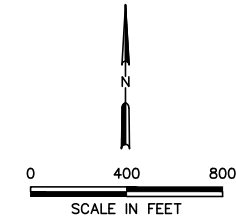
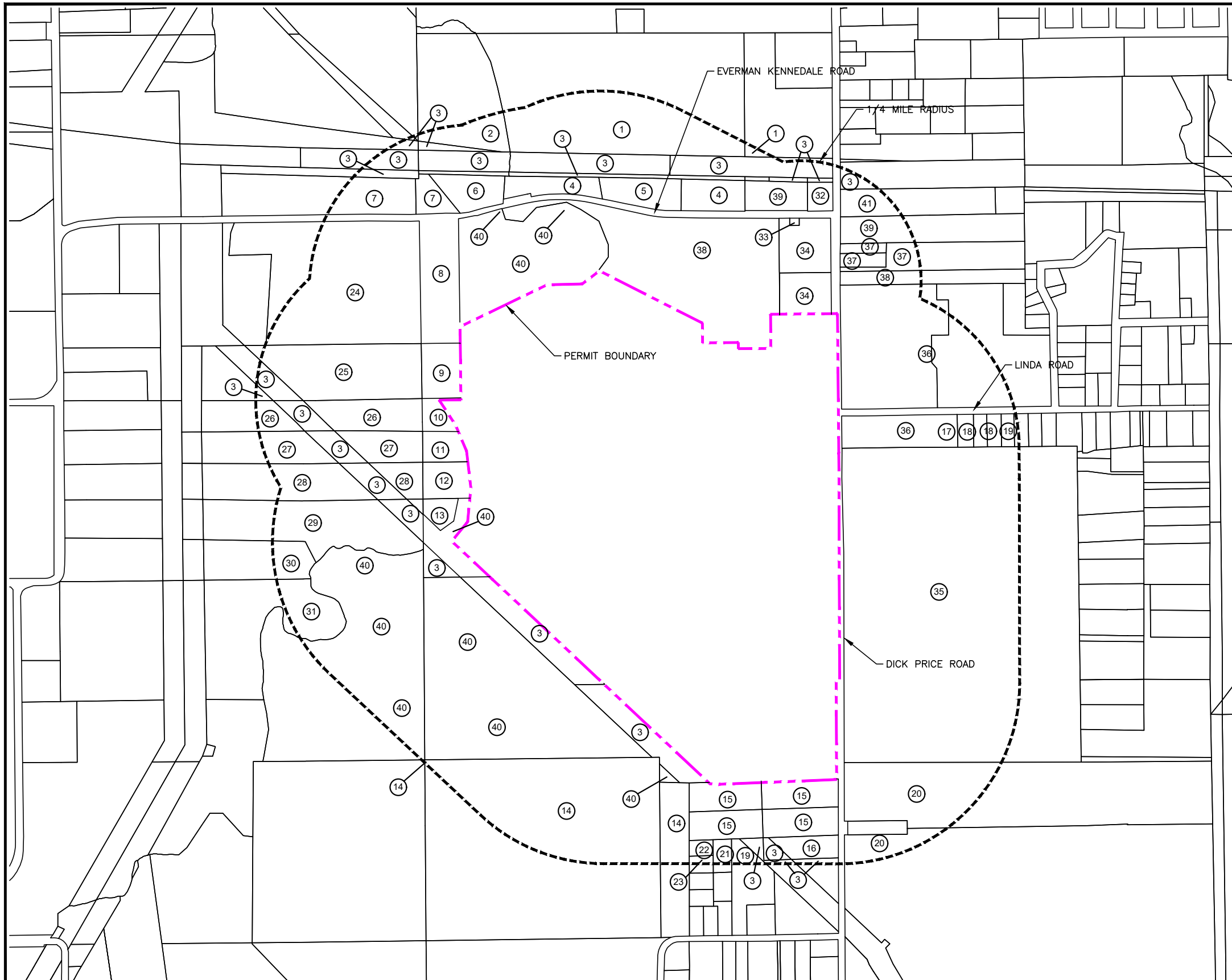
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1.	IVIE SHEILA 521 LINDA RD KENNEDEALE TX 76060	11.	AL-WAHBAN MUSTAFA AL-WAHBAN DELORES 321 S DICK PRICE RD KENNEDEALE TX 76060
2.	MITCHELL JULIE MITCHELL GARY 517 LINDA RD KENNEDEALE TX 76060	12.	ARK CONTRACTING SERVICES LLC 420 S DICK PRICE RD KENNEDEALE TX 76060-3608
3.	JAKE GROUP LLC PO BOX 203 KENNEDEALE TX 76060	13.	WATER BOARD PO BOX 4508 FORT WORTH TX 76164-0508
4.	BILLINGSLEY ROBERT LEE EST 505 LINDA RD KENNEDEALE TX 76060-3627	14.	MARTIN AIMEE A 1575 WALLIS RD ALEDO TX 76008-3896
5.	OLDCASTLE INFRASTRUCTURE INC 900 ASHWOOD PKWY STE 600 ATLANTA GA 30338	15.	SANTA HOMES LP PO BOX 162149 FORT WORTH TX 76161
6.	KENNEDEALE ECONOMIC DEVELOPMENT CORP 405 MUNICIPAL DR KENNEDEALE TX 76060	16.	PICKARD MYRNA R 8301 ANGLIN DR FORT WORTH TX 76140-4213
7.	STRONG GARY L STRONG CORINTHIA 405 S DICK PRICE RD KENNEDEALE TX 76060-3609	17.	CATE BILL CATE BECKI 8317 ANGLIN DR FORT WORTH TX 76140-4213
8.	COLLINS LESTER COLLINS AMANDA 411 S DICK PRICE RD KENNEDEALE TX 76060	18.	SEWELL ORVILLE W SEWELL SHARON 8155 ANGLIN DR FORT WORTH TX 7610-4209
9.	STEPHENS LARRY DWAIN 413 S DICK PRICE RD KENNEDEALE TX 76060-3609	19.	MOELLER DOUGLAS S MOELLER KRISTA 8303 ANGLIN DR FORT WORTH TX 76140-4213
10.	ONCOR ELECTRIC DELIVERY CO LLC PO BOX 139100 DALLAS TX 75313	20.	TORRES ENRIQUE TORRES LUCERO 8303 ANGLIN DR FORT WORTH TX 76140-4213

**TABLE 5-1**  
**PROPERTY OWNERS LIST (CONTINUED)**

---

- |   |  |
|---|--|
| 21. BACCUS RICHARD I JR<br>PO BOX 1252<br>ARLINGTON TX 76004-1252                             | 31. HOLBERT ALLEN<br>HOLBERT SANDRA<br>5725 WILSON RD<br>FORT WORTH TX 76140-7632                              |
| 22. INDEPENDENT ENVIRONMENTAL SVCS INC<br>2301 EAGLE PKWY STE 200<br>FORT WORTH TX 76177-2326 | 32. KENNEDY DONALD R<br>KENNEDY G WATSON<br>5727 WILSON RD<br>FORT WORTH TX 76140-7632                         |
| 23. NOVIKOFF DAN<br>8149 ANGLIN DR<br>FORT WORTH TX 76140-4209                                | 33. IESI TX LANDFILL LP<br>3 WATERWAY SQUARE PL<br>STE 110<br>THE WOODLANDS TX 77380                           |
| 24. MCCURDY JASON<br>PO BOX 820654<br>NORTH RICHLAND HILLS TX 76182                           | 34. FORT WORTH CITY OF<br>200 TEXAS ST<br>FORT WORTH TX 76102-6311   |
| 25. GOSDIN BUXTON FARM LLC<br>212 PALOMINO LN<br>CELINA TX 75009                              | 35. REICHELT STANTON EDWARD<br>5755 EVERMAN KENNEDALE RD<br>KENNEDALE TX 76060                                 |
| 26. SANDERS MARK EDWIN<br>PO BOX 70612<br>FORT WORTH TX 76140-0612                            | 36. RILEY TERESA<br>7108 LILAC LN<br>FORT WORTH TX 76135-2223  |
| 27. WILSON JERRY G<br>WILSON PATRICIA A<br>5735 WILSON RD<br>FORT WORTH TX 76140-7632         | 37. LIBBY SYDNEY MICHELLE<br>LIBBY BRIAN M<br>LIBBY HELEN A<br>5675 EVERMAN KENNEDALE RD<br>KENNEDALE TX 76060 |
| 28. BROWN LONNIE A<br>BROWN CYNTHIA E<br>4370 DICK PRICE RD<br>FORT WORTH TX 76140-7628       | 38. TCRG OPPORTUNITY XIII LLC<br>5201 CAMP BOWIE BLVD<br>STE 200<br>FORT WORTH TX 76109                        |
| 29. BROWN CYNTHIA<br>BROWN LONNIE A<br>4390 DICK PRICE RD<br>FORT WORTH TX 76140-7628         |  |
| 30. MCKNIGHT JUSTIN S<br>LOPEZ VICTORIA R<br>5729 E WILSON RD<br>FORT WORTH TX 76140          |  |

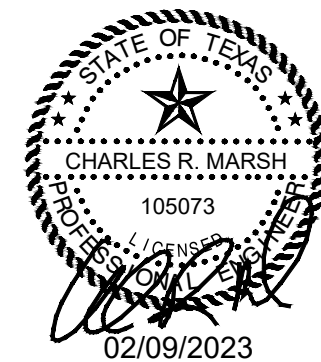


**LEGEND**

- PERMIT BOUNDARY
- ADJACENT LAND OWNER (SEE NOTE 1)
- 1/4 MILE RADIUS (SEE NOTE 2)

**NOTES:**

1. REFER TO LANDOWNERS LISTED ON LANDOWNERS LIST.
2. THIS LINE REPRESENTS A 1/4 MILE DISTANCE FROM THE LIMIT OF PERMIT BOUNDARY.
3. PROPERTY LINES REPRODUCED FROM TARRANT COUNTY APPRAISAL DISTRICT DEEDS BOUNDARY MAP.

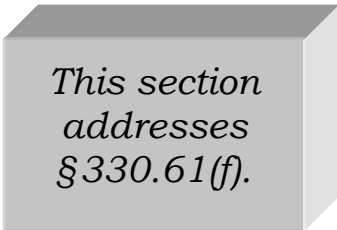


<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT PROPERTY OWNER MAP</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS															
DATE: 12/2022 FILE: 0771-356-11 CAD: 5.1-PROPERTY OWNERS MAP.DWG	DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION									
REVISIONS																	
NO.	DATE	DESCRIPTION															
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM <b>FIGURE 1/II-5.1</b>															

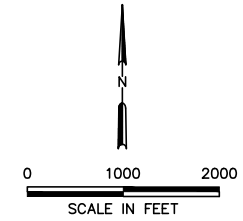
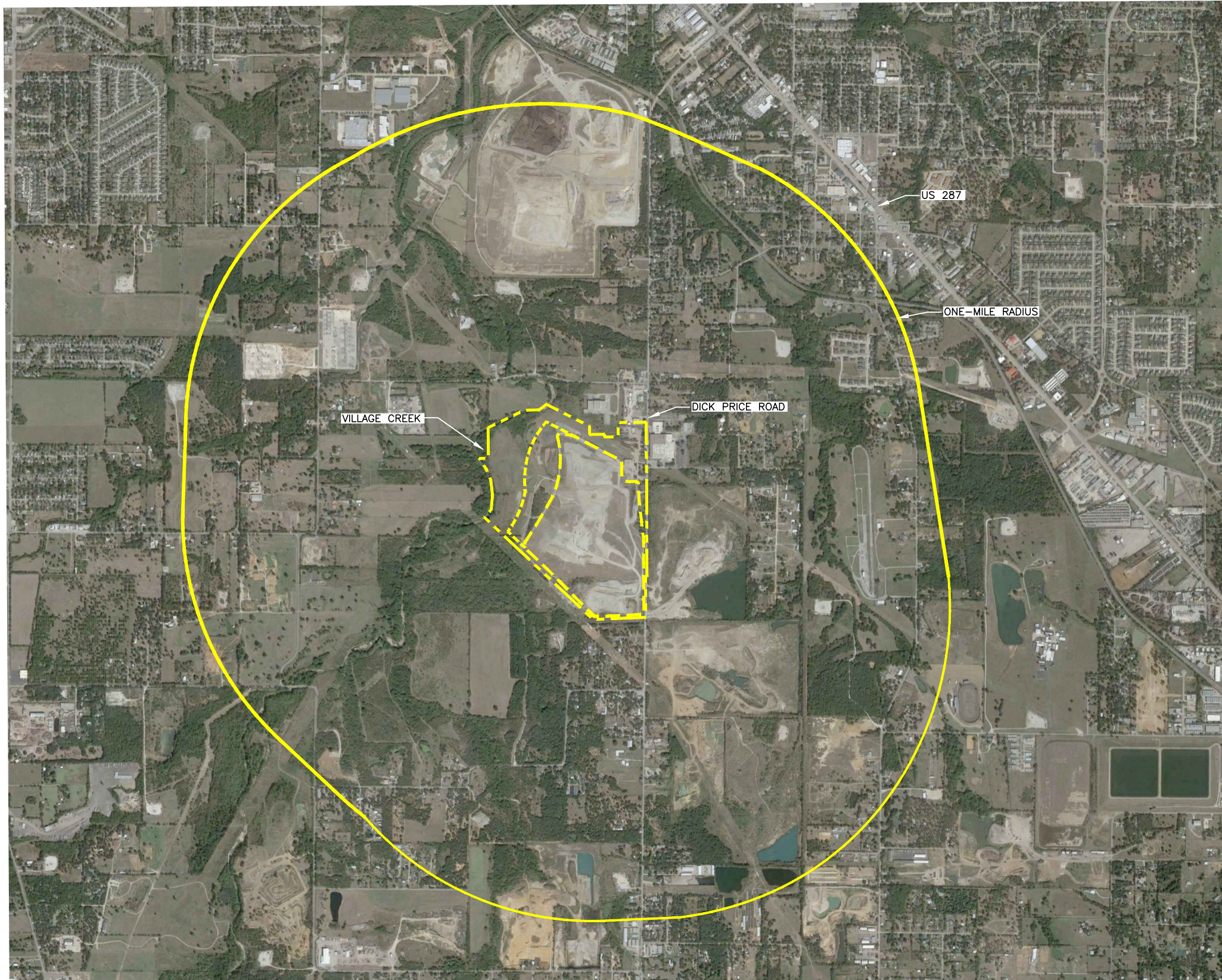
## 6 AERIAL PHOTOGRAPH

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An aerial photograph of the site and the surrounding area (minimum of 1-mile radius from the site) is presented on Figure I/II-6.1.



*This section  
addresses  
§330.61(f).*

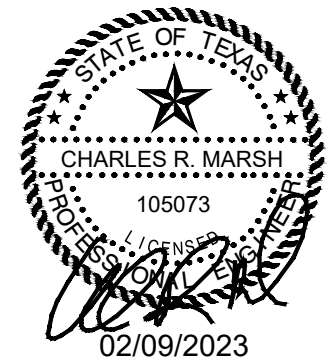


**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**NOTES:**

1. AERIAL IMAGERY PROVIDED BY GOOGLE EARTH DATED 12/6/2019.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          AERIAL PHOTOGRAPH</b>  <b>FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>												
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION									
NO.	DATE	DESCRIPTION												
WWW.WCGRP.COM		<b>FIGURE 1/II-6.1</b>												

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## 7 LAND USE

---

### 7.1 Background

The Fort Worth C&D Landfill is located in Tarrant County, approximately 15 miles southeast of downtown Fort Worth and adjacent to the City of Kennedale. The property is approximately 184.3 acres in size, and is highly disturbed from ongoing landfill development and facility operations. The primary route of access to the landfill is by South Dick Price Road, which borders the eastern boundary of the landfill property. Several secondary rural routes also can be used to access the landfill property. The landfill property is located approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W.

*This section addresses §330.61(g), §330.61(h), and §305.45(a)(6)(B).*

General observations of residential growth in the vicinity of the landfill indicates that slow growth is occurring, with most growth being single homes or trailers located on rural acreage. Observations of commercial and light industrial development indicates some growth, with several major commercial or light industrial facilities observed.

### 7.2 Land Use

A land use evaluation was performed for the area within 1 mile of the landfill permit boundary. Land use information is summarized on the following maps.

- Figure I/II-7.1 (Land Use Map). This map highlights land use within a 1-mile radius of the site.
- Figures I/II-7.2 through I/II-7.4 (Zoning Maps). These maps identify the existing zoning districts within a two mile radius of the property boundary.
- Figure I/II-7.5 (Cities within 5-Mile Radius). This map is used to show area cities within 5 miles and to summarize growth trends.

### **7.3 Location and Zoning**

Review of the City of Kennedale zoning map indicates the landfill property is within the Extraterritorial Jurisdiction (ETJ) of the City of Kennedale, but not subject to City of Kennedale zoning requirements. An ETJ designation allows the City of Kennedale to regulate some activities of properties located within their ETJ. The ETJ designation imposes no restrictions on the development, permitting, or continued operation of the landfill, including future expansion of the landfill, as the property is already approved for this. Future zoning coordination will be needed for construction of the proposed entrance facilities, because a small portion of it is located within the Kennedale City limits.

### **7.4 Surrounding Land Use**

Land use within a 1-mile radius of the landfill property is predominantly undeveloped, floodplain, open/agricultural lands, and single-family residential with scattered commercial and light industrial facilities located in the near vicinity of the landfill property.

Major commercial/light industrial facilities are located primarily to the east/northeast and west within the 1-mile radius of the landfill property. Pipeline and utility corridors, another permitted landfill, manufactured housing, and mining/excavation operations make up smaller portions of the remaining 1-mile radius area around the landfill property.

There are several rural residential areas scattered around the landfill property, including single-family, multi-family, and mobile home residences.

South of the landfill property, undeveloped, park/park-like, or agricultural land is predominately found including Village Creek, Sonora Park, and Timberview Golf Course.

### **7.5 Growth Trends of the Nearest Community**

The facility property is located within the ETJ of Kennedale with only the future entrance facilities being located within the City of Kennedale. Overall, this area of Tarrant County has been growing at a slower rate than the average growth for the county, due primarily to the presence of the Village Creek floodplain nearby, as well as the lack of public infrastructure and related utilities access. Growth and development patterns have generally been along the major transportation corridors of IH-20 to the north, and IH-35W to the west. Major retail and big-box development has occurred along the west side of IH-35 at FM 1187. The City of Kennedale has been growing towards the northeast and east toward the City of Arlington. While there has been some development of individual lots to the south,



there has been no major or large residential subdivision development near the landfill property.

Future growth trends for Tarrant County were assessed by review of the population projections prepared by the Texas Water Development Board (TWDB) as presented in their 2021 Regional Water Plan. Growth trend projections are presented in Table 7-1.

**Table 7-1  
Growth Trends  
Projected Average Annual Growth Rate**

<b>Community</b>	<b>2021-2030</b>	<b>2031-2040</b>	<b>2041-2050</b>
Tarrant County	1.36%	1.32%	0.847%

Based on the information above, and the fact that Kennedale is located approximately 15 miles south of the growing metropolitan area of Fort Worth, steady growth is expected to continue into the future. Additionally, growth will come from the more densely populated, smaller communities located to the north and east of Kennedale and the landfill property.

It is anticipated that the growth patterns will be consistent with the growth patterns over the last several years (i.e., scattered rural houses and commercial and light industrial businesses will continue to be built in the area with most of the growth concentrated along IH-35W & IH-20 corridor) with any significant development limited by the significant Village Creek floodplain in the vicinity.

## **7.6 Proximity to Residences and Other Uses**

The nearest identified residence is found approximately 90 feet from the landfill property along the south property boundary. The nearest business property is located to the south, with approximately 1,300 feet measured between fence line to fence line of the properties on aerial photography.

There are a total of six churches within one mile of the facility. The nearest church is located approximately 4,600 feet northeast of the landfill property. There are no known hospitals, schools, cemeteries, archaeological sites, historical sites, lakes, or sites with exceptional aesthetic qualities located within a 1-mile radius of the landfill permit boundary. There are two parks within one mile of the facility, located approximately 0.5 miles northeast and one mile northwest of the landfill.

## 7.7 Land Use Conclusions

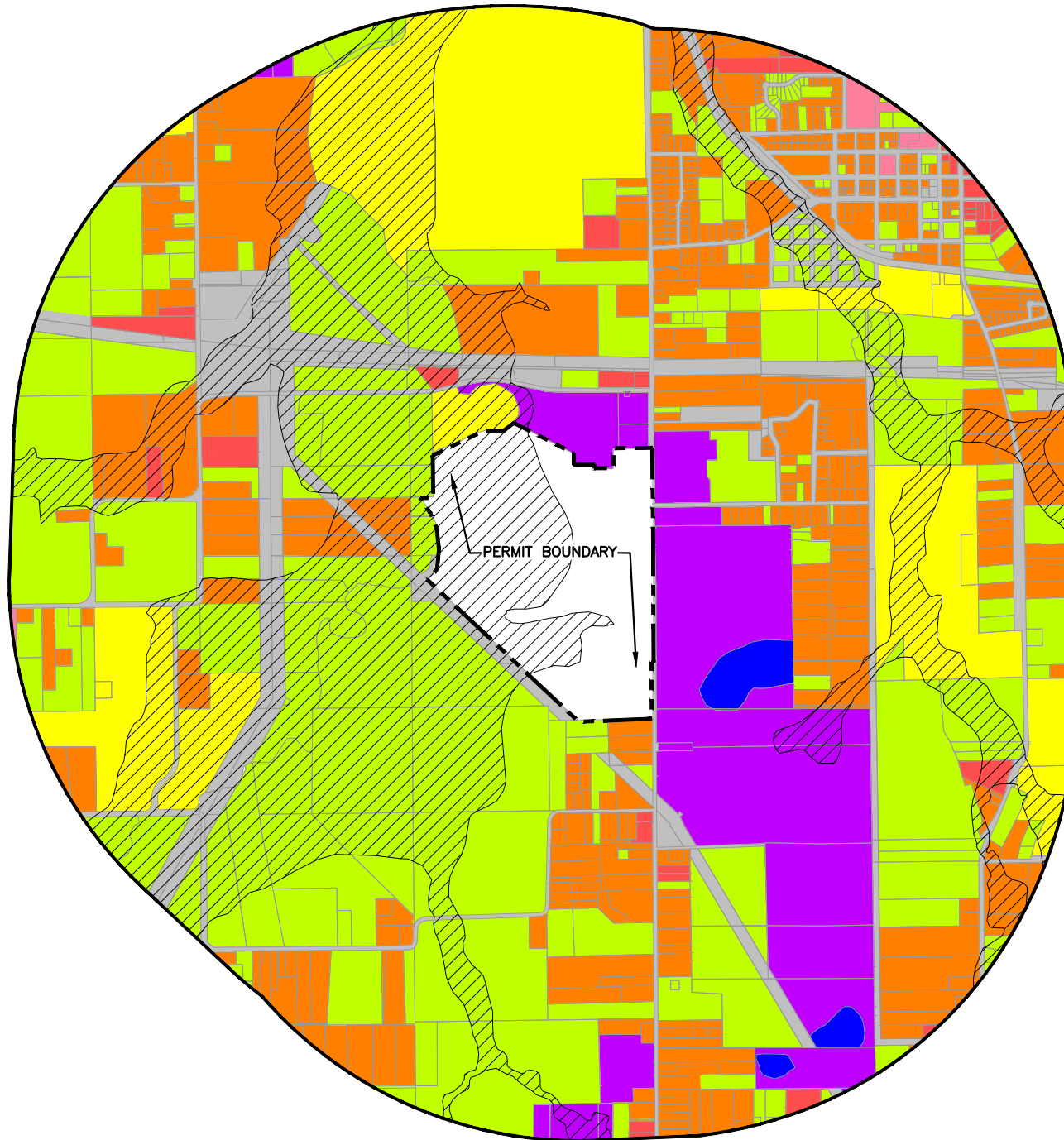
The continued development and use of this property as a landfill represents a compatible land use for the following reasons:

- The site is located in a rural area, with ongoing growth within the 1-mile radius of the landfill property appearing to be minimal over the previous 20 plus years (based on review of aerial photography).
- The landfill is designed and operated to have minimal impact on the surrounding areas and land uses. A substantial vegetation screening buffer is provided by wooded vegetation existing along the north, northwest, southwest, and southeast boundaries of the landfill. The wooded vegetation helps to minimize the visual and noise impact of the landfill operations.
- With the nearby development being primarily rural residential, open lands and agricultural, with some distributed commercial and light industrial development, the landfill is a compatible land use.

## 7.8 Water Wells Within 500 Feet

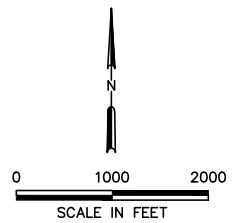
A search to identify water wells within a 1-mile radius of the landfill permit boundary was completed by Environmental Risk Information Services (ERIS) and WCG (September 2022), the results of which are provided in Part III, Appendix IIIG, Section 2.5 and Appendix IIIG-A. The water well locations are plotted on the Figure IIIG-A-6 (Water Wells Within One-Mile Radius map). Three water wells were identified within 500 feet of the permit boundary. There are no existing water wells located within the permit boundary.

As the site is developed, any wells encountered in the waste cell construction areas will be plugged in accordance with the Site Operating Plan and the applicable rules and regulations of the TCEQ, the TWDB, the Railroad Commission of Texas, or other applicable state agencies.



**LEGEND**

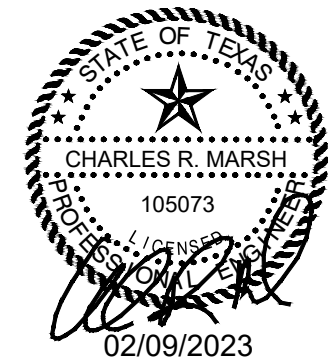
- PERMIT BOUNDARY
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- INFRASTRUCTURE
- DEDICATED (SEE NOTE 3)
- UNDEVELOPED/AGRICULTURAL
- FORT WORTH C&D LANDFILL
- FLOODPLAIN
- POND/LAKE



1-MILE RADIUS

LAND USE WITHIN 1 MILE OF PERMIT BOUNDARY		
	ACRES	PERCENT
RESIDENTIAL	805	22.4%
COMMERCIAL	54	1.5%
INDUSTRIAL	331	9.2%
INSTITUTIONAL	10	0.3%
INFRASTRUCTURE	364	10.2%
DEDICATED	481	13.4%
UNDEVELOPED/AGRICULTURAL	1334	37.2%
POND/LAKE	24	0.7%
FLOODPLAIN*	1086	-
FORT WORTH C&D LANDFILL	184	5.1%
<b>TOTAL</b>	<b>3587</b>	<b>100.0%</b>

\* THE AREA OF FLOODPLAIN (1086 ACRES) IS NOT USED TO CALCULATE THE PERCENT AREA OR TOTAL ACREAGE IN THE ABOVE TABLE.

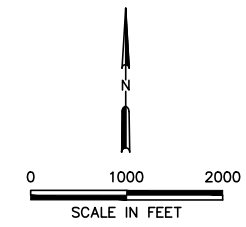
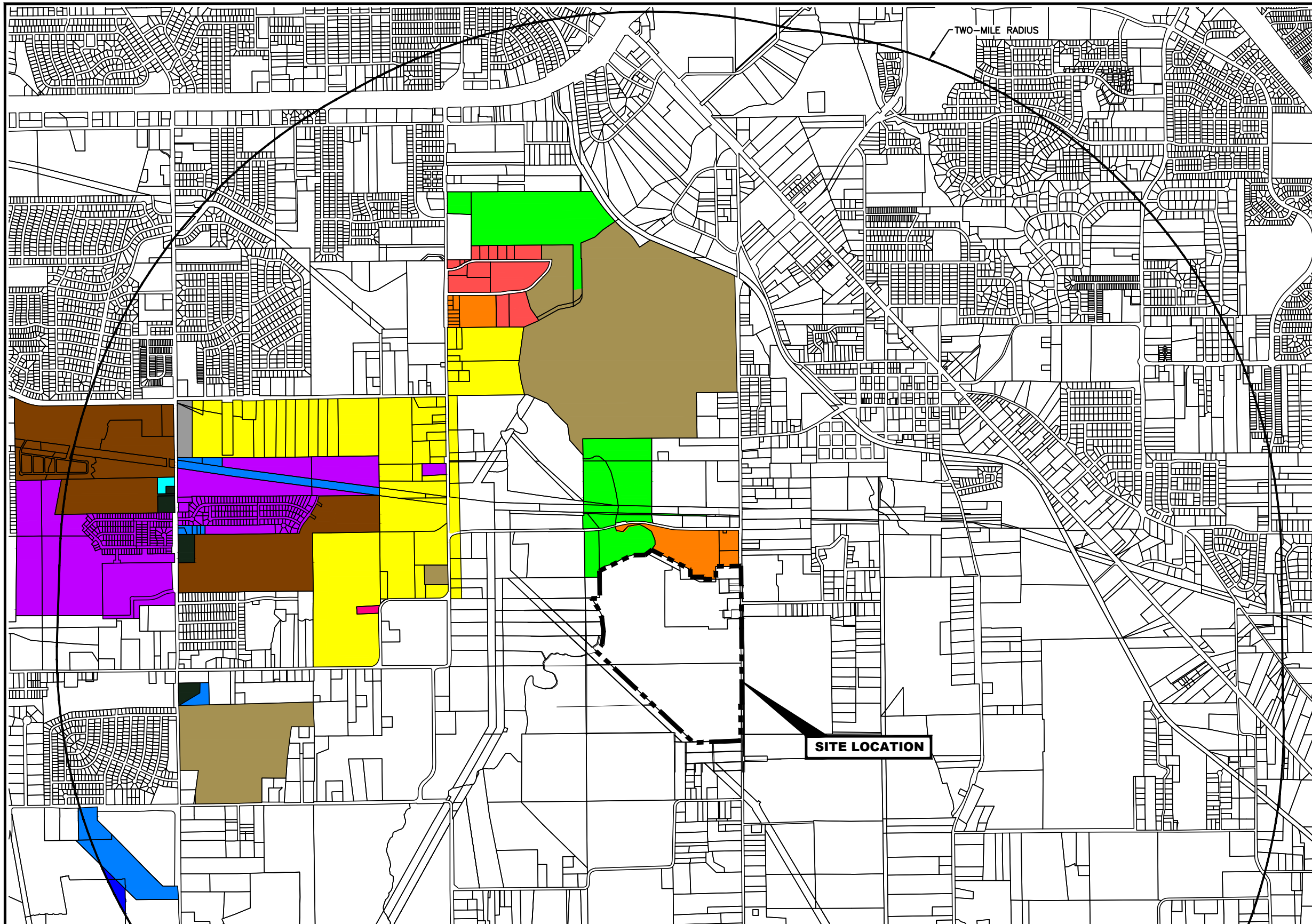


**NOTES:**

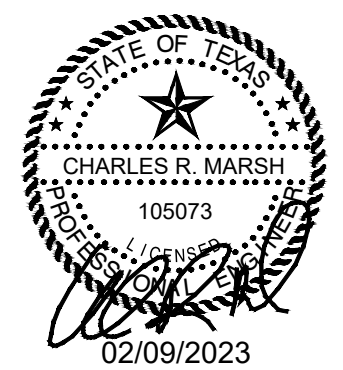
- LAND USE MAP WAS REPRODUCED FROM THE FORT WORTH PLANNING AND ZONING DEPARTMENT.
- FLOODPLAIN WAS REPRODUCED FROM FEMA MAP NUMBERS 48439C0390K EFF. 9/25/2009, 48439C04JJK EFF. 9/25/2009, 48439C03320L EFF. 3/21/2019, AND 48439C0435K EFF. 9/25/2009 FOR TARRANT COUNTY, TEXAS.
- DEDICATED AREAS INCLUDE GOVERNMENT OWNED PROPERTIES, LANDFILLS, GOLF COURSES AND OPEN SPACE LAND.

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT LAND USE MAP</b>  <b>FORT WORTH C&amp;D LANDFILL TARRANT COUNTY, TEXAS</b>									
	DATE: 12/2022 FILE: 0771-356-11 CAD: 7.1-LAND USE MAP.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION						
NO.	DATE	DESCRIPTION									
WWW.WCGRP.COM		<b>FIGURE 1/II-7.1</b>									

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- LEGEND**
- PERMIT BOUNDARY
  - A-5 ONE FAMILY
  - J MEDIUM INDUSTRIAL
  - AG AGRICULTURE
  - CF COMMUNITY FACILITIES
  - E NEIGHBORHOOD COMMERCIAL
  - CR LOW DENSITY
  - B TWO FAMILY
  - K HEAVY INDUSTRIAL
  - PD PLANNED DEVELOPMENT
  - MH MANUFACTURED HOUSING
  - FR GENERAL COMMERCIAL RESTRICTED
  - F GENERAL COMMERCIAL
  - R-2 SINGLE FAMILY RESIDENTIAL



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<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
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<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

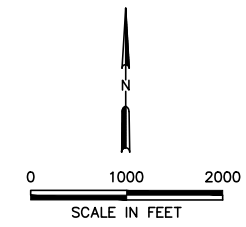
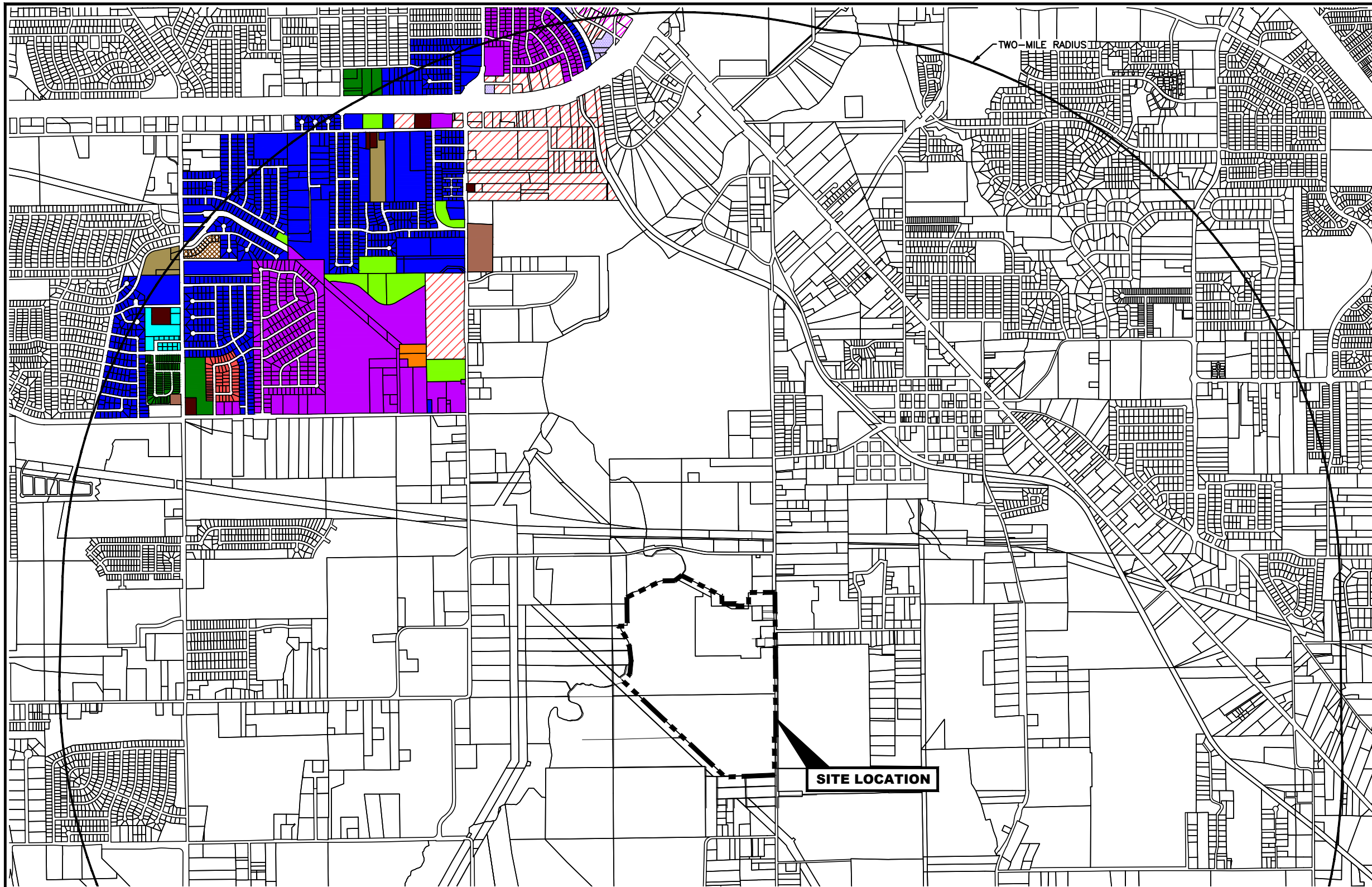
REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT  
ZONING MAP-CITY OF FORT WORTH**

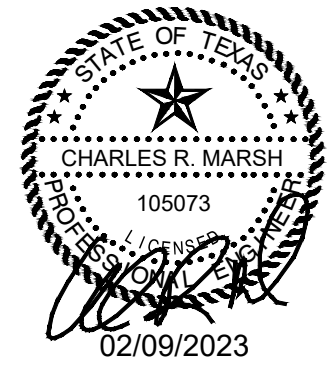
FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM    **FIGURE 1/II-7.2**

O:\0771\356\EXPANSION 2022\PARTS 1-HV7.2-ZONING MAP-FORT WORTH.dwg, jwilson, 1:2



- LEGEND**
- PERMIT BOUNDARY
  - R-1 SINGLE FAMILY RESIDENTIAL
  - R-2 SINGLE FAMILY RESIDENTIAL
  - R-3 SINGLE FAMILY RESIDENTIAL
  - R-4 SINGLE FAMILY RESIDENTIAL
  - MF MULTI FAMILY RESIDENTIAL
  - B TWO FAMILY RESIDENTIAL
  - LI LIGHT INDUSTRIAL
  - HI HEAVY INDUSTRIAL
  - P PARKS
  - LR LOCAL RETAIL
  - PD PLANNED DEVELOPMENT
  - GB GENERAL BUSINESS
  - CP CITY OWNED PROPERTY



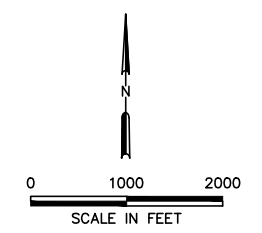
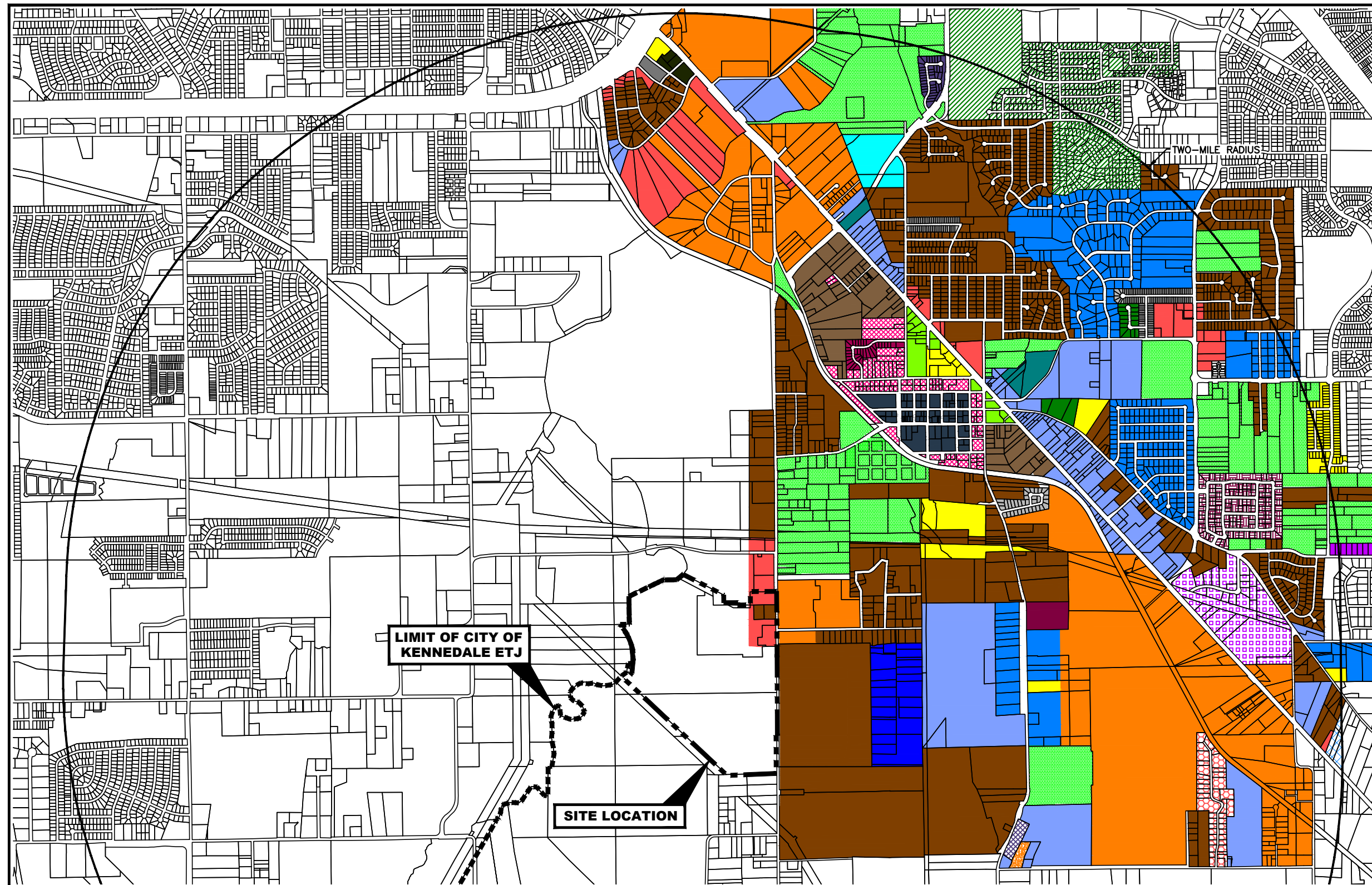
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<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
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DATE: 12/2022	DRAWN BY: RAA
FILE: 0771-356-11	DESIGN BY: JBP
CAD: 7.3-ZONING MAP-FOREST HILL.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT**  
**ZONING MAP-CITY OF FOREST HILL**  
**FORT WORTH C&D LANDFILL**  
**TARRANT COUNTY, TEXAS**

WWW.WCGRP.COM      **FIGURE 1/II-7.3**

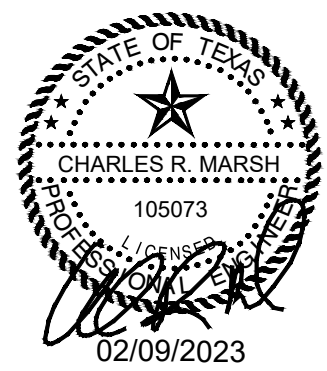
O:\0771\356\EXPANSION 2022\PARTS 1-H\7.3-ZONING MAP-FOREST HILL.dwg - jwilson, 1:2



- LEGEND**
- PERMIT BOUNDARY  
 --- CITY OF KENNEDALE
- R-1 SINGLE FAMILY RESIDENTIAL DISTRICT
  - R-2 SINGLE FAMILY RESIDENTIAL DISTRICT
  - R-3 SINGLE FAMILY RESIDENTIAL DISTRICT
  - ETJ EXTRA TERRITORIAL JURISDICTION
  - AG AGRICULTURE DISTRICT
  - PD PLANNED DEVELOPMENT
  - I INDUSTRIAL DISTRICT
  - MF MULTI FAMILY DISTRICT
  - C1 RESTRICTED COMMERCIAL DISTRICT
  - C2 GENERAL COMMERCIAL DISTRICT
  - OT-1 OLD TOWN SUB-DISTRICT 1
  - OT-2 OLD TOWN SUB-DISTRICT 2
  - OT-3 OLD TOWN SUB-DISTRICT 3
  - OT-4 OLD TOWN SUB-DISTRICT 4
  - D TWO FAMILY (DUPEX) RESIDENTIAL DISTRICT
  - MF MANUFACTURED HOME DISTRICT
  - UV URBAN VILLAGE DISTRICT
  - PD-UV1 PLANNED DEVELOPMENT DISTRICT- URBAN VILLAGE
  - PDHT PLANNED DEVELOPMENT DISTRICT- HILLTOP PD
  - PD-ID PLANNED DEVELOPMENT & INDUSTRIAL DISTRICT
  - PD-S1 PLANNED DEVELOPMENT DISTRICT- SNYDER PD1
  - PD-S2 PLANNED DEVELOPMENT DISTRICT- SNYDER PD2
  - EC-1 EMPLOYEE CENTER 1
  - EC-2 EMPLOYEE CENTER 2
  - PD-TV PLANNED DEVELOPMENT DISTRICT- THE VINEYARD
- CITY OF ARLINGTON
- RS-7.2 RESIDENTIAL SINGLE FAMILY
  - VILLAGE ON THE GREEN TIERRA VERDE

**LIMIT OF CITY OF KENNEDALE ETJ**

**SITE LOCATION**



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<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	
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FILE: 0771-356-11	DESIGN BY: JBP
CAD: 7.4-ZONING MAP-KENNEDALE.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

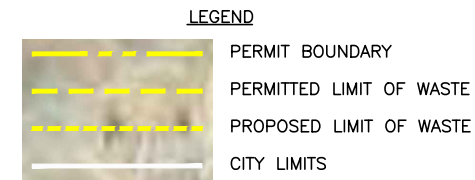
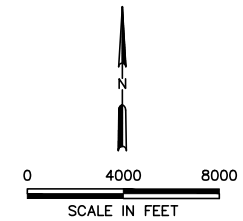
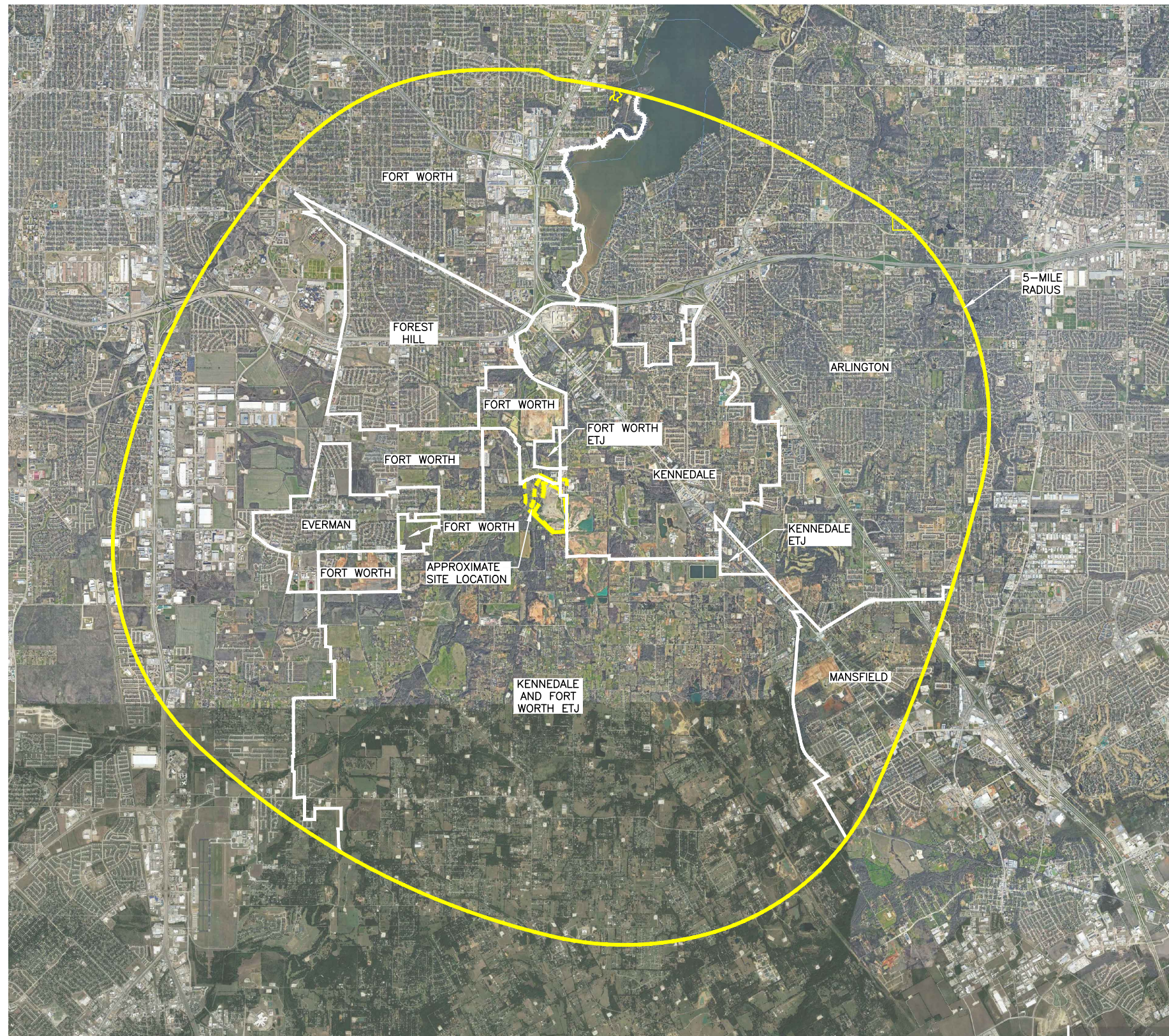
REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT  
 ZONING MAP- CITY OF  
 KENNEDALE/ARLINGTON**

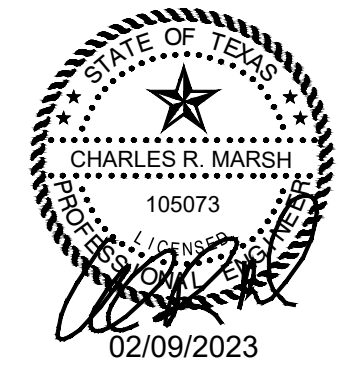
FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

WWW.WCGRP.COM      **FIGURE 1/II-7.4**

O:\0771\356\EXPANSION 2022\PARTS 1-HV7.4-ZONING MAP-KENNEDALE.dwg, jwilson, 1/2



**NOTES:**  
 1. AERIAL IMAGERY PROVIDED BY GOOGLE EARTH DATED 12/6/2019.



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	DATE: 12/2022 FILE: 0771-356-11 CAD: 7.5-CITIES WITHIN 5-MILES.DWG	DRAWN BY: RAA DESIGN BY: JBP REVIEWED BY: CRM		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	DESCRIPTION							
NO.	DATE	DESCRIPTION												
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727			WWW.WCGRP.COM <b>FIGURE 1/II-7.5</b>											

O:\0771\356\EXPANSION 2022\PARTS 1-11\7.5-CITIES WITHIN 5 MILES.dwg, jwilson, 1:2

## 8 TRANSPORTATION

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### 8.1 Traffic Information

#### 8.1.1 Availability and Adequacy of Roads

The Fort Worth C&D Landfill is located adjacent to Kennedale, Texas, on Dick Price Road. The site is easily accessed from principal population centers via IH-20. In addition to Dick Price Road, Everman Kennedale Road, Anglin Drive, Shelby Road, and Averett Road are utilized to access the landfill. In general, landfill vehicles originating north of the site utilize the Everman Kennedale Road to the landfill entrance road; and landfill vehicles originating south of the site use Dick Price Road.

*This section addresses §330.61(i).*

A traffic impact study was prepared by WCG in July 2022 to evaluate the continued development of the Fort Worth C&D Landfill on local roadways and traffic. The traffic study is included in Parts I/II, Appendix I/IID.

In summary, the traffic study concludes that access roads within 1 mile of the landfill provide adequate access to the site. Coordination with TxDOT regarding traffic and location restrictions is included in Appendix I/IIB (TxDOT Tab).

### 8.2 Airport Safety

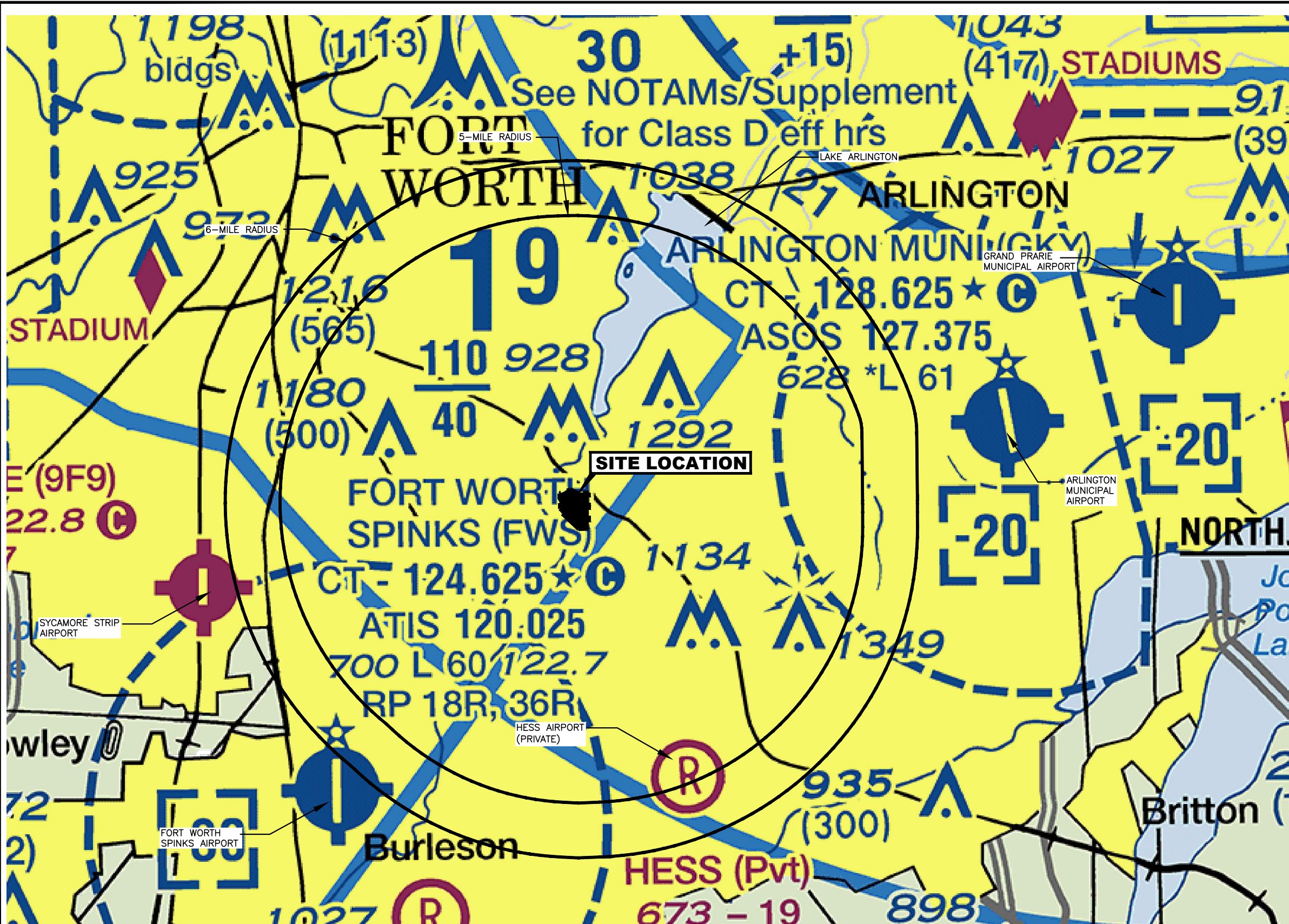
TCEQ distance restrictions set forth in Title 30 TAC §330.545 require municipal solid waste disposal facilities seeking vertical expansions located within 10,000 feet of any runway end used by turbojet aircraft or within 5,000 feet of any runway end used by piston-engine aircraft to demonstrate that the units are designed and operated so that the municipal solid waste landfill unit does not pose a bird hazard to aircraft. Title 30 TAC §330.545(d) further requires that landfill facilities within a 6-mile radius of any small general service airport runway or within a five-mile radius of any large general public commercial airport shall be critically evaluated to determine if an incompatibility exists.

As shown on Figure I/II 8.1 there are no airports located within 10,000 feet of the facility. Therefore 30 TAC §330.545(a) and (c) are not applicable, and it is not necessary to prepare a demonstration regarding potential bird hazards to aircrafts.



Title 30 TAC §330.545(b) requires that small general service airports located within a 6-mile radius of a lateral expansion be notified of the proposed expansion. Title 30 TAC §330.545(b) also requires that large general public commercial airports located within a 5-mile radius of a lateral expansion be notified of the proposed expansion. As shown on Drawing I/II 8.1, there are no airports/airport runways within 5 miles of the facility. The closest public-use airport is the Fort Worth Spinks Airport (FWS), a general service airport which is 5.5 miles southeast of the landfill (distance is measured from the closest airport runway to the closest part of the landfill).

The Airport Safety Location Restriction is included in Appendix I/IIC.



0 5,000 10,000  
SCALE IN FEET

LEGEND

--- PERMIT BOUNDARY

**AIRPORTS**

- Other than hard-surfaced runways
- Hard-surfaced runways 1500 ft. to 8069 ft. in length
- Hard-surfaced runways greater than 8069 ft. or some multiple runways less than 8069 ft.
- Open dot within hard-surfaced runway configuration indicates approximate VOR, VOR-DME, DME or VORTAC location.
- All recognizable hard-surfaced runways, including those closed, are shown for visual identification. Airports may be public or private.

**AIRPORT DATA**

Box indicates FAR 95 Special Air Traffic Rules & Airport Traffic Patterns. Runways with Right Traffic Patterns (public use) \* RP Special conditions exist - see Supplement. FSS - Flight Service Station NO SVFR - Fixed-wing special VFR flight is prohibited. CT - 118.3 - Control Tower (CT) - primary frequency \* - Star indicates operation part-time. See lower frequencies tabulation for hours of operation. ☉ - Follows the Common Traffic Advisory Frequency (CTAF) ATIS 123.8 - Automatic Terminal Information Service AFIS 135.2 - Automatic Flight Information Service (AF) ASOS/AWOS 135.42 - Automated Surface Weather Observing Systems (shown where full-time ATIS not available). Some ASOS/AWOS facilities may not be located at airports. UNICOM - Aeronautical advisory station VFR Advy - VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency. 285' - Elevation in feet L - Lighting in operation Sunset to Sunrise \*L - Lighting limitations exist; refer to Supplement. 72 - Length of longest runway in hundreds of feet; usable length may be less. When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.

**ADDITIONAL AIRPORT INFORMATION**

- Private (Pvt) - Non-public use having emergency or landmark value
- Military - Other than hard-surfaced; all military airports are identified by abbreviations AFB, NAS, AAF, etc.
- Helipad Selected
- Unverted
- Abandoned - paved having landmark value, 3000 ft. or greater
- Ultraight Flight Park Selected

Fuel availability indicated by use of tick marks around basic airport symbol. Consult Supplement for details and availability at airports with hard-surfaced runways greater than 8069 ft.

★ Rotating airport beacon in operation Sunset to Sunrise  
OBJECTIONABLE - Airport may adversely affect airspace use.



**NOTES:**

- THIS MAP REPRODUCED FROM THE FAA DALLAS-FORT WORTH SECTIONAL AERONAUTICAL CHARTS DATED MARCH 24, 2022.
- THERE ARE NO PUBLIC AIRPORTS WITHIN A 10,000 FOOT RADIUS OF THE SITE.
- THERE ARE TWO SMALL PUBLICLY OWNED, PUBLIC USE AIRPORTS AND ONE SMALL PRIVATELY OWNED, PRIVATE USE AIRPORT WITHIN A 6-MILE RADIUS OF THE SITE.

DRAFT  
 FOR INFORMATION PURPOSES ONLY  
 ISSUED FOR CONSTRUCTION

DATE: 12/2022  
FILE: 0771-356-11  
CAD: FIG 8.1-AIRPORT MAP.DWG

DRAWN BY: JDW  
DESIGN BY: DS  
REVIEWED BY: CRM

**Weaver Consultants Group**  
TBPE REGISTRATION NO. F-3727

PREPARED FOR TEXAS REGIONAL LANDFILL COMPANY, LP		
REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT  
AREA AIRPORTS**

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

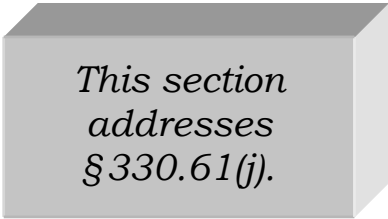
WWW.WCGRP.COM      FIGURE 1/II-8.1

## 9 GENERAL GEOLOGY AND SOILS STATEMENT

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### 9.1 Geology and Soils

According to the Bureau of Economic Geology (Geologic Atlas of Texas: Dallas Sheet, 1987), the Fort Worth C&D Landfill is largely located upon outcrops of Quaternary alluvium deposits with lesser areas of the Woodbine and Grayson Shale formation sediments that outcrop along the eastern-most area of the permit boundary. Surficial sediments from these outcropping formations consist predominately of unconsolidated to poorly consolidated clay, sand, gravel, and silt.



*This section  
addresses  
§ 330.61(j).*

Based on the lithologic logs from 116 facility exploratory borings and information from nearby water well logs, subsurface geology can be delineated based on regional geologic formation nomenclature into five site-specific stratigraphic units. These stratigraphic units include (in descending order): Quaternary Alluvium, Woodbine Formation, Grayson Shale, Mainstreet Limestone, and Pawpaw Formation.

The Woodbine Formation is classified by the Texas Water Development Board as a minor Texas aquifer and unconformably overlies the underlying Grayson Shale sediments. The regional and site-specific geologic information identify the Grayson Shale as the lower confining unit to the overlying saturated Quaternary Alluvium and Woodbine Formation sediments. Regional and site-specific geologic and hydrogeologic conditions are discussed in detail in Appendix IIIG of Part III.

### 9.2 Fault Areas

Fort Worth C&D Landfill and the surrounding area were examined for the presence of geologic faulting in conformance with Title 30 TAC §330.555 criteria. This included a physical inspection of the site and surrounding area, review of previous fault investigations, available literature and maps, and a current aerial photograph.

No unusual scarps or topographic breaks were interpreted within 200 feet of the site. No evidence of faulting was found associated with on-site or adjacent roadways. No structural influence of stream courses was observed within 200 feet of the proposed permit boundary. In addition, no unusual relief or topographic features, such as sag ponds, truncated alluvial spurs, or offset tributary alignments, were observed. Therefore, the site is in compliance with the fault areas location restriction. The certification of compliance with the fault area location restriction is presented in Appendix I/IIC.

### **9.3 Seismic Impact Zones**

The seismic impact zone location restriction defined by Title 30 TAC §330.557 is an area with a 10 percent or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10g in 250 years. According to the U.S.G.S. earthquake hazard data, the site-specific maximum horizontal seismic acceleration estimated at a 10 percent probability of exceedance in a 250-year time period is 0.042g (4.2 percent of the force of gravity as estimated from the 2018 U.S.G.S. seismic impact zone map). As such, the U.S.G.S.-derived site-specific horizontal acceleration is lower than the 10 percent of the force of gravity or greater horizontal acceleration required for seismic impact zone classification. Drawing I/IIC-4 in Appendix I/IIC presents the 2018 U.S.G.S. seismic impact zone map. As shown on this drawing, the site is not located within a seismic impact zone. For these reasons, the Fort Worth C&D Landfill is in compliance with the seismic impact zone location restriction. The seismic impact zone location restriction demonstration is included in Appendix I/IIC.

### **9.4 Unstable Areas**

Title 30 TAC §330.359 notes that an unstable area is defined to be a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of a landfill's structural components responsible for preventing releases from the landfill: unstable areas can include poor foundation conditions, areas susceptible to mass movement, and karst terrains. As discussed in Appendix I/IIC, Section 10, the bottom liner is founded within Grayson Shale Formation shale facies that will provide an excellent foundation layer, the final cover system is designed to withstand the predicted differential settlement, and the stability analysis shows that each landfill component will be stable and no mass movements will occur. The unstable areas location restriction demonstration is included in Appendix I/IIC.

## 10 GROUNDWATER AND SURFACE WATER STATEMENT

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### 10.1 Groundwater Statement

Groundwater conditions at the site were determined using data from existing and former groundwater piezometers and monitoring wells, and data from the approved Subtitle D groundwater monitoring system. Details and logs of on-site borings, monitoring wells and piezometers, as well as potentiometric surface contour maps, are provided in Part III, Appendix IIIG. The uppermost aquifer, for groundwater monitoring purposes, occurs within the surficial Quaternary Alluvium and Woodbine Formation sediments. The uppermost aquifer is underlain by indurated sediments of the Grayson Shale Formation and greater Washita and Fredericksburg group formations. Based on local water well logs, this aquiclude is about 600 feet thick in the vicinity of the Landfill.

*This section addresses § 330.61(k).*

### 10.2 Surface Water Statement

The Fort Worth C&D Landfill permit boundary is within Village Creek-Lake Arlington sub-watershed. Village Creek is located on the west side of the site and flows northeast into Lake Arlington approximately 2.7 miles north of the site. Village Creek receives surface water from and drains areas in the southern portions of Tarrant County as well as portions of the City of Fort Worth, the City of Burleson, the City of Crowley, and the City of Joshua.

For the proposed expansion, the final cover system will include erosion control structures to effectively minimize erosion of final cover soils. The proposed drainage system also includes a perimeter channel system and detention ponds that will convey stormwater collected from the landfill area. The perimeter channels have been designed to convey peak runoff generated by the 25-year frequency storm event. The detention ponds have been designed to release the collected stormwater at a rate that is consistent with the existing permitted drainage conditions. A detailed drainage design and analysis demonstrating that the existing permitted drainage patterns will not be adversely altered is included in Appendix IIIF.

The site is designed to prevent discharge of pollutants into waters of the state or waters of the United States, as defined by the Texas Water Code and the Federal Clean Water Act, respectively. The Fort Worth C&D Landfill is subject to TCEQ's storm water permit requirements. A copy of the TPDES permit is included in Appendix I/II.E. Surface water monitoring will be conducted consistent with TPDES requirements. Given the above, the applicant understands and is in full compliance with TPDES requirements under the Clean Water Act, Section 402 as amended.

## 11 FLOODPLAINS AND WETLANDS STATEMENT

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### 11.1 Floodplains Statement

As noted in Section 10.2, the floodplain of Fort Worth C&D forms the west boundary of the site. The landfill expansion will modify the existing floodplain on the eastern side of Village Creek to allow for the landfill expansion to the west of the existing landfill. A floodplain storage area will be developed to compensate for the development of the expansion area. A CLOMR for the expansion of the landfill has been submitted to FEMA for review. No portion of the waste disposal area will be located in the 100-year floodplain, and the perimeter berm will provide over 3 feet of freeboard between the 100-year floodplain and the top of the berm.

Compliance with the floodplain location restrictions is further discussed in Appendix I/IIC (each of the 4 items listed under Title 30 TAC §330.63(c)(2)(D) are addressed in Appendix I/IIC, Section 4).

### 11.2 Wetlands Statement

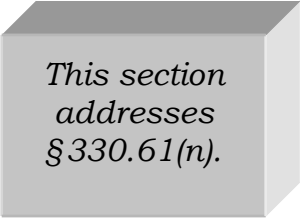
A Jurisdictional Waters of the U.S. Report for the Fort Worth C&D Landfill was prepared by WCG in September 2021. The report included the assessment of potential waters of the U.S. located within the permit boundary and the proposed waste footprint. This permit amendment proposes a horizontal and vertical expansion to the currently permitted waste disposal area within the currently approved permit boundary. The property within the currently approved permit boundary of the Fort Worth C&D Landfill was evaluated for compliance with wetlands provisions, including the determination and identification requirements in Title 30 TAC §330.61(m)(2) and (3) and the wetlands location restriction in Title 30 TAC §330.553(b). The assessment concluded that the horizontally and vertically expanded landfill unit at the Fort Worth C&D Landfill will not be located within jurisdictional wetlands or waters of the U.S., and the proposed development of the site complies with the location restrictions.

The jurisdictional waters report was transmitted to the U.S. Army Corps of Engineers (USACE) requesting concurrence from the USACE that the horizontal and vertical expansion does not impact jurisdictional waters. A copy of the jurisdictional waters report, and correspondence with the USACE are included in Appendix I/IIB.

## 12 PROTECTION OF ENDANGERED SPECIES

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A Threatened and Endangered Species Report for the Fort Worth C&D Landfill was prepared by WCG in November 2021. The report, including the findings related to threatened or endangered species and their critical habitats was sent to the U.S. Fish and Wildlife Service (FWS) and the Texas Parks and Wildlife Department (TPWD), seeking concurrence that the project would not impact threatened or endangered species, or their critical habitat. Correspondence with the FWS and TPWD is included in Appendix I/IIB.



*This section  
addresses  
§ 330.61(n).*

The 2021 WCG study concluded that the area within the landfill permit boundary does not provide habitat for any threatened or endangered species. Additionally, no federally-regulated critical habitat was identified on the permit property.

Therefore, it was concluded that the proposed horizontal and vertical expansion of the Fort Worth C&D Landfill will not result in the destruction or adverse modification of the critical habitat of any threatened or endangered species, or cause or contribute to the taking of any threatened or endangered species.

Given the above, the facility is in compliance with all applicable federal, state, and local laws regarding threatened or endangered species.

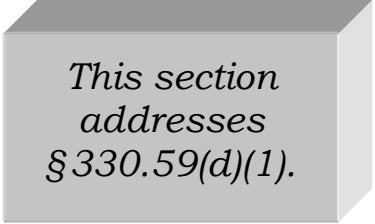


## 13 LEGAL DESCRIPTION

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A legal description of the 184.3-acre permit boundary is included on the following page. This area is shown on the attached drawing.

Property records indicate the area within the permit boundary is owned by IESI TX Landfill, LP, which has changed its legal name to Texas Regional Landfill Company, LP. Current ownership records for the property may be found in Tarrant County Real Property records.



*This section  
addresses  
§ 330.59(d)(1).*

FORT WORTH C&D LANDFILL  
PROPOSED PERMIT BOUNDARY  
LEGAL DESCRIPTION

Being a 184.346 acre tract comprising all of those certain IESI TX Landfill LP tracts: 22.09 and 38.107 acre tracts (Tarrant County Clerk's File No. D215028892), 2.813 acre tract (TCCF No. D202153007), 0.73 and 1.303 acre tracts (TCCF No. D202134488), 0.81 acre tract (TCCF No. D202134488) and part of that certain IESI TX LANDFILL, LP 133.13 acre tract (Tarrant County Clerk's File No. D202040557) in the Shelby County School Land Survey, A-1375, Tarrant County, Texas. The 184.346 acre tract is more particularly described by metes and bounds as follows;

BEGINNING at a 1/2 inch iron rod (N 6,914,048.64 E 2,358,135.75) found for the Northeast corner of said 22.09 acre tract on the west right-of-way line of Dick Price Road.

Thence S 00° 12' 40" E along the west right-of-way line of Dick Price Road a distance of 711.13 feet to a iron rod with aluminum cap stamped "Martin Olson Survey RPLS 4524" set found for the Southeast corner of said IESI 22.09 acre tract and the Southeast corner of this 184.346 acre tract.

Thence S 87° 41' 55" W along the south boundary line of said 22.09 acre tract a distance of 856.29 feet to a utility pole found for a point for corner.

Thence N 87° 08' 50" W a distance of 71.97 feet to a mag nail in concrete found for the Southwest corner of said IESI 22.09 acre tract.

Thence N 46° 46' 43" W along the Northeasterly TESCO (Vol. 4649, Pg. 669 and Vol. 4684, Pg. 99, Tarrant County Deed Records) right-of-way line a distance of 2182.57 feet to a iron rod with cap found for a point for corner.

Thence N 46° 50' 21" W; passing at 324.75 feet a 1/2 inch iron rod found along the Northeasterly TESCO right-of-way line and the Southwesterly line of said IESI 133.13 acre tract; for a total distance of 410.99 feet to the centerline of Village Creek.

Thence along the centerline of Village Creek as follows:

N 39° 23' 43" E a distance of 183.96 feet;  
N 05° 23' 37" E a distance of 248.14 feet;  
N 06° 35' 46" W a distance of 271.25 feet;  
N 22° 45' 38" W a distance of 203.92 feet;  
N 33° 05' 28" W a distance of 223.00 feet to a point for corner;

Thence N 89° 35' 07" E along said IESI 133.13 acre tract a distance of 158.98 feet to a iron rod with cap found for a point for corner.

Thence N 00° 38' 35" W along the West boundary line of said IESI 133.13 acre tract a distance of 536.01 feet to the centerline of Village Creek.

Thence along the centerline of Village Creek as follows:

N 64° 17' 29" E a distance of 707.57 feet;  
N 88° 44' 52" E a distance of 256.08 feet;  
N 52° 53' 59" E a distance of 159.52 feet to a point for corner.

Thence S 63° 03' 24" E; along the Northerly line of said 133.13 acre tract, passing at 88.13 feet a 5/8 inch iron rod with aluminum cap "Martin Olson Survey RPLS 4524" set for reference, for a total distance of 845.08 feet to a iron rod with cap "Martin Survey Assoc" found for a point for corner.

Thence S 00° 27' 49" E along said 133.13 acre tract a distance of 143.88 feet to a bent 1/2 inch iron rod found for a point for corner.

Thence N 89° 36' 45" E along said IESI 133.13 acre tract a distance of 261.65 feet to a iron rod with cap "Benchmark" found for a point for corner.

Thence S 00° 29' 34" E along said IESI 133.13 acre tract a distance of 44.99 feet to a iron rod with cap "Benchmark" found for a point for corner.

Thence N 89° 32' 10" E along said IESI 133.13 acre tract a distance of 237.56 feet to a 1/2 inch iron rod for the Southwest corner of said 2.813 acre tract.

Thence N 00° 21' 43" W along said west line of said 2.813 acre tract a distance of 250.11 feet to a 60d nail in tree root found for a point for corner.

Thence N 89° 27' 21" E along said north line of said 2.813 acre tract, passing at 464.77 feet the west right-of-way line of Dick Price Road, for a total distance of 489.77 feet to a point for the Northeast corner of this 184.346 acre tract.

Thence S 00° 32' 00" E a distance of 1019.68 feet to a point for corner and from which a 1/2 inch iron rod found on the west right-of-line of Dick Price Road bears 25 feet west.

Thence S 00° 30' 46" E a distance of 196.17 feet to a point for corner and from which a 1/2 inch iron rod found on the west right-of-line of Dick Price Road bears 25 feet west.

Thence S 00° 08' 19" E a distance of 698.22 feet to the Southeast corner of said 133.13 acre tract and Northeast corner of said 38.107 acre tract.

Thence S 00° 12' 40" E a distance of 785.88 feet to the Southeast corner of said 38.107 acre tract.

Thence S 89° 47' 20" W a distance of 25.0 feet to the POINT OF BEGINNING.

A SURVEY PLAT ACCOMPANIES THIS DESCRIPTION

BEARINGS AND COORDINATE BASED ON TEXAS COORDINATE SYSTEM  
NAD83 (NCZ)

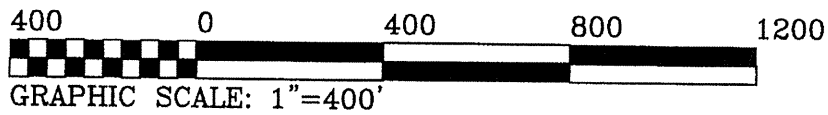
SURVEYED ON THE GROUND AS OF OCTOBER 4, 2019

MARTIN OLSON SURVEY INC.



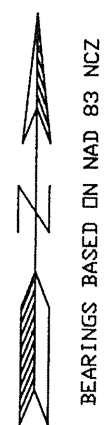
KEVIN A. OLSON  
TEXAS REGISTERED PROFESSIONAL SURVEYOR NO. 4524  
FWPERMIT 2019.DOC





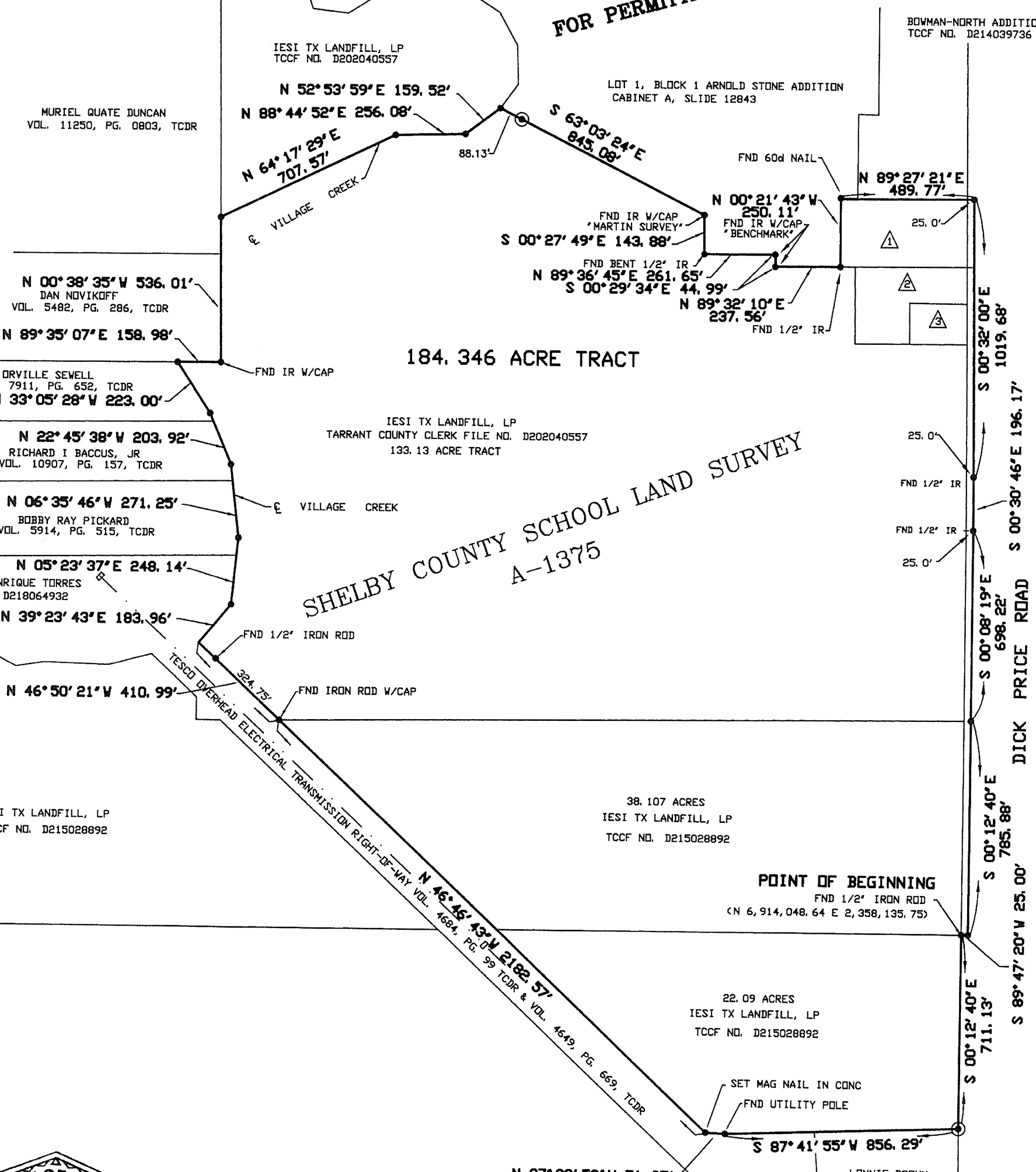
LEGEND:

- IESI TX LANDFILL LP 2.813 ACRES TCCF DDC NO. D202153007
- IESI TX LANDFILL LP 1.303 & 0.73 ACRES TCCF DDC NO. D202134488
- IESI TX LANDFILL LP 0.81 ACRES TCCF DDC NO. D202134486
- DENOTES IRON ROD WITH ALUMINUM CAP  
"MARTIN OLSON SURVEY RPLS 4524"
- TCDR TARRANT COUNTY DEED RECORDS
- TCCF TARRANT COUNTY CLERK FILE NUMBER
- DENOTES PERMIT BOUNDARY LINE
- DENOTES PARCEL BOUNDARY LINE



EVERMAN - KENNEDALE ROAD

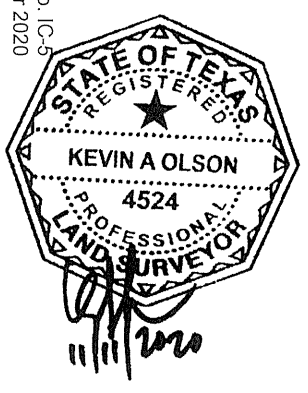
FOR PERMITTING PURPOSES ONLY



184.346 ACRE TRACT

SHELBY COUNTY SCHOOL LAND SURVEY  
A-1375

Submitted May 2020; Application Page No. 1C-5 Revised December 2020

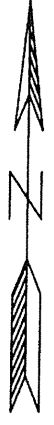
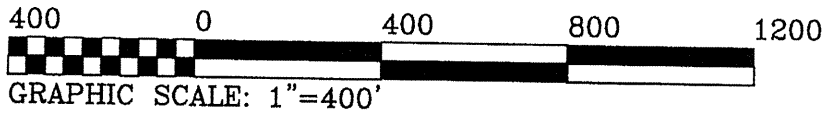


SURVEYED ON THE GROUND AS OF OCTOBER 4, 2019  
A METES AND BOUNDS DESCRIPTION ACCOMPANIES THIS SURVEY DRAWING

**PERMIT BOUNDARY**  
FORT WORTH C&D LANDFILL  
FORT WORTH, TARRANT COUNTY, TEXAS  
  
**IESI TX LANDFILL LP**

FIRM REGISTRATION NO 10194114.  
**MARTIN OLSON SURVEY INC.**  
PROFESSIONAL SURVEYORS, BOUNDARY  
CONSTRUCTION & TOPOGRAPHIC SURVEYS  
227 DERRICK DRIVE  
HUMBLE, TEXAS 77338  
(281) 446-8899  
  
MARTIN FILE: FWPERMIT 2019, DWG

**EASEMENT SURVEY MAP**



**LEGEND:**

- ① IESI TX LANDFILL LP 2.813 ACRES TCCF DOC NO. D202153007
- ② IESI TX LANDFILL LP 1.303 & 0.73 ACRES TCCF DOC NO. D202134488
- ③ IESI TX LANDFILL LP 0.81 ACRES TCCF DOC NO. D202134486

TCDR TARRANT COUNTY DEED RECORDS  
 TCCF TARRANT COUNTY CLERK FILE NUMBER

— DENOTES PERMIT BOUNDARY LINE  
 — DENOTES PARCEL BOUNDARY LINE

EVERMAN - KENNEDALE ROAD

IESI TX LANDFILL, LP  
 TCCF NO. D202040557

LOT 1, BLOCK 1 ARNOLD STONE ADDITION  
 CABINET A, SLIDE 12843

BOWMAN-NORTH ADDITION  
 TCCF NO. D214039736

E. VILLAGE CREEK

130' WIDE PERMANENT EASEMENT & RIGHT-OF-WAY  
 TARRANT COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT  
 VOL. 5465, PG. 344, TCDR

184.346 ACRE TRACT

IESI TX LANDFILL, LP  
 TARRANT COUNTY CLERK FILE NO. D202040557  
 133.13 ACRE TRACT

E. VILLAGE CREEK

SHELBY COUNTY SCHOOL LAND SURVEY  
 A-1375

DICK PRICE ROAD

IESI TX LANDFILL, LP  
 TCCF NO. D215028892

38.107 ACRES  
 IESI TX LANDFILL, LP  
 TCCF NO. D215028892

22.09 ACRES  
 IESI TX LANDFILL, LP  
 TCCF NO. D215028892

**EASEMENT DESIGNATIONS:**

- ① SOUTHWESTERN BELL TELEPHONE EASEMENT  
 TCCF NO. D200036455
- ② IESI DRAINAGE EASEMENT  
 TCCF NO. D202165689
- ③ BARNETT GATHERING LP 20' WIDE PIPELINE EASEMENT  
 TCCF NO. D207080553

FOR PERMITTING PURPOSES ONLY

Submitted May 2020; Revised December 2020  
 Application Page No. IC-7



*[Signature]*  
 11/12/2020

<p><b>DRAINAGE, PIPELINE AND UTILITY          EASEMENT LOCATION MAP</b></p> <p>FORT WORTH C&amp;D LANDFILL          FORT WORTH, TARRANT COUNTY, TEXAS          IESI TX LANDFILL LP</p>	<p>FIRM REGISTRATION NO 10194114.</p> <p><b>MARTIN OLSON SURVEY INC.</b></p> <p>PROFESSIONAL SURVEYORS, BOUNDARY          CONSTRUCTION &amp; TOPOGRAPHIC SURVEYS</p> <p>227 DERRICK DRIVE          HUMBLE, TEXAS 77338          (281) 446-8899</p> <p>MARTIN FILE: FWPERMIT 2019.DWG</p>
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## 14 PROPERTY OWNER AFFIDAVIT

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The property owner affidavit from Texas Regional Landfill Company, LP, with attached legal description is included on the following pages.

*This section  
addresses  
§ 330.59(d)(2).*



STATE OF TEXAS §  
COUNTY OF TARRANT §

**PROPERTY OWNER'S AFFIDAVIT**

On this day, Gary Bartels appeared before me, the undersigned notary public, and after I administered an oath to him, upon his oath he said:

"My name is Gary Bartels. I am the Southern Region Engineer of Texas Regional Landfill Company, LP, and I am authorized to make the following statements on behalf of Texas Regional Landfill Company, LP.

Texas Regional Landfill Company, LP is the owner of certain real property in Tarrant County, Texas, including the tract(s) described in Exhibit A attached hereto ("the Property"), which Texas Regional Landfill Company, LP is requesting be included within the permitted area of its Fort Worth C&D Landfill municipal solid waste landfill facility ("the Facility"), pursuant to amendment of Texas Commission on Environmental Quality Permit No. MSW-1983E.

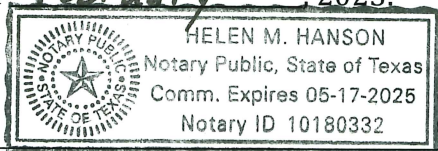
Texas Regional Landfill Company, LP hereby acknowledges that the State of Texas may hold the property owner of record either jointly or severally responsible for the operation, maintenance, and closure and post-closure care of the Facility on the Property.

Texas Regional Landfill Company, LP hereby acknowledges that the owner of the Property has the responsibility to file in the deed records of Tarrant County an affidavit to the public advising that the Property will be used for a solid waste facility prior to the time that the Facility actually begins operating as a municipal solid waste landfill facility on the Property, and to file a final recording upon completion of disposal operations and closure of the landfill units on the Property in accordance with Title 30 TAC §330.19.

Texas Regional Landfill Company, LP hereby acknowledges that the Facility owner or operator and the State of Texas shall have access to the Property during the active life and post-closure care of the Facility for the purpose of inspection and maintenance.

Gary J. Bartels  
Gary Bartels  
Southern Region Engineer  
Texas Regional Landfill Company, LP

SWORN TO AND SUBSCRIBED before me by Gary Bartels on the 9th  
day of February, 2023.

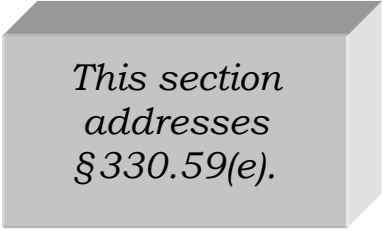


Helen M. Hanson  
Notary Public

## 15 LEGAL AUTHORITY

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The certificates provided on the following pages document the legal status of the applicant.



*This section  
addresses  
§330.59(e).*

FILED  
In the Office of the  
Secretary of State of Texas

JUN 16 1999

**CERTIFICATE OF LIMITED PARTNERSHIP  
OF  
IESI TX LANDFILL LP**

Corporations Section

The undersigned General Partner, desiring to form a limited partnership (the "Partnership") pursuant to Section 2.01 of the Texas Revised Limited Partnership Act (the "Act"), hereby duly execute this Certificate of Limited Partnership, to be effective as of the date of filing with the Secretary of State.

1. The name of the Partnership is IESI TX Landfill LP.
2. The address of the registered office of the Partnership is 6125 Airport Freeway, Suite 202, Haltom City, Texas, 76117, and the name of the registered agent whose business office address will be the same as the registered office address is Charles F. Flood.
3. The address of the principal office of the Partnership in the United States where its partnership records are to be kept or made available under Section 1.07 of the Act is, P.O. Box 162479, Fort Worth, Texas, 76111.
4. The name, the mailing address, and the street address of the business or residence of each general partner of the Partnership is as follows:

<u>NAME</u>	<u>MAILING ADDRESS AND STREET ADDRESS</u>
IESI TX GP Corporation, a Delaware corporation	P O. Box 162479 Fort Worth, Texas 76111

SIGNED on this the 15 day of June, 1999.

GENERAL PARTNER

IESI TX GP Corporation,  
a Delaware corporation

By: Stephen Moody  
Name: Stephen Moody  
Title: Vice President



## Office of the Secretary of State

The undersigned, as Secretary of State of Texas, does hereby certify that the attached is a true and correct copy of each document on file in this office as described below:

Texas Regional Landfill Company, LP  
Filing Number: 12151910

Certificate Of Limited Partnership

June 16, 1999

In testimony whereof, I have hereunto signed my name officially and caused to be impressed hereon the Seal of State at my office in Austin, Texas on January 03, 2019.



A handwritten signature in black ink, appearing to read "David Whitley".

David Whitley  
Secretary of State

Corporations Section  
P.O. Box 13697  
Austin, Texas 78711-3697



Rolando B. Pablos  
Secretary of State

**Office of the Secretary of State**

**Certificate of Fact**

The undersigned, as Secretary of State of Texas, does hereby certify that on June 21, 2018, IESI TX LANDFILL LP, a Domestic Limited Partnership (LP) (file number 12151910), changed its name to Texas Regional Landfill Company, LP

In testimony whereof, I have hereunto signed my name officially and caused to be impressed hereon the Seal of State at my office in Austin, Texas on August 28, 2018.



A handwritten signature in black ink, appearing to read "R. Pablos".

Rolando B. Pablos  
Secretary of State

Phone: (512) 463-5555  
Prepared by: SOS-WEB

Come visit us on the Internet at <http://www.sos.state.tx.us>  
Fax: (512) 463-5709  
TDD: 10254

November 2018  
Page No. 10-2  
Dial: 7-1-1 for Relay Services  
Document: 833652460002

Corporations Section  
P.O.Box 13697  
Austin, Texas 78711-3697



Rolando B. Pablos  
Secretary of State

**Office of the Secretary of State**

**Certificate of Fact**

The undersigned, as Secretary of State of Texas, does hereby certify that on June 12, 2018, IESI TX GP CORPORATION, a DELAWARE, USA, Foreign For-Profit Corporation (file number 12708406), changed its name to WCN TX GP Corporation.

In testimony whereof, I have hereunto signed my name officially and caused to be impressed hereon the Seal of State at my office in Austin, Texas on August 28, 2018.



A handwritten signature in black ink, appearing to read "R. Pablos".

Rolando B. Pablos  
Secretary of State

Phone: (512) 463-5555  
Prepared by: SOS-WEB

Come visit us on the Internet at <http://www.sos.state.tx.us>  
Fax: (512) 463-5709  
TID: 10254

November 2018  
Page No. ID-3  
Dial: 7-1-1 for Relay Services  
Document: 833652460002

## 16 EVIDENCE OF COMPETENCY

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### 16.1 Solid Waste Sites

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP (TRLIC). TRLIC is a Delaware limited partnership qualified to do business in Texas. TRLIC is a wholly-owned subsidiary of Waste Connections Lone Star, Inc. Waste Connections Lone Star, Inc. either owns, operates, or maintains a financial interest in the facilities identified in Table 16-1. Waste Connections U.S., Inc. acquires, operates, and develops nonhazardous waste disposal facilities on a national basis and is one of the largest providers of municipal waste services in the United States. Waste Connections, Inc. is a Delaware corporation whose shares are publicly traded on the New York stock exchange. As documented in Waste Connections, Inc. 2021 Annual Report, no person or entity owns 20 percent or more of the company.

*This section  
addresses  
§ 330.59(f).*

### 16.2 Fort Worth C&D Landfill Key Personnel

The key personnel involved in the management and operations of the Fort Worth C&D Landfill are:

#### **Brett O'Connor, Southern Region Engineering Manager**

Mr. O'Connor serves as the manager for all engineering and environmental compliance work for landfills, hauling, and transfer operations in the Southern Region. Mr. O'Connor has management and oversight responsibilities for environmental compliance issues for all Waste Connections solid waste hauling, disposal, processing, and transfer facilities in the Southern Region. Mr. O'Connor has over 14 years of experience designing, constructing, and operating municipal solid waste facilities.

#### **Gary Bartels, Southern Region Engineer**

Mr. Bartels serves as the Southern Region Engineer, and assists the Southern Region Engineering Manager with all aspects of management and environmental compliance for north Texas landfills, hauling and transfer operations in the

Southern Region area. Mr. Bartels has over 22 years of experience, constructing, and operating municipal solid waste facilities.

### **Elijah Vandergriff, District Manager**

Mr. Vandergriff is responsible for landfill operations in the Dallas/Fort Worth, Texas Area. Responsibilities include financial planning and environmental compliance, as well as other management responsibilities related to landfilling operations.

## **16.3 Equipment**

The equipment listed in Part IV, Site Operating Plan – Table 3.1 is used to operate this site. Additional or different units of equipment may be provided as necessary to enhance operational efficiency. Other equivalent types of equipment may be substituted for this equipment on an as-needed basis.



**Table 16-1**  
**Texas Solid Waste Management Facilities**  
**(as of August 2022)**

Site Name	Type	Registration/ Permit Number	County	Dates of Operation
Archer City Transfer Station	V	40008	Archer	8/99 to 12/99
Bastrop Transfer Station	V	40291	Bastrop	April 2023 (anticipated)
Blanco County Transfer Station	V	40007	Blanco	5/97 to 12/03
Blanco County Transfer Station	V	2300	Blanco	12/03 to present
Blossom Prairie Landfill, Inc.	I	2358	Lamar	6/19 to present
Bowie Transfer Station	V	40101	Montague	7/99 to 12/03
Bowie Transfer Station	V	40171	Montague	10/01 to 3/03
Bowie Transfer Station	V	2295	Montague	9/02 to present
Buffalo Creek Landfill	IV	1571A	Wichita	7/99 to present
Brazoria County Transfer Station	V	2235	Brazoria	1992 to present
City of Canton Transfer Station	V	40266	Van Zandt	6/19 to present
City of Vernon Transfer Station	V	40059	Wilbarger	8/99 to present
Crockett Transfer Station (Closed)	V	40033	Houston	3/11 to 3/24/21 – Voluntary Revocation of Registration Issued by TCEQ
East Texas Regional Landfill	I	1249B	Rusk	8/99 to present
Fannon County Transfer Station	V	40290	Fannin	6/19 to present
Fort Worth C&D Landfill	IV	1983C	Tarrant	7/97 to present
Granbury Transfer Station	V	1592A	Hood	8/05 to 12/09
Hardin County Landfill	I	2214A	Hardin	10/02 to 9/17
Hardy Road Transfer Station	V	1578	Harris	1984 to present
Iowa Park Transfer Station	V	40135	Wichita	7/99 to 7/03
Jacksboro Landfill	I	2332	Jack	2023 (anticipated)
Lake Country/Mingus Transfer Station	V	40104	Palo Pinto	6/97 to present
Lake Country/Mingus Transfer Station	V	40201	Palo Pinto	1/04 to present
Minnis Drive Transfer Station	V	40159	Tarrant	9/00 to 11/05
Minnis Drive Transfer Station	V	2306	Tarrant	5/05 to present
Palestine Transfer Station	V	40040	Anderson	3/11 to 6/17
Palestine Transfer Station	V	2389	Anderson	6/17 to present
Pittsburg Transfer Station Facility	V	40174	Camp	6/19 to present

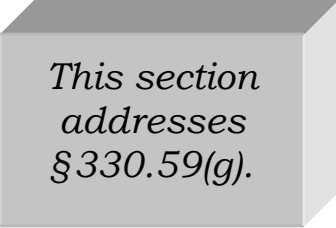
**Table 16-1 (Continued)**  
**Texas Solid Waste Management Facilities**  
**(as of August 2022)**

Site Name	Type	Registration/ Permit Number	County	Dates of Operation
Post Oak Landfill	I	2378	Guadalupe	12/21 to present
Pro Star Transfer Station	V	40277	Polk	2015 to present
Seabreeze Environmental Landfill	I	1539A	Brazoria	2009 to present
Somervell County Transfer Station	V	40181	Somervell	5/03 to 10/15
Travis County Landfill	IV	1841A	Travis	6/00 to present
Turkey Creek Landfill	I	1417D	Tarrant	5/09 to present
Weatherford Landfill	I	47A	Parker	7/03 to present
Weatherford Transfer Station	V	10301	Parker	1/22 to present
Wichita County C&D Landfill (Closed)	IV	1827B	Wichita	7/99 to closure

## 17 APPOINTMENTS

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The appointment prepared for this permit application meets the requirements of Title 30 TAC §330.59(g) and §305.44. The Notice of Appointment is included on the following pages.



*This section  
addresses  
§330.59(g).*

**WRITTEN CONSENT OF  
THE SOLE GENERAL PARTNER OF  
TEXAS REGIONAL LANDFILL COMPANY, LP**

The undersigned, being the sole general partner of Texas Regional Landfill Company, LP, a Texas limited partnership (the "Company"), hereby consents to the following actions and adopts the following resolutions:

WHEREAS, the Company's sole general partner wishes to authorize the Company's employee listed below to perform certain administrative tasks on behalf of the Company.

BE IT RESOLVED, that Gary Bartels, Region Engineer of the Company, is hereby authorized to execute by and on behalf of the Company any and all documents required in connection with the permit and regulatory applications, reports, filings, and other documentation relating to and necessary for the day-to-day operations of the Company, including, without limitation, permit renewal applications and reports to be filed with the Texas Commission on Environmental Quality, and all other documentation related thereto, and that any action taken to date involving the foregoing is hereby ratified and approved.

IN WITNESS WHEREOF, the undersigned sole general partner of the Company has duly executed this Written Consent in The Woodlands, Texas on the date set forth below.

Dated: January 17, 2020

GENERAL PARTNER

WCN TX GP CORPORATION



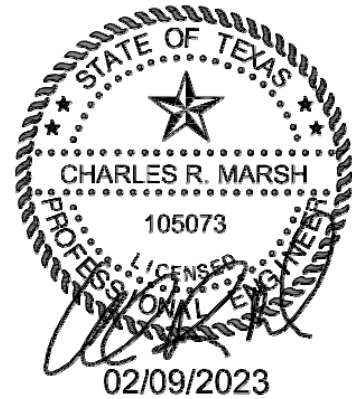
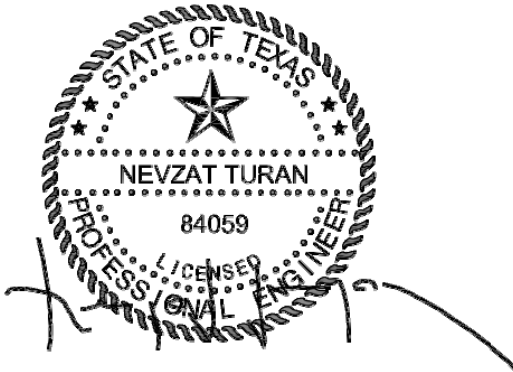
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Worthing F. Jackman  
President and Chief Executive Officer

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**APPENDIX I/IIA  
FACILITY LAYOUT MAPS**



Prepared for

Texas Regional Landfill Company, LP

February 2023

Prepared by  
**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

WCG Project No. 0771-368-11-123

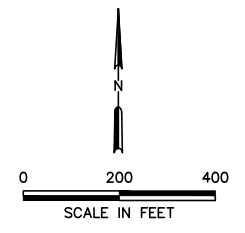
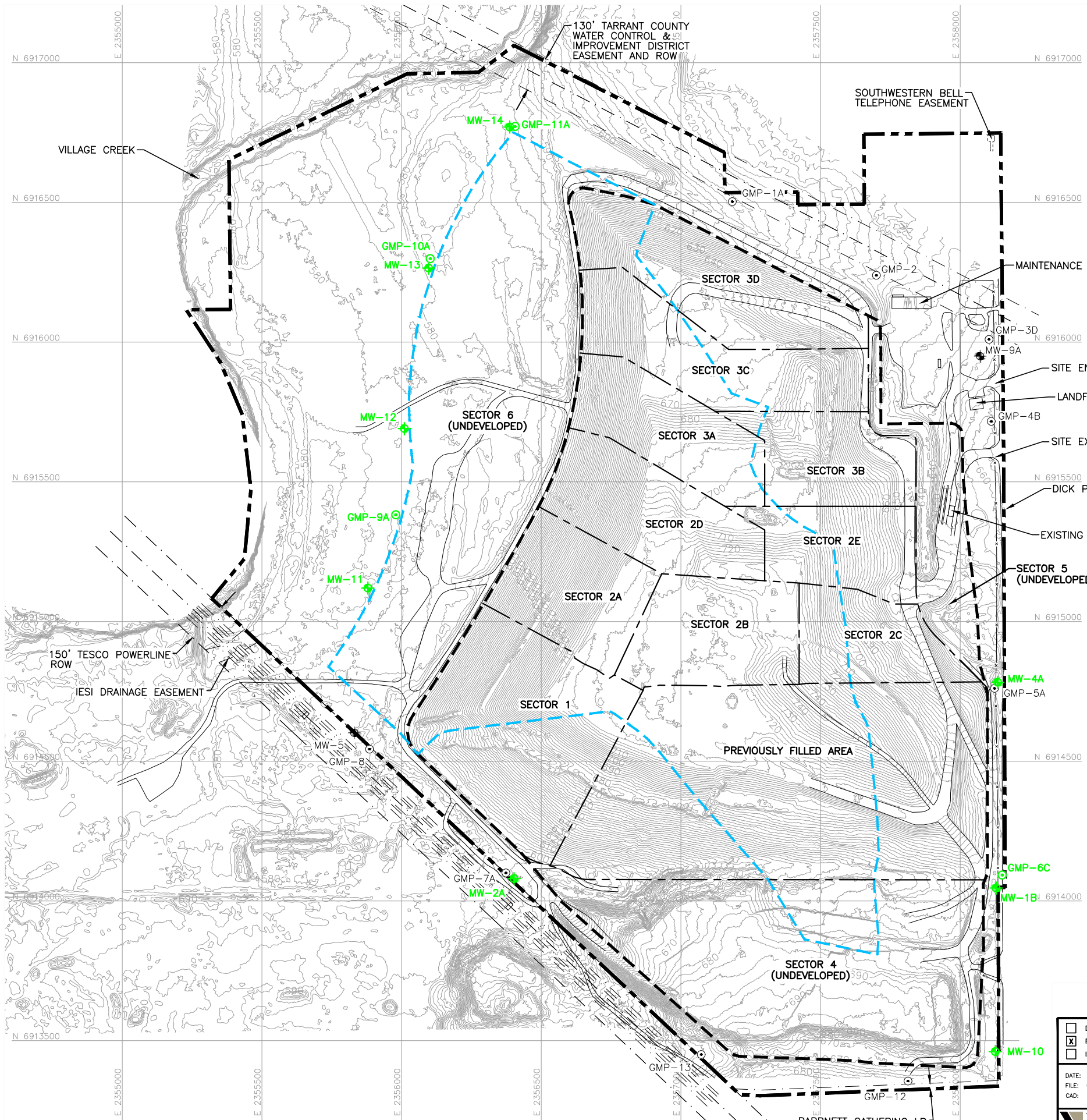
# CONTENTS

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FIGURE I/II-A.1	General Site Plan
FIGURE I/II-A.2	Sector Development Sequence
FIGURE I/II-A.3	Cross Section A
FIGURE I/II-A.4	Sector Development Plan I
FIGURE I/II-A.5	Sector Development Plan II
FIGURE I/II-A.6	Sector Development Plan III
FIGURE I/II-A.7	Landfill Completion Plan
FIGURE I/II-A.8	Excavation Plan
FIGURE I/II-A.9	Existing Site Entrance Plan
FIGURE I/II-A.10	Future Site Entrance Plan
FIGURE I/II-A.11	Access Control Plan

*This appendix  
addresses  
§330.61(d).*





**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- NEWLY PERMITTED AIRSPACE LIMIT OF WASTE
- 630 EXISTING CONTOUR
- STATE PLANE COORDINATE
- SECTOR BOUNDARY
- EASEMENT
- ⊕ MW-2A EXISTING GROUNDWATER MONITORING WELL
- ⊙ GMP-4B EXISTING GAS MONITORING PROBE
- ⊕ MW-4A PROPOSED GROUNDWATER MONITORING WELL
- ⊙ GMP-6C PROPOSED GAS MONITORING PROBE

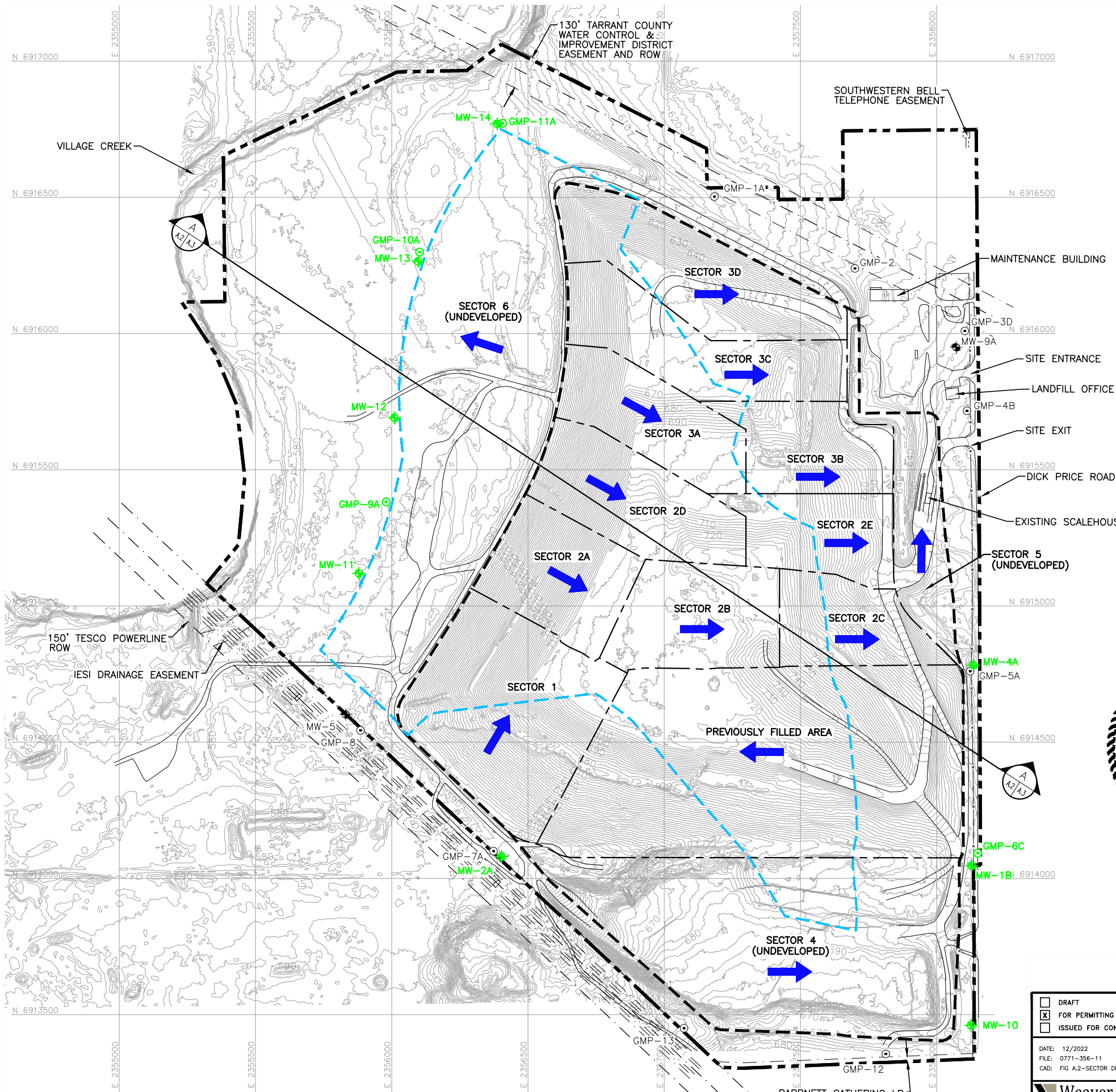
- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMA TEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - SITE BENCHMARK INFORMATION IS LISTED BELOW.
 

NORTHING	EASTING	ELEVATION
6914801.52	2358109.31	654.77
  - SEQUENCE OF DEVELOPMENT IS PROVIDED ON DRAWINGS I/II-A.4 THROUGH I/II-A.6.
  - UNAUTHORIZED ACCESS TO THE EXISTING FILL AREA IS CONTROLLED BY FENCING ON THE NORTH, EAST, AND SOUTH SIDES OF THE PERMIT BOUNDARY. NATURAL BARRIERS (e.g., VILLAGE CREEK AND IT'S LEVEE) PROVIDE ACCESS CONTROL ON THE WESTERN SIDE OF THE PERMIT BOUNDARY.
  - THE NEWLY PERMITTED AIRSPACE LIMIT OF WASTE REFLECTS THE VERTICAL AND HORIZONTAL EXPANSION AREA FOR MSW PERMIT NO.-1983E.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT GENERAL SITE PLAN (TCEQ PERMIT NO. MSW-1983E)</b>  <b>FORT WORTH C&amp;D LANDFILL TARRANT COUNTY, TEXAS</b>															
DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.1-GENERAL SITE PLAN.DWG	DRAWN BY: SRF DESIGN BY: JBP REVIEWED BY: CRM	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION									
REVISIONS																	
NO.	DATE	DESCRIPTION															
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM <b>FIGURE I/II-A.1</b>															

0:\0771\356\EXPANSION 2022\PARTS I-HV\PART I-HV\FIG A.1-EXISTING SITE PLAN.dwg - jwilson. 1:2



0 200 400  
SCALE IN FEET

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- NEWLY PERMITTED AIRSPACE LIMIT OF WASTE
- EXISTING CONTOUR
- STATE PLANE COORDINATE
- SECTOR BOUNDARY
- EASEMENT
- MW-2A EXISTING GROUNDWATER MONITORING WELL
- GMP-4B EXISTING GAS MONITORING PROBE
- MW-4A PROPOSED GROUNDWATER MONITORING WELL
- GMP-6C PROPOSED GAS MONITORING PROBE
- FILL DIRECTION (SEE NOTE 2)

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - SECTOR DESIGNATIONS INDICATE GENERAL PROGRESSION OF LANDFILL OPERATIONS. FILL DIRECTION ARROWS INDICATE GENERAL DIRECTION OF FILL WITHIN A SECTOR.
  - TYPICAL CROSS-SECTION PROVIDED ON DRAWING I/II-A.3.
  - SEE DRAWINGS I/II-A.4 THROUGH I/II-A.6 FOR DETAILED SECTOR DEVELOPMENT PLANS.
  - WIDTH OF THE BUFFER ZONE BETWEEN THE LIMIT OF WASTE AND THE PERMIT BOUNDARY VARIES. HOWEVER, THE BUFFER ZONE IS A MINIMUM OF 50 FEET FOR EXISTING FILL AREAS AND 50 FEET FOR THE NEWLY PERMITTED AIRSPACE. REFER TO APPENDIX I/II-C FOR MORE INFORMATION REGARDING BUFFER ZONES.



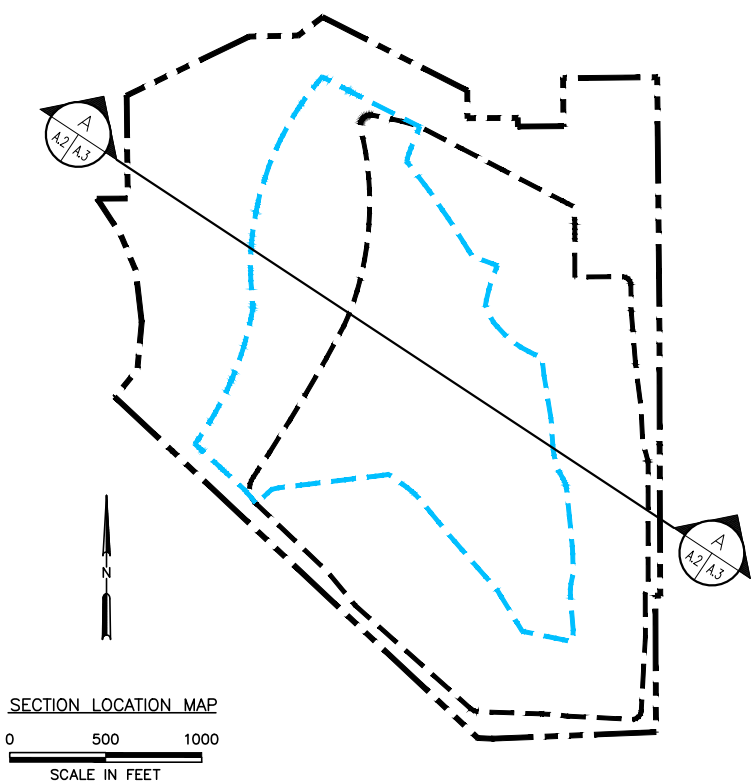
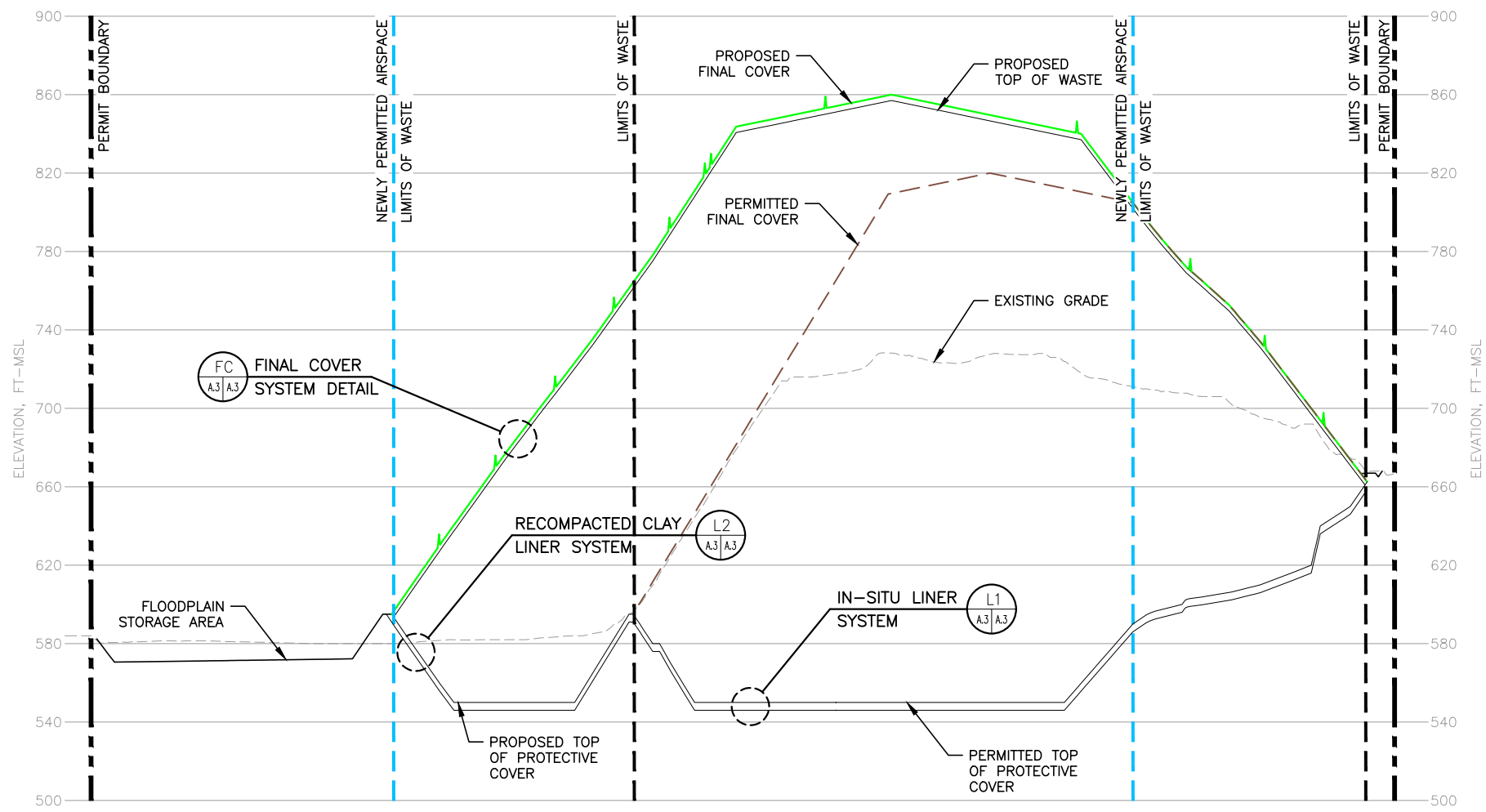
CELL SUMMARY			
CELL SUMMARY	MAX LENGTH (FT)	MAX WIDTH (FT)	AREA (ACRES)
2002 EXISTING	1566	703	22.5
1	722	641	10.0
2A	511	416	4.8
2B	661	398	5.2
2C	653	363	3.7
2D	846	322	5.6
2E	678	350	3.9
3A	781	274	4.7
3B	542	339	4.1
3C	1027	320	6.1
3D	1184	338	6.8
4	1567	672	18.5
5	923	184	4.1
6	1998	632	22.0

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          SECTOR DEVELOPMENT SEQUENCE          (TCEQ PERMIT NO. MSW-1983E)          FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>					
	DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.2-SECTOR DEV. SEQUENCE.DWG		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	
NO.	DATE	DESCRIPTION					
DRAWN BY: SRF DESIGN BY: JBP REVIEWED BY: CRM	<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727	WWW.WCGRP.COM <b>FIGURE I/II-A.2</b>					

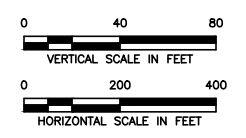
O:\0771\356\EXPANSION 2022\PARTS 1-HV\PART 1-HV\FIG A.2-SECTOR DEVELOPMENT SEQUENCE.dwg, jwilson, 1:2



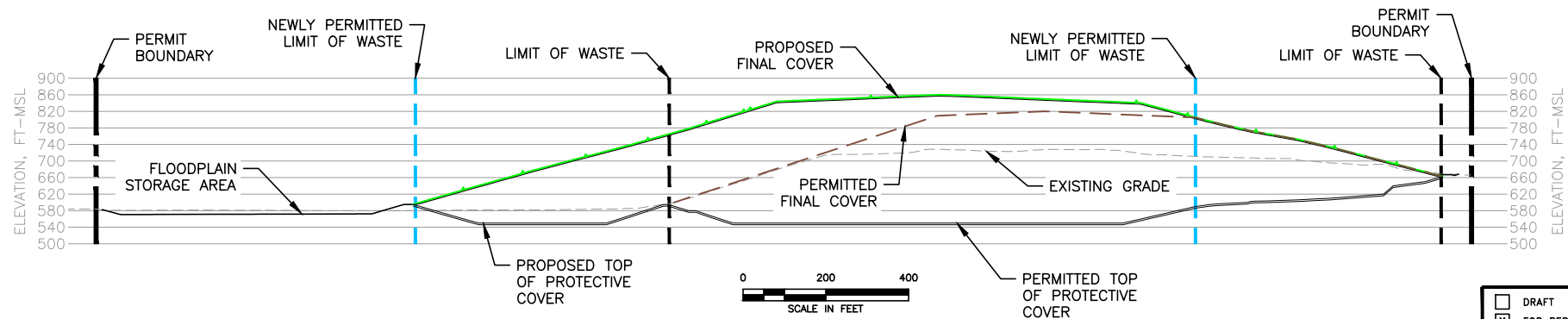
0:\0771\356\EXPANSION 2022\PARTS 1-11\PART 1-11A\FIG A.3-CROSS SECTION.dwg, jwilson, 1:2



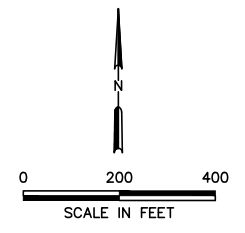
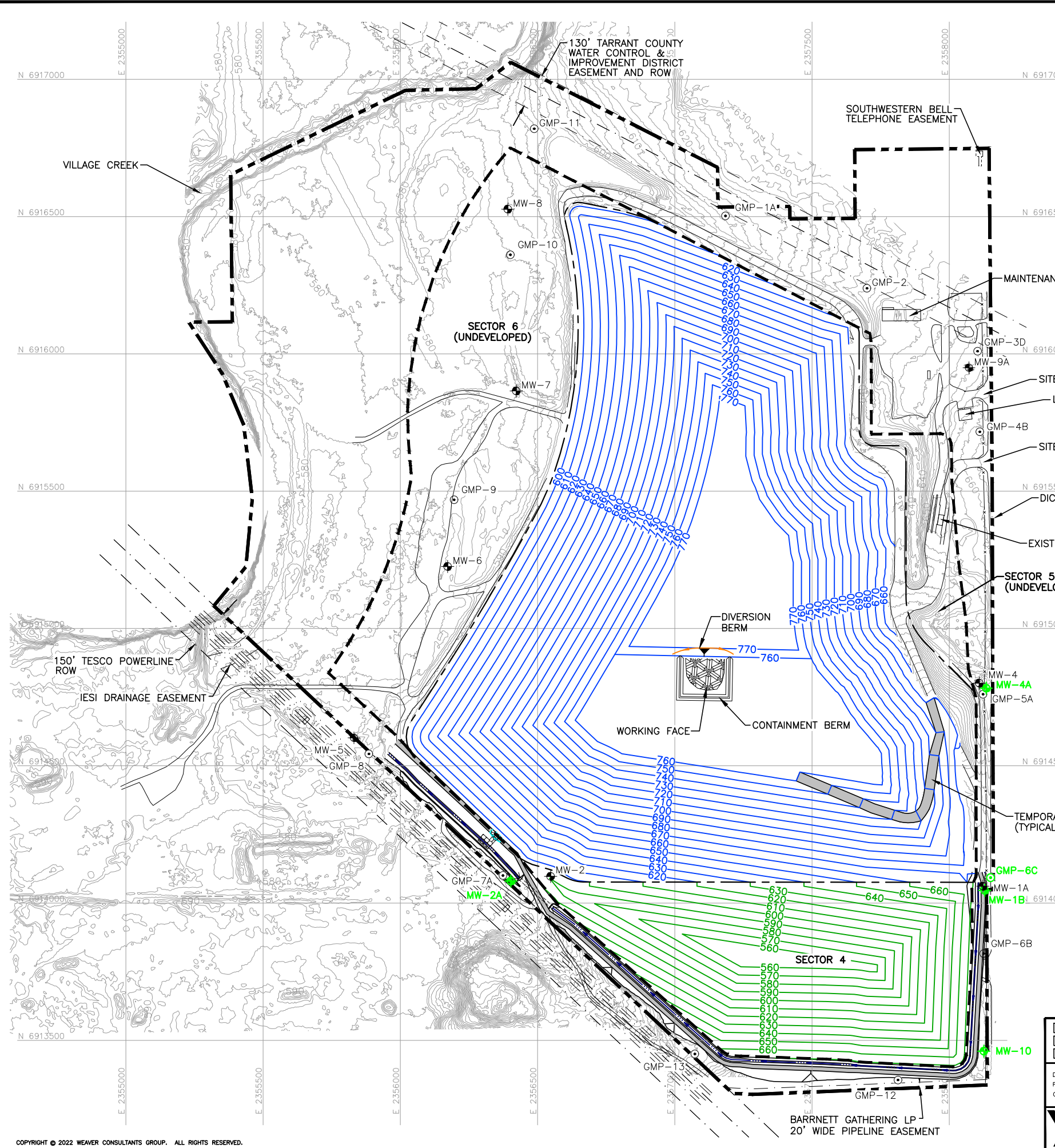
- LEGEND**
- PERMIT BOUNDARY
  - PERMITTED LIMIT OF WASTE
  - NEWLY PERMITTED LIMIT OF WASTE
  - EXISTING GRADE
  - TOP OF FINAL COVER
  - TOP OF WASTE
  - PERMITTED FINAL COVER
  - (L1 / A3 / A3) DETAIL CALLOUT (SEE NOTE 2)



- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
  - REFER TO APPENDIX IIIA-A FOR LINER AND FINAL COVER SYSTEM DETAILS. DETAIL LOCATIONS REFER TO DRAWING NUMBERS IN APPENDIX IIIA-A THAT INCLUDE THE CALLED OUT DETAIL.
  - SEE APPENDIX IIIG FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF THE SECTION. SEE DRAWING B.1 FOR LOCATION.
  - AS SHOWN IN APPENDIX I/II-C, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50-FEET FOR EXISTING WASTE. THE BUFFER ZONE BETWEEN THE PERMIT BOUNDARY AND NEWLY PERMITTED (PERMIT NO. MSW-1983E) WASTE DISPOSAL AIRSPACE IS AT LEAST 50 FEET.
  - DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN.
  - MINIMUM EXCAVATION ELEVATION IS 550 FT-MSL BASED ON USE OF IN-SITU LINER SYSTEM (OR 446 FT-MSL IF RECOMPACTED CLAY LINER IS USED). MAXIMUM TOP OF FINAL COVER ELEVATION IS 860.5 FT-MSL.



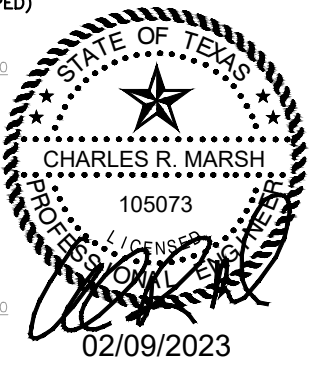
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>MAJOR PERMIT AMENDMENT          CROSS-SECTION A          (TCEQ PERMIT NO. MSW-1983E)          FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>											
	DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.3-CROSS SECTION A.DWG			REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	DESCRIPTION							
NO.	DATE	DESCRIPTION												
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		<b>FIGURE 1/II-A.3</b>												



**LEGEND**

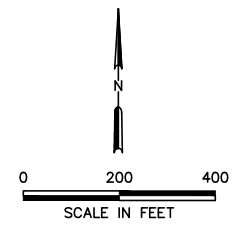
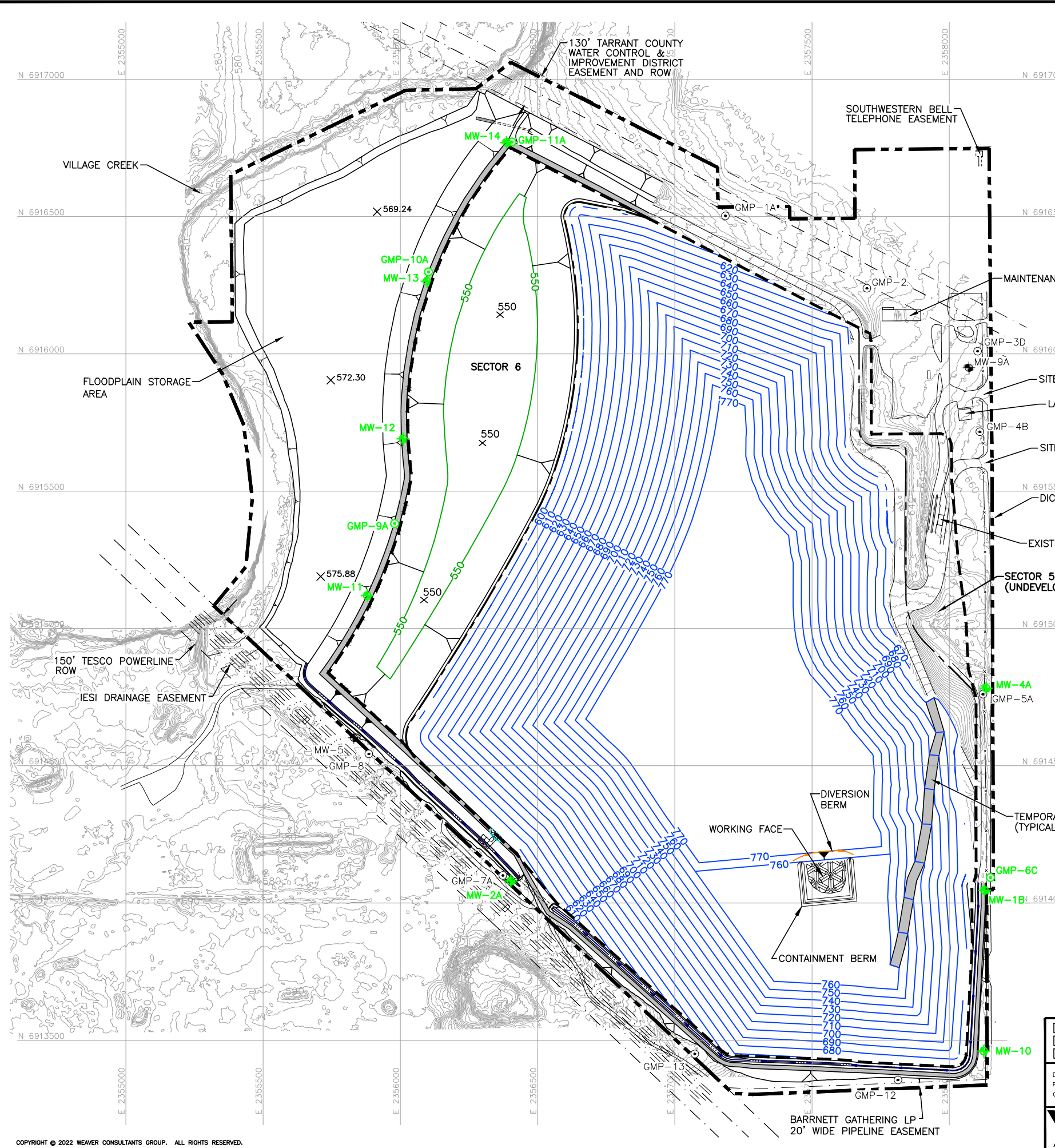
	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	INTERMEDIATE CONTOUR
	BASE GRADE CONTOUR
	SECTOR BOUNDARY
	EASEMENT
	DRAINAGE CHANNEL
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMAK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - REFER TO APPENDIX IIIC CONTAMINATED WATER MANAGEMENT PLAN FOR CONTAMINATED WATER RUN-ON/RUN-OFF BERM DESIGN INFORMATION.
  - THE SECTOR DEVELOPMENT SHOWN ON THIS DRAWING SHOWS THE GENERAL SEQUENCE OF FILLING OPERATIONS. ACTUAL LANDFILL DEVELOPMENT MAY VARY. THE LOCATION OF THE ALL-WEATHER ACCESS ROAD FROM THE LANDFILL HAUL ROAD TO THE ACTIVE AREA WILL BE DETERMINED DURING SITE OPERATIONS.
  - INTERMEDIATE COVER CONSISTS OF A 12-INCH THICK SOIL LAYER. REFER TO PART IV - SITE OPERATING PLAN FOR ADDITIONAL SOIL COVER REQUIREMENTS.
  - LANDFILL HAUL ROAD WILL BE SURFACED TO PROVIDE ALL-WEATHER ACCESS.
  - REFER TO APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN FOR THE EROSION AND SEDIMENTATION CONTROL PLAN. DRAINAGE STRUCTURES ARE SHOWN AS THE SITE DEVELOPS. ADDITIONALLY BMPs WILL BE USED TO CONTROL EROSION AS NEEDED.
  - REFER TO APPENDIX IIIB FOR LANDFILL GAS MANAGEMENT PLAN.
  - UNCONTAMINATED STORMWATER THAT HAS NOT COME INTO CONTACT WITH WASTE WILL BE COLLECTED IN SUMPS AND PERIODICALLY REMOVED FROM EXCAVATED AREAS BY PUMPING TO PERIMETER DRAINAGE CHANNELS OR USED IN SITE OPERATIONS (E.G., DUST CONTROL, COMPACTING, ETC.).
  - TEMPORARY CHUTES AND SWALES WILL BE PLACED OVER THE INTERMEDIATE COVER AREA TO MINIMIZE EROSION AND HELP ESTABLISH VEGETATION FOR INTERMEDIATE COVER AREAS THAT WILL NOT RECEIVE WASTE OR FINAL COVER WITHIN 180 DAYS AFTER PLACEMENT (REFER TO APPENDIX IIIF-F FOR MORE INFORMATION). MULCH, HYDROSEEDING OR SIMILAR METHODS WILL BE USED TO ESTABLISH VEGETATION OVER THE INTERMEDIATE COVER AREAS. SWALE AND LETDOWN SPACING WILL MEET THE REQUIREMENTS OF THE EROSION CONTROL PLAN INCLUDED IN APPENDIX IIIF-F.



<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP												
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY														
<input type="checkbox"/> ISSUED FOR CONSTRUCTION														
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REVISIONS														
NO.	DATE		DESCRIPTION											
FILE: 0771-356-11	DESIGN BY: JBP													
CAD: FIG A.4-SECTOR DEV. PLAN I.DWG	REVIEWED BY: CRM													
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

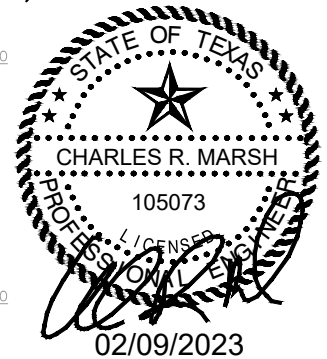
MAJOR PERMIT AMENDMENT SECTOR DEVELOPMENT PLAN I (TCEQ PERMIT NO. MSW-1983E) FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS		
WWW.WCGRP.COM		FIGURE I/II-A.4



**LEGEND**

	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	INTERMEDIATE CONTOUR
	BASE GRADE CONTOUR
	SECTOR BOUNDARY
	EASEMENT
	DRAINAGE CHANNEL
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

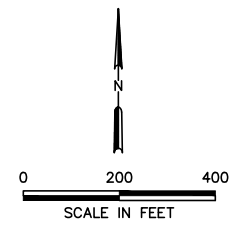
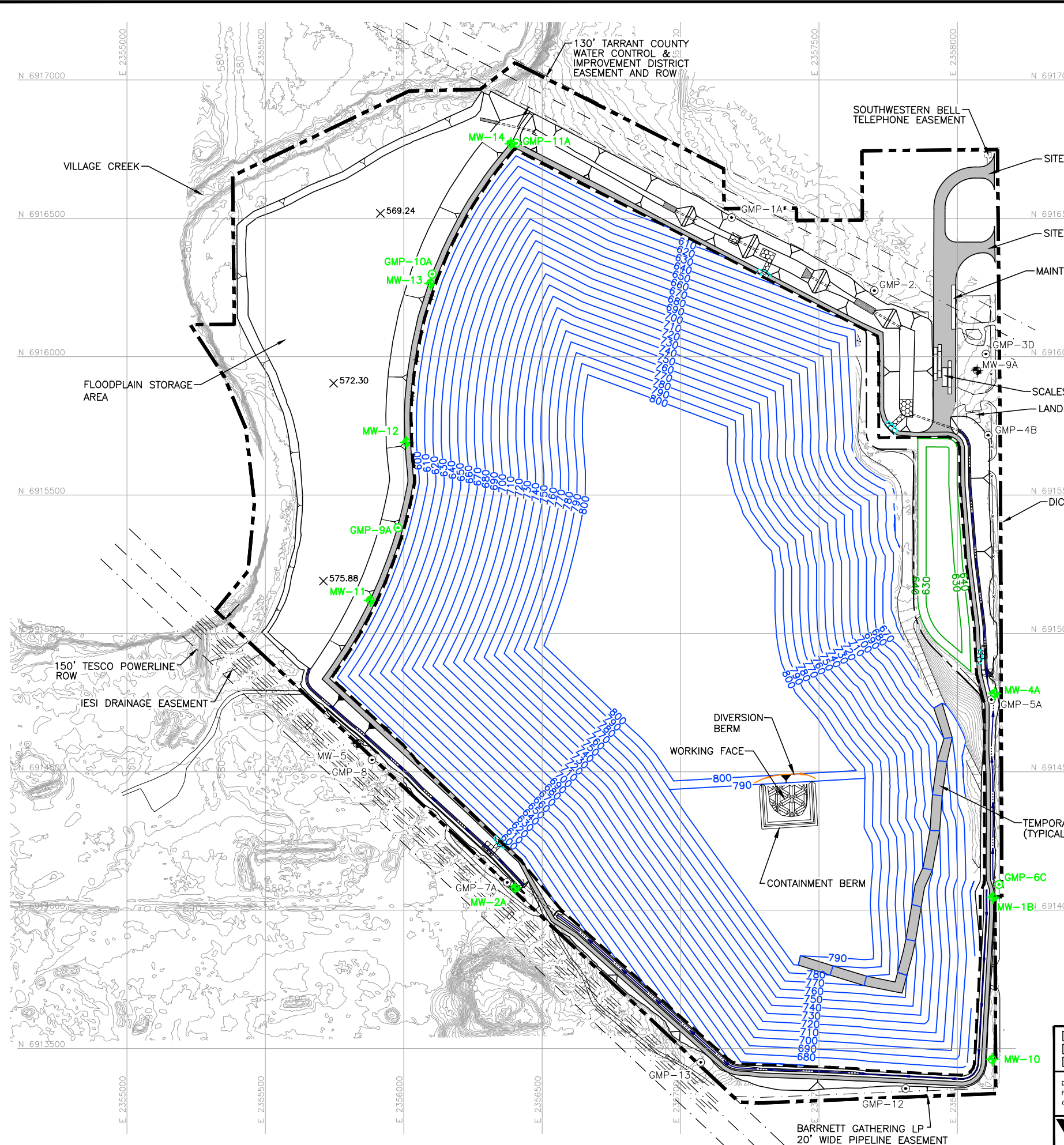
- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - REFER TO APPENDIX IIIC CONTAMINATED WATER MANAGEMENT PLAN FOR CONTAMINATED WATER RUN-ON/RUN-OFF BERM DESIGN INFORMATION.
  - THE SECTOR DEVELOPMENT SHOWN ON THIS DRAWING SHOWS THE GENERAL SEQUENCE OF FILLING OPERATIONS. ACTUAL LANDFILL DEVELOPMENT MAY VARY. THE LOCATION OF THE ALL-WEATHER ACCESS ROAD FROM THE LANDFILL HAUL ROAD TO THE ACTIVE AREA WILL BE DETERMINED DURING SITE OPERATIONS.
  - INTERMEDIATE COVER CONSISTS OF A 12-INCH THICK SOIL LAYER. REFER TO PART IV - SITE OPERATING PLAN FOR ADDITIONAL SOIL COVER REQUIREMENTS.
  - LANDFILL HAUL ROAD WILL BE SURFACED TO PROVIDE ALL-WEATHER ACCESS.
  - REFER TO APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN FOR THE EROSION AND SEDIMENTATION CONTROL PLAN. DRAINAGE STRUCTURES ARE SHOWN AS THE SITE DEVELOPS. ADDITIONALLY BMPs WILL BE USED TO CONTROL EROSION AS NEEDED.
  - REFER TO APPENDIX IIIF FOR LANDFILL GAS MANAGEMENT PLAN.
  - UNCONTAMINATED STORMWATER THAT HAS NOT COME INTO CONTACT WITH WASTE WILL BE COLLECTED IN SUMPS AND PERIODICALLY REMOVED FROM EXCAVATED AREAS BY PUMPING TO PERIMETER DRAINAGE CHANNELS OR USED IN SITE OPERATIONS (E.G., DUST CONTROL, COMPACTING, ETC.).
  - TEMPORARY CHUTES AND SWALES WILL BE PLACED OVER THE INTERMEDIATE COVER AREA TO MINIMIZE EROSION AND HELP ESTABLISH VEGETATION FOR INTERMEDIATE COVER AREAS THAT WILL NOT RECEIVE WASTE OR FINAL COVER WITHIN 180 DAYS AFTER PLACEMENT (REFER TO APPENDIX IIIF-F FOR MORE INFORMATION). MULCH, HYDROSEEDING OR SIMILAR METHODS WILL BE USED TO ESTABLISH VEGETATION OVER THE INTERMEDIATE COVER AREAS. SWALE AND LETDOWN SPACING WILL MEET THE REQUIREMENTS OF THE EROSION CONTROL PLAN INCLUDED IN APPENDIX IIIF-F.



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DATE: 12/2022	DRAWN BY: SRF	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION						
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FILE: 0771-356-11	DESIGN BY: JBP													
CAD: FIG A.5-SECTOR DEV. PLAN II.DWG	REVIEWED BY: CRM													
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

MAJOR PERMIT AMENDMENT SECTOR DEVELOPMENT PLAN II (TCEQ PERMIT NO. MSW-1983E)		
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS		
WWW.WCGRP.COM	FIGURE I/II-A.5	

O:\0771\356\EXPANSION 2022\PARTS I-H\PART I-H\FIG A.5-SEQUENCE PLAN 2.dwg, jwilson, 1:2



**LEGEND**

- PERMIT BOUNDARY
- LIMIT OF WASTE
- EXISTING CONTOUR
- STATE PLANE COORDINATE
- INTERMEDIATE CONTOUR
- BASE GRADE CONTOUR
- SECTOR BOUNDARY
- EASEMENT
- DRAINAGE CHANNEL
- MW-2A PERMITTED GROUNDWATER MONITORING WELL
- GMP-4B PERMITTED GAS MONITORING PROBE
- MW-4A PROPOSED GROUNDWATER MONITORING WELL
- GMP-6C PROPOSED GAS MONITORING PROBE

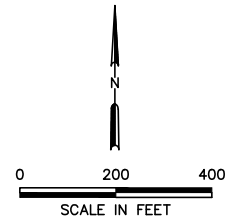
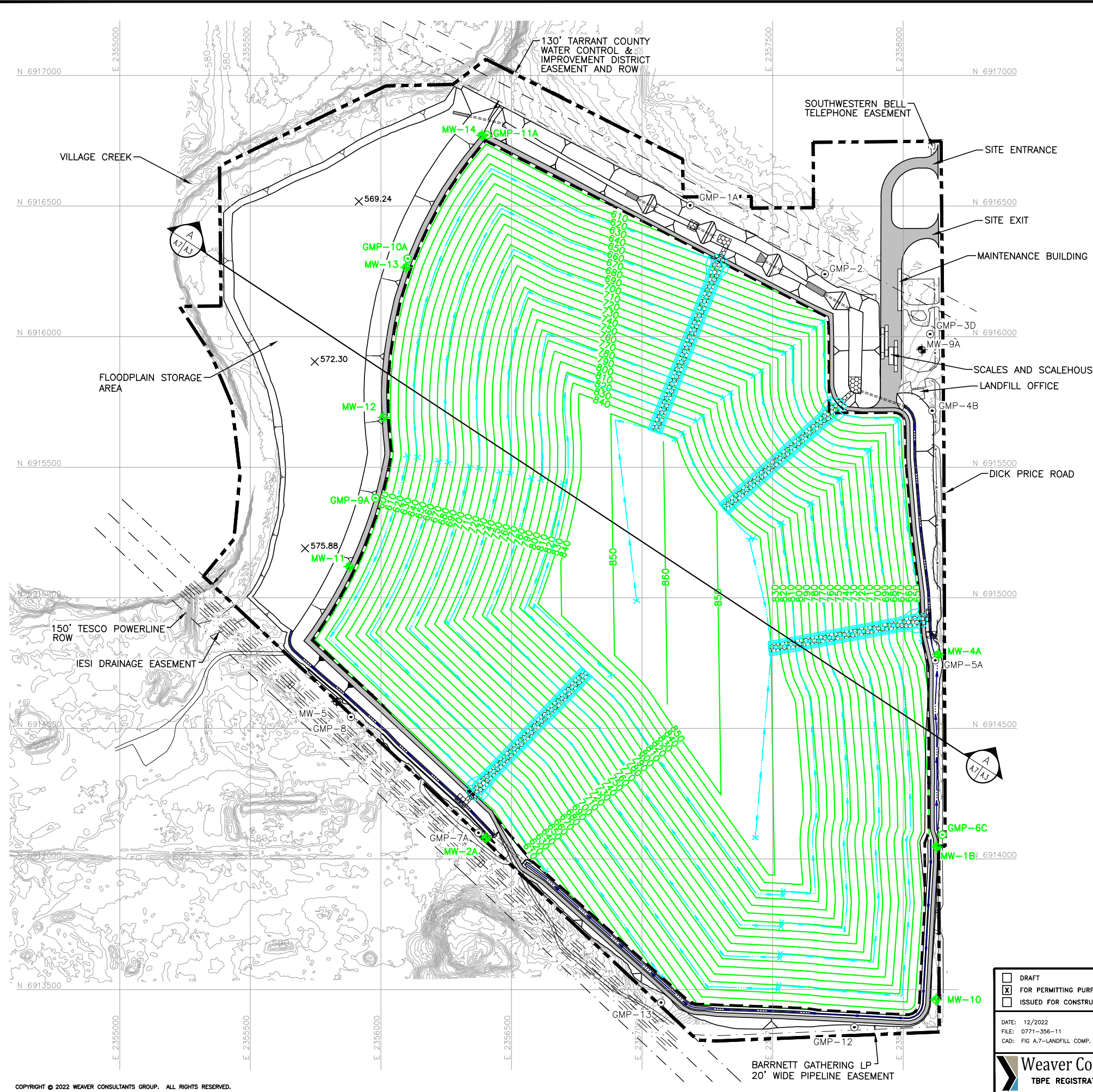
- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - REFER TO APPENDIX IIIC CONTAMINATED WATER MANAGEMENT PLAN FOR CONTAMINATED WATER RUN-ON/RUN-OFF BERM DESIGN INFORMATION.
  - THE SECTOR DEVELOPMENT SHOWN ON THIS DRAWING SHOWS THE GENERAL SEQUENCE OF FILLING OPERATIONS. ACTUAL LANDFILL DEVELOPMENT MAY VARY. THE LOCATION OF THE ALL-WEATHER ACCESS ROAD FROM THE LANDFILL HAUL ROAD TO THE ACTIVE AREA WILL BE DETERMINED DURING SITE OPERATIONS.
  - INTERMEDIATE COVER CONSISTS OF A 12-INCH THICK SOIL LAYER. REFER TO PART IV - SITE OPERATING PLAN FOR ADDITIONAL SOIL COVER REQUIREMENTS.
  - LANDFILL HAUL ROAD WILL BE SURFACED TO PROVIDE ALL-WEATHER ACCESS.
  - REFER TO APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN FOR THE EROSION AND SEDIMENTATION CONTROL PLAN. DRAINAGE STRUCTURES ARE SHOWN AS THE SITE DEVELOPS. ADDITIONALLY BMPs WILL BE USED TO CONTROL EROSION AS NEEDED.
  - REFER TO APPENDIX IIIB FOR LANDFILL GAS MANAGEMENT PLAN.
  - UNCONTAMINATED STORMWATER THAT HAS NOT COME INTO CONTACT WITH WASTE WILL BE COLLECTED IN SUMPS AND PERIODICALLY REMOVED FROM EXCAVATED AREAS BY PUMPING TO PERIMETER DRAINAGE CHANNELS OR USED IN SITE OPERATIONS (E.G., DUST CONTROL, COMPACTING, ETC.).
  - TEMPORARY CHUTES AND SWALES WILL BE PLACED OVER THE INTERMEDIATE COVER AREA TO MINIMIZE EROSION AND HELP ESTABLISH VEGETATION FOR INTERMEDIATE COVER AREAS THAT WILL NOT RECEIVE WASTE OR FINAL COVER WITHIN 180 DAYS AFTER PLACEMENT (REFER TO APPENDIX IIIF-F FOR MORE INFORMATION). MULCH, HYDROSEEDING OR SIMILAR METHODS WILL BE USED TO ESTABLISH VEGETATION OVER THE INTERMEDIATE COVER AREAS. SWALE AND LETDOWN SPACING WILL MEET THE REQUIREMENTS OF THE EROSION CONTROL PLAN INCLUDED IN APPENDIX IIIF-F.



<input type="checkbox"/> DRAFT	PREPARED FOR	<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>												
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION														
DATE: 12/2022	DESIGNED BY: SRF	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION						
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FILE: 0771-356-11	DESIGN BY: JBP													
CAD: FIG A.6-SECTOR DEV. PLAN IILDWG	REVIEWED BY: CRM													
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

<b>MAJOR PERMIT AMENDMENT SECTOR DEVELOPMENT PLAN III (TCEQ PERMIT NO. MSW-1983E)</b> FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS		
WWW.WCGRP.COM		FIGURE I/II-A.6

O:\0771\356\EXPANSION 2022\PARTS I-II\PART I-II\FIG A.6-SEQUENCE PLAN 3.dwg, jwilson, 1:2



**LEGEND**

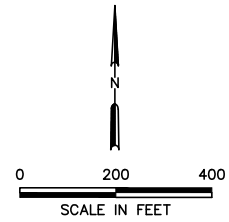
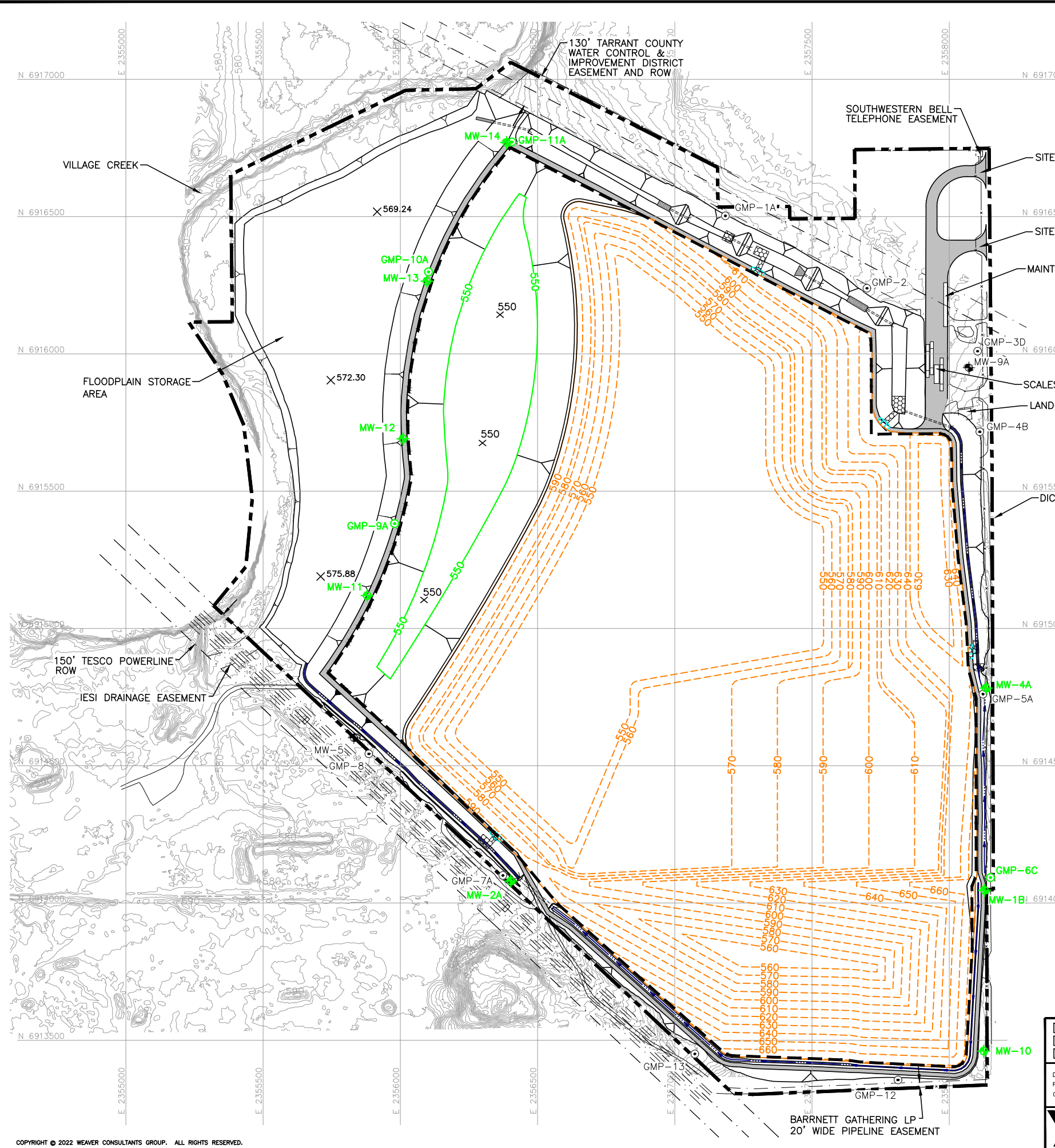
	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	FINAL COVER CONTOUR
	DRAINAGE LETDOWN
	DRAINAGE SWALE
	PROPOSED PERIMETER CHANNEL
	EASEMENT
	GABIONS
	DRAINAGE CHANNEL
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - REFER TO APPENDIX III-F-SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
  - THE FINAL COVER CONTOURS SHOWN REPRESENT A 2-FT-THICK FINAL COVER SYSTEM. AN ADDITIONAL 6-INCHES ADDED TO THE TOPSOIL LAYER MAY BE REQUIRED DEPENDING ON THE SOIL CLASSIFICATION OF THE COMPACTED SOIL (INFILTRATION LAYER) AT THE TIME OF FINAL COVER CONSTRUCTION FOR A GIVEN AREA, RESULTING IN A 2.5-FT-THICK FINAL COVER SYSTEM. IF THIS OCCURS, THE MAXIMUM FINAL COVER ELEVATION WOULD BE 860.5 FT-MSL, INSTEAD OF THE 860.0 FT-MSL SHOWN.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          LANDFILL COMPLETION PLAN          (TCEQ PERMIT NO. MSW-1983E)          FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>								
	DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.7-LANDFILL COMP. PLAN.DWG		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION				
NO.	DATE	DESCRIPTION								
DRAWN BY: SRF DESIGN BY: JBP REVIEWED BY: CRM	<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727	WWW.WCGRP.COM <b>FIGURE I/II-A.7</b>								

O:\0771\356\EXPANSION 2022\PARTS I-IV\PART I-IV\FIG A.7-SEQUENCE PLAN I.dwg, jwilson, 1:2  
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**LEGEND**

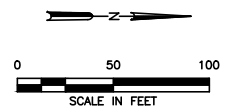
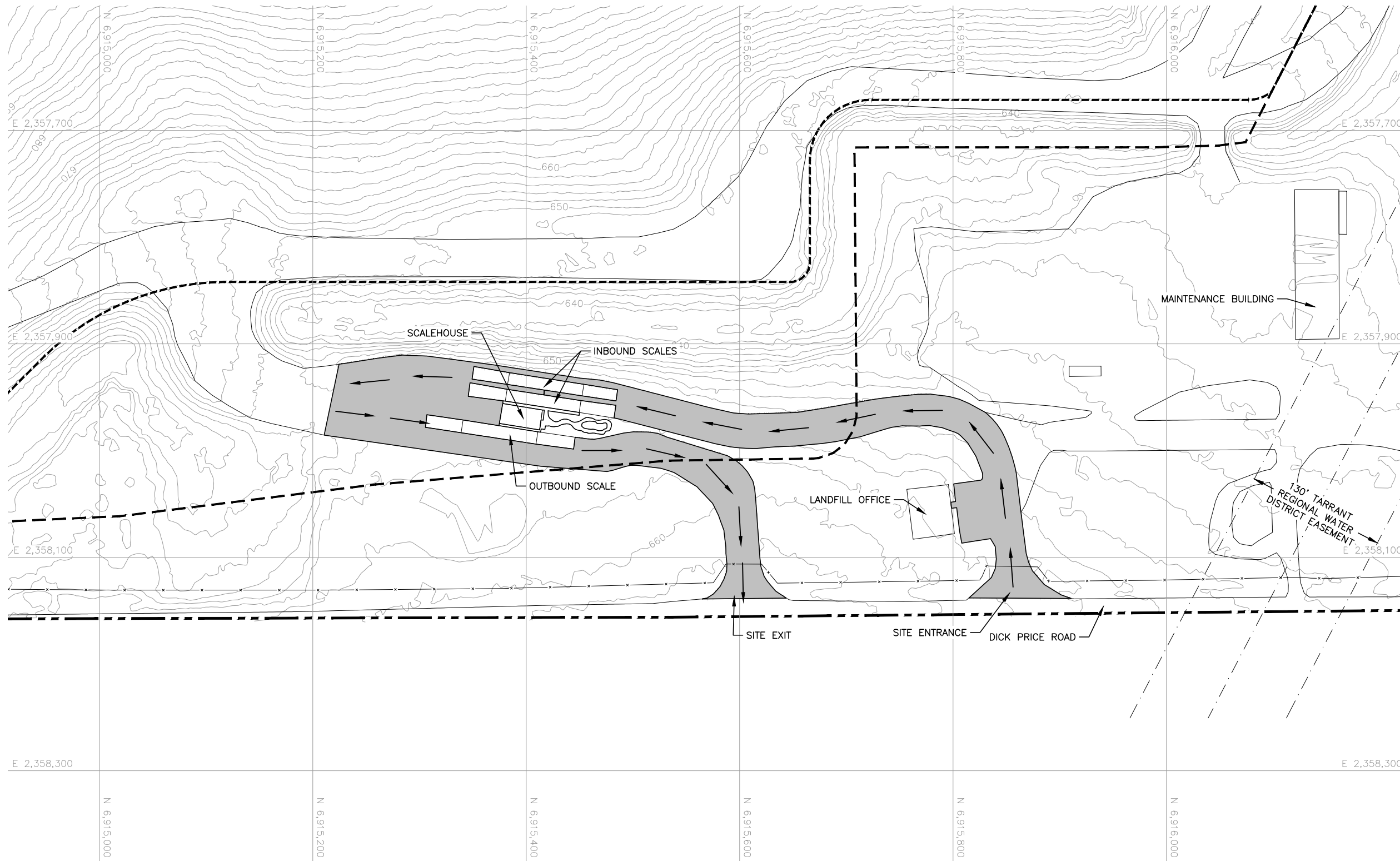
	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	PERMITTED/EXISTING BASE GRADE CONTOUR (SEE NOTE 6)
	PROPOSED/UNDEVELOPED BASE GRADE CONTOUR (SEE NOTE 6)
	PROPOSED PERIMETER CHANNEL
	EASEMENT
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - EXCAVATION SLOPES AND SLOPES OUTSIDE THE LIMIT OF WASTE (e.g., CHANNELS) ARE TYPICALLY 3H:1V.
  - ELEVATION OF DEEPEST EXCAVATION (EDE) IS 550 FT-MSL BASED ON USE OF IN-SITU LINER. IF CONSTRUCTED LINER IS USED THE EDE WILL BE 546 FT-MSL.
  - LINER SYSTEM DETAILS ARE PRESENTED IN APPENDIX IIIA-A-LINER AND FINAL COVER SYSTEM DETAILS.
  - SEQUENCE OF SITE DEVELOPMENT IS PROVIDED IN PARTS I/II, APPENDIX I/IIA DRAWINGS I/IIA.4 THROUGH I/IIA.6.
  - BASE GRADES SHOWN REPRESENT THE TOP OF PROTECTIVE COVER (IF A CONSTRUCTED LINER SYSTEM IS USED) OR THE TOP OF IN-SITU LINER.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          EXCAVATION PLAN          (TCEQ PERMIT NO. MSW-1983E)          FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>											
	DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.8-EXCAVATION PLAN.DWG		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	DESCRIPTION							
NO.	DATE	DESCRIPTION											
DRAWN BY: SRF DESIGN BY: CAM REVIEWED BY: CAM	<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727	WWW.WCGRP.COM <b>FIGURE I/II-A.8</b>											

O:\0771\356\EXPANSION 2022\PARTS I-II\PART I-H\FIG A.8-EXCAVATION PLAN.dwg, jwilson, 1:2  
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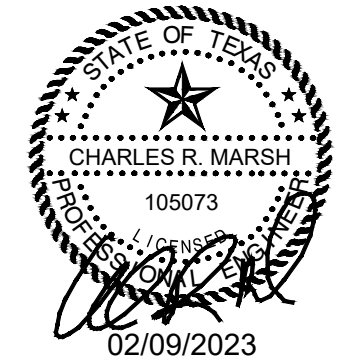


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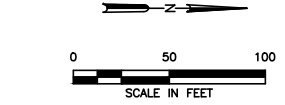
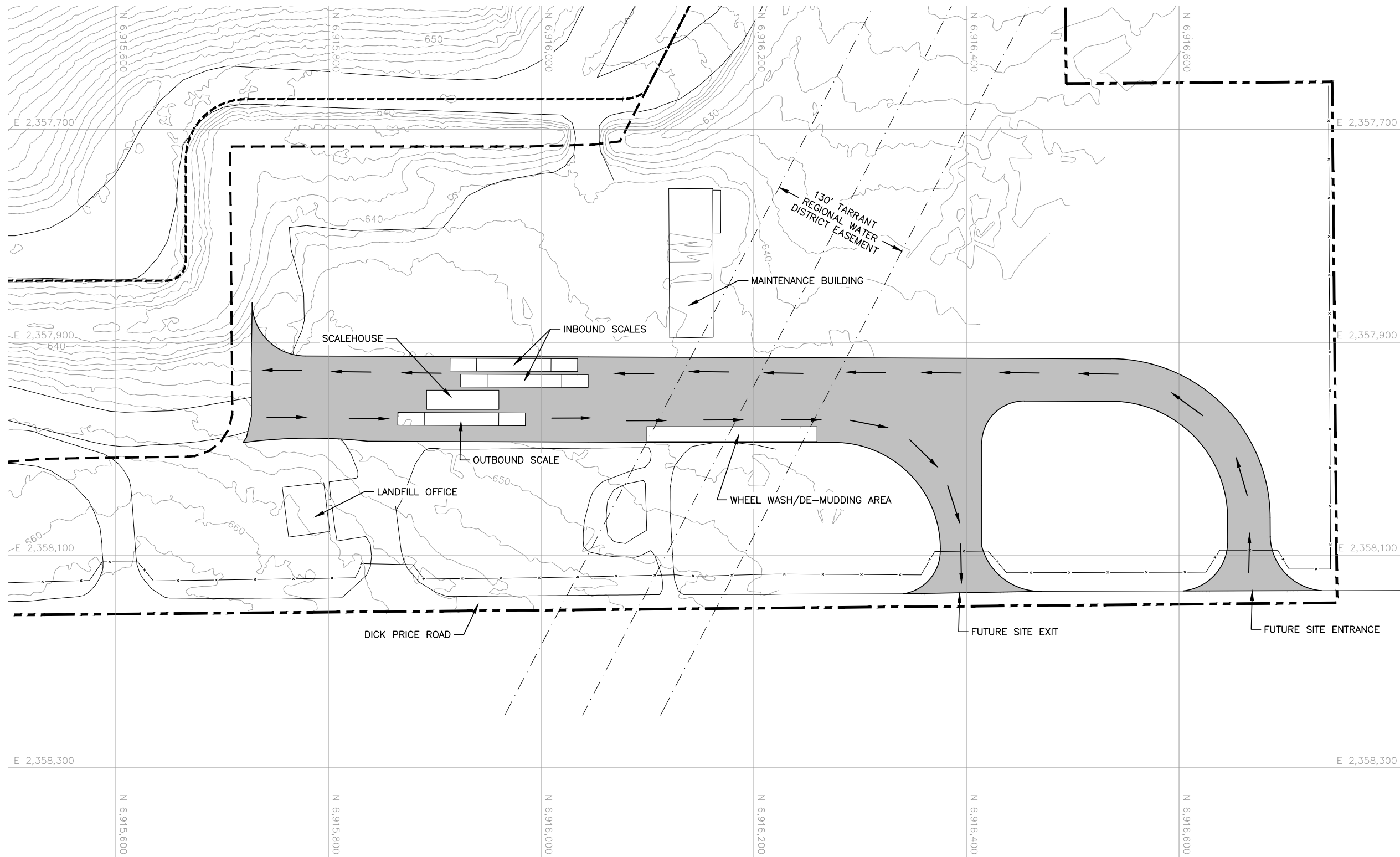
- PERMIT BOUNDARY
- STATE PLANE COORDINATE
- EXISTING CONTOURS
- PERMITTED LIMITS OF WASTE
- CONSTRUCTED LIMITS OF WASTE
- PAVED AREA (SEE NOTE 2)
- CHAIN LINK FENCE
- VEHICLE TRAFFIC DIRECTION

**NOTES:**

1. EXISTING CONTOURS AND ELEVATIONS PREPARED BY COOPER AERIAL SURVEYS, CO. FROM AERIAL PHOTOGRAPHY FLOWN ON 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
2. ALL WEATHER PAVING MAY BE PROVIDED USING ASPHALT, CONCRETE, GRAVEL OR A COMBINATION OF VARIOUS ALL WEATHER SURFACING.



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	DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.9-EXISTING SITE ENT PLN.DWG			DRAWN BY: CAM DESIGN BY: CAM REVIEWED BY: CAM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION							WWW.WCGRP.COM <b>FIGURE 1/II-A.9</b>
NO.	DATE	DESCRIPTION										

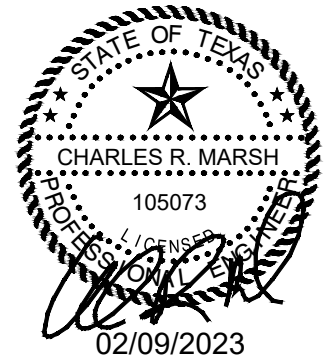


**LEGEND**

- PERMIT BOUNDARY
- STATE PLANE COORDINATE
- EXISTING CONTOURS
- PERMITTED LIMITS OF WASTE
- CONSTRUCTED LIMITS OF WASTE
- PAVED AREA (SEE NOTE 2)
- CHAIN LINK FENCE
- VEHICLE TRAFFIC DIRECTION

**NOTES:**

1. EXISTING CONTOURS AND ELEVATIONS PREPARED BY COOPER AERIAL SURVEYS, CO. FROM AERIAL PHOTOGRAPHY FLOWN ON 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
2. ALL WEATHER PAVING MAY BE PROVIDED USING ASPHALT, CONCRETE, GRAVEL OR A COMBINATION OF VARIOUS ALL WEATHER SURFACING.



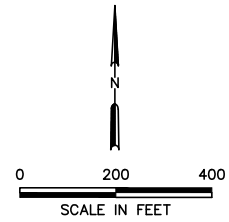
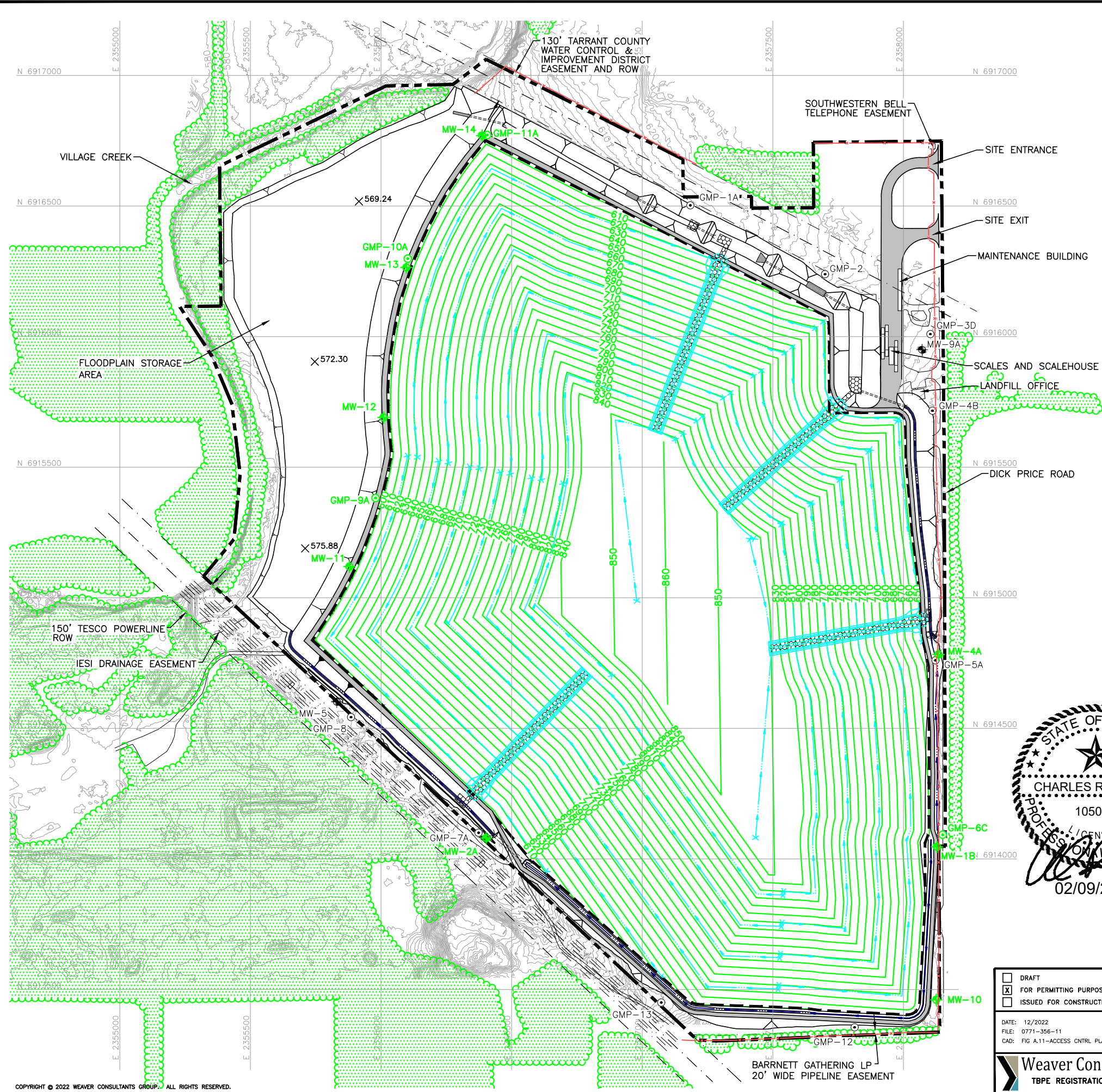
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION	
DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.10-FUTURE SITE ENT PLN.DWG	DRAWN BY: CAM DESIGN BY: CAM REVIEWED BY: CAM
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727	

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NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT**  
**FUTURE SITE ENTRANCE PLAN**  
 (TCEQ PERMIT NO. MSW-1983E)  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS  
 WWW.WCGRP.COM    **FIGURE I/II-A.10**

O:\0771\356\EXPANSION 2022\PARTS 1-H\PART 1-H\FIG A.10-FUTURE SITE ENTRANCE PLAN.dwg - jwilson, 1:2

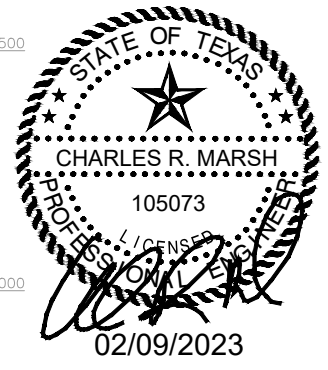




**LEGEND**

- PERMIT BOUNDARY
- LIMIT OF WASTE
- 630 EXISTING CONTOUR
- 860 FINAL COVER CONTOUR
- DRAINAGE LETDOWN
- DRAINAGE SWALE
- PROPOSED PERIMETER CHANNEL
- EASEMENT
- GABIONS
- MW-2A PERMITTED GROUNDWATER MONITORING WELL
- GMP-4B PERMITTED GAS MONITORING PROBE
- MW-4A PROPOSED GROUNDWATER MONITORING WELL
- GMP-6C PROPOSED GAS MONITORING PROBE
- EXISTING FENCE
- EXISTING BUFFER ZONE WITH TREES AND SHRUBS (SEE NOTE 3)

- NOTES:**
1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  2. ACCESS TO THE SITE WILL BE CONTROLLED BY PERIMETER FENCING (MINIMUM 4- FEET HIGH, 3-STRAND BARBED WIRE FENCES), A GATED ENTRANCE/EXIT, AND NATURAL BARRIERS (e.g VILLAGE CREEK, DENSE FOLIAGE, AND VEGETATION). ADDITIONALLY, IN AREAS OF NATURAL BARRIERS, THE ACCESS CONTROL PLAN IS PROVIDED TO PREVENT THE ENTRY OF LIVESTOCK, TO PREVENT THE PUBLIC FROM EXPOSURE TO POTENTIAL HEALTH AND SAFETY HAZARDS, AND TO DISCOURAGE UNAUTHORIZED ENTRY OR UNCONTROLLED DISPOSAL OF SOLID WASTE OR HAZARDOUS MATERIALS. NO TRESPASSING SIGNS WILL BE ADDED TO DISCOURAGE UNAUTHORIZED ENTRY OR UNCONTROLLED DISPOSAL OF SOLID WASTE OR HAZARDOUS MATERIALS. SIGNS WILL BE PLACED APPROXIMATELY 300 FEET APART ALONG THE NORTHERN AND SOUTHERN PORTION OF THE SITE.
  3. FACILITY IS BOUNDED HIGH-CANOPY TREE LINES. THE EXISTING DENSE TREE LINES FUNCTION AS BOTH WINDBREAKS AND SITE SCREENING. AS SHOWN IN FIGURE 1/II-A.2 SECTOR DEVELOPMENT SEQUENCE, THE LANDFILL IS SEQUENCED SUCH THAT THE ACTIVE FILL AREA WILL BE SCREENED BY THE EXISTING VEGETATION. THE FILL SEQUENCE WILL ALSO DEVELOP THE OUTERMOST SECTORS FIRST, WHICH WILL SCREEN SUBSEQUENT OPERATIONS.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT ACCESS CONTROL PLAN (TCEQ PERMIT NO. MSW-1983E)</b>  <b>FORT WORTH C&amp;D LANDFILL TARRANT COUNTY, TEXAS</b>															
DATE: 12/2022 FILE: 0771-356-11 CAD: FIG A.11-ACCESS CNTRL PLAN.DWG	DRAWN BY: SRF DESIGN BY: JBP REVIEWED BY: CRM	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">DATE</th> <th style="width: 80%;">DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION									
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM <b>FIGURE 1/II-A.11</b>															

O:\0771\356\EXPANSION 2022\PARTS 1-HV\PART 1-HV\FIG A.11-ACCESS CONTROL PLAN.dwg, jwilson, 1:2  
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## APPENDIX I/IIB

### DEMONSTRATION OF COORDINATION

- Coordination with Federal Aviation Administration
- Coordination with Texas Historical Commission
- Coordination with Texas Department of Transportation
- Coordination with Texas Parks and Wildlife Department
- Coordination with U.S. Army Corps of Engineers
- Coordination with U.S. Department of the Interior Fish and Wildlife Service
- Coordination with North Central Texas Council of Governments



## **COORDINATION WITH FEDERAL AVIATION ADMINISTRATION**

- FAA Determination of No Hazard to Air Navigation Letters will be included upon receipt.
- October 17, 2022 Request Letter requesting FAA determination of No Hazard to Air Navigation.



October 17, 2022  
Project No. 0771-356-11-35

Mr. Joe Washington  
Airports Division - Safety and Standards Branch, ASW-620  
U.S. Department of Transportation  
Federal Aviation Administration  
10101 Hillwood Parkway  
Fort Worth, Texas 76177

Re: Compliance with Airport Location Restriction  
Proposed Fort Worth C&D Landfill Permit Amendment  
Tarrant County, Texas

Dear Mr. Washington:

The purpose of this letter is to demonstrate coordination with the Federal Aviation Administration (FAA), consistent with Texas Administrative Code (TAC) §330.61(i)(5) and §330.545. Texas Regional Landfill Company, LP is planning an expansion of the Fort Worth C&D Landfill in Tarrant County, Texas. Please note that a previous expansion of this landfill was studied in 2020 (FAA Aeronautical Study No. 2020-ASW-2801-OE), and this letter refers to additional (newly proposed) lateral and vertical expansion areas of the same facility.

The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill that is currently in operation. By definition, Type IV landfills may accept brush, construction or demolition waste, and/or rubbish. As a Type IV landfill, this facility will not accept putrescible waste.

These regulations require that a permit applicant for a municipal solid waste facility permit amendment to coordinate with the FAA regarding the potential impact of the proposed amendment to existing airports or air traffic; specifically §330.545(d) requires the following.

*“All landfill facilities within a six-mile radius of any small general service airport runway or within a five-mile radius of any large general public commercial airport shall be critically evaluated to determine if an incompatibility exists.”*

Weaver Consultants Group, LLC is in the process of developing a major permit amendment application, on behalf of the Texas Regional Landfill Company, LP, to vertically expand an existing municipal solid waste landfill located south of the City of Fort Worth in Tarrant County. To assist you in your determination, please find attached the following information.

- 
- Attachment A – FAA Airport Vicinity Map. As shown, there are two small general service airport runways (Spinks Airport and Sycamore Airport) and one private use airport runway (Hess Airport) located within the 6-mile radius of the site. There are no large general public commercial airports located within the 5-mile radius of the site.
  - Attachment B – Project Summary and Site Location Maps.
  - Attachment C – Proposed Landfill Completion Plan. This plan shows Points A through E, which have been uploaded to the FAA Web page so that an aeronautical study can be performed. Note that the peak elevation of the landfill only occurs at one point (Point E). However, Points A, B, C, and D are also set at the maximum landfill elevation to provide a conservative landfill configuration for the aeronautical study.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,

**Weaver Consultants Group, LLC**



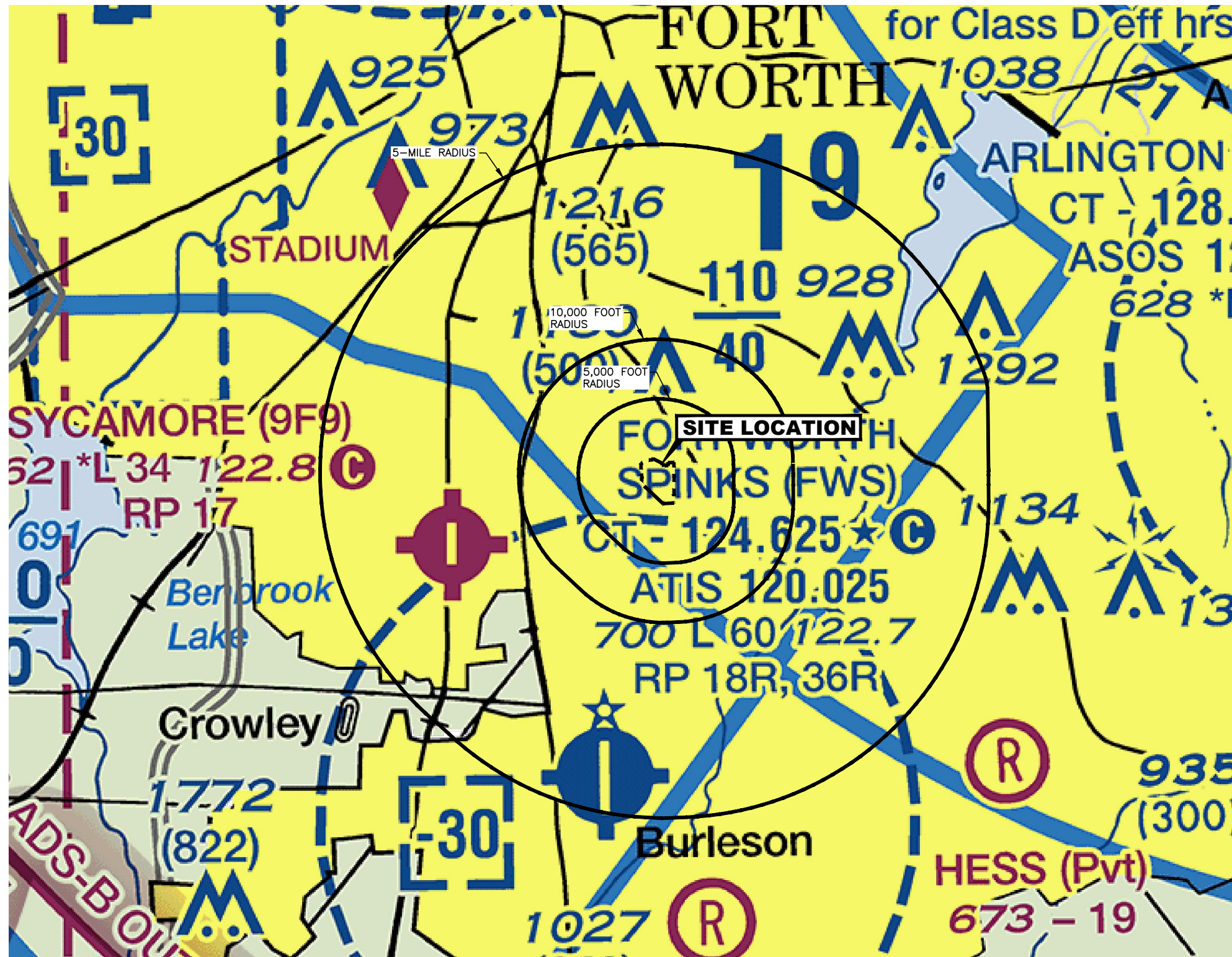
Charles R. Marsh, P.E.

Project Director

Attachments: Attachment A – FAA Airport Vicinity Map  
Attachment B – Project Summary and Site Location Maps  
Attachment C – Landfill Completion Plan

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT A**  
**FAA AIRPORT VICINITY MAP**



SCALE IN FEET  
0 5,000 10,000

LEGEND

--- PERMIT BOUNDARY

**AIRPORTS**

- Other than hard-surfaced runways
- Hard-surfaced runways 1500 ft. to 8069 ft. in length
- Hard-surfaced runways greater than 8069 ft. or some multiple runways less than 8069 ft.
- Open dot within hard-surfaced runway configuration indicates approximate VOR, VOR-DME, DME or VORTAC location.
- All recognizable hard-surfaced runways, including those closed, are shown for visual identification. Airports may be public or private.

**ADDITIONAL AIRPORT INFORMATION**

- Private (Pvt) - Non-public use having emergency or landmark value
- Military - Other than hard-surfaced; all military airports are identified by abbreviations AFB, NAS, AAF, etc.
- Heliport Selected
- Unutilized
- Abandoned - paved having landmark value, 3000 ft. or greater
- Ultraflight Flight Park Selected

**AIRPORT DATA**

Box indicates FAR 93 Special Air Traffic Rules & Airport Traffic Patterns. Runways with Right Traffic Patterns (public use) \*RP Special conditions exist - see Supplement.

FSS NO SVFR Location Identifier [NAME] (NAM) (PNAM) ICAO Location Indicator shown outside contiguous U.S. CT - 118.3 \* ATIS 123.8 VFR Advy 125.0 UNICOM WX CAM Weather Camera (AK) AOE Airport of Entry

FSS - Flight Service Station NO SVFR - Fixed-wing special VFR flight is prohibited. CT - 118.3 - Control Tower (CT) - primary frequency tabulation for hours of operation. \* - Star indicates operation part-time. See tower frequency tabulation for hours of operation.

ATIS 123.8 - Automatic Terminal Information Service AFIS 135.2 - Automatic Flight Information Service (AFIS) ASOS/AWOS 135.42 - Automated Surface Weather Observing System (shown where full-time ATIS not available). Some ASOS/AWOS facilities may not be located at airports. UNICOM - Aeronautical advisory station VFR Advy - VFR Advisory Service shown where full-time ATIS not available and frequency is other than primary CT frequency. 285 - Elevation in feet L - Lighting in operation Sunset to Sunrise \*L - Lighting limitations exist; refer to Supplement. 72 - Length of longest runway in hundreds of feet; usable length may be less. When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.

**AIRPORT TRAFFIC SERVICE AND AIRSPACE INFORMATION**

Only the controlled and reserved airspace effective below 18,000 ft. MSL are shown.

- Class B Airspace
- Class C Airspace (Mode C - see FAR 91.215/AIM)
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700 ft. above surface that laterally abuts Class G Airspace.
- Class E Airspace with floor 700 ft. above surface that laterally abuts 1200 ft. or higher Class E Airspace
- Class E Airspace with floor 1200 ft. or greater above surface that laterally abuts Class G Airspace
- 2400 MSL Differentiates floors of Class E Airspace greater than 700 ft. above surface. Class E Airspace exists at 1200' AGL, unless otherwise designated as shown above.
- 4500 MSL
- Class E Airspace low altitude Federal Airways and RNAV 2 Routes are indicated by center line intersection - Arrows are directed towards facilities which establish intersection.
- 132° V 69
- Total mileage between - 169
- T 319 TK 313 RNAV Waypoint
- Helicopter Only
- Prohibited, Restricted, and Warning Areas; Canadian Advisory, Danger, and Restricted Areas
- \*Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.
- Special Airport Traffic Area (See FAR 93 for details)
- National Defense Airspace Temporary Flight Restriction Area
- ADIZ - Air Defense Identification Zone
- MODE C (See FAR 91.215/AIM)
- National Security Area
- Terminal Radar Service Area (TRSA)
- MTR - Military Training Route

**COMMUNICATION BOXES**

Underline indicates no voice on frequency. Crosshatch indicates Shutdown status. \* - Operates less than continuous or On-Request. @ - ASOS/AWOS

Heavy line box indicates Flight Service Station (FSS). Frequencies 122.2 and 255.4 (Continental U.S.), 121.5, 122.2, 243.0 and 255.4 (Alaska), and 121.5, 126.7, and 243.0 (Canada) are available at many FSSs and are not shown above boxes. All other frequencies are shown.

R - Receive only

Frequencies above thin line box are removed to NAVDIA site. Other FSS frequencies providing voice communication may be available as determined by altitude and terrain. Consult Supplement for complete information.

**RADIO AIDS TO NAVIGATION**

- VHF OMNI RANGE (VOR)
- VOR-DME
- DME
- VORTAC
- Other facilities, i.e., FSS Outlet, RCO, WX CAM (AK) (see Supplement), etc.
- Non-Directional Radio Beacon (NDB)
- NDB - DME

**OBSTRUCTIONS**

1000 ft and higher AGL

- Wind Turbine
- Wind Turbine Farm
- Group Obstruction
- Elevation of the top above mean sea level - 2049 (1149)
- Under construction or reported position and elevation unverified
- Obstruction with high-intensity lights; may operate part-time
- NOTICE: Guy wires may extend outward from structures.

**MISCELLANEOUS**

- STADIUM Intermittent TFR site (within 3 NM, up to & incl 3000' AGL)
- Space Launch Activity Area
- A - Aerobobic Practice Area (See Supplement)
- G - Glider Operations
- H - Hang Glider Activity
- U - Ultraflight Activity
- UA - Unmanned Aircraft Activity
- Parachute Jumping Area (See Supplement)
- VPXYZ VFR Waypoints
- NAME (VPXYZ)

**TOPOGRAPHIC INFORMATION**

- Power Transmission Line
- Aerial Cable
- Lockout Tower
- 618 (Elevation Base of Tower)
- Mountain Pass
- 11823 (Elevation of Pass)
- Pass symbol does not indicate a recommended route or direction of flight and pass elevation does not indicate a recommended clearance altitude. Hazardous flight conditions may exist within and near mountain passes.

- NOTES:**
- THIS MAP REPRODUCED FROM THE FAA DALLAS-FORT WORTH SECTIONAL AERONAUTICAL CHARTS DATED MARCH 24, 2022.
  - THERE ARE NO PUBLIC AIRPORTS WITHIN A 10,000 FOOT RADIUS OF THE SITE.
  - THERE ARE FOUR SMALL PRIVATELY OWNED, PRIVATE USE AIRPORTS WITHIN A 6-MILE RADIUS OF THE SITE.

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATION PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP  <b>MAJOR PERMIT AMENDMENT AREA AIRPORTS</b>											
	DATE: 04/2022 FILE: 0771-356-11 CAD: FIG 1-AIRPORT MAP.DWG			REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	DESCRIPTION							
NO.	DATE	DESCRIPTION												
DRAWN BY: JDW DESIGN BY: DS REVIEWED BY: CRM	Weaver Consultants Group TBPE REGISTRATION NO. F-3727		FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS  WWW.WCGRP.COM											
			FIGURE 1											

P:\Solid waste\WCVF C&D\Expansion 2022\Parts 1 and 11\Agency Coordination\1-AIRPORT MAP.dwg, dsabarish, 12  
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**ATTACHMENT B**

**PROJECT SUMMARY AND  
SITE LOCATION MAPS**



# **Project Summary**

## **Fort Worth C&D Landfill Expansion**

### **Tarrant County, Texas**

## **Introduction**

Texas Regional Landfill Company, LP is in the process of developing a major permit amendment application to obtain authorization for an expansion of the existing Fort Worth C&D Landfill. This landfill expansion project will provide long-term disposal capacity for municipal solid waste that is generated in the area. The permit application will be submitted to the Texas Commission on Environmental Quality (TCEQ). The application will undergo a detailed review by the TCEQ before the permit for this facility is issued.

The objective of this summary is to provide an overview of the proposed landfill expansion. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

## **Owner/Operator Information**

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP, a subsidiary of Waste Connections, Inc. Waste Connections, Inc. is one of the leading providers of solid waste services in the nation and provides services to residential, municipal and commercial customers across the country.

## **Site Information**

The following drawings are attached to this summary.

- Figure 1 – Site Location Map. This drawing shows the site location on a standard TxDOT county highway map.
- Figure 2 – General Topographic Map. This drawing shows the existing permitted landfill permit boundary and the limits of disposal area on a USGS map.
- Figure 3 – Aerial Photograph. This figure details the existing permitted landfill permit boundary and limits of waste disposal area on an aerial photograph.
- Figure 4 – Site Plan. This plan highlights the existing permitted landfill permit boundary and the limits of disposal area on a detailed topographic map.
- Figure 5 – Existing and Proposed Landfill Completion Plan. This Plan provides a comparison between the currently permitted landfill and the proposed changes to the landfill completion plan.

## Site History

The Fort Worth C&D Landfill is an existing 184.3-acre Type IV municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) with approximately 100.3 acres approved for waste fill. The site is located approximately 2.4 miles south of Interstate Highway (IH) 20 and 5 miles east of IH-35W. The physical address of the site is 4144 Dick Price Road, Fort Worth, Texas 76140. The initial landfill facility Permit No. MSW 1983 was issued in 1988, and disposal operations began in 1997. The site at that time consisted of 38.1 acres, with roughly 26 acres used for waste fill. In December 2002, Permit No. MSW-1983B was issued, which expanded the landfill laterally resulting in a permitted site area of 151.73 acres with approximately 77.7 acres for waste fill. In January 2017, Permit No. MSW-1983C was issued which expanded the landfill vertically. In May of 2021, Permit No. MSW-1983D was issued expanding the permitted area to 184.3 acres with 100.3 acres for waste fill. The landfill presently operates under Permit No. MSW-1983D, with a total waste disposal capacity of 22,888,000 cubic yards. As of February 17, 2022, when the latest available aerial flyover was conducted, the remaining capacity of current Permit No. MSW-1983D is approximately 9,887,975 cubic yards.

## Design Summary

The following information presents a summary of the design and operations of the proposed Fort Worth C&D Landfill expansion.

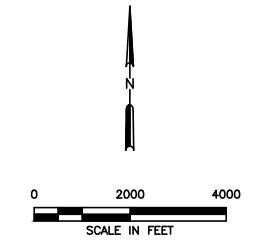
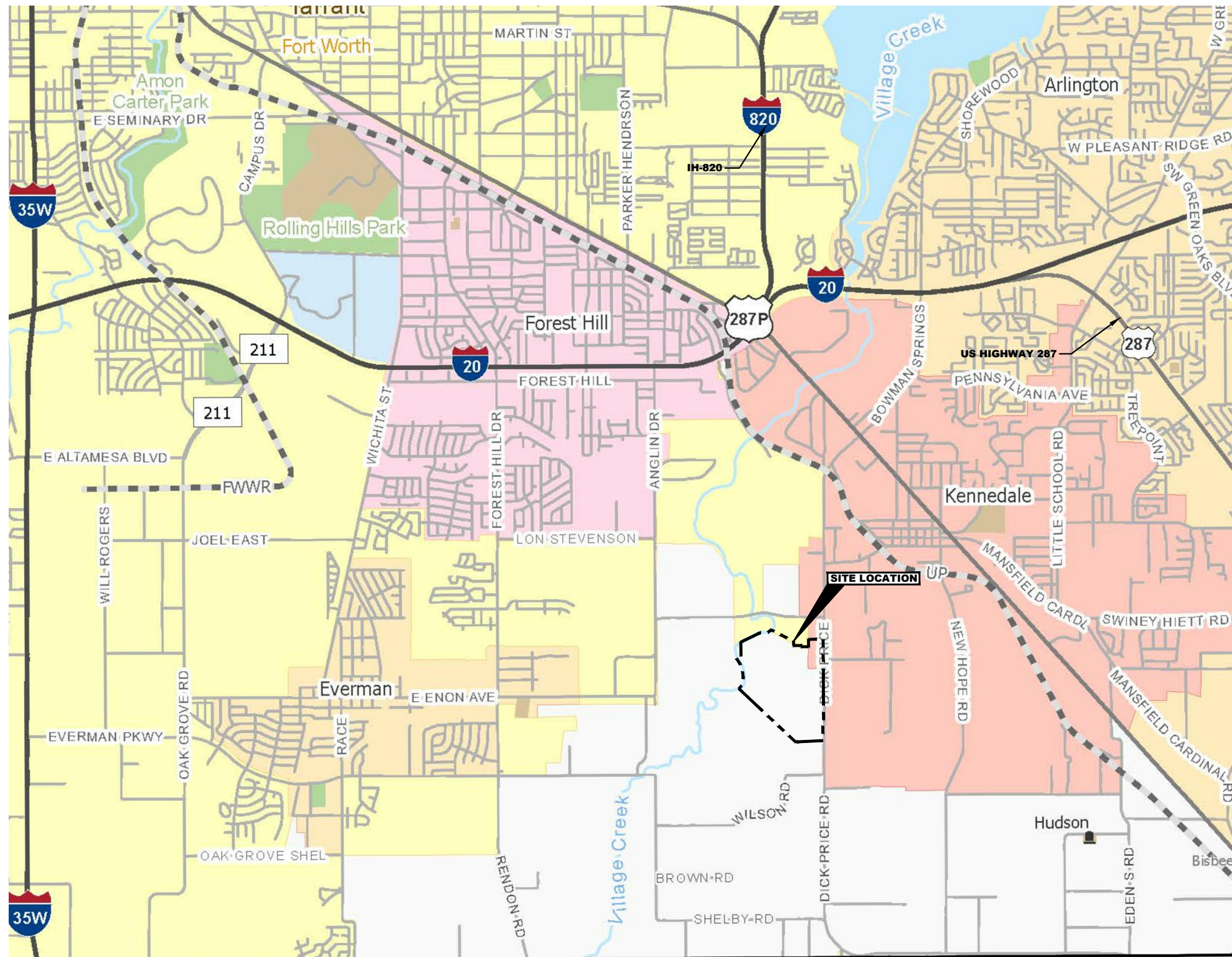
- The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill facility (MSW Permit No. MSW-1983D). The existing landfill currently serves residences and businesses in the communities of Tarrant, Johnson, Parker, Collin, Dallas and Denton Counties.
- With this expansion, the existing 184.3-acre permit boundary footprint will not be expanded. The permitted limits of waste will be expanded from approximately 100.3 acres to approximately 121.9 acres. The current peak elevation of 820 feet mean sea level (msl) will be expanded vertically to 860 feet msl.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include brush, construction-demolition waste, Class 2 and 3 industrial solid waste, tires, and some special wastes as approved by TCEQ.
- Access to the site will be provided via the existing site access roads. Based on travel patterns of existing landfill traffic, vehicles bound for the landfill will generally access the site using Dick Price Road, which is capable of handling the loads associated with landfill traffic.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The construction procedures of the liner and cover systems follow strict TCEQ-approved quality control procedures, which

are performed by a qualified independent licensed professional engineer specialized in landfill construction quality assurance. Each of the containment system components must be thoroughly reviewed and approved by the TCEQ before solid waste is placed in the landfill.

- To verify that the highest level of environmental protection is provided, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells located on the perimeter of the landfill, which are screened in the upper most water table. The water samples are tested by an accredited third-party analytical laboratory.
  - LFG Detection System. The purpose of the LFG detection system is to verify that LFG does not migrate off-site. LFG detection probes have been installed along the current permit boundary perimeter.

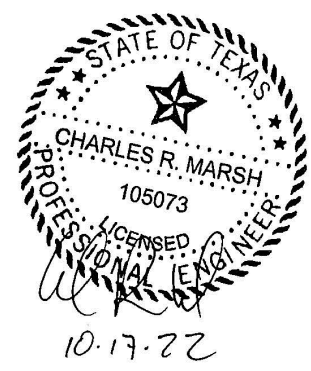
Each of these systems are sampled and tested periodically. The results are filed with the TCEQ and are public record.

- Site Operations. The site will be operated by personnel who have been trained and certified by the TCEQ. A detailed site operating plan will be included in the permit amendment application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with TCEQ regulations. The active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis to ensure the site is in compliance with state regulations.

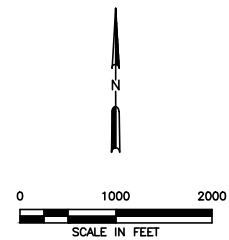
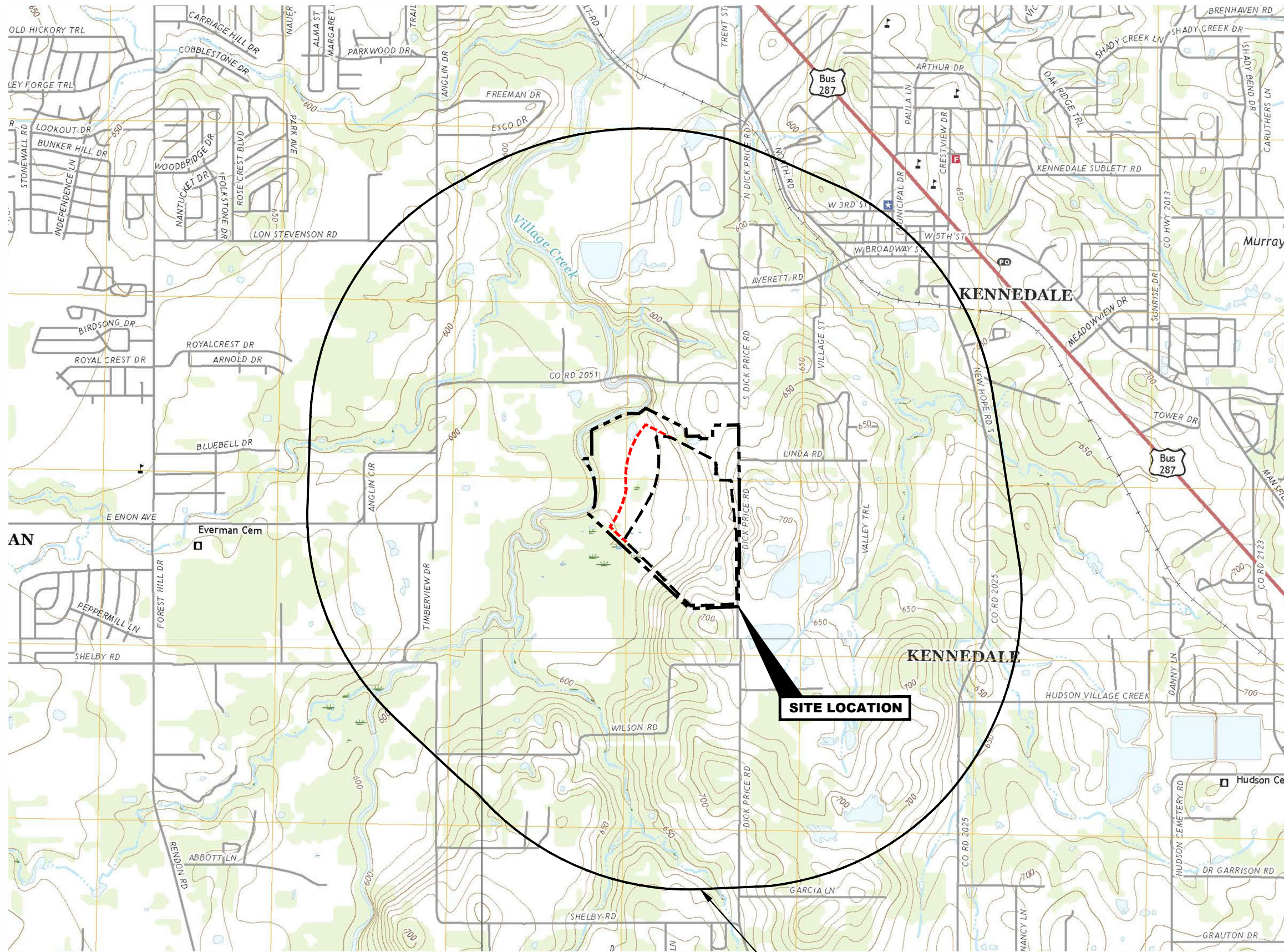


- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⚰ Cemetery
  - Ⓜ Cemetery (Inside City)
  - ⊕ Deep Draft Port
  - ⊕ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

- NOTES:**
- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>SITE LOCATION MAP</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS  WWW.WCGRP.COM									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 1-SITE LOCATION MAP.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION						
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**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**ROAD CLASSIFICATION**

	Expressway		Local Connector
	Secondary Hwy		Local Road
	Ramp		4WD
	Interstate Route		US Route
			State Route

**NOTES:**

- ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



**SITE LOCATION**

1-MILE RADIUS

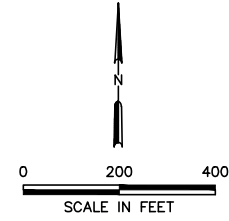
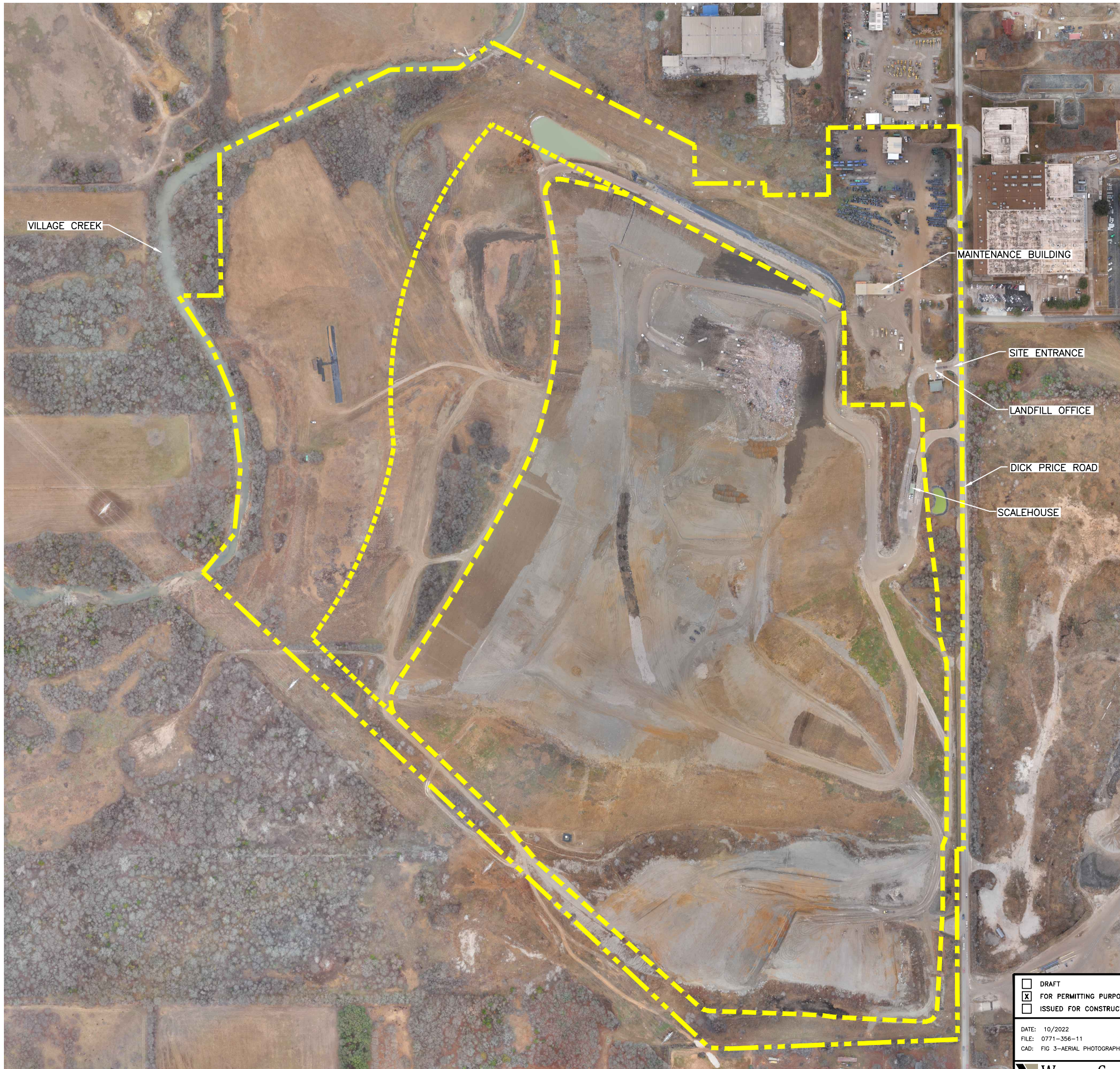
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DATE: 10/2022	FILE: 0771-356-11	CAD: FIG 2-GENERAL TOPO MAP.DWG
DRAWN BY: JDW	DESIGN BY: JBP	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>		
TBPE REGISTRATION NO. F-3727		

PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		
REVISIONS		
NO.	DATE	DESCRIPTION

**GENERAL TOPOGRAPHIC MAP**

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM      **FIGURE 2**

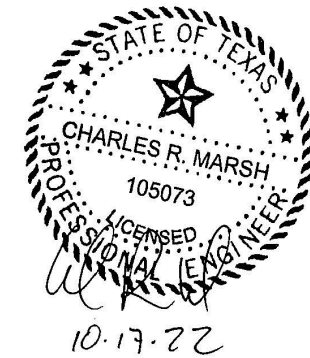


**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**NOTES:**

1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



<input type="checkbox"/> DRAFT	PREPARED FOR
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
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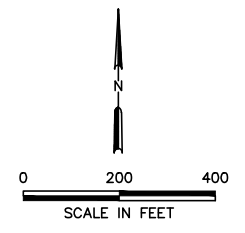
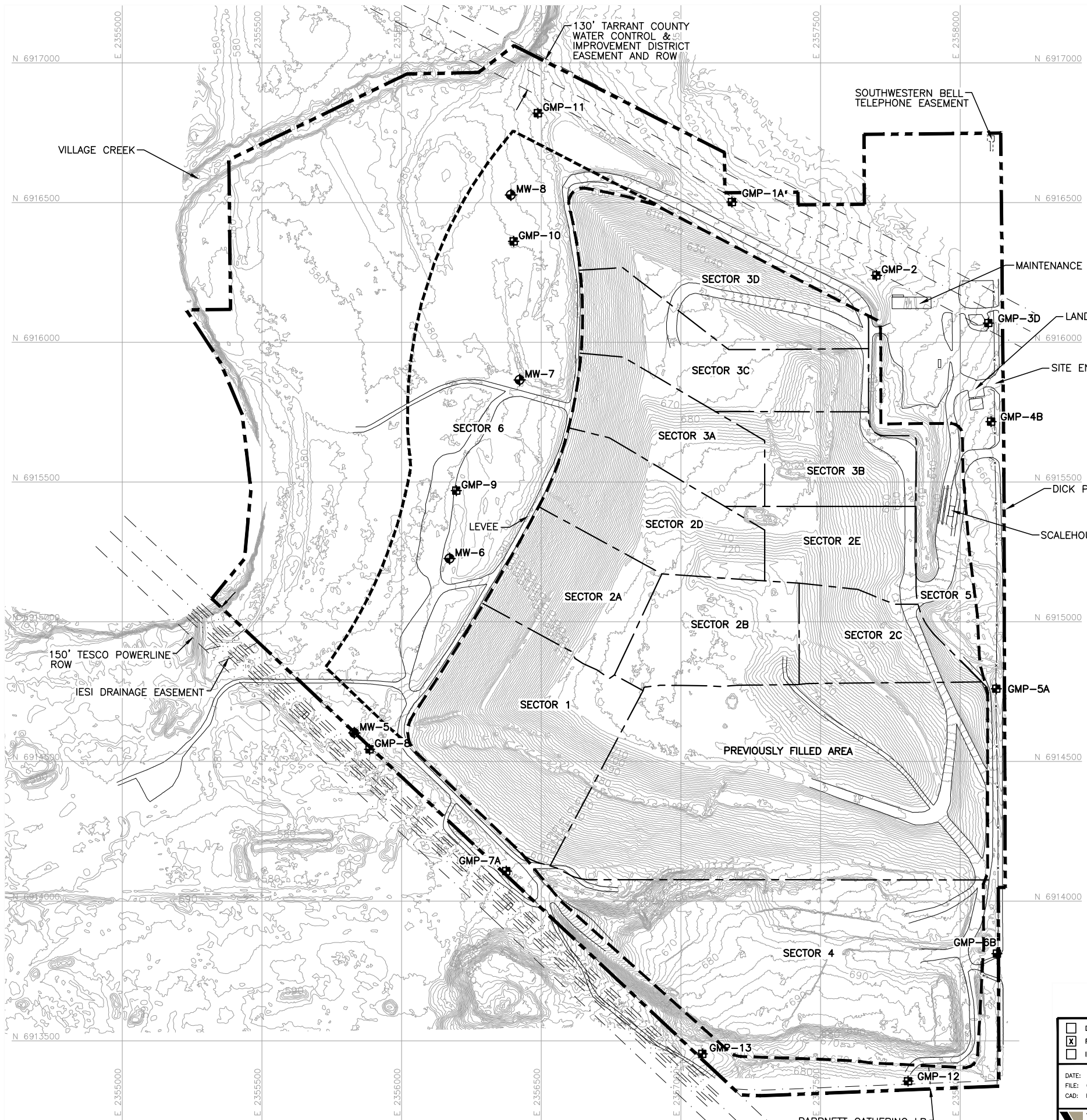
DATE: 10/2022	DRAWN BY: JDW
FILE: 0771-356-11	DESIGN BY: JBP
CAD: FIG 3-AERIAL PHOTOGRAPH.DWG	REVIEWED BY: CRM

REVISIONS		
NO.	DATE	DESCRIPTION

**Weaver Consultants Group**  
 TBPE REGISTRATION NO. F-3727

AERIAL PHOTOGRAPH	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 3

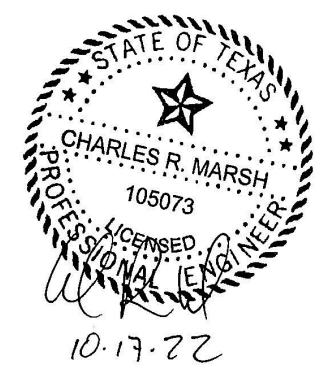
I\IIB-13



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	EASEMENT

**NOTES:**  
 1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



I\IIB-14

BARNETT GATHERING LP  
 20' WIDE PIPELINE EASEMENT

<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN	
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DATE: 10/2022	DRAWN BY: JDW	REVISIONS		
FILE: 0771-356-11	DESIGN BY: JBP	NO.	DATE	DESCRIPTION
CAD: FIG 4-SITE PLAN.DWG	REVIEWED BY: CRM			
<b>Weaver Consultants Group</b>				
TBPE REGISTRATION NO. F-3727				

FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS  
 WWW.WCGRP.COM  
 FIGURE 4

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 5-EXISTING AND PROPOSED COMPLETION PLANS.dwg - jpubr, 1:2



**PERMITTED LANDFILL COMPLETION PLAN**



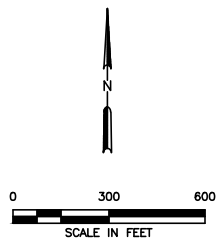
**PROPOSED LANDFILL COMPLETION PLAN**

**NOTES:**

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.

**LEGEND**

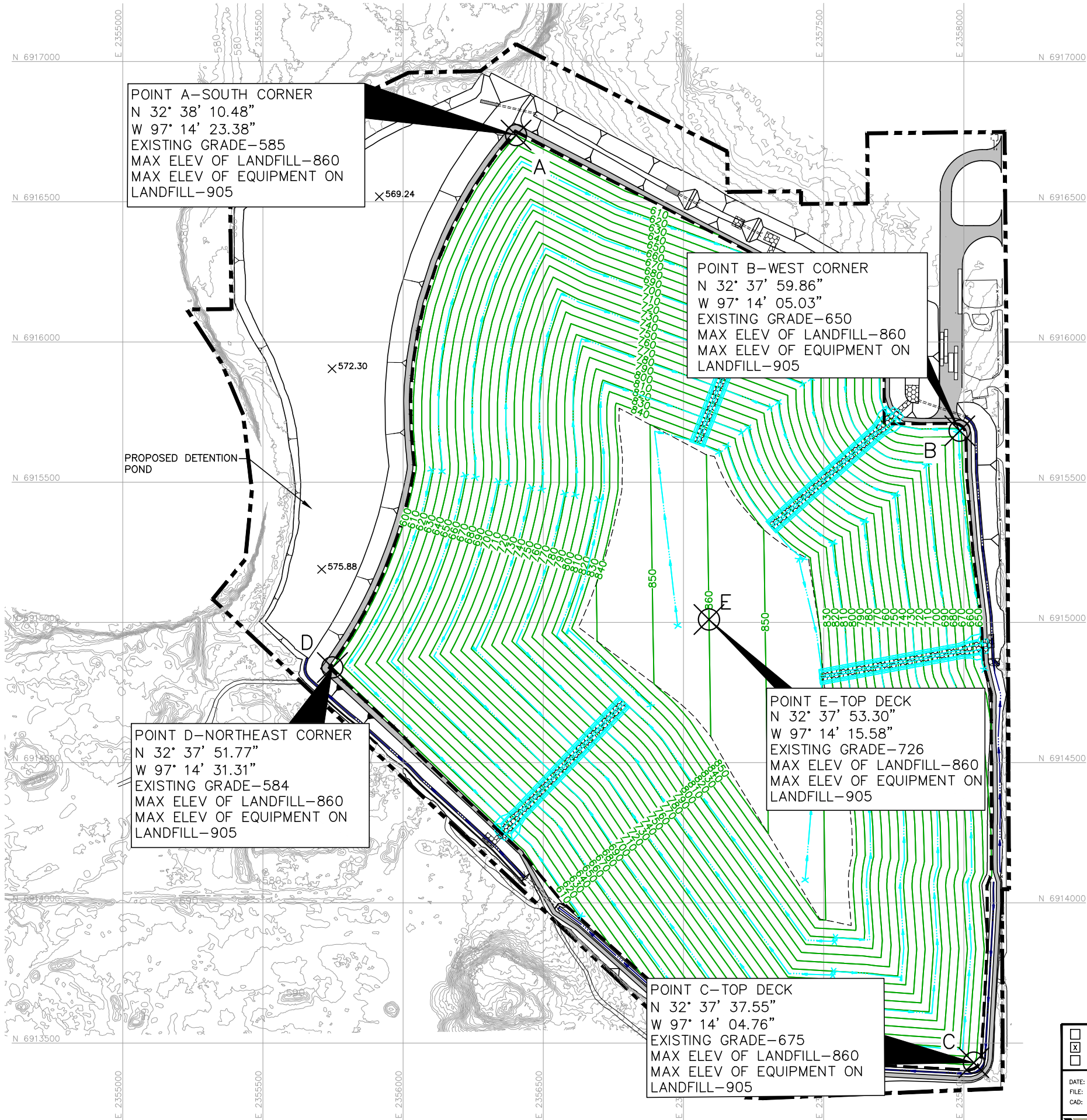
- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED FINAL COVER CONTOUR



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	DATE: 10/2022 FILE: 0771-356-11 CAD: 5-COMPLETION PLAN COMP.DWG				DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM									
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NO.	DATE	DESCRIPTION												



**ATTACHMENT C**  
**LANDFILL COMPLETION PLAN**



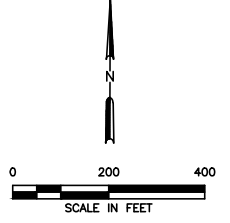
POINT A—SOUTH CORNER  
 N 32° 38' 10.48"  
 W 97° 14' 23.38"  
 EXISTING GRADE—585  
 MAX ELEV OF LANDFILL—860  
 MAX ELEV OF EQUIPMENT ON  
 LANDFILL—905

POINT B—WEST CORNER  
 N 32° 37' 59.86"  
 W 97° 14' 05.03"  
 EXISTING GRADE—650  
 MAX ELEV OF LANDFILL—860  
 MAX ELEV OF EQUIPMENT ON  
 LANDFILL—905

POINT D—NORTHEAST CORNER  
 N 32° 37' 51.77"  
 W 97° 14' 31.31"  
 EXISTING GRADE—584  
 MAX ELEV OF LANDFILL—860  
 MAX ELEV OF EQUIPMENT ON  
 LANDFILL—905

POINT E—TOP DECK  
 N 32° 37' 53.30"  
 W 97° 14' 15.58"  
 EXISTING GRADE—726  
 MAX ELEV OF LANDFILL—860  
 MAX ELEV OF EQUIPMENT ON  
 LANDFILL—905

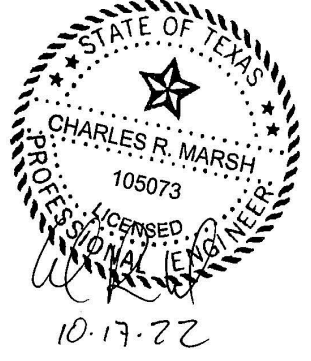
POINT C—TOP DECK  
 N 32° 37' 37.55"  
 W 97° 14' 04.76"  
 EXISTING GRADE—675  
 MAX ELEV OF LANDFILL—860  
 MAX ELEV OF EQUIPMENT ON  
 LANDFILL—905



**LEGEND**

	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	FINAL COVER CONTOUR
	DRAINAGE LETDOWN
	DRAINAGE SWALE
	ANALYSIS POINT ON FAA FORM 7460 (SEE NOTE 2)

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN ON 02-17-2022.
  - NOTE THAT THE MAXIMUM ELEVATION OF THE LANDFILL AT EACH POINT CONSIDERED ASSUMES THE MAXIMUM ELEVATION OF THE LANDFILL. THE ELEVATION LISTED (905 FT-MSL) ACCOUNTS FOR LANDFILL EQUIPMENT THAT MAY BE USED ON TOP OF THE LANDFILL ON A TEMPORARY BASIS (E.G., A 45-FOOT HIGH DRILL RIG).



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>FAA POINT LOCATIONS</b>								
	DATE: 10/2022 FILE: 0771-368-11 CAD: FAA POINT LOCATIONS.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
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NO.	DATE	DESCRIPTION									
I\IIB-17		FIGURE 1									

O:\0771\368\EXPANSION 2022\AGENCY COORDINATION\FAA POINT LOCATIONS.dwg, jpbur, 1:2  
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## **COORDINATION WITH TEXAS HISTORICAL COMMISSION**

- November 23, 2022 THC concurrence that no historic properties are affected by the landfill.
- October 17, 2022 Request Letter requesting THC concurrence that no historic properties are affected by the landfill.

## Puhr, Johnna

---

**To:** Marsh, Chuck  
**Subject:** RE: Section 106 Submission

---

**From:** [noreply@thc.state.tx.us](mailto:noreply@thc.state.tx.us) <[noreply@thc.state.tx.us](mailto:noreply@thc.state.tx.us)>  
**Sent:** Wednesday, November 23, 2022 11:18 AM  
**To:** Marsh, Chuck <[cmarsh@wcgrp.com](mailto:cmarsh@wcgrp.com)>; [reviews@thc.state.tx.us](mailto:reviews@thc.state.tx.us); [matthew.udenenwu@tceq.texas.gov](mailto:matthew.udenenwu@tceq.texas.gov)  
**Subject:** Section 106 Submission

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.



**Re:** Project Review under the Antiquities Code of Texas  
**THC Tracking #202301736**  
**Date:** 11/23/2022  
Fort Worth C&D Landfill

**Description:** permit amendment to expand landfill

Dear Client:

Thank you for your submittal regarding the above-referenced project. This response represents the comments of the Executive Director of the Texas Historical Commission (THC), pursuant to review under the Antiquities Code of Texas.

The review staff, led by Arlo McKee and Caitlin Brashear, has completed its review and has made the following determinations based on the information submitted for review:

### Archeology Comments

- No effect on identified archeological sites or other cultural resources. However, if cultural materials are encountered during project activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: [Arlo.McKee@thc.texas.gov](mailto:Arlo.McKee@thc.texas.gov), [caitlin.brashear@thc.texas.gov](mailto:caitlin.brashear@thc.texas.gov).

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit <http://thc.texas.gov/etrac-system>.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Mark Wolfe', with a long horizontal line extending to the right.

for Mark Wolfe, State Historic Preservation Officer  
Executive Director, Texas Historical Commission

**Please do not respond to this email.**

cc: [matthew.udenenwu@tceq.texas.gov](mailto:matthew.udenenwu@tceq.texas.gov)



October 17, 2022  
Project No. 0771-356-11-35

Mr. Mark Wolfe  
Texas Historical Commission  
State Historic Preservation Officer  
P.O. Box 12276  
Austin, Texas 78711-2276

Re: Impact to Cultural Resources Determination  
Proposed Fort Worth C&D Landfill Permit Amendment  
Tarrant County, Texas

Dear Mr. Wolfe:

The purpose of this letter is to demonstrate coordination with the Texas Historical Commission, consistent with Title 30 Texas Administrative Code (TAC) §330.61(o). This regulation requires that a permit applicant for an expansion of a municipal solid waste facility coordinate with the Texas Historical Commission regarding the potential impact of the referenced project to the cultural resources of the State of Texas.

Weaver Consultants Group, LLC (WCG) is preparing a permit amendment application on behalf of Texas Regional Landfill Company, LP to expand the Fort Worth C&D Landfill located in Tarrant County, Texas. The expansion will be a vertical increase in the height of the landfill and a horizontal increase in the limits of waste disposal included in the current Texas Commission on Environmental Quality (TCEQ) permit. The following are provided to assist you in your determination.

- Attachment A – Project Summary and Site Location Maps
- Attachment B – Report prepared by AR Consultants, Inc. (ARC), dated March 27, 2002
- Attachment C – April 2014 THC Project Review Request
- Attachment D – February 2020 THC Project Review Request

Note that a previous cultural resources study for this landfill was performed in 2001-2002 and in 2020. The Texas Historical Commission (THC) provided a “No Effect – Project May Proceed” finding. Copies of related correspondence are provided with this submittal. As presented in the ARC report, no archaeological sites on the surface or in the floodplain deposits were found. Therefore, ARC concludes that there is little potential for encountering historic sites within the project boundary.

To verify compliance with 30 TAC §330.61(o), we will need to include a letter from the Texas Historical Commission in the permit application. Given the above, it is requested that the Texas Historical Commission concur with our assessment that no significant cultural resources will be affected by the proposed project and that documentation of concurrence be provided to WCG for inclusion in the permit application.

Please note that the municipal solid waste permit documents will include a request that if material that may have value as a cultural resource is uncovered during site development the Texas Historical Commission will be notified and construction stopped in that area immediately until proper investigations can be completed.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,

**Weaver Consultants Group, LLC**



Charles R. Marsh, P.E.  
Project Director

Attachments: Attachment A – Project Summary and Location Maps  
Attachment B – Cultural Resources Investigation Report,  
AR Consultants, Inc., dated March 27, 2002  
Attachment C – April 2014 THC Project Review Request  
Attachment D – February 2020 THC Project Review Request

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT A**  
**PROJECT SUMMARY AND LOCATION MAPS**



# **Project Summary**

## **Fort Worth C&D Landfill Expansion**

### **Tarrant County, Texas**

## **Introduction**

Texas Regional Landfill Company, LP is in the process of developing a major permit amendment application to obtain authorization for an expansion of the existing Fort Worth C&D Landfill. This landfill expansion project will provide long-term disposal capacity for municipal solid waste that is generated in the area. The permit application will be submitted to the Texas Commission on Environmental Quality (TCEQ). The application will undergo a detailed review by the TCEQ before the permit for this facility is issued.

The objective of this summary is to provide an overview of the proposed landfill expansion. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

## **Owner/Operator Information**

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP, a subsidiary of Waste Connections, Inc. Waste Connections, Inc. is one of the leading providers of solid waste services in the nation and provides services to residential, municipal and commercial customers across the country.

## **Site Information**

The following drawings are attached to this summary.

- Figure 1 – Site Location Map. This drawing shows the site location on a standard TxDOT county highway map.
- Figure 2 – General Topographic Map. This drawing shows the existing permitted landfill permit boundary and the limits of disposal area on a USGS map.
- Figure 3 – Aerial Photograph. This figure details the existing permitted landfill permit boundary and limits of waste disposal area on an aerial photograph.
- Figure 4 – Site Plan. This plan highlights the existing permitted landfill permit boundary and the limits of disposal area on a detailed topographic map.
- Figure 5 – Existing and Proposed Landfill Completion Plan. This Plan provides a comparison between the currently permitted landfill and the proposed changes to the landfill completion plan.

## Site History

The Fort Worth C&D Landfill is an existing 184.3-acre Type IV municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) with approximately 100.3 acres approved for waste fill. The site is located approximately 2.4 miles south of Interstate Highway (IH) 20 and 5 miles east of IH-35W. The physical address of the site is 4144 Dick Price Road, Fort Worth, Texas 76140. The initial landfill facility Permit No. MSW 1983 was issued in 1988, and disposal operations began in 1997. The site at that time consisted of 38.1 acres, with roughly 26 acres used for waste fill. In December 2002, Permit No. MSW-1983B was issued, which expanded the landfill laterally resulting in a permitted site area of 151.73 acres with approximately 77.7 acres for waste fill. In January 2017, Permit No. MSW-1983C was issued which expanded the landfill vertically. In May of 2021, Permit No. MSW-1983D was issued expanding the permitted area to 184.3 acres with 100.3 acres for waste fill. The landfill presently operates under Permit No. MSW-1983D, with a total waste disposal capacity of 22,888,000 cubic yards. As of February 17, 2022, when the latest available aerial flyover was conducted, the remaining capacity of current Permit No. MSW-1983D is approximately 9,887,975 cubic yards.

## Design Summary

The following information presents a summary of the design and operations of the proposed Fort Worth C&D Landfill expansion.

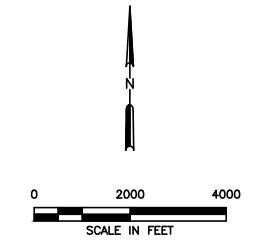
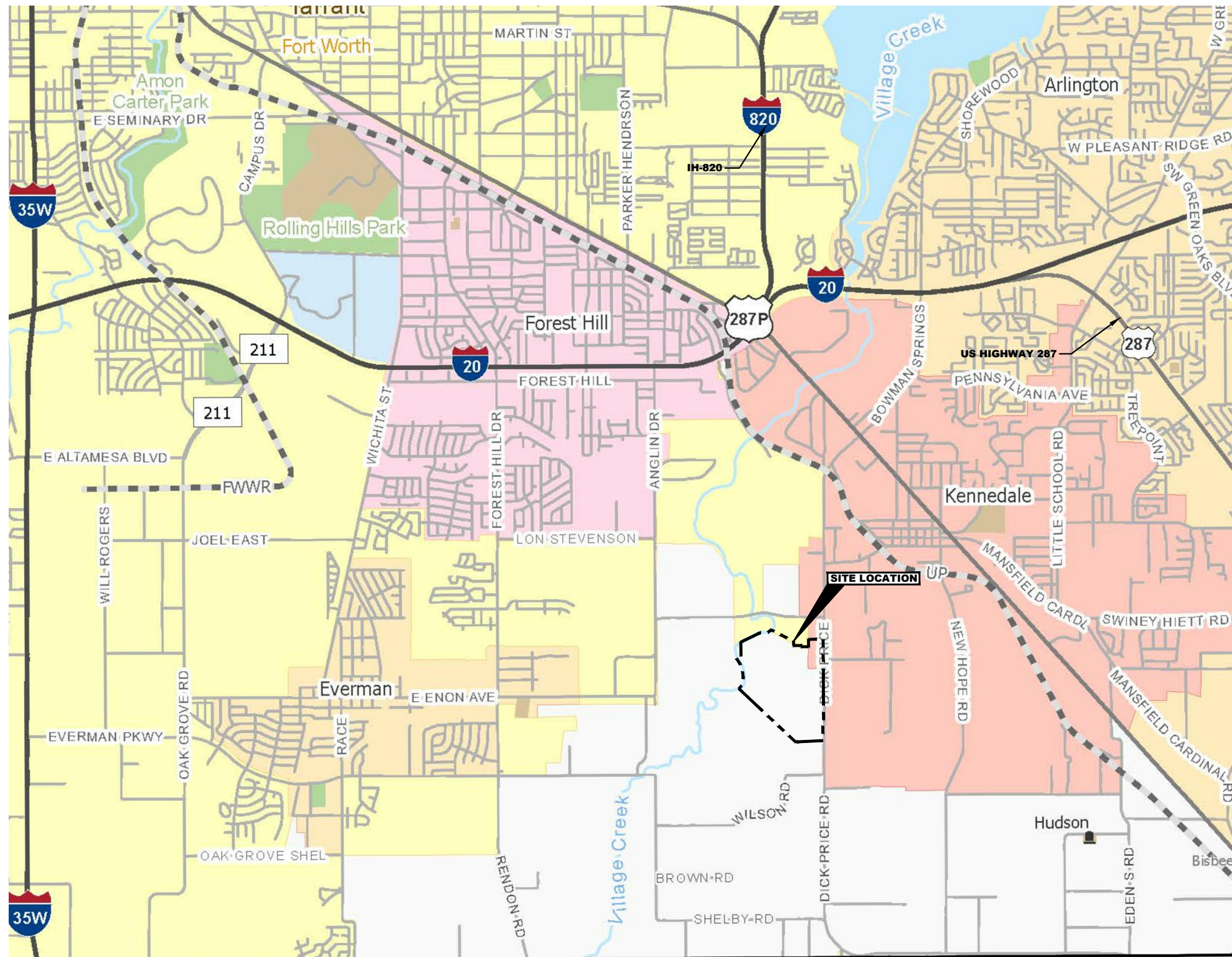
- The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill facility (MSW Permit No. MSW-1983D). The existing landfill currently serves residences and businesses in the communities of Tarrant, Johnson, Parker, Collin, Dallas and Denton Counties.
- With this expansion, the existing 184.3-acre permit boundary footprint will not be expanded. The permitted limits of waste will be expanded from approximately 100.3 acres to approximately 121.9 acres. The current peak elevation of 820 feet mean sea level (msl) will be expanded vertically to 860 feet msl.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include brush, construction-demolition waste, Class 2 and 3 industrial solid waste, tires, and some special wastes as approved by TCEQ.
- Access to the site will be provided via the existing site access roads. Based on travel patterns of existing landfill traffic, vehicles bound for the landfill will generally access the site using Dick Price Road, which is capable of handling the loads associated with landfill traffic.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The construction procedures of the liner and cover systems follow strict TCEQ-approved quality control procedures, which

are performed by a qualified independent licensed professional engineer specialized in landfill construction quality assurance. Each of the containment system components must be thoroughly reviewed and approved by the TCEQ before solid waste is placed in the landfill.

- To verify that the highest level of environmental protection is provided, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells located on the perimeter of the landfill, which are screened in the upper most water table. The water samples are tested by an accredited third-party analytical laboratory.
  - LFG Detection System. The purpose of the LFG detection system is to verify that LFG does not migrate off-site. LFG detection probes have been installed along the current permit boundary perimeter.

Each of these systems are sampled and tested periodically. The results are filed with the TCEQ and are public record.

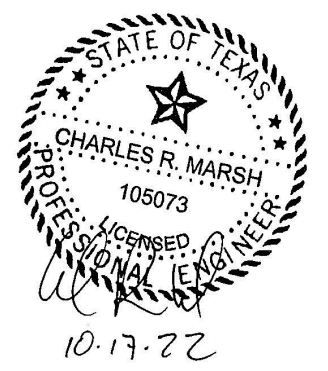
- Site Operations. The site will be operated by personnel who have been trained and certified by the TCEQ. A detailed site operating plan will be included in the permit amendment application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with TCEQ regulations. The active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis to ensure the site is in compliance with state regulations.



- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⊠ Cemetery
  - Cemetery (Inside City)
  - ⊕ Deep Draft Port
  - ⊕ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

**NOTES:**

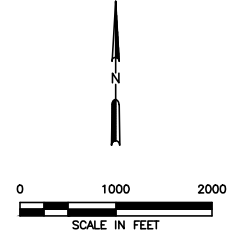
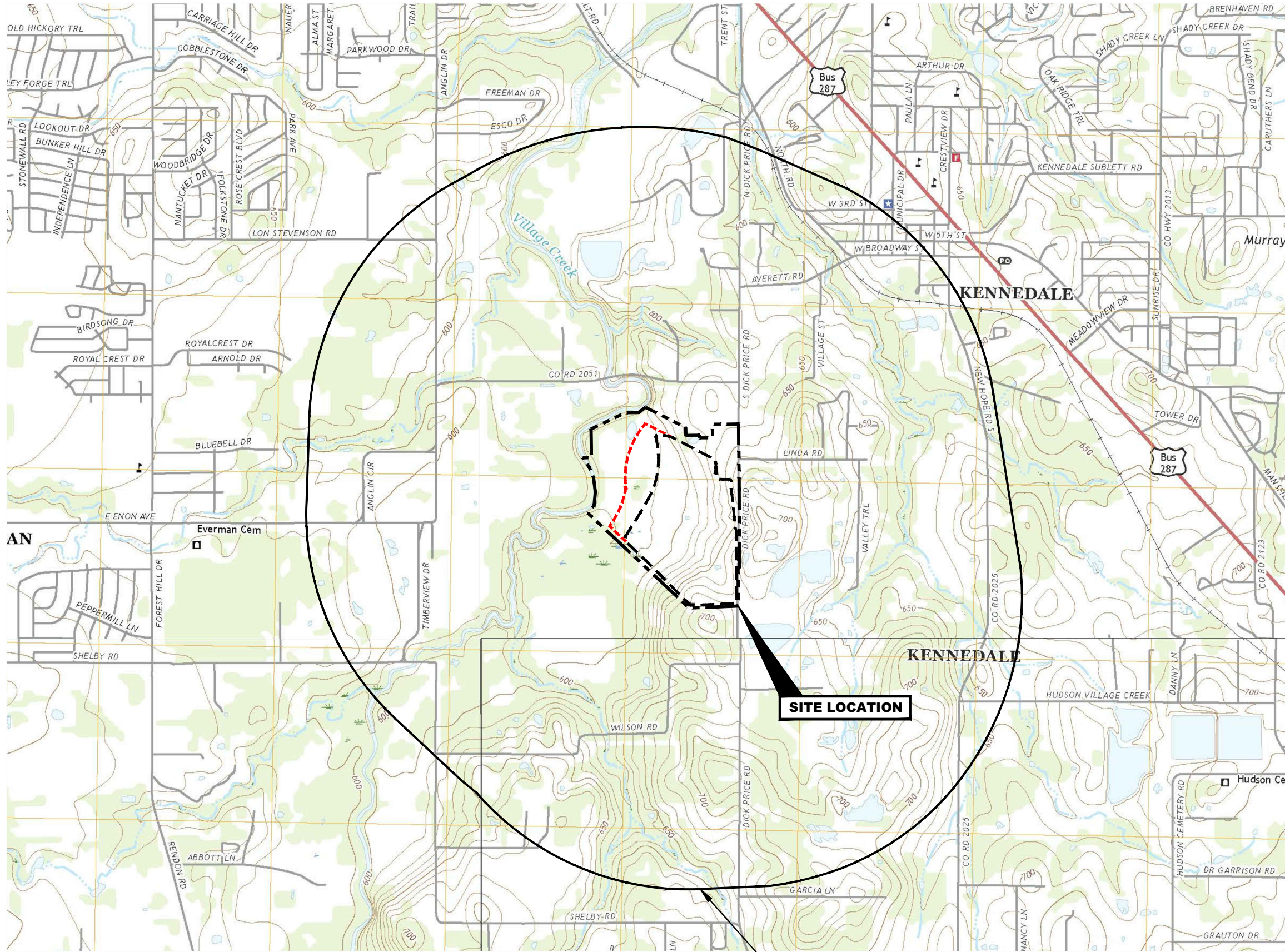
- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>SITE LOCATION MAP</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS  WWW.WCGRP.COM									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 1-SITE LOCATION MAP.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION						
NO.	DATE	DESCRIPTION									

I\IIB-27

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 1-SITE LOCATION MAP.dwg - jputr - 1:2



**LEGEND**

- - - - - PERMIT BOUNDARY  
 - - - - - PERMITTED LIMIT OF WASTE  
 - - - - - PROPOSED LIMIT OF WASTE

**ROAD CLASSIFICATION**

Expressway	Local Connector	Local Road
Secondary Hwy	4WD	State Route
Ramp	US Route	
Interstate Route		

**NOTES:**

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



**SITE LOCATION**

1-MILE RADIUS

<input type="checkbox"/> DRAFT	PREPARED FOR
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	
DATE: 10/2022	DRAWN BY: JDW
FILE: 0771-356-11	DESIGN BY: JBP
CAD: FIG 2-GENERAL TOPO MAP.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

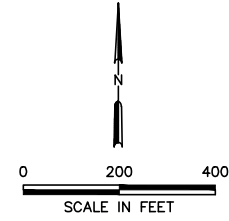
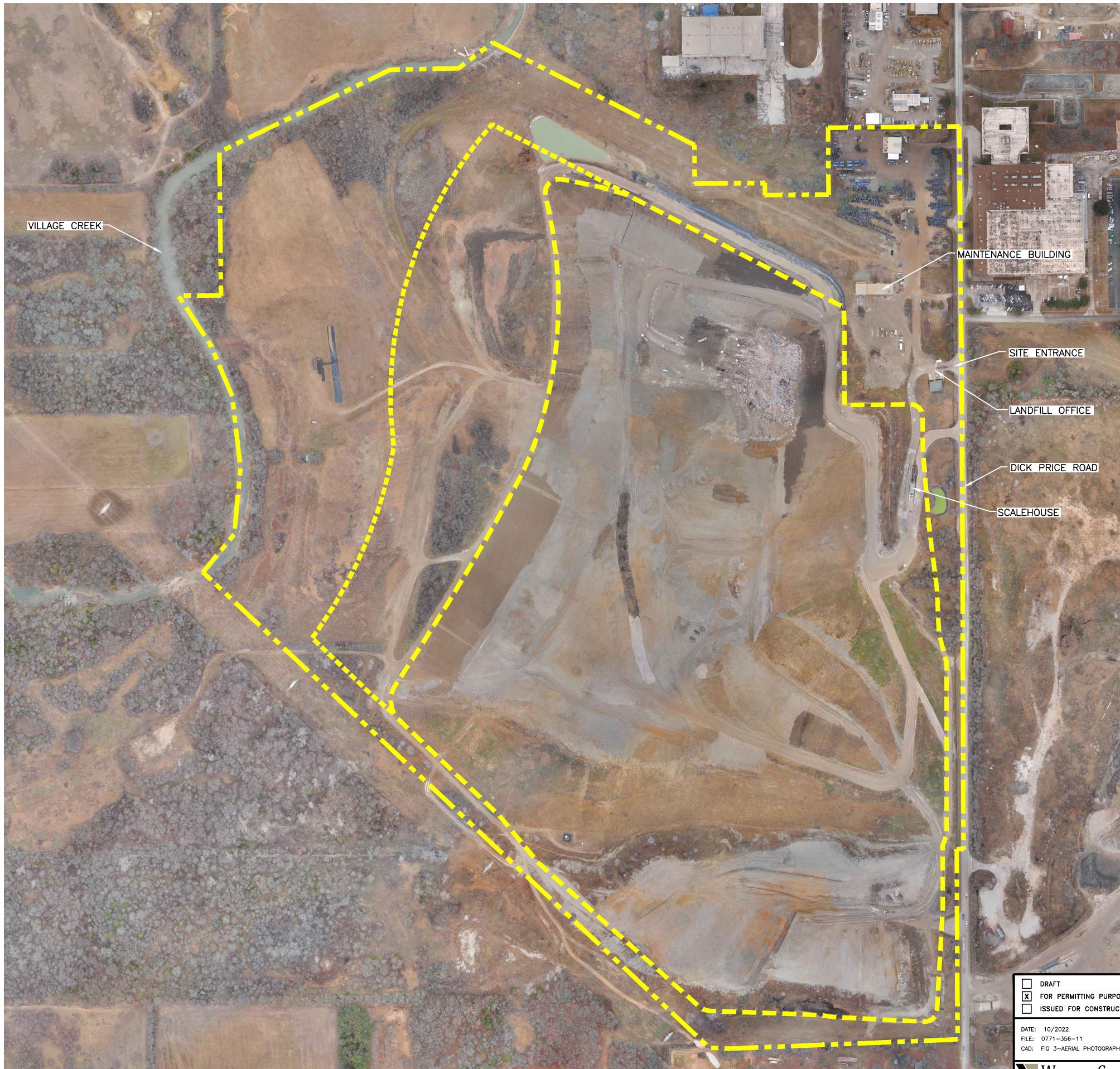
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**GENERAL TOPOGRAPHIC MAP**

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM      **FIGURE 2**

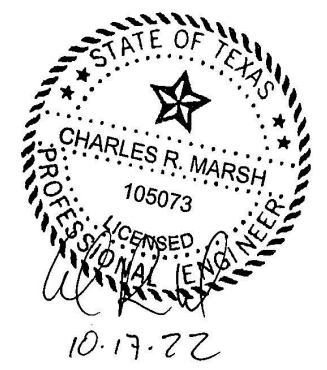
G:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 2-GENERAL TOPO MAP.dwg - jpbur - 1:2



**LEGEND**

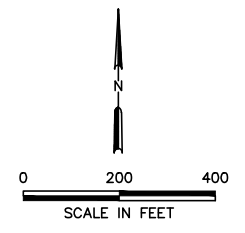
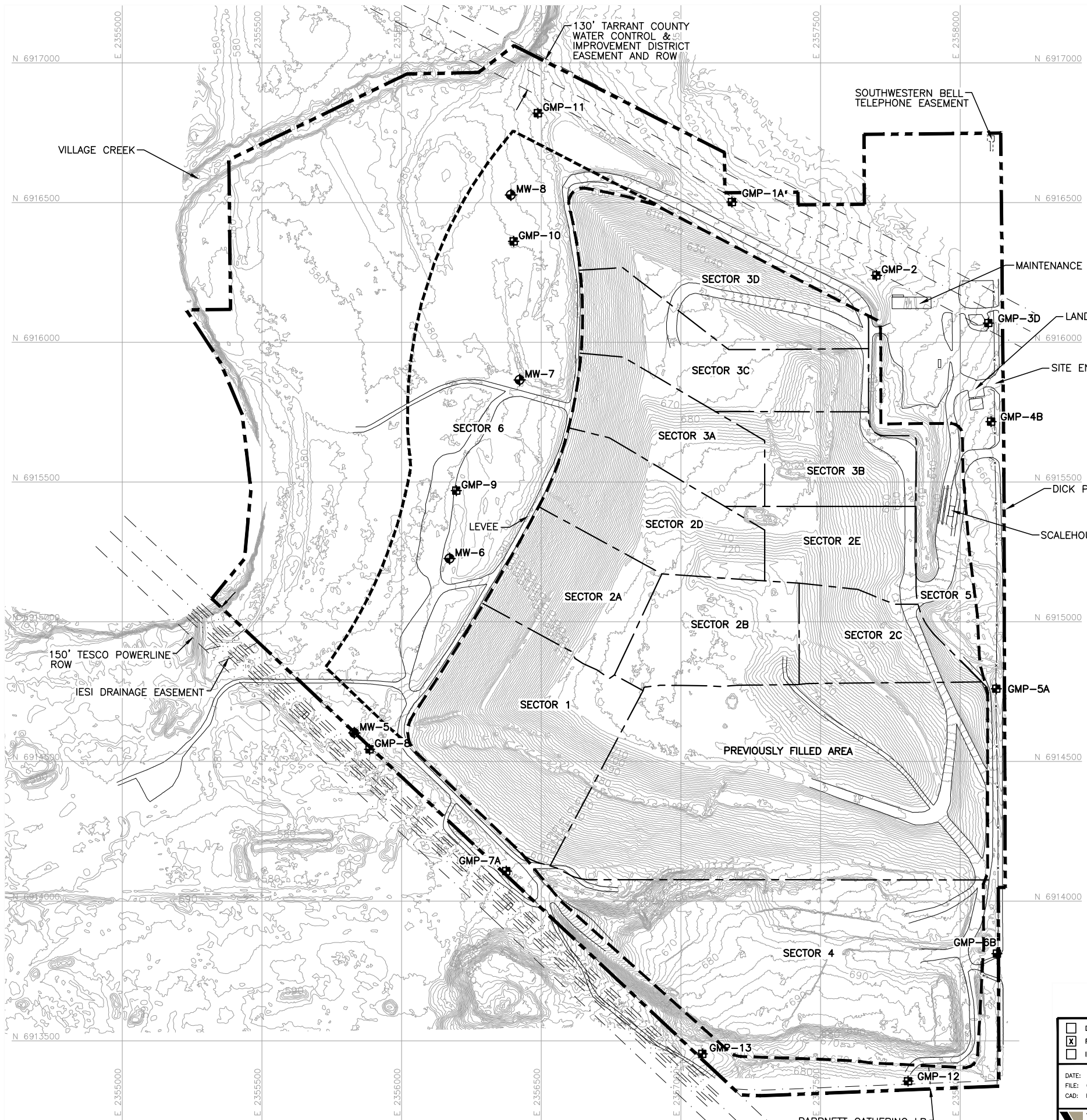
	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**NOTES:**  
 1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>AERIAL PHOTOGRAPH</b>  <b>FORT WORTH C&amp;D LANDFILL</b> <b>TARRANT COUNTY, TEXAS</b>									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 3-AERIAL PHOTOGRAPH.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION				
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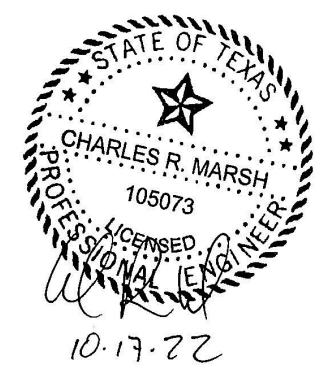
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**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	EASEMENT

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



I\IB-30

BARNETT GATHERING LP  
20' WIDE PIPELINE EASEMENT

<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY			
<input type="checkbox"/> ISSUED FOR CONSTRUCTION			
DATE: 10/2022	DRAWN BY: JDW	REVISIONS	
FILE: 0771-356-11	DESIGN BY: JBP	NO.	DATE
CAD: FIG 4-SITE PLAN.DWG	REVIEWED BY: CRM		DESCRIPTION
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			

WWW.WCGRP.COM	
FIGURE 4	

FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 4

O:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 4-SITE PLAN.dwg, jpbur, 1:2

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 5-EXISTING AND PROPOSED COMPLETION PLANS.dwg - jpubr, 1:2



**PERMITTED LANDFILL COMPLETION PLAN**



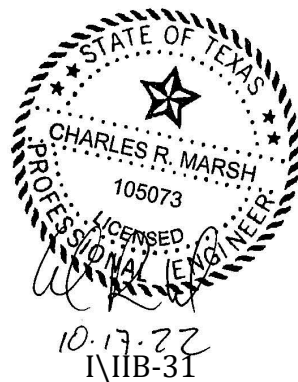
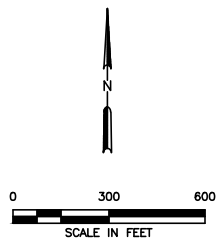
**PROPOSED LANDFILL COMPLETION PLAN**

**NOTES:**

- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED FINAL COVER CONTOUR



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>  <b>EXISTING AND PROPOSED LANDFILL COMPLETION PLAN</b>  <b>FORT WORTH C&amp;D LANDFILL</b> <b>TARRANT COUNTY, TEXAS</b>						
	DATE: 10/2022 FILE: 0771-356-11 CAD: 5-COMPLETION PLAN COMP.DWG			DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM					
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727			REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION		
NO.	DATE	DESCRIPTION							
WWW.WCGRP.COM			<b>FIGURE 5</b>						



## **ATTACHMENT B**

### **CULTURAL RESOURCES INVESTIGATION REPORT, AR CONSULTANTS, INC., DATED MARCH 27, 2002**

- The cultural resources investigation report was completed in 2002. The report included the whole project property including proposed expansion areas for Permit MSW-1983E.



RECEIVED

MAR 28 2002

TEXAS HISTORICAL COMMISSION

March 27, 2002

Texas Historic Commission  
Attn: Mr. Lawrence Oaks  
1511 Colorado Street  
Austin, Texas 78701

Re: Proposed IESI Landfill Expansion

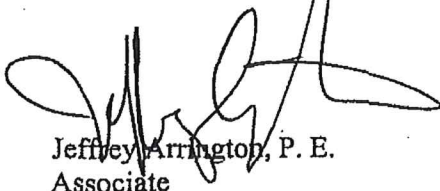
Dear Mr. Oaks:

I am forwarding you a copy of the Archaeological Survey performed by AR Consultants on the proposed expansion area of the IESI Fort Worth C & D Landfill in Tarrant County, Texas.


Please review the attached survey and provide us a written response regarding impacts to cultural resources. We are in the process of addressing comments from TNRCC and would appreciate it if you could provide a response within 30 days. If you have any questions or need additional information, please contact me at (817) 735-7385, or Jessica Napier at (817) 735-7234.

Sincerely,

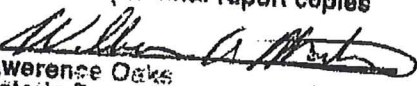
Freese and Nichols, Inc.

  
Jeffrey Arrington, P. E.  
Associate

NO HISTORIC  
PROPERTIES AFFECTED  
PROJECT MAY PROCEED

By   
for F. Lawrence Oaks  
State Historic Preservation Officer  
Date 4/15/02

Attachment

DRAFT REPORT  
ACCEPTABLE  
Please submit 20 final report copies  
by   
for F. Lawrence Oaks  
State Historic Preservation Officer  
Date 4/15/02

NIIB-33

Freese and Nichols, Inc. Engineers Environmental Scientists Architects  
4055 International Plaza Suite 200 Fort Worth, Texas 76109-4895  
817-735-7300 Fax 817-735-7491 www.freese.com

Application Page No. II-I-23  
May 2020

# AR Consultants, Inc.

Archaeological and Environmental Consulting

P.O. Box 820727, Dallas, Texas 75382-0727

Phone: (214) 368-0478

Fax: (214) 361-6762

E-Mail: arcdigs@aol.com

**ARCHAEOLOGICAL SURVEY**  
**OF THE**  
**FORT WORTH C & D LANDFILL EXPANSION**  
**TARRANT COUNTY, TEXAS**

S. Alan Skinner, PhD  
and  
Floyd D. Kent, MS

submitted to:

**FREESE & NICHOLS, INC.**  
4055 International Plaza  
Fort Worth, Texas 76109

**AR CONSULTANTS, INC.**  
P.O. Box 820727  
Dallas, Texas 75382

Cultural Resources Report 2001-39  
November 04, 2001

*LANDFILL ARCHAEOLOGICAL SURVEY*

**ARCHAEOLOGICAL SURVEY  
OF THE  
FORT WORTH C & D LANDFILL EXPANSION  
TARRANT COUNTY, TEXAS**

S. Alan Skinner, PhD  
and  
Floyd D. Kent, MS

submitted to:

**FREESE & NICHOLS, INC.**  
4055 International Plaza  
Fort Worth, Texas 76109

**AR CONSULTANTS, INC.**  
P.O. Box 820727  
Dallas, Texas 75382

Cultural Resources Report 2001-39  
November 04, 2001

## ABSTRACT

During the fall of 2001, AR Consultants, Inc. conducted an archaeological survey of the proposed expansion area of IESI's Fort Worth C & D Landfill that is located on the east side of Village Creek in southeast Tarrant County, Texas. A pedestrian survey of the 115 acre expansion area failed to find any evidence of prehistoric or historic archaeological sites. The survey did reveal that erosion and disturbance was heavy on the slope and in the upland. Another result of the survey was the impression that a significant amount of the floodplain had been removed historically and that a north-south drainage channel had been constructed across the floodplain. Shovel testing and trackhoe trenching failed to locate any evidence of buried prehistoric deposits in the floodplain sediments that extended to below three meters in places. Due to the absence of archaeological sites on the surface and in the floodplain deposits, AR Consultants recommends that the Texas Historical Commission concur with our recommendation that the landfill can be expanded without the need of additional cultural resource investigations.

## ACKNOWLEDGMENTS

AR Consultants wants to thank everyone involved in this investigation for the time and effort spent, and for the encouragement that so many people gave to us in the field and during analysis and report writing. Please know that we appreciated your help. In particular, we want to thank the following people and organizations for their help.

Jeff Arrington, PE of Freese & Nichols, Inc. in Fort Worth provided information about the project and served as our point of contact for this investigation.

We want to thank the personnel at C & D Landfill for their interest and support during our investigation. Joe Miller the landfill manager shared his familiarity with the landfill property and adjacent land with us. He also made arrangements for Vincente Rodriguez to operate their trackhoe and to excavate the seven trenches in the floodplain. Will Kari, the landowner, provided us with information about the mining of sand on his property and the construction of the practice race track that he had built in the floodplain.

We want to thank Robert Scott, Archeologist with the Regulatory Branch of the US Army Corps of Engineers in Fort Worth, for sharing with us his knowledge about prehistoric archaeological sites and investigations in the Village Creek Watershed.

**TABLE OF CONTENTS**

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## INTRODUCTION

During October, 2001, AR Consultants, Inc. (ARC) conducted an archaeological survey of the undeveloped parts of the Fort Worth C & D Landfill property in Tarrant County, Texas (Figure 1). Freese & Nichols, Inc. of Fort Worth is preparing a Major Permit Amendment Application (MPAA) to be submitted to the Texas Natural Resource Conservation Commission (TNRCC) for the purpose of enlarging the presently permitted boundary of the C & D Landfill which is operated by IESI Corporation. The landfill is a Type IV MSW landfill that presently includes approximately 38 acres and will be expanded to include approximately 150 total acres. The purpose of the survey was to locate any cultural resources that are present within the undisturbed parts of the proposed landfill expansion area, which adjoins the present site to the north and west, and to make recommendations about their significance and how they might be impacted by construction. The survey was conducted for Freese & Nichols as part of the permitting process which they are managing. The scope of the project included a records review, a comprehensive pedestrian field survey, site documentation, and a final report.

The survey was done in order to allow for effective coordination with the Texas Historical Commission consistent with 30 Texas Administrative Code (TAC) §330.52(b) (4)(A)(xi) of the TNRCC regulations. This regulation requires that a permit applicant for a municipal solid waste facility coordinate with the Texas Historical Commission regarding the potential impact of the proposed project upon cultural resources which are regulated by the State of Texas. In addition, the survey provides information for project review regarding various forms of federal legislation including the National Historic Preservation Act of 1966, as amended (PL-96-515), the National Environmental Policy Act of 1969 (PL-90-190), the Archeological and Historical Preservation Act of 1974, as amended (PL-93-291), and Executive Order No. 11593 "Protection and Enhancement of the Cultural Environment."

This report was written in accordance with the guidelines for short reports adopted by the Archeology Division of the Texas Historical Commission and developed by the Council of Texas Archeologists (ND). The following report presents a brief description of the natural and cultural environmental resources of the area. The research design and methodology and then the results of the field investigation follow. A section which offers recommendations concludes the body of the report. A list of references cited follows.

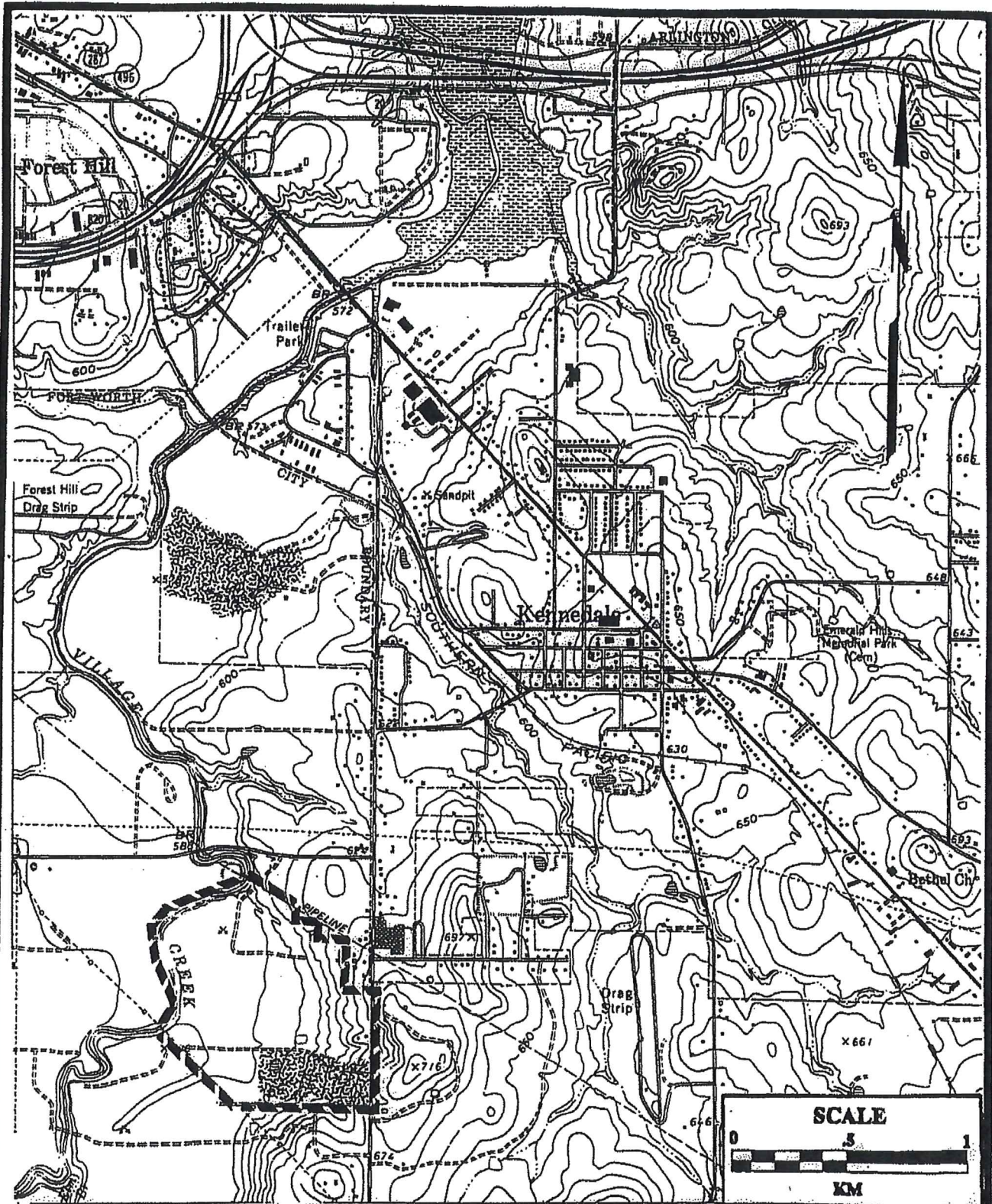


Figure 1. The outline of the expanded Fort Worth C & D Landfill site shown on a section of the Kennedale, TX 7.5' USGS map.

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Administrative Information

Sponsor: IESI Corporation  
Review Agencies: Texas Historical Commission and the Fort Worth District, U.S.  
Army Corps of Engineers  
Principal Investigator: S. Alan Skinner  
Field Team: Floyd D. Kent, Lance K. Trask, and Skinner  
Field Work Days: October 18-25, 2001  
Sites Recorded:  
    Prehistoric: None  
    Historic: Mid-Twentieth Century house was noted  
Curation Facility: Department of Anthropology, Southern Methodist University

## NATURAL ENVIRONMENT

The Fort Worth C & D Landfill is situated on the east side of the Village Creek valley west of Kennedale. The Eastern Cross Timbers plant community of North Central Texas is situated on the east side of the valley and the Fort Worth Prairie is to the west of the valley (Dyksterhuis 1946:Figure 1). The Eastern Cross Timbers is a north-south trending plant community which is dissected by drainages which flow into the West Fork and the Elm Fork of the Trinity River. A resistant ridge of sandstone known as the Woodbine Formation underlies the Cross Timbers.

The eastern valley walls are composed of horizontally-bedded sandstones, clays, and shales which comprise the Cretaceous-age Woodbine Formation (Bureau of Economic Geology 1988). To the west, the undivided Grayson Marl and Mainstreet Limestone make the western side of the valley. Limestone gravel deposits are contained buried in the alluvial deposits within the valley.

Village Creek has incised a wide floodplain along the interface between the two major geological formations. Alluvium fills the Village Creek valley and Caran (1990a) concludes that the present valley fill dates from the Late Pleistocene. Since then, it has alluviated as carrying capacity varied and aggradation increased. The meandering channel has probably left behind a series of sloughs and cut-off meanders but they are not readily apparent on the ground or in aerial photographs.

The General Soils map of Tarrant County, Texas (Ressel 1981) shows the floodplains of Village Creek, Walker Branch, and the West Fork of the Trinity River as being included in the Frio-Trinity soil association. Where not disturbed by gravel mining [designated as Arents soils #s 7 and 8], the floodplain in the survey area is mapped as frequently flooded Frio clay (Ressel 1981:Maps 50 and 56). Frio clay [#27] is described as being a nearly level floodplain soil that is a very dark grayish brown (10YR3/2), alkaline clay that extends to a depth of 80 inches. The soil is poorly drained and permeability is slow (Ressel 1981:91). Arents soils are surrounded by or adjacent to Frio clay areas, as they represent the disturbed overburden from areas where sand and gravel were mined in the past. Limestone was available in gravel bars along the active river channel. The upland soils include the Birome-Aubrey-Rayex Complex with 5-15 percent slopes [#12] and Gasil fine sandy loam [#s 30 and 31].

The bottomland hardwood forest is a western extension of the forest from East Texas and downstream on the Trinity (US Fish and Wildlife Service 1985). In its native state, elm and post oak were the dominant trees, along with hackberry, Spanish oak, and elm. Various fruit and nut producing species included bur oak, red haw, walnut, pecan, gum bumelia, and mulberry. Upland tree cover outside of the valley was composed primarily of post oak and blackjack oak (Peter and Journey 1988). Although not quantified, nuts

were available in both the river valley and the Cross-Timbers, but the upland forests had a more erratic production history than the bottomland forest.

The bottomland hardwood forest occurs in the floodplain and on the terraces along Village Creek and provides habitats for quail, dove, rabbit, squirrel, raccoon, and deer (Ressel 1981:57). The river channel environment supports fish, mussels, turtles, frogs, and snakes, along with a variety of water-adapted plants. The adjacent upland prairies were inhabited historically by now-extirpated bison and antelope, along with other, and smaller, prairie mammals and birds. The prairie would have been the major environmental zone through which the narrow riparian river corridor passed.

A consensus about the paleoenvironmental conditions of North-Central Texas over the past 12,000 years has not been reached. Discussions by Prikryl (1993), Ferring and Yates (1997), Humphrey and Ferring (1994), and Brown (1998) offer disparate interpretations based on different analytical approaches. The following discussion relies heavily on Ferring's investigations and focuses upon the past two thousand years. Correlating periods of rapid alluviation with higher precipitation and slow alluviation with drier conditions, Ferring has concluded that the Late Holocene [5000 yr BP to the present] was a wet period with moderate alluviation, except for a dry period between 2000-1000 yr BP [AD 1-1000]. It was during this dry period that the West Fork Paleosol was established on the stable surfaces of the river meanders along the Upper Trinity and its tributaries. This interpretation is supported by changing patterns seen in stable isotope analysis. Brown (1998) offers a differing interpretation based on isotopic analyses of mussel shells from a prehistoric site (41DL270) on Denton Creek. He concludes that the period from 1500-2500 yr BP was cooler and/or wetter and that before and after the environment was warmer and drier, but he points out that this interpretation may only be applicable for the Elm Fork tributary and not the region.

## CULTURE HISTORICAL BACKGROUND

### Introduction

For several decades, cultural resources investigations in Tarrant County have lagged behind those in Dallas County, and therefore the database of information to which this project can be compared is limited. This situation is due in part to the absence of major construction projects, and was also due to the absence of an active avocational archaeological society and a lack of professional archaeologists. This situation has radically changed in the past decade by the emergence of an enthusiastic, well-trained society, the Tarrant County Archeological Society. In addition, there are professional archaeologists working in the offices of the U.S. Army, Corps of Engineers and at Texas Christian University. Over the past fifteen years, a variety of research and cultural resource investigations in the immediate area have gathered information that is discussed below.

### Previous Work in the Area

River Legacy Park is a City of Arlington park that extends west from FM 157 almost to Greenbelt Road and is situated along the south side of the West Fork channel. Ferring's survey of the park area (1994) located four prehistoric sites [41TR143-146] exposed in the riverbank. No evidence was found of historic or prehistoric sites on the floodplain surface. He also describes the Old Bridge Geologic Section from the south bank of the West Fork. The Old Bridge section includes four units [A-D]. Unit A consists of laterally accreted sands and silts and is related to the Sanger Alloformation which is mid-Holocene in age. Units B and C are correlated with the Pilot Point Alloformation and contain all of the archaeological sites reported by Ferring. Unit D consists of recent alluvium.

In 1994, the Archaeology Research Program (ARP) of Mercyhurst College recorded two sites (41TR141 and 142) downstream from the mouth of Village Creek within the floodplain and north of the West Fork of the Trinity River (Shaunessy, Journey, and Yedlowski 1994:1). Testing at site 41TR141 yielded a Middle to Late Archaic Palmillas dart point, as well as other artifactual and ecofactual materials. Subsequent testing of site 41TR142 and other floodplain deposits for buried cultural horizons was conducted in 1996 by Geoarch Consultants (Ferring and Byers 1996). Testing revealed the presence of an abandoned meanderbelt system in the floodplain west of site 41TR142. The site was shown to contain a preserved Late Archaic deposit over an area of about 20,500 square meters. The floodplain site is considered to be the largest such site in the West Fork below Lake Bridgeport (Ferring and Byers 1996:12). Preservation was shown to be good

in that mussel shell and animal bone were present, in addition to lithic artifacts and fire-cracked rock.

Testing of an additional prehistoric site [41TR167] was conducted by the Texas Department of Transportation in conjunction with planning for a hike and bike trail between FM 157 and Highway 360 (Ellis 1998). While it was concluded that the site was an example of a "...zone containing a large number of 'localities' (Binford 1980) where small-scale, limited-function resource exploitation events occurred (Ellis 1998:11), no further work was warranted due to the anticipated impacts upon the buried sediments." Based on this site evaluation however, the site may be eligible for inclusion in the National Register of Historic Places.

The First Street Bridge site (41TR138) is located on the east side of Fort Worth and well upstream from the mouth of Village Creek (Largent, Hunt, and Peter 1994). The site consists of four concentrations of mussel shell and/or burned rock on the east bank of the West Fork. This site deposit extends from one to four meters below the surface in what the authors refer to as a deposit topped with the West Fork paleosol. The site shows evidence of repeated occupation and inundation which is common for sites on the West Fork.

The Gateway Section (Ferring 1990:60) is located immediately to the south of the First Street Bridge site. Nine meters of Holocene alluvium are exposed here, and the lowest alluvium unit is Sanger alluvium that has been radiocarbon dated at  $8,940 \pm 185$  BP (Beta-14905). A thick section of Pilot Point alluvium is above the Sanger and is topped with a soil referred to as the West Fork Paleosol. A date of  $1,406 \pm 100$  BP (Beta-14904) was obtained from the top of the soil A-horizon. Modern levee deposits bury the West Fork soil.

The River Bend site (41TR68) was located on the north side of the West Fork midway between the Gateway section and the mouth of Village Creek. The site was tested in 1987 (Peter 1987) and is an example of a specialized foraging camp that was repeatedly reoccupied between AD 850 and 1350. Low quantities of artifacts and virtually no curated tools were found, although a wealth of burned rock and mussel shells was present. Faunal remains included bones of deer, bison, rabbit, frog, and turtle, but it was concluded that the large mammals were butchered elsewhere (Peter 1987:32). Four rock features were uncovered and radiocarbon dates of AD  $1200 \pm 50$  (Beta-22487) and  $1330 \pm 100$  (Beta-22488) were obtained from charcoal. Archaeomagnetism yielded dates between AD 1350-1450.

In 1997, AR Consultants excavated parts of the Rough Green site which is located in River Legacy Park, just downstream from the mouth of Village Creek (Skinner, Caran, and Trask 1999). The site was not exposed in the riverbank or in the bank of the remnant of Walker Branch, but was encountered during shovel testing. The buried site deposit was less than a meter thick and contained very few artifacts and ecofacts and was dated to the Late Archaic the Late Prehistoric periods. The site's function was interpreted as have been an acorn collecting camp that was occupied in the fall of the year.

Village Creek has been the site of major geomorphological investigations with regard to the construction of Green Oaks Boulevard and other projects. While the investigations (Andrews and Caran 1990a and b; Ferring 1988; Prikryl 1995) did not result in the location of buried cultural resources, the information contained in the most northerly study (Caran 1990a) provides specific data about sedimentation and deposit dating. In particular, buried fluvial channels were exposed in the bank of Trench 5 (Caran 1990b:A-11), with an associated radiocarbon date of  $2,210 \pm 90$  BP (Beta-34052) at a depth of 175-195 cm below the surface. A date of  $4,970 \pm 80$  BP (Beta-34051) is from 376-382 cm. The older date is from a fluvial channel deposit.

The University of Texas at Arlington has conducted major excavation at the Fountain site upstream on Village Creek (Hanson and Kvernes 1997). The site is an extensive lithic scatter located on a high terrace on the east side of Village Creek. Excavation has uncovered hearths, postholes, and a possible cache pit and a deposit which spans the period from the Late Archaic to the Late Prehistoric. The most intensive occupation was between AD 1000-1400. Chert is the primary (96%) lithic raw material, and primary (3%) and secondary (14%) flakes are few in relation to tertiary flakes from the 13,000+ flakes recovered. This suggests that initial tool making was not done at the site, but that final biface thinning and tool repair were. Arrowpoints are common at the site, and are accompanied by a variety of chipped stone tools, but primarily scrapers. A small sample of pottery has been recovered, along with bones of deer and bison. There is an apparent absence of vertebrae, crania, and upper limbs which suggests that butchering was done elsewhere. Some of the bones show evidence of butchering and marrow/grease extraction.

### Culture History

The following prehistoric culture history is derived largely from the Joe Pool Lake monographs (Peter and McGregor 1988; Journey, Lebo, and Green 1988). A Historic European period has been added.

Paleo-Indian	ca. 11,000 B.C. - 6,000 B.C.
Archaic	6,000 B.C. - A.D. 700
Late Prehistoric	A.D. 700 - A.D. 1600
Early	A.D. 700 - A.D. 1000
Middle	A.D. 1000 - A.D. 1400
Late	A.D. 1400 - A.D. 1600
Protohistoric	A.D. 1600 - A.D. 1800 [Historic Native American]
Historic European	A.D. 1800 to Present

Using the above temporal framework, the following paragraphs present a brief description of the culture history of the area.



The Paleo-Indian period is distinguished by distinctive projectile point styles (Clovis, Folsom, Plainview, and others) attributed to this period. Surface artifacts generally come from deposits on stream terraces above the level of the active floodplain. Many of the points are made of cherts that are not native to North-Central Texas. To date, no Clovis points have been reported from Tarrant County (Meltzer and Bever 1995). The Lewisville site and the Aubrey Clovis site in Denton County are the only excavated Paleo-Indian sites in the region (Crook and Harris 1957; Ferring 1989), and both are on the Elm Fork to the north. During this period, large mammals became extinct, and their extinction is attributed in part to a general drying of the environment.

During the Early Archaic, rapid alluviation is equated with a wet period, and sites are found on stream terraces. There is a hint of population increase, and Lynott (1981:103) suggests that there was increased emphasis on the use of bottomland food resources. On the Elm Fork, Prikrýl (1990:71) reports fewer bottomland sites than during the Middle Archaic while sites are predominantly found on the first terrace above stream floodplains. As earlier, sites tend to be along the Elm Fork rather than along the smaller tributaries. The population density continued to be low. Late Archaic sites increased in number over the previous period, and sites are located both along the Elm Fork and its tributaries. There appears to be an increased use of tributary streams, and a pronounced population explosion. Within the Elm Fork basin, local Ogallala quartzite was being used prominently at this time, and this observation is taken by some authors (Skinner 1981; Prewitt 1983) as evidence of increased territorial constriction. On Mountain Creek, it appears that the earliest occupation was during the Late Archaic, and that use of the area was only on a seasonal, not year-round, basis. Moreover, unlike the Elm Fork sites and most of Dallas County, lithics are predominantly cherts which may have been obtained to the southwest near Alvarado (McGregor 1995).

During the early Late Prehistoric period, the bow and arrow and pottery appear in artifact assemblages (Shafer 1977) and this is interpreted as a dry period. Houses and probable evidence of agriculture first appear during this period, as shown at the Cobb-Pool site (Raab and Woosley 1982; Fritz 1993). Early Late Prehistoric site locations mirror those of the Late Archaic, and chert continued as the common material for chipped stone projectiles and tools within the Mountain Creek basin and the West Fork Watershed. The West Fork Paleosol is tentatively dated to this period, although it has been dated earlier than A.D. 800 in some places (Ferring 1990). The late Late Prehistoric was once again wet as had been most of the Late Archaic. Buffalo bones are common in late Late Prehistoric sites (Dillehay 1974; Lynott 1979), along with tools normally expected to occur at sites on the High Plains. It has recently been suggested (Hanson and Kvernes 1997) that the dichotomy between late and early Late Prehistoric does not hold at the Fountain site, and may not apply in North-Central Texas because the authors conclude that corner-notched points [primarily Scallorn] and Perdiz points are contemporaneous.

Protohistoric Native American occupation in the Tarrant County is reported by numerous authors who describe the regional history. Very little archaeological evidence of historic Native American occupation has been found in the area (Peter, Cliff, and Green 1996:2). This pattern of finding virtually no physical evidence of historic Native American in the

form of artifacts [beads, gun-flints, cooking utensils, etc.] is seen throughout much of North-Central Texas (Skinner 1988), and has been related to the abandonment of the region in the 1500/1600s.

The 1830s and 1840s were decades of Anglo expansion into North-Central Texas. Garrett, a well-respected Fort Worth historian, has stated that "Indian hostilities almost depopulated North Texas [of Anglo settlers] after 1839. It dwindled to less than half (Garrett 1972:24)". According to tradition, many Indians of several tribes roamed Tarrant County until well into the 1860s.

Strategies for dealing with the illusive aboriginal population ranged from armed confrontation and pursuit to across-the-table dialogue. Rising from a domestic background of dealing with Indians, President of the Republic of Texas, Sam Houston, realized rapprochement was preferable to direct confrontation. In the summer of 1843, a council with the Indians was called, and in September of that year ten tribes signed a treaty which was approved by the Senate the following January. The treaty provided the needed impetus for settlement of several counties in the North-Central Texas area.

The earliest Anglo settlements in Tarrant County were Bird's Fort, established around 1841, and Lonesome Dove, settled in 1845. Lonesome Dove, located near present-day Grapevine, was the first permanent settlement in Tarrant County (Garrett 1972:55). The county itself was organized in 1850, but it was not until 1860 that Fort Worth was officially named the county seat, that designation having been transferred from Birdville (Webb 1952:708). Settlers, however, had been steadily arriving in the county during those 20 years. Many came through the auspices of Peters Colony land grants, although only 160 families and single pioneers took advantage of the grants (Garrett 1972:57). The Kennedale area was settled in the mid-1800s and was officially established as a town in 1882 (Kennedale Heritage Committee 1976).

## RESEARCH DESIGN AND METHODOLOGY

The purpose of the research design (Binford 1964) presented below was to insure that the results of the fieldwork made a contribution to a better understanding of prehistoric settlement within the immediate landfill area and the surrounding area. It was our opinion that there was little potential of finding significant historic sites on the upland slope or in the Village Creek floodplain due to the slope of the former and the flooding and farming of the latter. Likewise, it was anticipated that prehistoric occupation was not likely on the slope, unless springs were present. Thus, the research design was designed primarily to address questions about prehistoric occupation adjacent to the creek and at the toe of the upland slope. As a result, we proposed the two research problems below.

A demographic research problem focused on determining if prehistoric occupation of the floodplain left behind artifactual evidence of the occupation. It was our opinion that the presence of a permanent water source, riverine plant and animal resources, and the level floodplain provided settings which could have been periodically occupied prehistorically. Furthermore, excavation at the Fountain site has shown that repeatedly occupied prehistoric sites are present nearby in the Village Creek valley. Therefore, it was proposed that:

“Survey of the Village Creek floodplain within the Fort Worth C & D Landfill site might locate prehistoric sites which would represent temporary hunting and/or gathering camps.”

We anticipated that any sites would be small in area and that recording the number and types of tools and flakes/chips, and other artifacts would allow for the recognition of different tool kits and times of occupation.

A second, and even more basic, research problem guided the survey. Simply stated, the question asked “How did past people use the land, and what record of this use did they leave behind?” Most frequently, smaller-scale surveys of this type gather information in response to this more open-minded research question which guides almost all archaeological surveys.

The area of potential effect (APE) for this investigation included all of the undeveloped parts of the Fort Worth C & D Landfill site which is estimated to include approximately 115 acres. Exterior boundaries were clearly defined by barbed wire fences and Village Creek. In addition, drainages, several stocktanks, and other fences made defining the survey area easy along with the maps and aerial photographs provided by Freese & Nichols.

In order to address these questions, transects were walked throughout the entire survey area. Ground visibility varied within the floodplain, and generally averaged better than 30 percent on the slopes and in the upland. Shovel tests were excavated primarily in the floodplain due to possibility of finding buried site deposits under recently deposited alluvium. The sandy loamy matrix from the 30x30 cm shovel tests was screened through ¼" hardware cloth screens. Based on the geology, topography, and soils, we placed backhoe trenches in the floodplain to further explore for buried cultural deposits. All subsurface excavations were immediately backfilled after the sediments had been inspected and described.

## RESULTS

The results chapter is divided into five sections. The first deals with twentieth century landuse and the second describes the pedestrian survey. Section three describes the shovel test results and section four describes the trackhoe trenches. A summary section concludes the chapter.

### Twentieth Century Landuse

The earliest map consulted was printed by Sam Street in 1895 and is a road map of Tarrant County. Street shows no structures in the survey area, but does show rental houses to the north and on the west side of Dick Price Road.

The Kennedale, TX 7.5' USGS map of 1959 shows houses along Dick Price Road and has a stocktank in the area subsequently mined for sand. The 1981 update of the Kennedale map shows the existing landfill and mining in the area of the former stocktank. A pipeline is shown marking the northern edge of the survey area. The transmission line that is along the southwest edge of the permit area is also shown.

The permit area is shown on parts of Sheets 50 and 56 of the Soil Survey of Tarrant County, Texas (Ressel 1981). The pipeline and the transmission line are shown as is the gravel mined area along the southwest corner of the survey area (Figure 2). The landfill is shown in the southeast corner of the permit area. Additional frequently flooded mined areas are shown on the west side of Village Creek and at least two of these area had apparently been reclaimed and used for pasture.

The floodplain was cleared of the floodplain forest at some time in the past and most likely was farmed. We have been unable to determine just how the floodplain was modified at this time, but apparently Village Creek has followed present course for the past century. Sometime after World War II, the farmland was probably converted to use for growing forage. During this period, a 3.5-5 acre stock tank was constructed, probably after the mining shown on Figure 1 had been carried out. At the same time, the toe slope and the upland slope were probably used as unimproved pasture for cows or horses. Horses presently graze on parts of the floodplain and the slope.

There is no evidence that Village Creek has been channelized along the edge of the survey area. A mined area is indicated on Figure 1 although no mined area is apparent on the ground. The mining was apparently done sometime before 1959 when the map was printed, that the stocktank that is not shown on the map may have been created out of the cleared area. According to the landowner, the stocktank holds water only for brief periods; this may be an indication that no serious engineering went into the creation of the tank. In addition, a low area that drains into the tank or just by it crosses the floodplain from south to north and may have been created to improve floodwater drainage across the property.

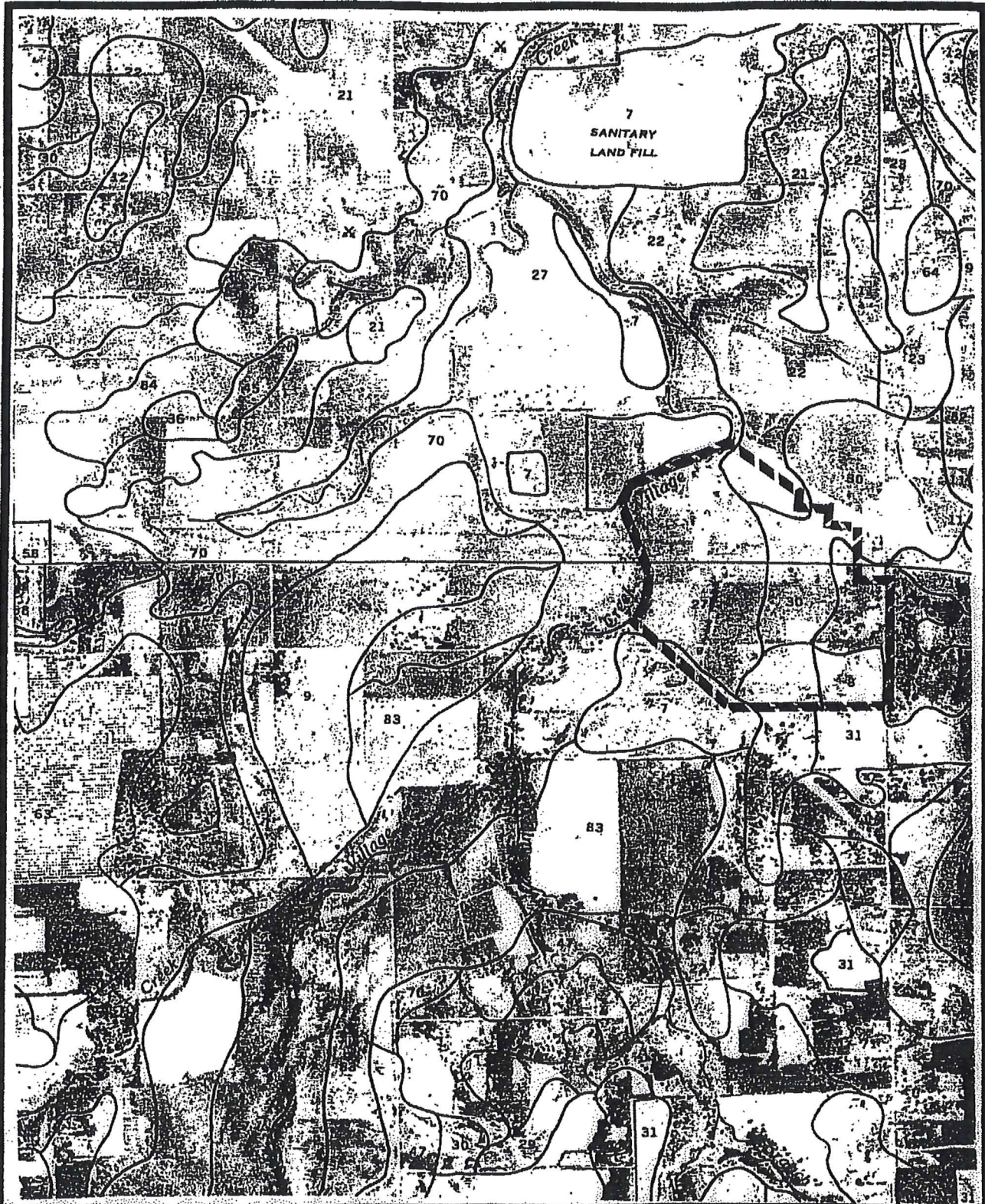


Figure 2. The Fort Worth C & D Landfill expansion area shown on sections of Sheets 50 and 56 of the Soil Survey of Tarrant County, Texas.

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A stocktank that is shown on Figure 1 adjacent to the south central edge of the survey area is no longer present but has been replaced by a sand mining operation that covers an area of approximately one acre. Mining was being conducted while we were in the field. The existing Fort Worth C & D Landfill is situated just to the south of the survey area and a narrow strip of land used as a road is present between the sand mine and the landfill. The floodplain just to the west of the landfill had been mined for gravel before the landfill was established and waste piles of dirt and rock are present in this area.

During the late 1960s and again in the 1980s, Tarrant Regional Water District constructed pipelines across the northern edge of the survey area. The first carries water from Cedar Creek Lake to Fort Worth and is shown on Figure 1 and on Figure 3. The second carries water from Richland-Chambers Lake to Fort Worth. These pipelines come down the slope at an angle and extend to a low slope projection that extends to the edge of the creek along the north boundary of the survey area.

The only other major modification to the floodplain was the creation of a one and a quarter mile horse track that extends on the south almost to the sand pit and on the northwest crosses the dam of the leaky stocktank. The practice track was created by blading the floodplain level and then adding fill to raise the track above normal rainfall runoff and flooding. As mentioned above, a ditch was excavated near the base of the slope and this served to divert water from running across and washing out the track.

#### Pedestrian Survey

The survey area contains portions of the east side of the Village Creek floodplain (Figure 4), the adjacent toe slope and upland slope, and upland to the east, which is adjacent to Dick Price Road. A narrow band of trees is adjacent to the channel of Village Creek, but otherwise almost all of the floodplain is cleared of trees and has been planted with coastal bermuda grass (Figure 5). The floodplain is generally level, but noticeably slopes from the toe slope and the creek channel to the center of the floodplain. This drop in elevation is not shown on the USGS map as it was probably obscured by vegetation at the time of mapping. The floodplain is underlain by frequently flooded Frio silty clay.

A drainage ditch (Figure 6) was excavated near the edge of the toe slope almost from the sand pit to the northwest corner of the property. From this point slope, the terrain rises from 600 to 650 feet at a relatively steep slope. The soils are mapped as Gasil fine sandy loams and the Birome-Aubrey-Rayex complex with 5-15 percent slopes. Clearing, planting, mowing and erosion have provided good visibility of the topsoil or of the eroded subsoil. A narrow strip of relatively level upland is situated adjacent to Dick Price Road. This area has been disturbed by clearing, house construction, and field roads in the past. The upland area is relatively level above 600 feet.

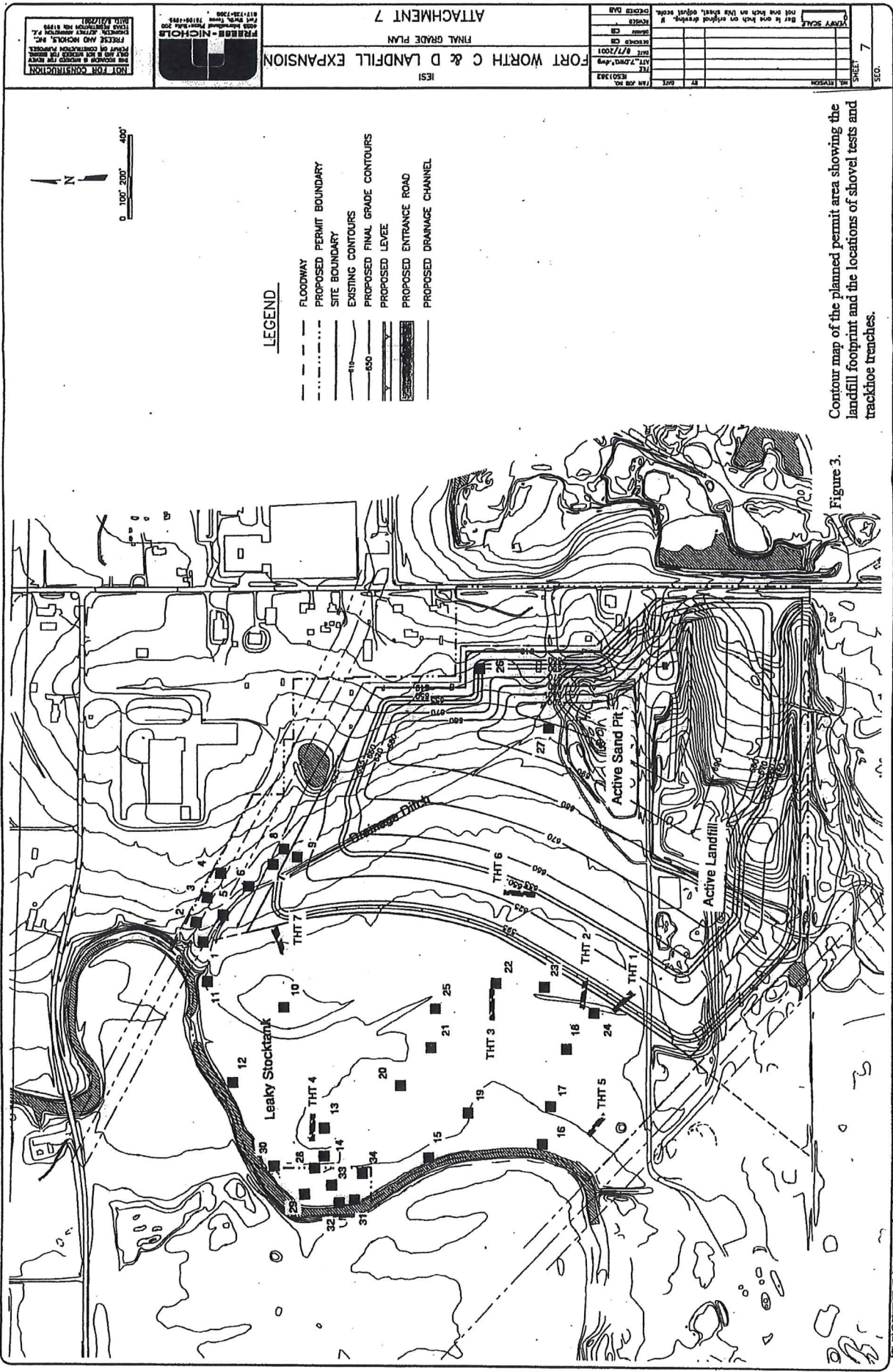


Figure 3. Contour map of the planned permit area showing the landfill footprint and the locations of shovel tests and trackhoe trenches.

<p><b>NOT FOR CONSTRUCTION</b></p> <p>THIS DRAWING IS A PART OF THE PERMIT APPLICATION FOR THE PROPOSED PORT WORTH C &amp; D LANDFILL EXPANSION. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE.</p> <p>PREPARED BY: <b>FRANKLIN-NICHOLS</b></p> <p>DATE: 8/7/2001</p>	<p>ATTACHMENT 7</p> <p>FINAL GRADE PLAN</p> <p>PORT WORTH C &amp; D LANDFILL EXPANSION</p>		<p>SCALE: 1" = 400'</p> <p>DATE: 8/7/2001</p> <p>BY: [Signature]</p> <p>CHECKED BY: [Signature]</p> <p>APPROVED BY: [Signature]</p>
	<p>PROJECT NO. 0001</p> <p>DATE: 8/7/2001</p> <p>BY: [Signature]</p> <p>CHECKED BY: [Signature]</p> <p>APPROVED BY: [Signature]</p>		<p>SCALE: 1" = 400'</p> <p>DATE: 8/7/2001</p> <p>BY: [Signature]</p> <p>CHECKED BY: [Signature]</p> <p>APPROVED BY: [Signature]</p>





Figure 4. Village Creek channel at the northwest end of the survey area. Water pipelines descent from the upland slope projection to the right and cross under the creek channel. View is to the north.



Figure 5. Looking west across the floodplain of Village Creek which is indicated by the tree line.

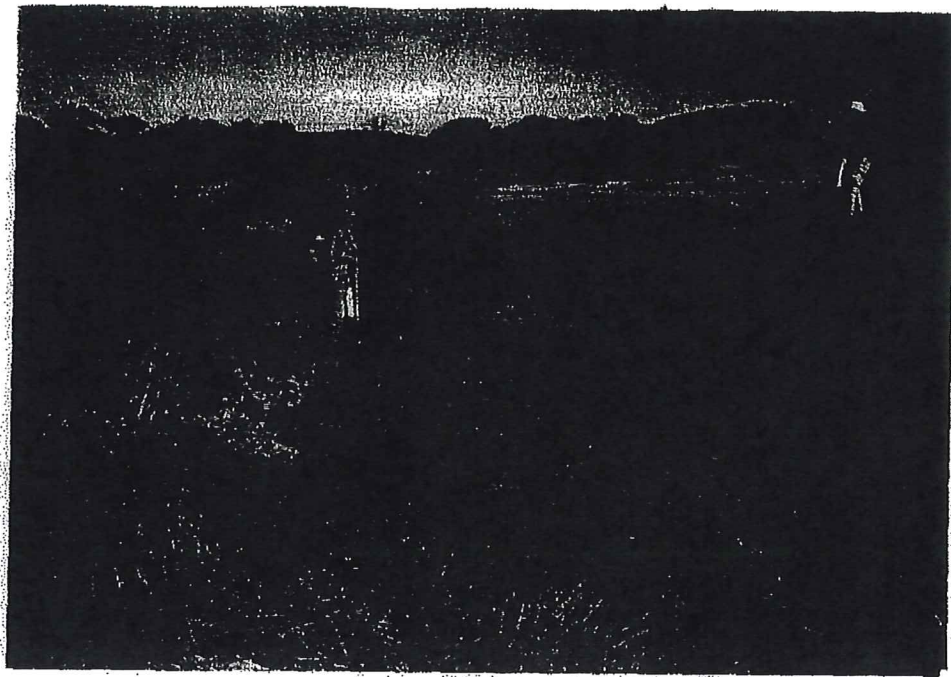


Figure 6. Eroded drainage ditch excavated at the edge of the toe slope. View is to the northwest.

The floodplain stretches from the northwest corner of the survey area to the south end and includes approximately 75 acres. Village Creek is an entrenched meandering perennial stream that has generally vertical banks that are 4-5 meters high. Bedrock is exposed near the bottom of the banks in some areas and may be present under the water that is in the channel. The banks offered exposed profiles on both sides of the creek and no evidence of developed soils or buried cultural materials was found in the banks or eroding out of the banks. The tree line that parallels the channel has grown on a recognizable overbank flooding levee and the tree line ranges from 3-4 meters to more than 25 meters in width. The trees include pecan, bois d'arc, American elm, and hackberry that may be as old as a hundred years, although younger tree and brush growth is also present. Understory growth varies from heavy to sparse and the ground was generally littered with leaves, rotting branches, and occasional bits of trash. There was not major evidence of trash deposition due to flooding. No recognizable elevations were present within the tree line/levee area. In fact, no pronounced and likely occupied elevations were found anywhere in the floodplain.

East of the tree line, a pronounced depression extends to more than two meters in depth. Although we were unable to determine how this depression was created, it appeared that sand must have been removed from this area while leaving the original contour of the floodplain in the levee to the west and the floodplain to the east. The edges of the depression were rounded and grassed over, and did not appear to represent a former channel scar. The landowner had not excavated the depression, although it could have been created before he purchased the land. Survey across the floodplain failed to isolate

other depressions, although as mentioned above, a leaky stocktank (Figure 7) is just to the north and a linear low area is in the center of the floodplain and roughly parallel to the present channel before it empties into the leaky stocktank and then back into the creek.

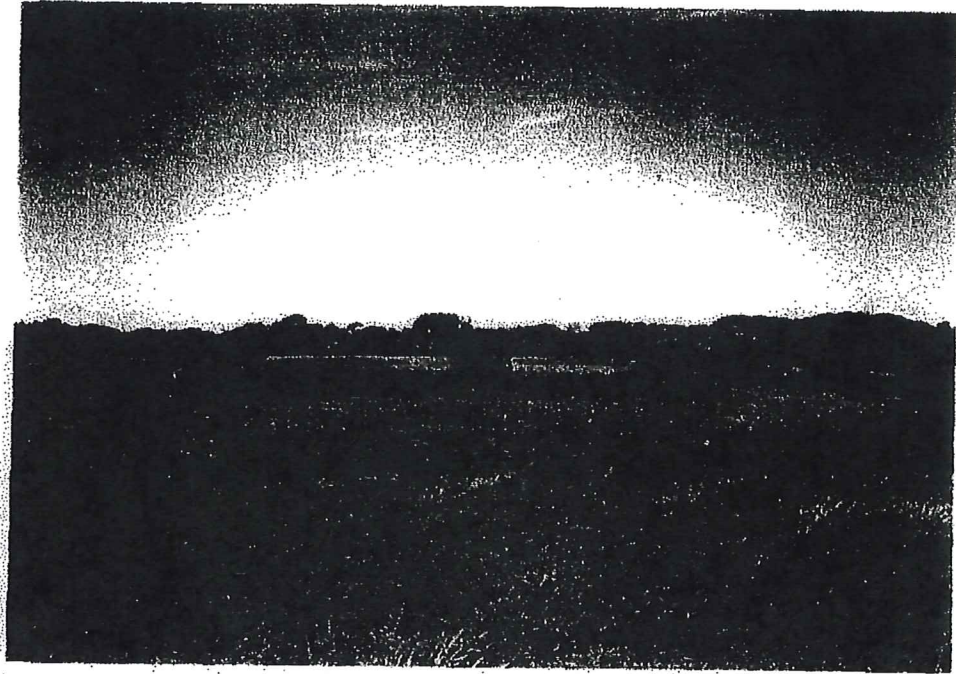


Figure 7. Leaky stocktank shown in the center of the photograph. Eroded drainage crosses in the foreground. View is to the west with the Village Creek tree line in the background.

In the southwest portion of the survey area, the landowner had excavated a one-meter deep exploratory gravel pit that had been left open for our inspection. The fill pile was closely examined for knappable gravels, but only two quartzite cobbles were included among many pieces of washed angular limestone and these two cobbles showed no sign of flaking, battering or patterned wear. These two cobbles were the only knappable gravels observed during the entire pedestrian survey.

The floodplain was systematically walked over and no cultural materials were found on the grass/leaf-covered surface or in the various eroded areas present. Certainly no distinct elevations were encountered in the floodplain.

As described above, the slope has a pronounced incline from the toe slope to the upland and almost all of this area has been cleared of brush. The drainage ditch along the toe slope was carefully inspected and it revealed that the topsoil was either very shallow or not present on top of the subsoil. No cultural materials were found anywhere in this

heavily eroded ditch that extended up to two meters into the subsoil. Mature post oaks are scattered on the slope, but the areas in between have a sparse cover of grasses and weeds that continue to stay rooted in the heavily eroded surfaces. Sandstone bedrock is exposed in places and is present at shallow depths below the surface. Two-track roads and horse paths criss-cross the slope, but failed to uncover any cultural materials. The erosion has been accelerated on a large portion of the slopes due to confinement of horses in numerous corrals. The ground cover has been stripped from the corral areas by foraging and the effect of shod hooves. Careful observation of these denuded areas revealed no cultural materials. Coastal bermuda is present in the fenced pastures in the northeast corner of the survey area, but even in these areas sandstone has been exposed by overgrazing and subsequent erosion. The slopes displayed a thin drape of hematite gravels over exposed clays (Figure 8). An occasional cobble or small boulder from the underlying Woodbine formation were on the surface. Although visibility was better than

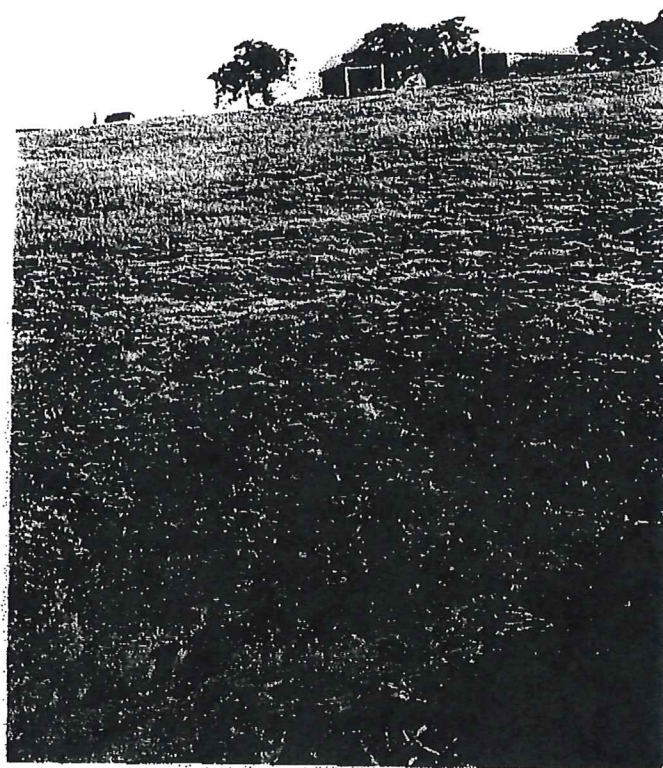


Figure 8. Eroded hematite gravel draped toe slope in the northeast part of the survey area. View is to the north.

30 percent in most parts of the slope, no cultural materials more than fifty years old were found. The sand pit is located in the southeast corner of the slope area and the 5-8 meter high pit walls provided 200 meters of good exposures, but failed to reveal any buried developed soil horizons or any cultural materials. Evidence of lunate-shaped limestone gravel lenses occurred at two to three meters below the present land surface. Intense inspection of these gravel-filled gullies revealed no quartzitic or other knappable gravels. The majority of these angular and poorly sorted gravels were less than four centimeters in size. No artifacts were found on the pit floor, although visibility was excellent.

The upland is a narrow strip of land which has been heavily disturbed by its use as a field road, access to the sand pit (Figure 9), and the construction of at least one recently abandoned historic house. The disturbance is highlighted by the presence of a cottonwood tree growing adjacent to Dick Price Road in a bar ditch. A frame building behind the house is a 12 x 20 foot frame structure (Figure 10) which had true dimension (rough cut) framing, wire nails and an unusual arrangement of interior and exterior siding. The exterior had "126" siding extending up the walls to 36". Board and batten siding were present above the "126" on the east, south, and west walls, and "126" siding extended to the roof on the short north wall. The ceiling was 10' high and constructed of board and batten; the walls were made of beaded porch ceiling. This is a reversal of the normal use of these two materials and construction techniques. It suggests that this structure may be of modern vintage and entirely rebuilt of salvaged materials. The windows were two over two and more square than rectangular. A shed roof had been added to both long sides and these were constructed of salvaged lumber. The construction materials and high ceiling indicate that they must have come from a pre-1920 structure that may have been present on this site at one time. The area around the rebuilt structure is profusely littered with modern household garbage and trash. No depressions indicating a cistern or a root cellar were found.

The pedestrian survey of the landfill expansion area encountered varying amounts of surface exposure with the lowest exposure in the floodplain and the highest exposure on the slope. No habitable elevations were encountered in the floodplain and the slope and upland revealed no water sources such as springs or seeps. No cultural materials were found anywhere on the surface of the survey area.

### Shovel Testing

Although 35-40 shovel tests would be the recommended number to dig in this 115 acre survey area, the undisturbed acreage that is not the eroded slope, the existing sand pit and landfill, or has not been mechanically altered is substantially less. Twenty-seven shovel tests were selectively placed on the slopes and in the upland, in the floodplain, and beside possible old channels where the highest probability for finding buried prehistoric occupation existed. An additional eight shovel tests were placed along the east bank of Village Creek in a stand of old timber. This portion of the floodplain, based on the age of the timber, has not been altered by twentieth century mechanical disturbance. These eight shovel tests were in a high probability area for buried cultural remains.

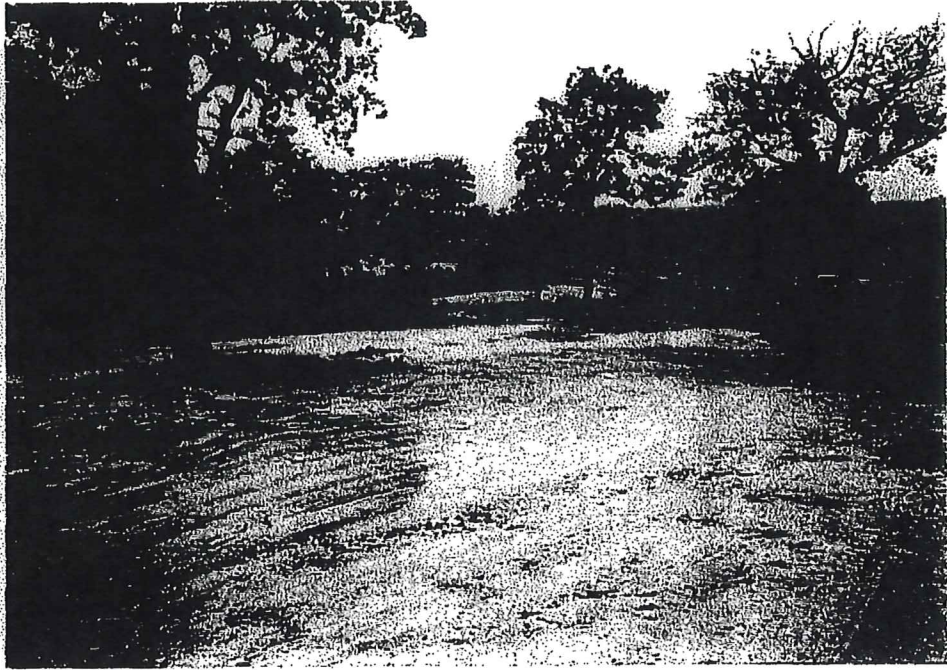


Figure 9. Disturbed upland adjacent to Dick Price Road and at the entrance to the sand pit. View is to the west.

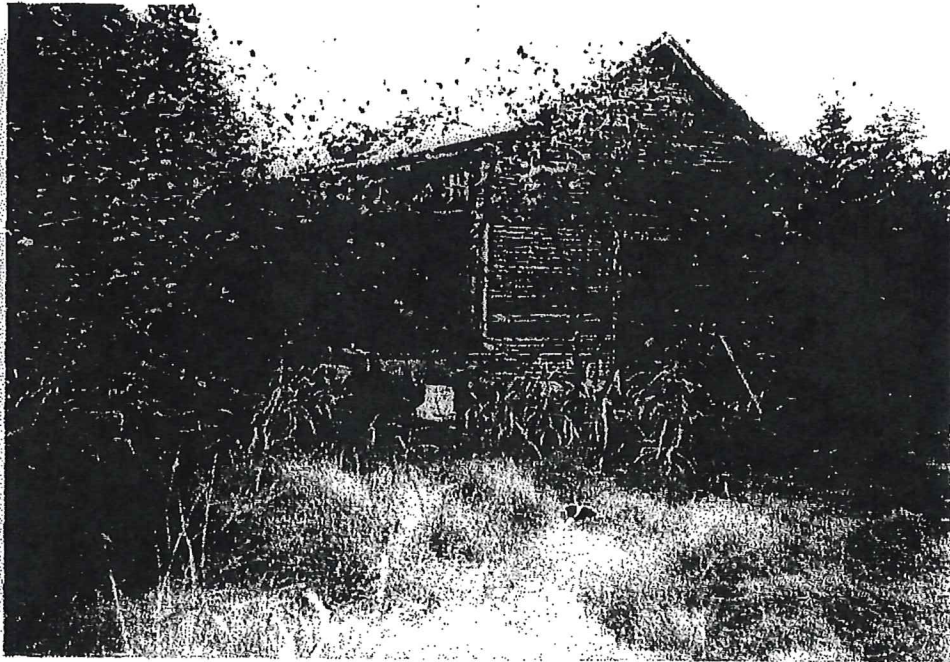


Figure 10. Frame building built of salvaged materials and located behind the abandoned house on Dick Price Road. View is to the southwest.

Shovel tests one through nine (Table 1 in the Appendix) were placed on the upland slope projection that overlooks Village Creek in the northern portion of the survey area. They were placed in essentially undisturbed areas on both sides of the Tarrant Regional Water District pipelines. These shovel tests revealed clay loams and loamy clays that are undisturbed native soils. Shovel test four revealed dark yellowish brown sandy loam to 23cm and loamy clay to 30 cm and then sandy clay to 125 cm. This shovel test is a good representation of *in situ* upland soils. No cultural materials were recovered from any of these tests with the exception that brick and tile rubble were found in the upper 20 cm of shovel test one.

Shovel test ten was placed in the center of a leaky and presently dry stock tank in order to determine the subsoils in a deep cut in the floodplain. A sterile coarse sandy silty clay extended to 81 cm and a silty plastic clay extended to below 96 cm. No cultural materials were recovered.

Shovel test eleven was placed near a mature tree very close to the creek channel on what was believed to be undisturbed floodplain. The soil was a clayey sandy loam to 49 cm, sandy clay from 49-61 cm and pedogenic carbonate clays to 100 cm. No cultural materials were recovered from the unit.

Shovel test twelve was placed on the edge of the bank on a narrow floodplain remnant. The soil was a dark brown clayey sand loam to 140 cm. Micro-laminated light colored sands were encountered between 60-80 cm. No cultural materials were recovered and no developed soils were encountered.

Shovel tests thirteen through twenty-five were spaced across the floodplain on areas considered to have a potential for occupation. These shovel tests revealed a variety of loamy clays and sandy clays that contained no buried soil horizons or cultural materials.

Shovel test twenty-six was placed amid a small grove of mature oaks on an upland slope knoll. The surface soil was a dark brown loam that changed abruptly at 6 cm to a brown clay. No cultural materials were recovered from this unit. Shovel test twenty-seven was placed on the toe slope just above the floodplain edge. A dark brown sandy clay extended to 20 cm. A brown clayey sand subsoil extended below 60 cm. No cultural materials were recovered from this unit.

Shovel tests 28-34 were placed along the bank of Village Creek and among mature trees in an apparent remnant of undisturbed floodplain. These shovel tests showed a noticeable increase in sand and silt content than in the loamy clays encountered throughout the floodplain. No mussel shell, bone, charcoal, lithics or any other cultural materials were recovered from any of the shovel tests. All shovel tests were immediately backfilled after being recorded. Shovel testing failed to find any evidence of buried occupations in the upper meter of the floodplain.

### Trackhoe Trenching

Although no geomorphological studies are known to have been undertaken in the immediate study area, which can be considered to be in the mid-section of the Village Creek drainage, Caran (1990) describes the geomorphology of the lower drainage as containing late Pleistocene through Holocene alluvial deposits. He further states that the valley was probably cut to bedrock during the Late Pleistocene. This would suggest that human occupation could exist through the entire depth of the sediments, which extend to twelve meters in the lower drainage. Because of Caran's evaluation, trackhoe trenching became a necessary part of this survey.

Trackhoe trench [THT] one was placed on the east side of the central swale in the south central portion of the survey area. Surface soils were a brown (7.5YR 4/3) fine sandy loamy clay that extended to 90 cm below the surface on the western end of the trench. On the eastern end of the profile, a very dark gray (7.5YR3/1) silty clay intruded channelward from 40-120 cm below the surface. Below these units, a dark yellowish brown (10YR 4/6) sandy clay matrix with mottles of yellowish brown (10YR5/4) and gray (10YR5/1) continued from 90-170 cm. From 170-240 cm, the matrix was light gray (10YR7/2) clay with mottles of yellowish brown (10YR5/8) clay making up 20 percent of the matrix. Washed angular limestone gravel in a dense lens with almost no soil filler extended from 240-310 cm. Water flooded in at 310 cm, and the track hoe bucket brought up gravel in the last drag. These deposits were horizontal and showed no mechanical intervention. No shell lens, buried soils, or cultural materials were observed anywhere in the trench walls.

Trackhoe trench two was placed approximately 100 meters north of THT one on the same side of the swale. Soils from the surface to 80cm were a dark brown (7.5YR3/2) sandy loamy clay. On the swale side of the trench the second zone was a black (7.5YR 2.5/1) sandy loamy clay that extended from 80-126 cm on the channel side and tapered toward the surface away from the channel and disappeared less than a third of the way along the trench. The next zone, from 80-198 cm was a yellowish brown (10YR5/8) clay with 25% mottles of light yellowish brown (10YR6/4) clay. From 198-310 cm was a mixture of 90% washed limestone gravel and 10% clay. Groundwater flooded in below 310cm. The deposits showed no sign of mechanical alteration. No cultural materials were observed in the trench walls or the backdirt.

Trackhoe trench three was placed on a possible low elevation in the floodplain north of THT two and on the west side of the swale. From the surface to 43 cm, the soil was a dark brown (7.5YR4/3) fine sandy clay. From 43-105 cm, the soil was a brown (10YR4/3) fine sandy clay loam with more sand content than the overlying zone. The next zone extended to 162 cm and was the same brown fine sandy clay loam with very pale brown (10YR7/3) mottles. Between 162-224 cm, the soil showed filaments and nodules of CaCO<sub>3</sub>. Below 224 and extending to 318 cm, the soil was a mixture of light gray (10YR7/2) clay and brownish yellow (10YR6/8) clay. No cultural materials were observed in the trench wall or backdirt.



Trackhoe trench four was placed in the northwest portion of the floodplain. The upper zone extended to a depth of 99 cm and consisted of a brown (7.5YR4/3) loamy clay. The next zone was a dark yellowish brown (10YR4/4) loamy clay that was narrow and extended only from 99-128 cm. From 128-224 cm, the soil was a yellowish brown (10YR4/4) sandy clay. From 224-343 cm, the soil was a light gray (10YR7/2) coarse sandy clay. Between 343-380 cm, groundwater flooded into the trench. The last bucket of fill brought up angular washed limestone gravel. No cultural materials were found in the trench walls or in the backdirt.

Trackhoe trench five was placed in the floodplain in the southwest portion of the survey area. From the surface to 37 cm, the soil was a dark brown (7.5YR3/2) fine sandy clay loam. From 37-61 cm, the soil was brown (7.5YR4/3) medium sandy loamy clay. Between 61-118 cm, the soil was dark yellowish brown (10YR4/2) fine sandy clay with CaCO<sub>3</sub> filaments. From 118-250 cm, a dense layer of washed angular limestone gravel was mixed with small amounts of yellowish brown (10YR5/8) clay. From 250-353 cm, the soil was grayish brown (10YR5/2) coarse sandy clay with 15% mottles of strong brown (7.5YR5/8) coarse sandy clay. Between 353-425 cm, the fill consisted of a 50-50% mix of pinkish gray (7.5YR6/2) and strong brown (7.5YR5/8) medium grain sand. At 425 cm, the trackhoe began tearing out slabs of shale and the trench was discontinued. No cultural materials were encountered during trenching and no buried cultural zones or developed soil horizons were recorded.

Trackhoe trench six was placed inside the horse track on the level floodplain in the center of the survey area. The upper 53 cm was a dark brown (7.5YR3/3) sandy clayey loam. From 53-156 cm, the matrix was very dark grayish brown (10YR3/2) silty clay. A dark yellowish brown (10YR 4/4) clay with CaCO<sub>3</sub> nodules less than six millimeters in size extended from 156-365 cm. From 365-450 cm, the soil was a mixture of 60 percent light brownish gray (10YR6/2) and 40 percent brownish yellow (10YR6/8) clay. Washed angular limestone gravel had a yellowish brown clayey silt coating from 450-460<sup>+</sup> cm. The trench was discontinued as ground water seeped into it. The zones of deposition were horizontal and showed no mechanical disturbance. No cultural materials were observed in the trench walls or in the backdirt.

Trackhoe trench seven was placed on a possible rise in the floodplain, in the north central portion of the floodplain. The topsoil was a brown (10YR4/3) fine sandy loamy clay to a depth of 32 cm. From 32-80 cm, the soil was a very dark gray (10YR3/1) silty clay. Between 80-550 cm, the soil was a mixed dark yellowish brown (10YR4/4) 30% and brown (10YR4/3) 40% medium sandy clay and pale brown (10YR6/3) 30% fine sandy clay. Groundwater did not invade this trench and gravel was not encountered. Deposition was horizontal and no mechanical disturbances were noted. No cultural materials were observed in the trench walls or backdirt.

Trackhoe trenching in the floodplain of Village Creek failed to locate any buried cultural deposits and also did not result in recording any buried soil horizons. The trenching reached shale bedrock in only one trench, but the presence of a perched water table in

most of the other trenches probably indicates that the bedrock was present just below the water in each of these trenches. Therefore, if cultural materials had been present in the floodplain sediments, particularly along overbank levees along previous channels, they would have been in the upper three meters of the floodplain. In fact, it is likely that evidence of prehistoric occupation would have been found by shovel testing in the upper meter of the floodplain had it been present.

### Conclusions

Survey, shovel testing, and backhoe trenching failed to find any evidence of occupation in the floodplain of Village Creek or on the slope and in the uplands that comprise the survey area. Furthermore, no evidence was found of an abandoned Village Creek channel in the center of the survey area, although the presence of washed gravel across the floodplain may be an indication that previous and shallower channels were present in the past. Based on the varied relief encountered in the floodplain and the results of testing and trenching, it is our opinion that the floodplain was modified during the twentieth century by the creation of a north-south drainage channel across the floodplain and the sloping of the floodplain to the edge of the drainage channel. These activities would have lowered the elevation of the floodplain and in the process resulted in the removal or destruction of as much as two meters of the floodplain in which Late Archaic and Late Prehistoric cultural materials might have been included.

The results of this field investigation tend to confirm the results of previous trenching and survey work by Prikryl and Caran. Based on Caran's interpretation for the lower end of Village Creek, we believe that the creek may well have been cleared of sediments during the Late Pleistocene. Thus the 3-4 meters of sediments present in our survey area, were probably deposited since that time. However, we found no evidence of occupation in the buried sediments and this is also what Prikryl described just to the north and on the west side of Village Creek. It is our opinion, that sites are most likely to be encountered on elevations that are located in the floodplain of Village Creek where such elevations are present, as well as along those projections of the uplands which overlook the channel of Village Creek. The Fountain site is a classic example of this site type.

## RECOMMENDATIONS

The purpose of this archaeological investigation was to determine if significant cultural resources are present within the proposed expansion area of the Fort Worth C & D Landfill site in Kennedale, Texas. Pedestrian survey and testing failed to locate any prehistoric or historic archaeological sites within the footprint of the proposed expansion. No sites were found in the 3-4 meter deep sediments that overlie the shale bedrock that forms the bed of Village Creek. Because of the absence of archaeological site deposits, AR Consultants recommends that the Texas Historical Commission concur with our recommendation that clearance be provided for expansion of the Fort Worth C & D Landfill site without the need for additional archaeological investigations. If cultural resources are discovered during construction, work should immediately cease in that area and the Archeology Division of the Texas Historical Commission should be notified.

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**APPENDIX**

Table 1. Description of shovel tests excavated in the C & D Landfill survey area.

Shovel Test	Depth (ft)	Description
1	0-28	disturbed brown (10YR4/3) slightly sandy clay containing brick, tile and glass fragments
	28-80 <sup>+</sup>	dark yellowish brown (10YR4/4) sandy clay with CaCO <sub>3</sub> nodules and filaments
2	0-9	brown (10YR5/3) plastic clay with slickensides mixed with strong brown (7.5YR5/8) slightly sandy clay
	9-70	brown (10YR5/3) plastic clay
	70-90	grayish brown (10YR5/2) clay with washed gravel and hematite gravel
3	0-10	yellowish brown (7.5YR5/8) sandy clay
	10-57	very dark grayish brown (10YR3/2) clay
	57-90 <sup>+</sup>	very pale brown (10YR7/4) clay
4	0-23	dark yellowish brown (10YR3/4) sandy loam
	23-30	brown (7.5YR4/4) loamy clay
	30-125 <sup>+</sup>	yellowish brown (7.5YR5/8) sandy clay
5	0-6	dark brown (7.5YR3/3) loamy sandy clay
	6-28	disturbed mottled 50/50% strong brown (7.5YR4/6) and dark brown (7.5YR3/2) sandy clay
	28-83 <sup>+</sup>	yellowish brown (10YR5/6) sandy clay grades to yellowish brown (10YR5/8) sandy clay
6	0-19	dark brown (7.5YR3/2) loamy clay
	19-35	pale brown (10YR6/3) very sticky plastic clay
	35-90 <sup>+</sup>	dark yellowish brown (10YR4/4) sticky clay with nodules of CaCO <sub>3</sub> that are less than 2mm in size and small hematite gravel fragments
7	0-19	dark brown (7.5YR3/2) loamy clay
	19-35	pale brown (10YR6/3) very sticky clay
	35-56 <sup>+</sup>	dark yellowish brown (10YR4/4) sticky clay with nodules of CaCO <sub>3</sub> that are less than 2mm in size and small hematite gravel fragments
8	0-43	very dark grayish brown (10YR3/2) loamy clay
	43-64 <sup>+</sup>	olive brown (2.5Y4/4) very plastic, sticky clay with CaCO <sub>3</sub> nodules
9	0-27	very dark grayish brown (10YR3/2) loamy clay
	27-83 <sup>+</sup>	olive brown (2.5Y4/4) very plastic sticky clay with CaCO <sub>3</sub> nodules
10	0-81	dark gray (10YR3/1) coarse sandy silty clay
	81-96	dark olive brown (2.5Y3/3) silty sticky plastic clay
11	0-49	dark yellowish brown (10YR4/4) clayey sandy loam
	49-61	dark brown (10YR3/3) sandy clay
	61-101 <sup>+</sup>	brown (7.5YR4/4) sandy clay with filaments of CaCO <sub>3</sub>
12	0-140	dark brown (7.5YR3/3) clayey sandy loam between 60-80 microlamella of sand of a lighter color were observed
13	0-60	dark brown (7.5YR3/3) loamy clay
	60-100 <sup>+</sup>	brown (7.5YR4/4) loamy clay with filaments of CaCO <sub>3</sub>



14	0-65 65-130 <sup>+</sup>	very dark grayish brown (10YR3/2) loamy clay brown (10YR4/3) loamy clay with mottles of very dark gray (10YR3/1) sandy clay and yellow (10YR7/8) sandy clay each representing approximately 10% of the fill
15	0-90 90-120 <sup>+</sup>	dark brown (7.5YR3/2) loamy clay dark yellowish brown (10YR4/4) loamy clay with filaments of CaCO <sub>3</sub>
16	0-49 49-100 <sup>+</sup>	very dark grayish brown (10YR3/2) loamy clay dark brown (7.5YR3/2) loamy clay with filaments of CaCO <sub>3</sub>
17	0-23 23-50 55-100 100-110 110-20 <sup>+</sup>	very dark brown (10YR2/2) clay loam very dark grayish brown (10YR3/2) clayey sandy loam dark yellowish brown (10YR4/4) slightly loamy sandy clay dark yellowish brown (10YR4/4) slightly loamy sandy clay with flecks of CaCO <sub>3</sub> angular washed limestone gravel
18	0-25 25-60 60-90 90-120 <sup>+</sup>	dark brown (10YR3/3) clay loam dark brown (10YR3/3) sandy loam dark yellowish brown (10YR4/4) sand very dark gray (10YR3/1) very plastic clay
19	0-50 50-100 100-20 <sup>+</sup>	very dark brown (10YR2/2) clay loam dark brown (10YR3/3) sandy clay CaCO <sub>3</sub> filaments appear in the sandy clay matrix
20	0-21 21-90 90-150 <sup>+</sup>	dark brown (10YR3/3) slightly sandy clay dark yellowish brown (10YR4/4) sandy clay with CaCO <sub>3</sub> filaments yellowish brown (10YR5/6) sandy clay with CaCO <sub>3</sub> bodies
21	0-27 27-60 60-150 <sup>+</sup>	very dark grayish brown (10YR3/2) clay loam dark yellowish brown (10YR3/6) sandy clay dark yellowish brown (10YR4/6) sandy clay which grades to a yellowish brown (10YR5/8) slightly clayey sand with CaCO <sub>3</sub> bodies below 90 cm
22	0-41 41-110 <sup>+</sup>	dark yellowish brown (10YR3/2) loamy clay brown (10YR4/3) loamy clay
23	0-39 39-70 70-100 <sup>+</sup>	very dark grayish brown (10YR3/2) loamy sandy clay very dark gray (10YR3/1) loamy sandy clay with yellowish brown (10YR5/6) sandy mottling very dark grayish brown (10YR3/2) clay with yellowish brown (10YR5/6) mottles
24	0-56 56-85 85-125 <sup>+</sup>	dark brown (7.5YR3/3) clayey sandy loam dark yellowish brown (10YR5/6) loamy sand dark yellowish brown (10YR5/6) loamy clay
25	0-37 37-90 90-130 130-50 <sup>+</sup>	very dark grayish brown (10YR3/2) clay loam dark yellowish brown (10YR4/4) clayey sand dark yellowish brown (10YR4/4) clay with CaCO <sub>3</sub> filaments very dark grayish brown (10YR3/2) dry clay with filaments
26	0-6 6-10 <sup>+</sup>	dark brown (7.5YR3/2) loam brown (7.5YR5/4) clay
27	0-20	dark brown (7.5YR3/4) sandy clay

28	20-61 <sup>+</sup>	brown (7.5YR4/4) clayey sand
	0-90	dark brown (10YR3/2) loamy clay
29	90-120 <sup>+</sup>	dark brown (10YR3/3) sandy loamy clay
	0-15	dark brown (7.5YR3/3) clay sandy loam
	15-60	brown (7.5YR4/4) sandy loam
30	60-150 <sup>+</sup>	strong brown (7.5YR5/8) sand
	0-9	very dark grayish brown (10YR3/2) sandy clay
	9-150	dark yellowish brown (10YR3/4) sand that grades to a brownish yellow (10YR6/6) with depth. The sand became less and less compact and at 140 cm is a silt on the sand grain chart.
31	0-53	very dark gray (10YR3/1) silty clay
	53-150 <sup>+</sup>	dark yellowish brown (10YR4/6) loamy sand
32	0-60	dark brown (7.5YR5/3) loamy clay
	60-100	brown (7.5YR4/4) loamy clay
	100-20	strong brown (7.5YR5/6) sandy loam with limestone or CaCO <sub>3</sub> bodies
33	0-70	dark brown (7.5YR3/3) silty loamy clay
	70-141 <sup>+</sup>	dark yellowish brown (10YR4/6) clayey loamy sand
34	0-80	very dark grayish brown (10YR3/3) loamy clay
	80-140	brown (7.5YR4/4) loamy clay



TEXAS  
HISTORICAL  
COMMISSION

*The State Agency for Historic Preservation*

RICK PERRY, GOVERNOR

JOHN L. NAU, III, CHAIRMAN

F. LAWRENCE OAKS, EXECUTIVE DIRECTOR

March 19, 2001

Jessica Napier  
Environmental Scientist  
Freese and Nichols, Inc.  
4055 International Plaza, Suite 200  
Fort Worth, Texas  
76109-4895

Re: Project review under Section 106 of the National Historic Preservation Act of 1966  
Proposed Expansion of IESI Landfill  
Tarrant County, Texas  
(TNRCC)

Dear Ms. Napier,

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed state and federal undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Ed Baker, has completed its review. Our files show that the area of the proposed expansion may contain historic and prehistoric sites, some of which may be eligible for inclusion in the National Register of Historic Places. We recommend that an archeologist conduct a cultural resources survey of the project including any related access roads, utility lines, pipelines, or construction easements.

The cultural resources survey should be conducted by a qualified professional and should include shovel testing and/or backhoe trenching in accordance with the enclosed survey standards. A draft report of investigations should be submitted to this office for review.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we can be of further assistance, please contact Ed Baker at 512/463-5866.

Sincerely,

for  
F. Lawrence Oaks, State Historic Preservation Officer  
FLO/elb

enclosures: *Council of Texas Archeologists Archeological Contractors List, Archeological Survey Standards for Texas*

I\IIB-74



TEXAS  
HISTORICAL  
COMMISSION

The State Agency for Historic Preservation

ARCHEOLOGICAL  
SURVEY STANDARDS  
FOR TEXAS

These minimum survey standards have been developed by the Archeology Division of the Texas Historical Commission in consultation with the Council of Texas Archeologists. The standards identify the least amount of work that will be considered acceptable for intensive archeological surveys of areas 200 acres or less. These standards are not intended to limit additional work (i.e., more shovel tests or backhoe trenches) that may be deemed necessary to identify archeological sites on the basis of the Area of Potential Effect, anticipated impacts, or the likelihood of encountering significant cultural resources. Survey methodologies for project areas larger than 200 acres should be discussed with the Archeology Division prior to implementing the survey.

**MINIMUM SURVEY STANDARDS**  
for Project Areas of 200 Acres or Less

Transect Interval <sup>1</sup>		30 m
Shovel Tests/Acre <sup>2</sup>	Project Area Size	Shovel Tests/Acre
	1-10 acres	1/acre
	10-100 acres	1/2 acres
	100-200 acres	1/3 acres
No. of Shovel Tests to Define Site Boundaries <sup>3</sup>		6
Average Rate of Survey (Acres/Person/Day)		20
Backhoe Trenches/3 Acres <sup>4</sup>		1

<sup>1</sup> Transect intervals should be reduced to 15 m in far West Texas (from the Pecos River west to El Paso).

<sup>2</sup> Shovel tests must be dug whenever vegetation obscures surface visibility (*except on slopes greater than 20%*). Much of the eastern half of Texas is covered with vegetation, requiring shovel tests, whereas much of the western half has good ground surface visibility. However, any area in the state that has less than 30% ground surface visibility *requires* shovel tests.

<sup>3</sup> Shovel tests are only necessary to define boundaries on sites with less than 30% ground surface visibility.

<sup>4</sup> Backhoe trenches are required in alluvial settings in addition to shovel tests (trenches are estimated to have a length of 5 m).

**APPENDIX B**  
**SITE PHOTOGRAPHS**



Taken from north end of property, facing west, December 2013.



Taken from north end of property, facing south (looking at existing landfill excavations and waste placement),  
December 2013.



Taken from southwest corner of landfill, facing southeast (showing utility corridor to the right, and landfill to the left), December 2013.



Taken from southeast corner of site, looking west (showing landfill to the right, and utility corridor beyond), December 2013.

**ATTACHMENT C**

**APRIL 2014 THC PROJECT REVIEW REQUEST**



9 April 2014

Mr. Mark Wolfe  
State Historic Preservation Officer  
Texas Historical Commission  
108 W. 16<sup>th</sup> Street  
Austin, Texas 78701

**Subject: THC Project Review Request  
Proposed Landfill Expansion – IESI Fort Worth C&D Landfill Site  
Fort Worth, Tarrant County, Texas**

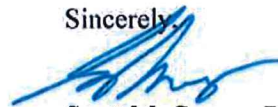
Dear Mr. Wolfe:

On behalf of our client, IESI TX Landfill LP (IESI) Geosyntec Consultants (Geosyntec) requests a cultural resources review of the above-referenced landfill site. The proposed project is a vertical expansion (i.e., height increase) of the existing Type IV municipal solid waste landfill. The lateral extent of the landfill will not change. Geosyntec is currently assisting IESI with engineering design and permitting of the IESI Fort Worth C&D Landfill expansion, in accordance with Texas Commission on Environmental Quality (TCEQ) rules. As part of the project, we are required by 30 TAC §330.61(o) to submit a review letter from the THC documenting compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code.

Note that a cultural resources study for this landfill was previously performed in 2001-2002, and the Texas Historical Commission (THC) provided a “*No Effect – Project May Proceed*” finding. Copies of related correspondence are provided with this submittal. Additionally, we have completed the Request for SHPO Consultation Form (enclosed) with associated attachments including maps and additional details on the project.

On behalf of IESI, we are requesting a written response from your agency to fulfill the TCEQ requirements associated with the proposed expansion. We appreciate your assistance in this matter. Please contact me at (512) 451-4003 or by email at [sgraves@geosyntec.com](mailto:sgraves@geosyntec.com) if you have any questions or require any additional information.

Sincerely,



Scott M. Graves, P.E.  
Associate, Geosyntec Consultants, Inc.

Enclosure  
Copy to: Joseph Vieceli, IESI

**REQUEST FOR SHPO CONSULTATION FORM  
AND ATTACHMENTS**

## TEXAS HISTORICAL COMMISSION

### REQUEST FOR SHPO CONSULTATION:

#### Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas

*Please see instructions for completing this form and additional information on Section 106 and Antiquities Code consultation on the Texas Historical Commission website at <http://www.thc.state.tx.us/crm/crmsend.shtml>.*

- This is a new submission.
- This is additional information relating to THC tracking number(s): 2001-02 site study & correspondence

<b>Project Information</b>		
PROJECT NAME <b>IESI Fort Worth C&amp;D Landfill Expansion</b>		
PROJECT ADDRESS <b>4144 Dick Price Rd</b>	PROJECT CITY <b>Fort Worth</b>	PROJECT ZIP CODE(S) <b>76140</b>
PROJECT COUNTY OR COUNTIES <b>Tarrant</b>		
PROJECT TYPE (Check all that apply)		
<input type="checkbox"/> Road/Highway Construction or Improvement	<input type="checkbox"/> Repair, Rehabilitation, or Renovation of Structure(s)	
<input checked="" type="checkbox"/> Site Excavation	<input checked="" type="checkbox"/> Addition to Existing Structure(s)	
<input type="checkbox"/> Utilities and Infrastructure	<input type="checkbox"/> Demolition or Relocation of Existing Structure(s)	
<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> None of these	
BRIEF PROJECT DESCRIPTION: Please explain the project in one or two sentences. More details should be included as an attachment to this form. <b>The proposed project is a vertical expansion of an existing Type IV municipal solid waste landfill. The overall site (see attached Maps; Figs 1-5) is within a property (i.e., permit) boundary area of approximately 152 acres. Of this, approximately 80 acres are a permitted landfill under ongoing development. No changes to the waste limits are proposed. This "vertical" expansion refers to an increase in the final height of the landfill.</b>		

<b>Project Contact Information</b>			
PROJECT CONTACT NAME <b>Scott M. Graves, P.E.</b>	TITLE <b>Associate</b>	ORGANIZATION <b>Geosyntec Consultants</b>	
ADDRESS <b>8217 Shoal Creek Blvd, Suite 200</b>	CITY <b>Austin</b>	STATE <b>TX</b>	ZIP CODE <b>78757</b>
PHONE <b>512-451-4003</b>	EMAIL <b>sgraves@geosyntec.com</b>		

<b>Federal Involvement (Section 106 of the National Historic Preservation Act)</b>	
Does this project involve approval, funding, permit, or license from a federal agency?	
<input type="checkbox"/> Yes (Please complete this section)	<input checked="" type="checkbox"/> No (Skip to next section)
FEDERAL AGENCY	FEDERAL PROGRAM, FUNDING, OR PERMIT TYPE
CONTACT PERSON	PHONE
ADDRESS	EMAIL

<b>State Involvement (Antiquities Code of Texas)</b>	
Does this project occur on land or property owned by the State of Texas or a political subdivision of the state?	
<input type="checkbox"/> Yes (Please complete this section)	<input checked="" type="checkbox"/> No (Skip to next section)
CURRENT OR FUTURE OWNER OF THE PUBLIC LAND	
CONTACT PERSON	PHONE
ADDRESS	EMAIL

**Identification of Historic Properties: Archeology**

Does this project involve ground-disturbing activity?

- Yes (Please complete this section)  No (Skip to next section)

Describe the nature of the ground-disturbing activity, including but not limited to depth, width, and length. The landfill is in progress of being excavated as it is developed in a general south to north progression. The bottom of the landfill will be on average about 60-ft below natural ground surface. The 80-acre landfill is about 2300-ft long in the north-south direction, and 1600-ft wide in the east-west direction. See below for additional possible ground disturbance (excavation) in the approx. 35-acre area west of the landfill. A site plan is included with the attachments (see Figure 4).

Describe the previous and current land use, conditions, and disturbances.

The current land use is a combination of industrial (landfill) or undeveloped. Of the 152-acre permit boundary, most of the permitted 80-acre landfill is existing (already constructed). Areas west of the landfill are currently undisturbed, but may be used as soil borrow areas and/or storm-water detention ponds. Construction of the existing landfill started in 1997. A recent site aerial photograph included with the attachments shows the site conditions (see Figure 5).

**Identification of Historic Properties: Structures**

Does the project area or area of potential effects include buildings, structures, or designed landscape features (such as parks or cemeteries) that are 45 years of age or older?

- Yes (Please complete this section)  No (Skip to next section)

Is the project area or area of potential effects within or adjacent to a property or district that is listed in or eligible for listing in the National Register of Historic Places?

- Yes, name of property or district:  No  Unknown

In the space below or as an attachment, describe each building, structure, or landscape feature within the project area or area of potential effect that is 45 years of age or older.

ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE
No structures on-site. No known historic features nearby.		
ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE
ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE

**Attachments**

[Please see detailed instructions regarding attachments.](#)

Include the following with each submission:

- Project Work Description
- Maps
- Identification of Historic Properties
- Photographs

For Section 106 reviews only, also include:

- Consulting Parties/Public Notification
- Area of Potential Effects
- Determination of Eligibility
- Determination of Effect

**Submit completed form and attachments to the address below. Faxes and email are not acceptable.**

Mark Wolfe  
 State Historic Preservation Officer  
 Texas Historical Commission  
 P.O. Box 12276, Austin, TX 78711-2276 (mail service)  
 108 W. 16th Street, Austin, TX 78701 (courier service)

**For SHPO Use Only**

## SUPPORTING ATTACHMENTS

### For REQUEST FOR SHPO CONSULTATION FORM

#### IESI FORT WORTH C&D LANDFILL EXPANSION

4144 Dick Price Rd, Fort Worth, TX 76140

Tarrant County

#### Project Work Description

A cultural resources study for this landfill was previously performed in 2001-2002 by an archaeologist, and the Texas Historical Commission (THC) provided a “*No Effect – Project May Proceed*” finding. Copies of related correspondence are provided in Appendix A of this attachment. This current proposed project is a vertical-only expansion of the existing landfill (i.e., it is a height increase, without laterally increasing the extent of the landfill).

The facility is an existing Type IV municipal solid waste landfill that is regulated and permitted by the Texas Commission on Environmental Quality (TCEQ). A “Type IV” landfill refers to a facility that accepts a type of waste primarily referred to as construction and demolition debris (C&D) waste. The site location is shown on attached Figures 1 through 5 presented subsequently in the attached “Maps” section. The overall site occupies a property (i.e., “permit boundary”) of approximately 152 acres. Of this, approximately 80 acres are permitted as landfill, most of which has been constructed to-date. Adjacent areas next to the landfill will be used to construct support features (storm water ditches and ponds, access roads, soil borrow areas, and site facilities).

The ongoing work to develop the landfill involves grading activities (cut and fill) to construct the base of the landfill. A liner system with a recompacted clay liner will be constructed, and then waste filling will take place. The landfill will be filled with waste to the allowable grades and elevations, and then will be closed with construction of a final cover system which will be vegetated. The proposed vertical-only expansion will, if approved, allow the waste to be filled to a higher elevation than currently permitted. Development will progress incrementally in phases over a period of years (i.e., not all of the grading will occur at once). Other site features (e.g., storm water management ditches and ponds, access roads) will also be constructed incrementally over time in conjunction with each phase of landfill construction. A site map showing the existing topography and the extent of the landfill (i.e., excavation), is included (see Figure 4).

#### Maps

The following maps are included with this submittal:

- Figure 1: General Location Map
- Figure 2: Street Map of Site Vicinity
- Figure 3: Site Location Map (using USGS 7-1/2 minute Quadrangle Map)
- Figure 4: Site Plan
- Figure 5: Aerial Photograph of Current Conditions

#### Identification of Historic Properties

Structures on-site are of recent construction and exist to support landfill operations. These are the site office near the main entrance, the gate-house near the weigh-scales further into the site on the main

entrance road, and an equipment maintenance building on the northeast side of the site. Inspection of the aerial photograph in Figure 5 reveals that the adjacent surrounding area directly to the South is industrial (soil stockpile), to the West is an undeveloped creek valley with residential areas further to the west. The area directly East of the site is industrial (earthmoving operations). The areas to the North and Northeast are light industrial, with scattered residences.

A review of the online Texas Historic Sites Atlas did not reveal any listed sites with a historic designation on the site or within one mile from the site. Since the site area was previously studied by a cultural resources professional and there is a “*No Effect – Project May Proceed*” finding, a new search for properties 45 years of age or older and potential or known archaeological resources within the project area and surroundings by a cultural resources professional was not performed.

As mentioned, copies of the previous correspondence for this site are attached in Appendix A of this attachment.

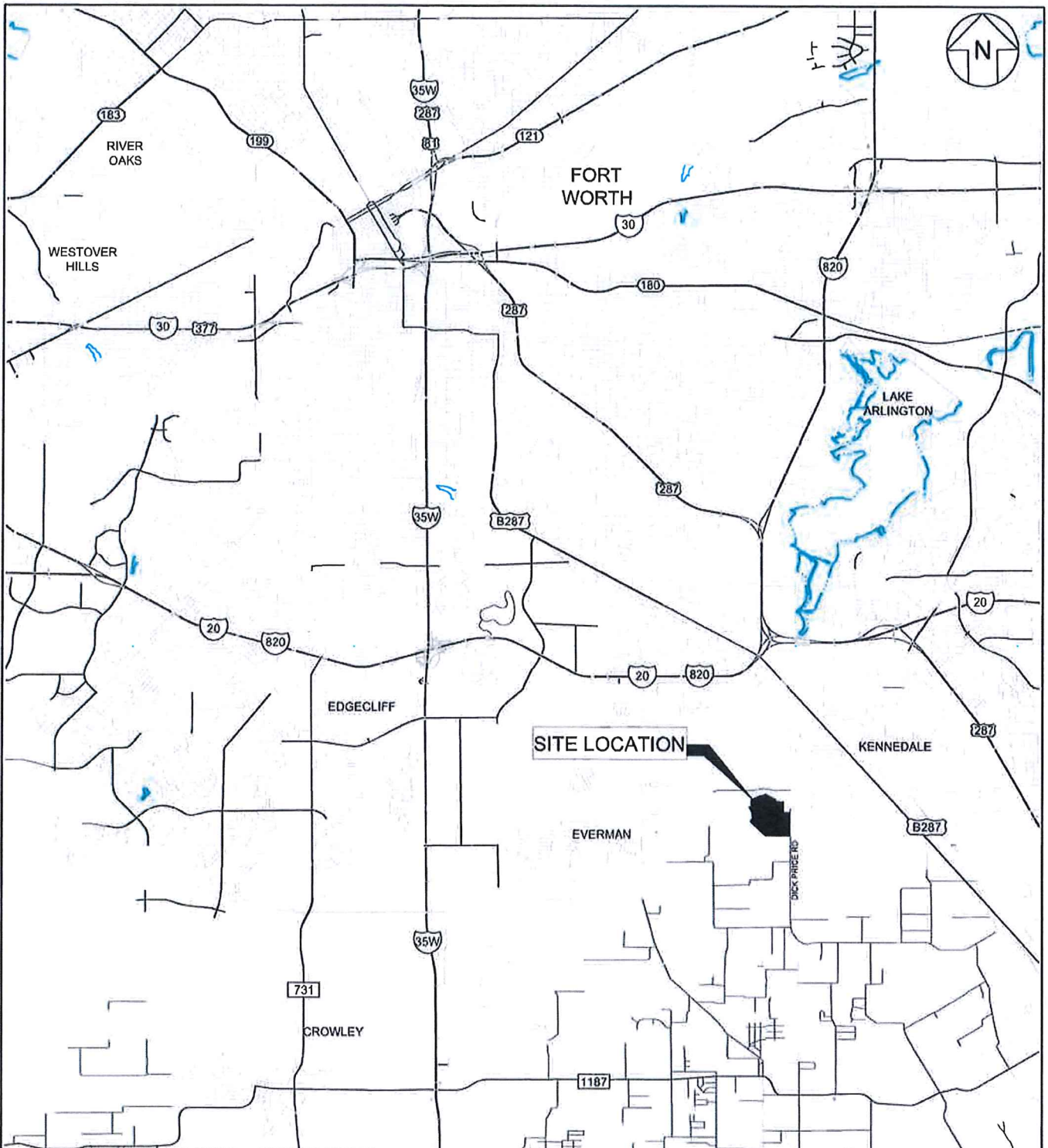
### **Photographs**

As noted, Figure 5 provided with this attachment shows a recent aerial photograph of the site and adjacent surroundings. Additional on-the-ground photographs are provided in Appendix B of this attachment. These photographs were taken by Geosyntec Consultants in December 2013 in conjunction with a geotechnical site investigation (drilling of soil borings). While the focus was not on cultural resources *per se*, the photographs are representative of the overall appearance and conditions of the site and document the general nature of the site.

### **Determination of Eligibility and Determination of Effect**

As noted, during the previous landfill permitting process in 2001-2002, a cultural resources study was performed, and THC was consulted. Copies of the previous correspondence are attached. In 2002, THC provided a “*No Effect – Project May Proceed*” finding. We note that the site conditions that led to this conclusion in 2002 remain applicable to the proposed expansion since the expansion is vertical-only. At this time we are requesting that THC make a Determination of Eligibility and Determination of Effect for the proposed IESI Fort Worth C&D Landfill Expansion project described herein.

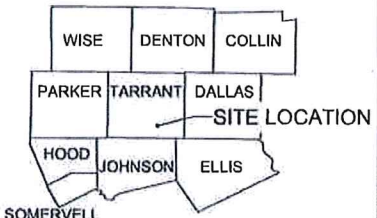
# MAPS



MAP SOURCE: TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)  
DIGITAL COUNTY/URBAN MAP, 2003 (TARRANT COUNTY, TEXAS).



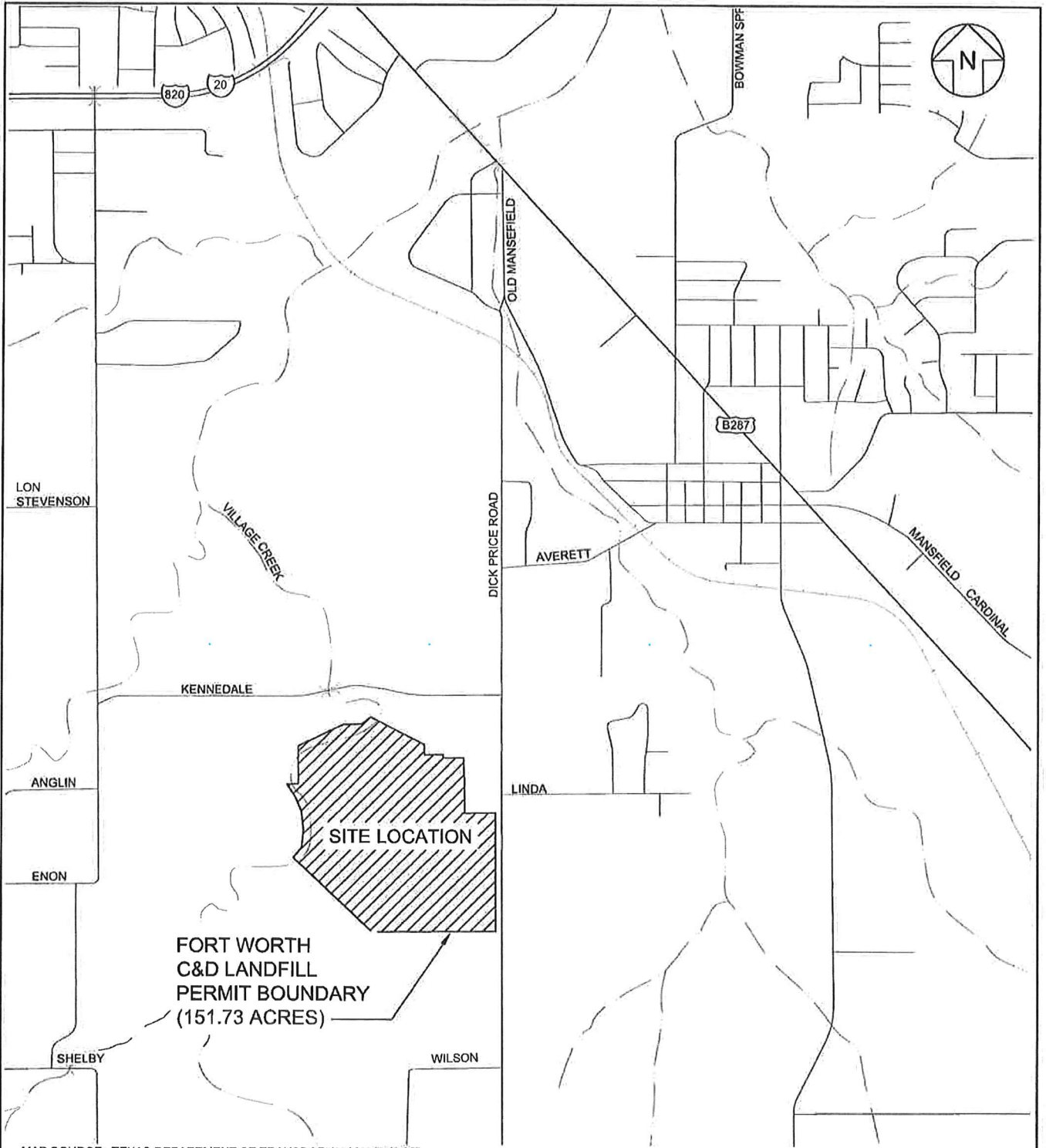
LOCATION: TARRANT COUNTY, TEXAS



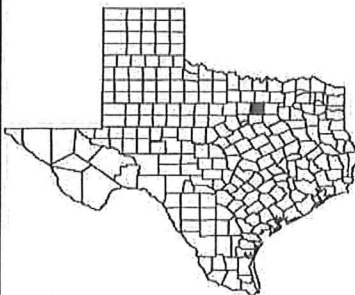
<b>GENERAL LOCATION MAP FORT WORTH C&amp;D LANDFILL EXPANSION</b>	
<b>Geosyntec</b> consultants	
AUSTIN, TX	APRIL 2014
<b>FIGURE 1</b>	

P:\CADD\PROJECTS\FORT WORTH C&D LANDFILL PERMIT\LANDFILL EXPANSION (TXL0269)\FIGURES\TXL0269M\F01





MAP SOURCE: TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)  
DIGITAL COUNTY/URBAN MAP, 2003 (TARRANT COUNTY, TEXAS).

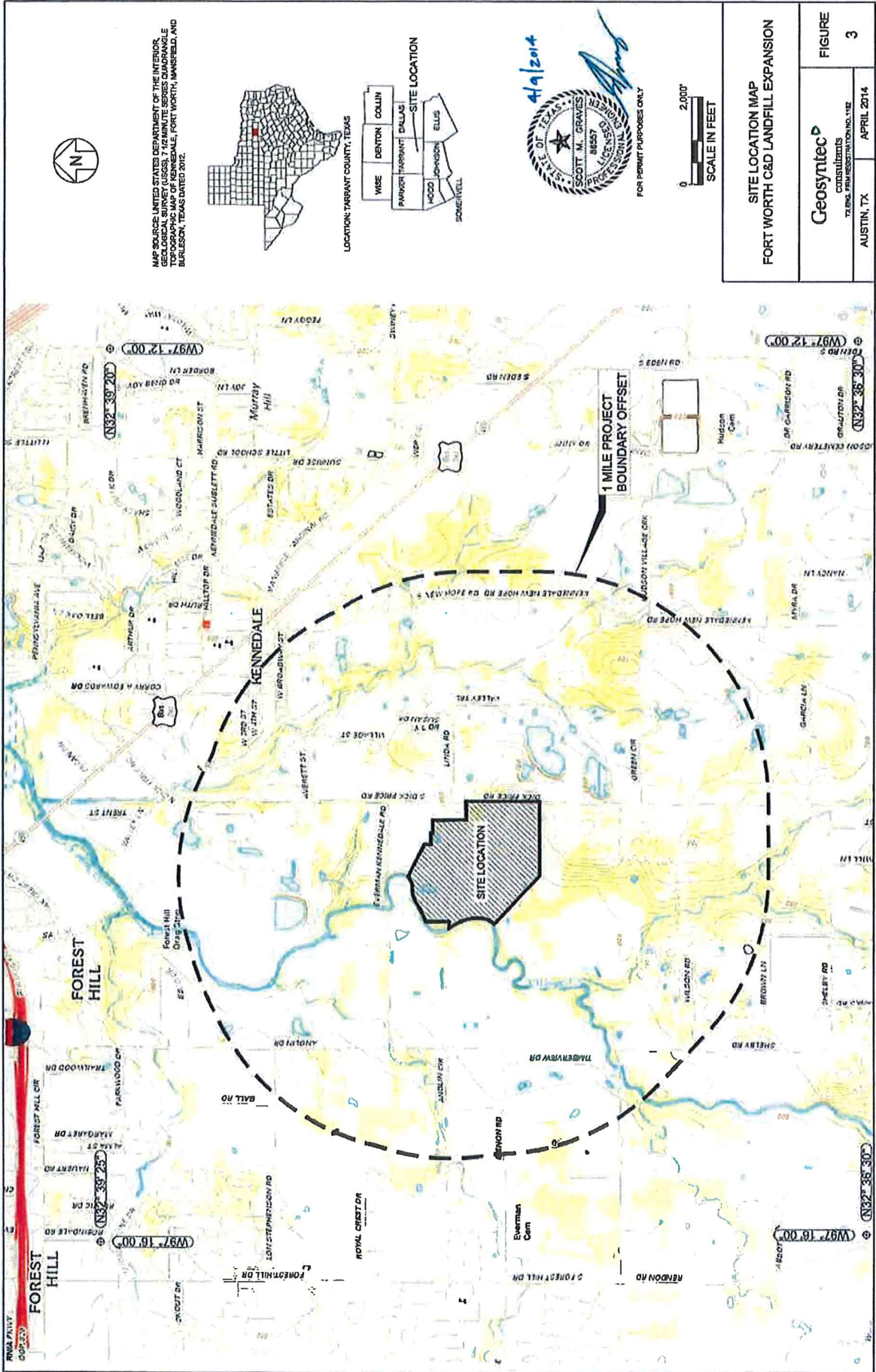


LOCATION: TARRANT COUNTY, TEXAS



<b>STREET MAP OF VICINITY</b> <b>FORT WORTH C&amp;D LANDFILL EXPANSION</b>	
<b>Geosyntec</b> <sup>®</sup> consultants <small>TX ENG. FIRM REGISTRATION NO. 1182</small>	<b>FIGURE</b>  <b>2</b>
PROJECT NO: TXL0268.04	APRIL 2014

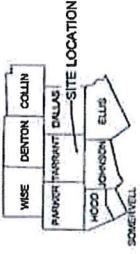
P:\CADD\PROJECTS\FT WORTH C&D LANDFILL\PERMIT\LANDFILL EXPANSION (TXL0268)\FIGURE\TXL026804\F02



MAP SOURCE: UNITED STATES DEPARTMENT OF THE INTERIOR,  
 GEOLOGICAL SURVEY, 1:250,000 SCALE TOPOGRAPHIC MAP OF  
 KENNEDALE, FORT WORTH, WARDFIELD, AND BURLINSON,  
 TEXAS DATED 2012.



LOCATION: TARRANT COUNTY, TEXAS



FOR PERMIT PURPOSES ONLY



SITE LOCATION MAP FORT WORTH C&D LANDFILL EXPANSION	
Geosyntec CONSULTANTS TX REG. PROFESSIONAL NO. 112	FIGURE 3
AUSTIN, TX	APRIL 2014



**LEGEND**

—	EXISTING GROUND ELEVATION CONTOUR (FT. AND) (NOTE 1)
—	500
—	N. 481,700
—	E. 233,500
—	STATE PLANE COORDINATE GRID
---	PERMIT BOUNDARY
- - -	LIMIT OF WASTE

**NOTES:**

1. THE EXISTING TOPOGRAPHIC BASE MAP WAS COMPILED USING SURVEY DATA FROM SURVEYS DATED JUNE 29 AND 30, 2013 AND JULY 8, 10, AND 11, 2012. GROUND SURVEYS INCORPORATED INTO A 2011 SURVEY COMPILED FROM AERIAL PHOTOGRAPHY, FLOWN JUNE 10, 2011 BY DALLAS AERIAL SURVEYS, INC.

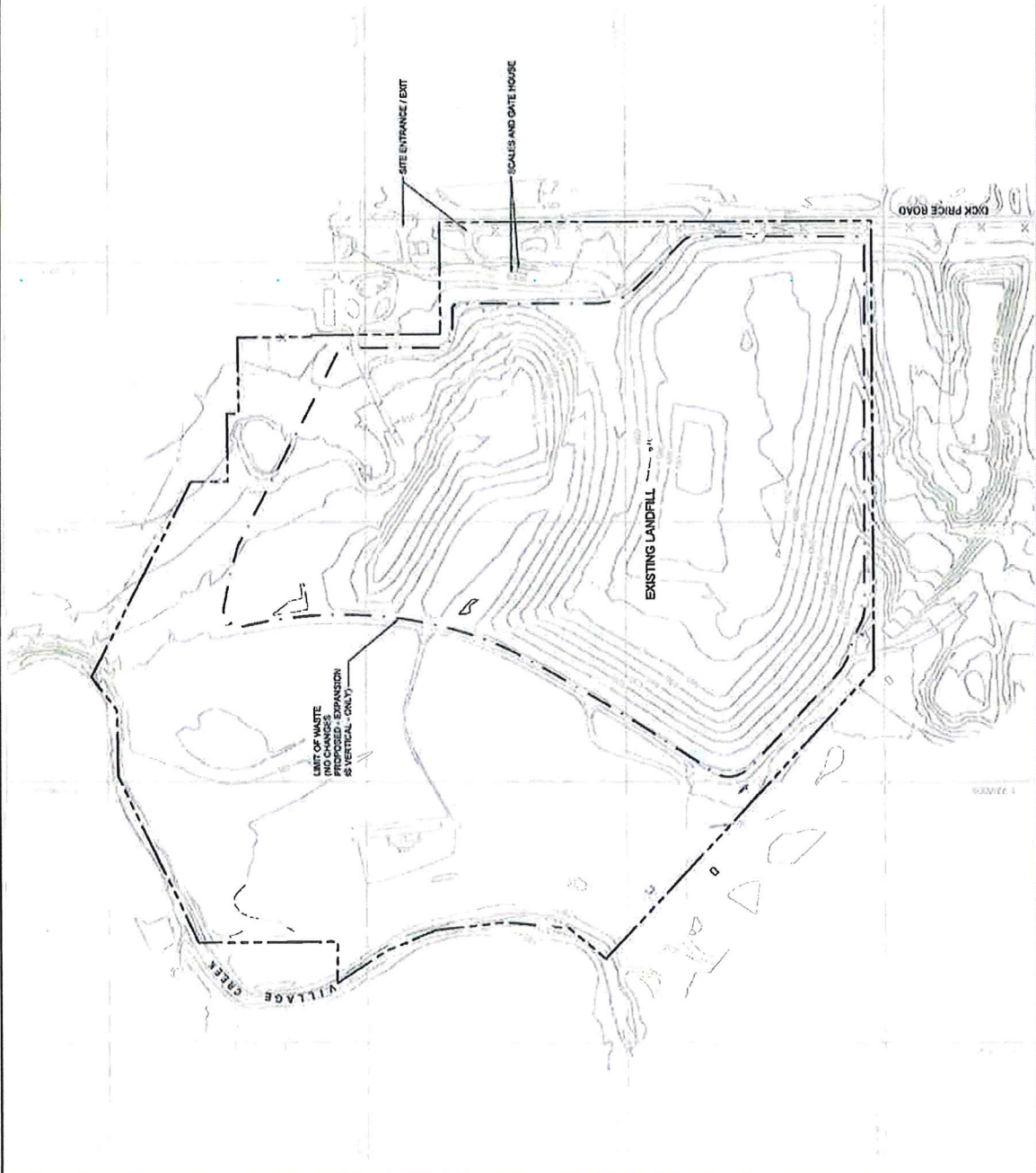


FOR PERMIT PURPOSES ONLY



**SITE PLAN**  
**FORT WORTH C&D LANDFILL EXPANSION**

<b>Geosyntec</b> consultants TEXAS PROFESSIONAL ENGINEERING NO. 1192 AUSTIN, TX	<b>FIGURE</b>
	4





**LEGEND**  
 --- EXISTING GROUND ELEVATION CONTOUR (FT./M) (NOTE 1)  
 --- LWC  
 --- PERMIT BOUNDARY  
 --- LIMIT OF WASTE

**NOTES:**  
 1 THE AERIAL BASE MAP SOURCE U.S. GEOLOGIC SURVEY (USGS) ORTHOMOGRAPHY DATED APRIL 2013



FOR PERMIT PURPOSES ONLY

0 400'  
 SCALE IN FEET

AERIAL PHOTOGRAPH OF SITE CONDITIONS  
 FORT WORTH C&D LANDFILL EXPANSION

**Geosyntec**  
 consultants

FIGURE  
 5

AUSTIN, TX      APRIL 2014

**ATTACHMENT D**  
**FEBRUARY 2020 THC PROJECT REVIEW REQUEST**

NO HISTORIC  
PROPERTIES AFFECTED  
PROJECT MAY PROCEED

by Caitlin Brashear  
for Mark Wolfe  
State Historic Preservation Officer  
Date March 6, 2020

5 February 2020

Mr. Mark Wolfe  
State Historic Preservation Officer  
Texas Historical Commission  
108 W. 16<sup>th</sup> Street  
Austin, Texas 78701

RECEIVED FEB 07 2020

**Subject: Request for THC Project Review  
Proposed Landfill Expansion – Fort Worth C&D Landfill  
Fort Worth, Tarrant County, Texas**

Dear Mr. Wolfe:

Geosyntec Consultants (Geosyntec) has prepared this letter on behalf of our client, Texas Regional Landfill Company, LP, who owns and operates the Fort Worth C&D Landfill – an existing “Type IV” municipal solid waste (MSW) landfill as defined by the Texas Commission on Environmental Quality (TCEQ). The purpose of this letter is to:

- notify the Texas Historical Commission (THC) of a proposed lateral landfill expansion of the existing approximately 77.7-acre construction and demolition debris landfill, which will increase the size of the landfill by expanding disposal areas onto an additional approximately 23 acres to the south and northeast of the current landfill operation (see attached figures);
- request a review by THC for compliance of the proposed landfill expansion project with the Natural Resources Code, Chapter 191, Texas Antiquities Code, in accordance with TCEQ MSW regulation 30 TAC §330.71(o); and
- request a written response from THC in the form of a review letter, acknowledging and documenting that, if THC concurs, the proposed expansion of the Fort Worth C&D Landfill will be compliant with the Natural Resources Code, Chapter 191, Texas Antiquities Code.

#### GENERAL FACILITY INFORMATION

The address of the facility is 4144 Dick Price Rd., Fort Worth, TX, 76140. Vicinity maps are included with this letter, and are identified subsequently. As a Type IV MSW landfill, the facility accepts a type of waste primarily referred to as construction and demolition debris (C&D) waste.

The landfill was permitted in 1988 and has been in operation since about 1997. In 2002, a cultural resources study was completed for a permit area of approximately 152 acres, and the THC provided a “No Effect – Project May Proceed” finding. Subsequently, in 2014, as part of a landfill expansion project, THC was notified of that expansion and on 5 May 2014, THC issued a “No Survey Required – Project May Proceed”

GW6953/Ft Worth C&D Expansion THC Antiquities Request Geosyntec Ltr

Mr. Mark Wolfe  
5 February 2020  
Page 2

response. Copies of both the 2002 and 2014 submittals and related correspondence are attached to this letter.

### **DESCRIPTION OF PROPOSED LATERAL EXPANSION**

A series of figures presenting site plans of the proposed expansion are attached to this letter. These figures are as described below:

- Figure 1 – General Location Map;
- Figure 2 – Street Map of Vicinity;
- Figure 3 – Site Location Map (showing existing landfill and proposed expansion area);
- Figure 4 – Preliminary Site Plan; and
- Figure 5 – Aerial Photograph of Site Conditions.

As shown on the attached figures, the proposed expansion will be to the south and northeast of the current landfill, extending the disposal limits onto a combined new area of approximately 23-acres. These new areas are currently occupied by a soil stockpile (to the south) and miscellaneous access roadways and supporting landfill infrastructure (to the northeast). Once complete, the combined landfill area (existing plus proposed expansion) will occupy approximately 100 acres.

### **CLOSING**

Geosyntec would appreciate your timely review of the information submitted with this letter, and are respectfully requesting a written response within 30 days of this letter, documenting that the proposed expansion of the Fort Worth C&D Landfill will be compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code. This will allow us to proceed with the landfill permitting and design process. If you have any questions, comments, or require additional information, please do not hesitate to contact me at (512) 451-4003, or by email at [sgraves@geosyntec.com](mailto:sgraves@geosyntec.com).

Sincerely,



Scott M. Graves, P.E.  
Principal  
Geosyntec Consultants, Inc.

Attachments

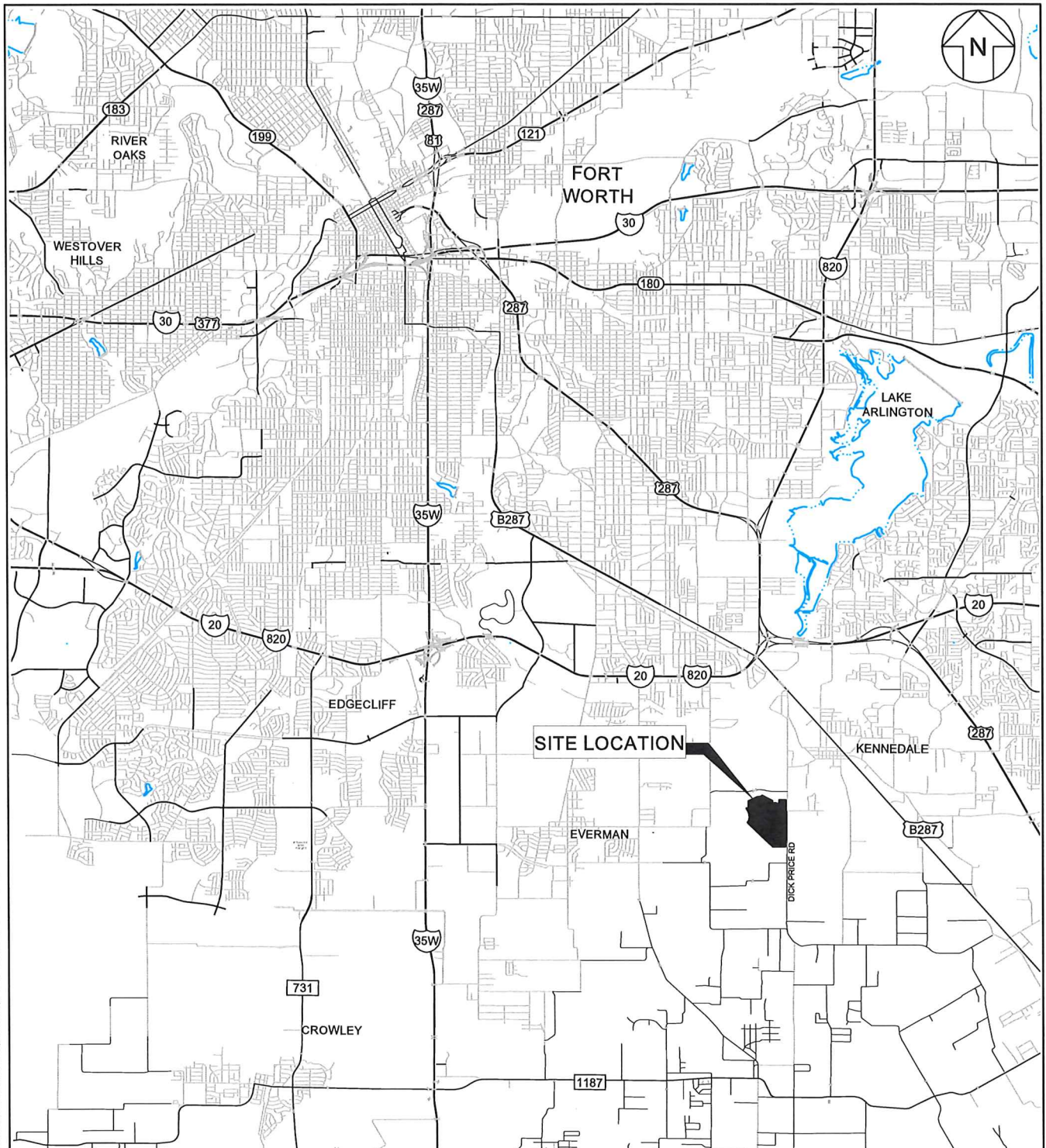
Copy to: Gary Bartels, Texas Regional Landfill Company, LP

GW6953/Ft Worth C&D Expansion THC Antiquities Request Geosyntec Ltr

# FIGURES



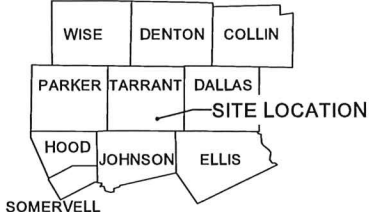
P:\CADD\PROJECTS\FORT WORTH C&D LANDFILL PERMIT\LANDFILL EXPANSION (GW6953)\FIGURES\TX HISTORICAL COM\GW6953F01



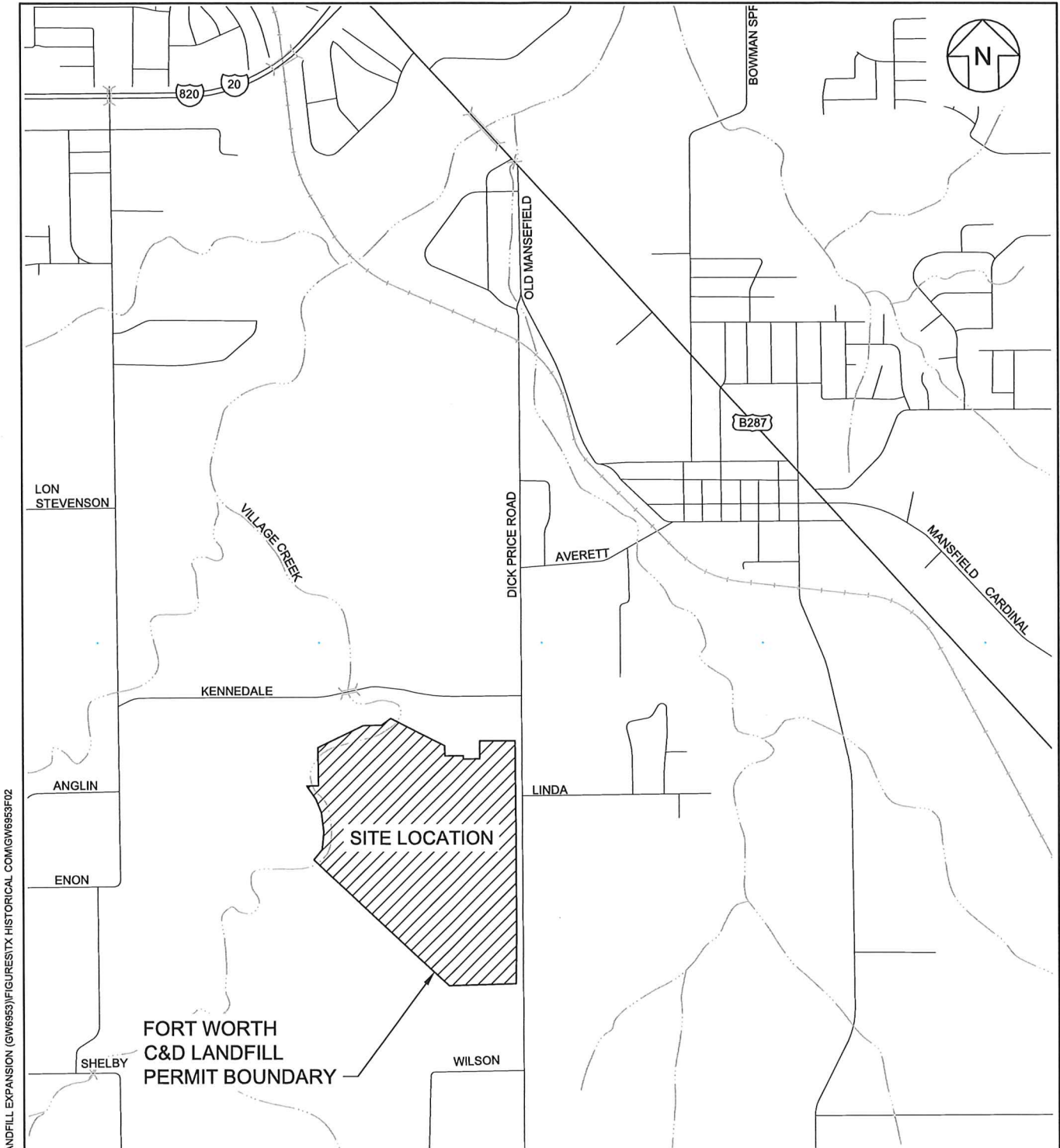
MAP SOURCE: TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)  
DIGITAL COUNTY/URBAN MAP, 2003 (TARRANT COUNTY, TEXAS).



LOCATION: TARRANT COUNTY, TEXAS



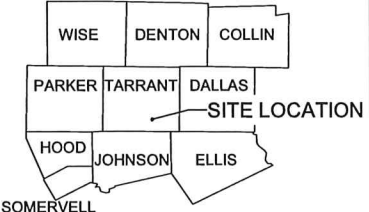
<b>GENERAL LOCATION MAP FORT WORTH C&amp;D LANDFILL EXPANSION</b>	
 consultants <small>TX ENG. FIRM REGISTRATION NO. 1182</small>	
AUSTIN, TX	FEBRUARY 2020
<b>FIGURE 1</b>	



MAP SOURCE: TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)  
DIGITAL COUNTY/URBAN MAP, 2003 (TARRANT COUNTY, TEXAS).

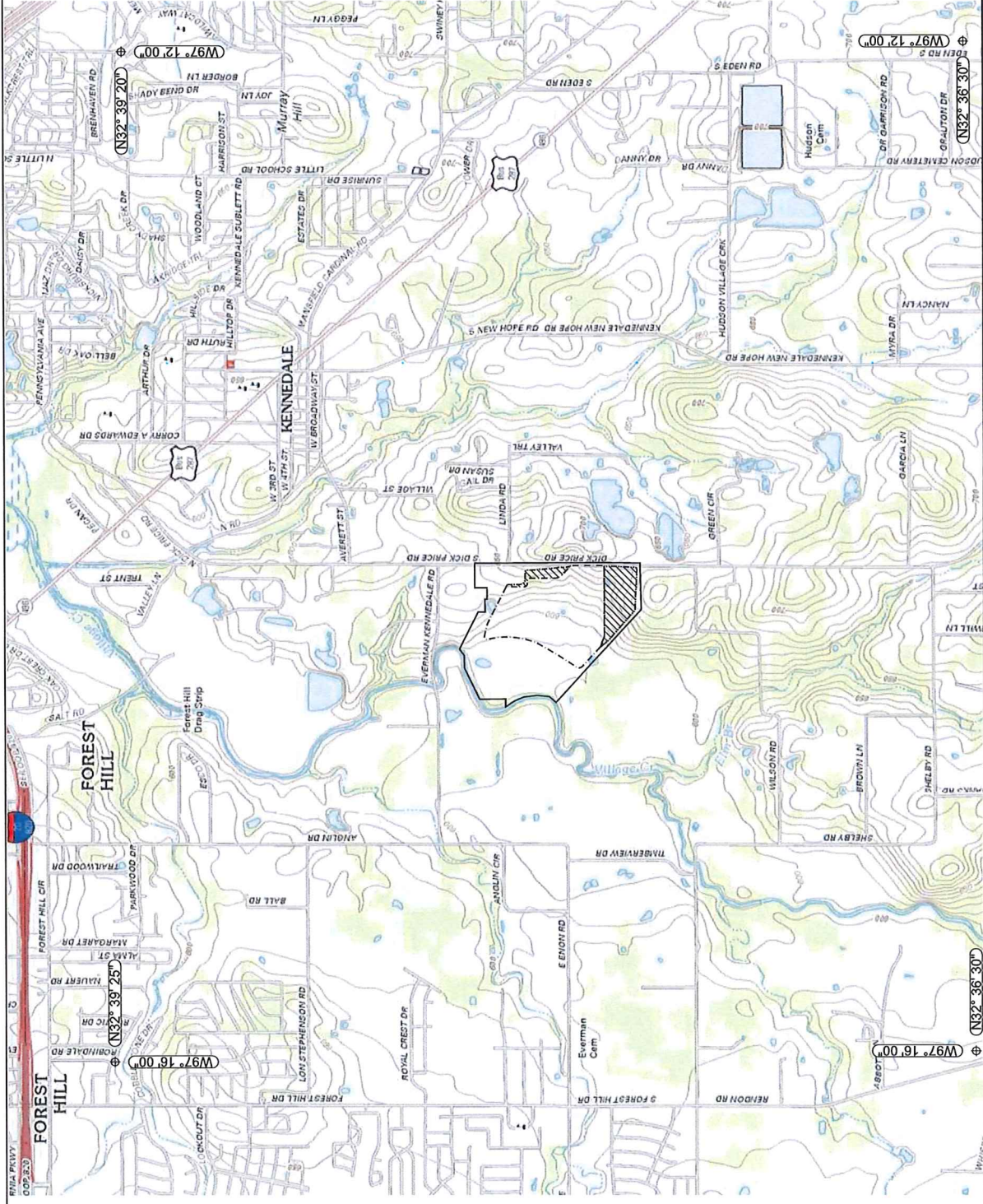


LOCATION: TARRANT COUNTY, TEXAS



<b>STREET MAP OF SITE VICINITY FORT WORTH C&amp;D LANDFILL</b>		<b>FIGURE 2</b>
 consultants <small>TX ENG. FIRM REGISTRATION NO. 1182</small>		
AUSTIN, TX	FEBRUARY 2020	

P:\CADD\PROJECTS\FORT WORTH C&D LANDFILL\PERMIT\LANDFILL EXPANSION (GW6853)\FIGURES\TX HISTORICAL COM\GW6853\F02



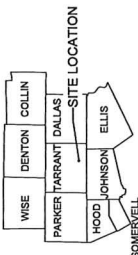
- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - CURRENT-PERMITTED LANDFILL LIMITS
  - ▨ PROPOSED EXPANSION LIMITS

**NOTES:**

- MAP SOURCE: UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY (USGS), 7.12 MINUTE SERIES QUADRANGLE TOPOGRAPHIC MAP OF MONTFORDS, TEXAS DATED 2016.
- THIS FIGURE WAS PREPARED FOR TEXAS HISTORICAL COMMISSION (THC) PROJECT REVIEW PURPOSES PRIOR TO THE COMPLETION OF THE DESIGN AND CONSTRUCTION OF THE LANDFILL EXPANSION. THIS APPLICATION TO THCO. THE PROPOSED FEATURES ON THIS FIGURE SHOULD BE CONSIDERED PRELIMINARY BECAUSE THE DETAILED ENGINEERING LAYOUT AND DESIGN ANALYSES ARE IN PROGRESS, AND THE CONCEPTS SHOWN ON THIS FIGURE ARE REPRESENTATIVE OF THE ANTICIPATED FINAL SITE LAYOUT, AND THC WILL BE INFORMED IF THE LATERAL LANDFILL LIMITS INCREASE BEYOND THAT SHOWN HERE.



LOCATION: TARRANT COUNTY, TEXAS



**PRELIMINARY**  
 FOR AGENCY REVIEW AND  
 COORDINATION PURPOSES ONLY.  
 NOT FOR BIDDING,  
 CONSTRUCTION OR PERMITTING.  
 SCOTT M. GRAVES, P.E.  
 TEXAS P.E. NO. 86557



**SITE LOCATION MAP**  
**FORT WORTH C&D LANDFILL EXPANSION**

**Geosyntec**  
 CONSULTANTS  
 TX ENG. FIRM REGISTRATION NO. 1182  
 AUSTIN, TX

**FIGURE**  
**3**

FEBRUARY 2020



**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PERMITTED LANDFILL (77.7 ACRES)
- PROPOSED LANDFILL EXPANSION LIMITS (APPROX. 23 ACRES)
- PROPOSED LANDFILL ACCESS ROAD (PAVED PORTION)

**NOTES:**

1. EXISTING TOPOGRAPHIC BASE MAP COMPILED FROM PHOTOGRAMMETRIC METHODS BASED ON AERIAL PHOTOGRAPHY PERFORMED ON 06 MARCH 2019 BY DALLAS AERIAL SURVEY'S, INC.
2. FEMA 100-YEAR FLOODPLAIN LIMITS TAKEN FROM FIRM MAP NO. 48453C0202H DATED SEPTEMBER 26, 2008 AND ADJUSTED FOR APPROVED LETTERS OF MAP REVISION (LOMR).
3. SCALES / GATE HOUSE, ENTRANCE AND EXIT WILL BE LOCATED IN THEIR INITIAL (CURRENT) LOCATIONS UNTIL LANDFILL DEVELOPMENT AFFECTS THESE LOCATIONS, AT WHICH POINT THESE FEATURES WILL BE SHIFTED TO THEIR NEW (FUTURE) LOCATIONS.

**PRELIMINARY**  
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 CONSTRUCTION, OR PERMITTING.  
 SCOTT M. GRAVES, P.E.  
 TEXAS P.E. NO. 86557



**PRELIMINARY SITE PLAN  
 FORT WORTH C&D LANDFILL**



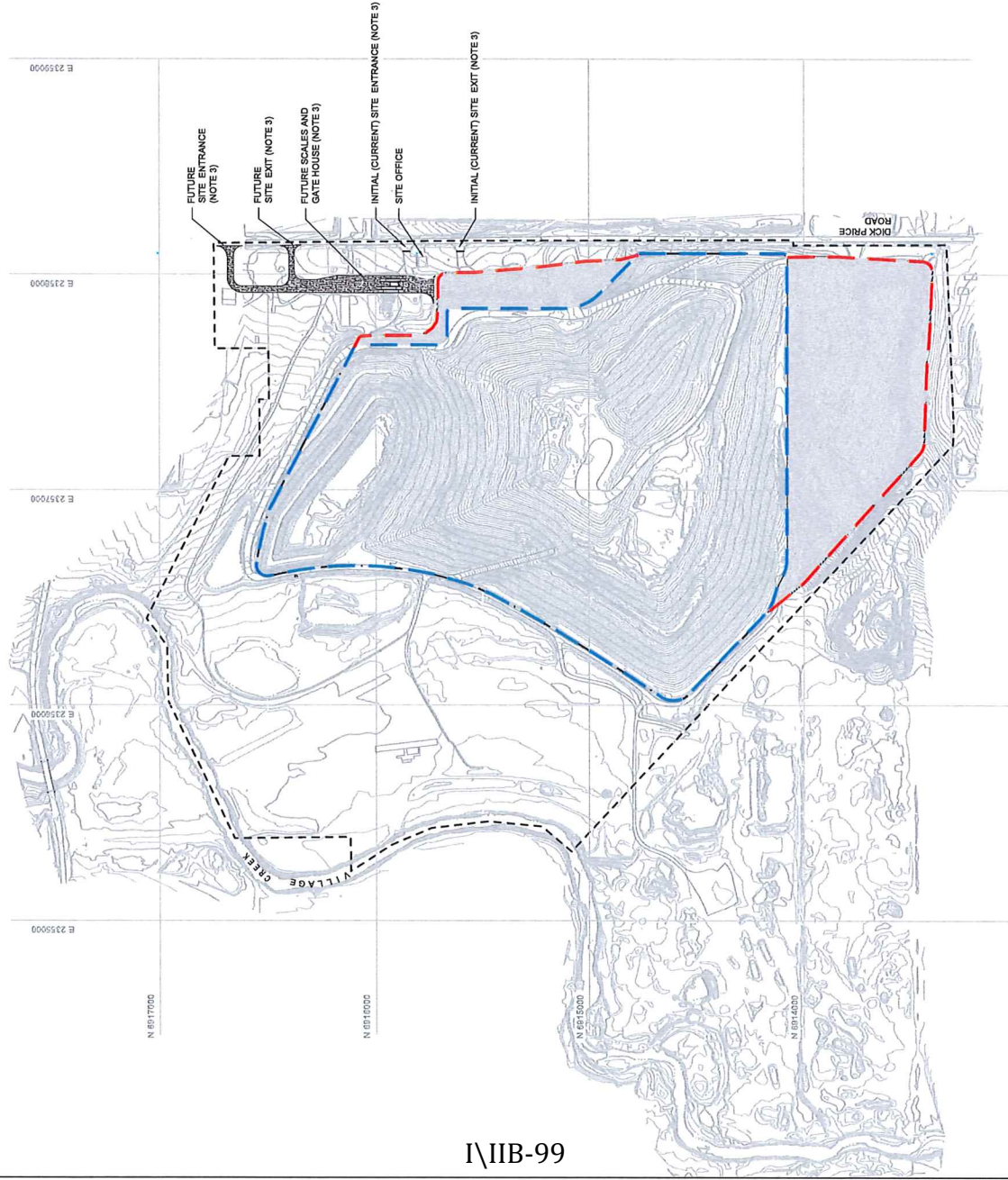
TX ENG. FIRM REGISTRATION NO. 1182

AUSTIN, TX

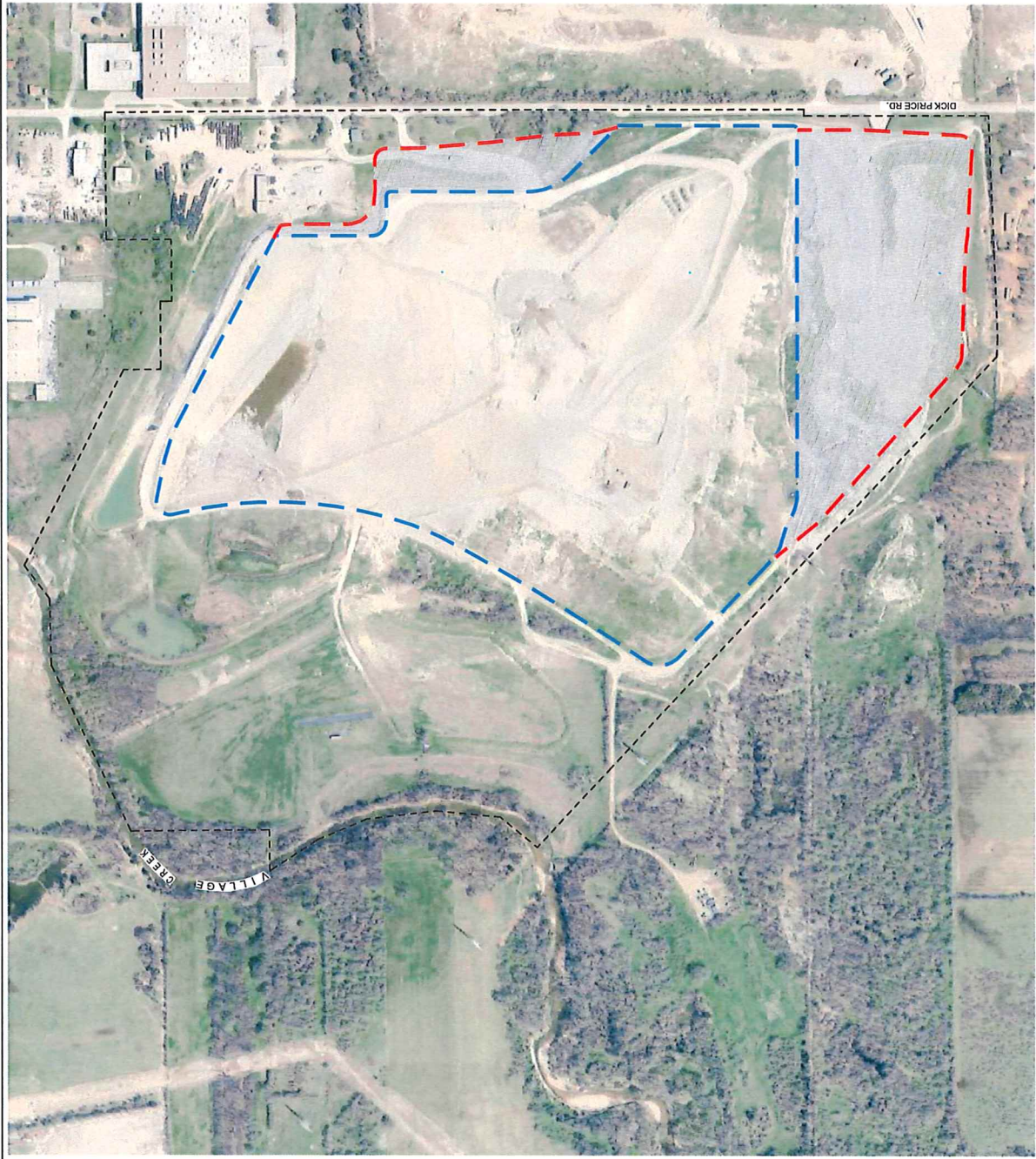
FEBRUARY 2020

**FIGURE**

**4**



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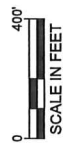


- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - - - EXISTING PERMITTED LANDFILL (77.7 ACRES)
  - - - PROPOSED LANDFILL EXPANSION LIMITS (APPROX. 23 ACRES)

**NOTES:**

1. THE AERIAL BASE MAP SOURCE: AERIAL PHOTOGRAPHY, FLOWN JUNE 3, 2019 BY DALLAS AERIAL SURVEYS, INC.
2. THIS PROJECT WAS PREPARED FOR TEXAS HISTORICAL COMMISSION AND THIS PROJECT REVIEW PURPOSES PRIOR TO THE COMPLETION OF FINAL LANDFILL DESIGN AND SUBMITTAL OF THE PERMIT AMENDMENT APPLICATION TO TCEQ. THE PROPOSED FEATURES ON THIS FIGURE SHOULD BE CONSIDERED PRELIMINARY AND SUBJECT TO CHANGE. ANY CHANGES TO THE LAYOUT DURING FINAL DESIGN, AND CONCEPTS SHOWN ON THIS FIGURE ARE REPRESENTATIVE OF THE ANTICIPATED FINAL SITE LAYOUT AND SHOULD BE SHOWN ON THE FINAL LANDFILL PERMITTING AND CONSTRUCTION PLANS. THE VERTICAL LANDFILL LIMITS INCREASE BEYOND THAT SHOWN HERE.

**PRELIMINARY**  
 FOR AGENCY REVIEW AND  
 COORDINATION PURPOSES ONLY.  
 NOT FOR BIDDING,  
 CONSTRUCTION, OR PERMITTING.  
 SCOTT M. GRAVES, P.E.  
 TEXAS P.E. NO. 86557



**AERIAL PHOTOGRAPH OF SITE CONDITIONS  
 FORT WORTH C&D LANDFILL**

 Geosyntec CONSULTANTS TX ENG. FIRM REGISTRATION NO. 1182 AUSTIN, TX	FIGURE
	5
FEBRUARY 2020	

## **COORDINATION WITH TEXAS DEPARTMENT OF TRANSPORTATION**

- November 9, 2022 TxDOT approval letter.
- October 17, 2022 WCG Request for Review Letter.



# MEMO

November 9, 2022

**To:** Texas Commission on Environmental Quality  
Municipal Solid Waste Section

**Through:** Weaver Consultants Group, LLC  
Charles R. Marsh, P.E.  
Project Director

**From:** David M. Salazar, P.E.  
Fort Worth District Engineer

**Subject:** FORT WORTH C&D LANDFILL, TARRANT COUNTY, TEXAS  
Municipal Solid Waste – Permit Amendment, TCEQ Permit No. MSW-1983D

---

After reviewing the recommendation of the Fort Worth District Director of Maintenance who reviewed the Executive Summary, Engineering Study and Historical Data for the Fort Worth C&D Landfill, the Texas Department of Transportation, Fort Worth District has No Objection for the expansion of Fort Worth C&D Landfill.

The Engineering and Traffic Study of Fort Worth C&D Landfill has fulfilled the requirements of 30 TAC §330.61(i)(4) for requesting and demonstrating coordination with TxDOT. It has sufficiently demonstrated the existing infrastructure will provide adequate access to the site now and in the foreseeable future. As a result of the proposed expansion, the volumes of vehicles on the on-system roadway systems serving the facility will not increase, and the existing entrance will not be modified.

Further, the Fort Worth District has No Objection of the expansion of the Fort Worth C&D Landfill. The Engineering and Traffic Study submitted with the request has demonstrated the infrastructure will provide adequate access to the site now and in the foreseeable future. The proposed expansion will not have additional impact on the volume of vehicles on the on-system roadway systems into the facility and the existing entrance will not be modified. In addition, it is expected that the traffic patterns will remain consistent with the current traffic patterns.

If you have any questions or require any additional information, please contact Matt Evans, P.E., Fort Worth District Maintenance Engineer on how the district can be of help.

DocuSigned by:

*David M Salazar, P.E.*

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October 17, 2022  
Project No. 0771-356-11-35

Mr. Carl Johnson, P.E.  
District Engineer  
Texas Department of Transportation, Fort Worth District  
2501 SW Loop 820  
Fort Worth, Texas 76133

Re: Engineering Study  
Fort Worth C&D Landfill  
Tarrant County, Texas

Dear Mr. Johnson:

The purpose of this letter, submitted on behalf of Texas Regional Landfill Company, LP, a wholly owned subsidiary of Waste Connections, Inc., is to demonstrate coordination with the Texas Department of Transportation (TxDOT), consistent with Title 30 TAC §330.61(i)(4). This regulation requires that an applicant for a municipal solid waste (MSW) facility coordinate with TxDOT regarding any potential traffic or location restrictions.

Weaver Consultants Group, LLC is preparing a Major Permit Amendment for an existing Type IV municipal solid waste (MSW) facility, under contract with Texas Regional Landfill Company, LP to obtain the necessary authorization to expand the existing Fort Worth C&D Landfill. The existing Fort Worth C&D Landfill has limited remaining disposal capacity, and the proposed expansion will extend the ability of Texas Regional Landfill Company, LP to collect, process, and dispose of solid waste for Tarrant County and surrounding areas. The existing site entrance is at 4144 Dick Price Road, Fort Worth, Texas 76140.

To assist you in your review, a project summary and site location maps have been provided as an overview of the Major Permit Amendment.

The attached engineering study demonstrates that the site access roads – Dick Price Road, Everman Kennedale Road, Anglin Drive, Shelby Road, and Averett Road – will provide adequate access to the site now and in the foreseeable future. The landfill has been in operation for over 30 years, and the traffic patterns of the solid waste collection vehicles that use area access roads are well established. As a result of the proposed expansion, the volumes of vehicles on the roadway system and into the facility will not increase. The existing entrance will be modified in the future to shift the main waste hauling vehicle entrance and exit points to the north as shown on Figure 5. It is expected that the traffic patterns will remain consistent with the



current traffic patterns. Additionally, please note a permit is not being requested from TxDOT for this project. A traffic impact analysis (TIA) is not warranted for the proposed landfill expansion.

To verify compliance with Title 30 TAC §330.61(i)(4), we are required by TCEQ to include a letter from TxDOT in the TS application regarding the adequacy of the site access roads and any traffic or location restrictions at or near the site.

Please call if you have any questions or need additional information.

Sincerely,

**Weaver Consultants Group, LLC**



Charles R. Marsh, P.E.

Project Director

Attachments: Attachment 1 – Executive Summary  
Attachment 2 – Fort Worth C&D Landfill Engineering Study

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT 1**

**EXECUTIVE SUMMARY**

**EXECUTIVE SUMMARY**  
**FORT WORTH C&D LANDFILL PROPOSED EXPANSION**  
**ENGINEERING ANALYSIS**

This Executive Summary has been prepared for the Engineering Study developed to evaluate the adequacy of the roadways serving the Fort Worth C&D Landfill Facility (Facility) located in Tarrant County, Texas. The Engineering Study generally makes the following conclusions:

- The proposed expansion of the Facility will not increase the volume of trucks entering or exiting the Facility from existing roadways. If completed, the proposed expansion will extend the life of the facility.
- The Facility is currently accessed by driveways located off Dick Price Road.
- Two driveways exist along Dick Price Road, each provide two lanes in and two lanes out and are separated by a median measuring approximately 220 feet.
- In the future, TRLC plans to shift the main waste hauling vehicle entrance and exit points northward to use the other two existing driveways on Dick Price Road.
- A permit is not being requested from TxDOT for the proposed expansion. However, it is being requested that TxDOT offer a Letter of No Objection if it is demonstrated that the project meets the requirements of 30 TAC §330.61(i).

**ATTACHMENT 2**

**FORT WORTH C&D LANDFILL ENGINEERING STUDY**

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E  
ENGINEERING STUDY**

Prepared for  
Texas Regional Landfill Company, LP  
October 2022



Prepared by  
**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Blvd., Suite 206  
Fort Worth, Texas 76109  
817-735-9770

Project No. 0771-356-11-35

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<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
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### APPENDIX A

Project Summary and Site Location Maps



# 1 INTRODUCTION

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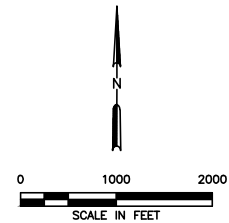
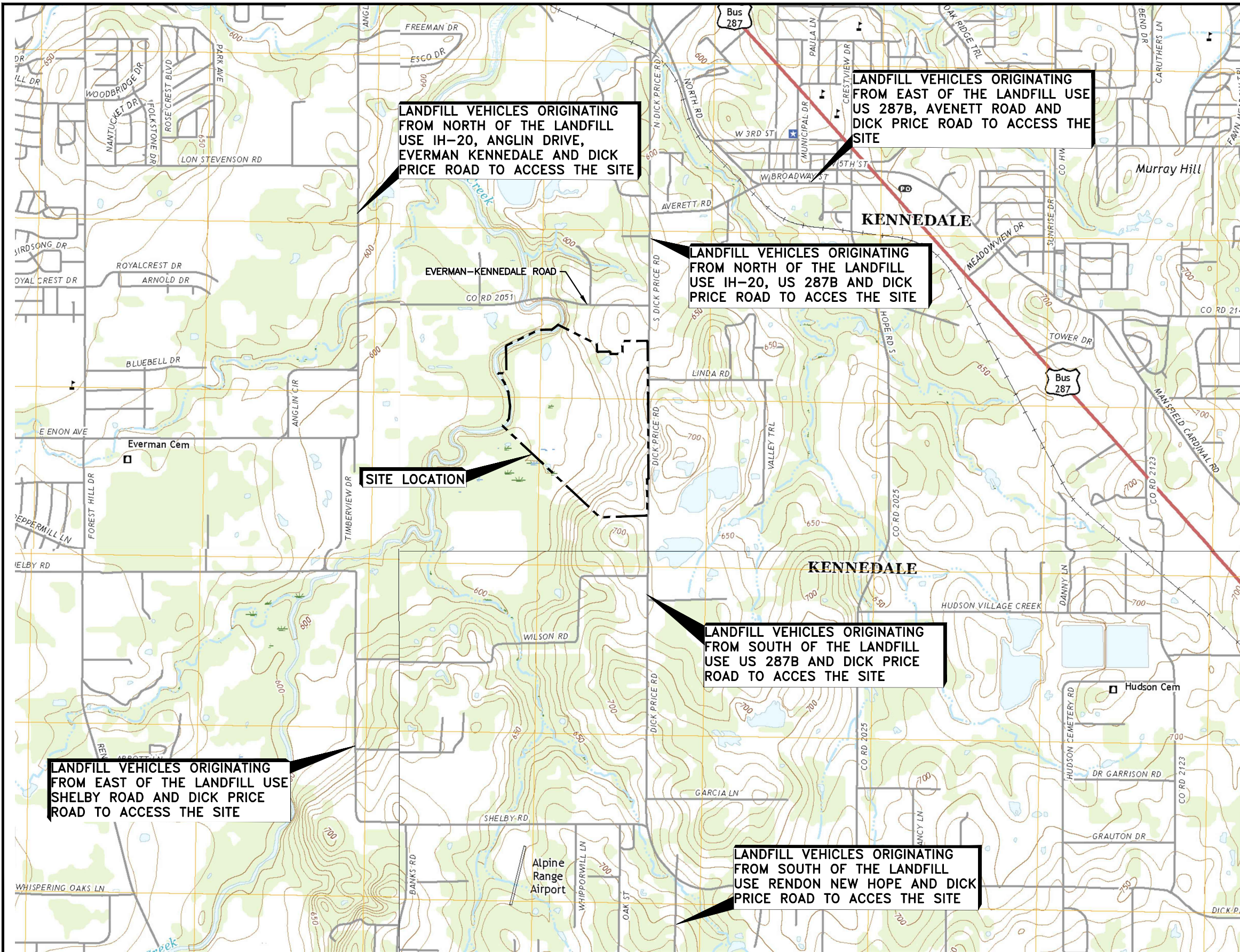
## 1.1 Purpose

Weaver Consultants Group, LLC is in the process of developing a Major Permit Amendment Application, on behalf of Texas Regional Landfill Company, LP, to authorize the future expansion of the Fort Worth C&D Landfill. The purpose of this study is to demonstrate that the access roads to the Fort Worth C&D Landfill (Dick Price Road (North and South), Everman Kennedale Road, Anglin Drive, Shelby Road, and Averett Road)) will provide adequate access to the site. The Engineering Study is completed consistent with the requirements listed in 30 TAC §330.61(i), which requires the following information.

- Provide data on the availability and adequacy of roads that the owner or operator will use to access the site;
- Provide data on the volume of vehicular traffic on access roads within one mile of the proposed facility, both existing and expected, during the expected life of the proposed facility;
- Project the volume of traffic expected to be generated by the facility on the access roads within one mile of the proposed facility; and
- Submit documentation of coordination of all designs of proposed public roadway improvements such as turning lanes, storage lanes, etc., associated with site entrances with the agency exercising maintenance responsibility of the public roadway involved. In addition, the owner or operator shall submit documentation of coordination with the Texas Department of Transportation for traffic and location restrictions.

## 1.2 Summary of Proposed Landfill Expansion

Fort Worth C&D Landfill is an existing municipal solid waste landfill located in Tarrant County, Texas at 4144 Dick Price Road, Fort Worth, Texas 76140. The current landfill waste disposal unit is approximately 100.3 acres. The proposed permit amendment includes a horizontal and vertical expansion of the existing permitted waste disposal footprint area. The proposed horizontal expansion has a total area of approximately 21.6 acres. The proposed vertical expansion will increase the current maximum final cover elevation by 40 feet from a current peak elevation of 820 ft-msl to 860 ft-msl. The proposed expansion areas are located entirely within the existing 184.3-acre permit boundary.



**LEGEND**

--- LANDFILL PERMIT BOUNDARY

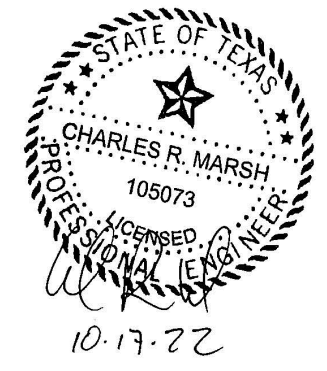
**ROAD CLASSIFICATION**

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

FORT WORTH, TX	KENNEDALE, TX
2019	2019
BURLESON, TX	MANSFIELD, TX
2019	2019

Produced by the United States Geological Survey  
 North American Datum of 1983 (NAD83)  
 World Geodetic System of 1984 (WGS84). Projection and  
 1 000-meter grid: Universal Transverse Mercator, Zone 14S  
 This map is not a legal document. Boundaries may be  
 generalized for this map scale. Private lands within government  
 reservations may not be shown. Obtain permission before  
 entering private lands.

Imagery.....	NAIP, September 2016 - November 2016
Roads.....	U.S. Census Bureau, 2015 - 2018
Names.....	National Hydrography Dataset, 1979 - 2018
Hydrography.....	National Elevation Dataset, 2000 - 2018
Contours.....	National Elevation Dataset, 2003
Boundaries.....	Multiple sources; see metadata file 2016 - 2017
Wetlands.....	FWS National Wetlands Inventory 1981



LANDFILL VEHICLES ORIGINATING FROM EAST OF THE LANDFILL USE SHELBY ROAD AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM NORTH OF THE LANDFILL USE IH-20, ANGLIN DRIVE, EVERMAN KENNEDALE AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM NORTH OF THE LANDFILL USE IH-20, US 287B AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM SOUTH OF THE LANDFILL USE US 287B AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM SOUTH OF THE LANDFILL USE RENDON NEW HOPE AND DICK PRICE ROAD TO ACCESS THE SITE

SITE LOCATION

- NOTES:**
- REPRODUCED FROM 2019 USGS 7.5 QUADRANGLES: FORT WORTH, KENNEDALE, BURLESON, AND MANSFIELD.

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          SITE LOCATION MAP AND          TRAFFIC PATTERNS</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS						
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIGURE 1-1.DWG		DRAWN BY: RAA DESIGN BY: MB REVIEWED BY: CRM					
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION			
NO.	DATE	DESCRIPTION						
WWW.WCGRP.COM		FIGURE 1-1						

G:\0771\356\EXPANSION 2022\AGENCY COORDINATION\TRAFFIC STUDY\1-1.TXD0T.dwg, jpubr, 1:2



## 2 TRAFFIC INFORMATION

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### 2.1 Availability and Adequacy of Roads

As shown on Figure 2-1, the roads within one mile of the site are North Dick Price Road (two-lane, asphalt-paved, 35 mph), South Dick Price Road (two-lane, asphalt-paved, 35 mph), Everman Kennedale Road (two-lane, asphalt-paved, 35 mph), Anglin Road (two-lane, asphalt-paved, 30 mph), Shelby Road (two-lane, asphalt-paved, 30 mph), and Averett Road (two-lane, asphalt-paved, 30 mph). South Dick Price Road is the main access road that waste collection vehicles will use to access the site. Other nearby roads may be periodically used by landfill vehicles to serve residences and businesses located along or near there roadways.

The Fort Worth C&D Landfill site access road enters the landfill at the west side of South Dick Price Road by two existing driveways along Dick Price Road, each providing two lanes for ingress and egress from the site. In the future, TRLC plans to shift the main waste hauling vehicle entrance and exit points northward approximately 500 feet. Figure 2-3 provides an overview of the site entrances.

The existing and future entrances to the landfill are shown on Figure 2-3. As shown on Figure 2-3, the existing site entrance includes an approximately 30-foot-wide concrete road from South Dick Price Road to the scalehouse. The length of the entrance road is approximately 475 feet, which provides a more than ample queuing area for waste vehicles. In the future, the landfill entrance will be relocated north approximately 500 feet to utilize two other existing driveways off of Dick Price Road. This condition is shown as the “Proposed Site Entrance” on Figure 2-3. This configuration includes a 40-foot-wide roadway to the scale house and provides over 700 feet of queueing space.

### 2.2 Volume of Vehicular Traffic

The volume of vehicle traffic on the site access roads (South Dick Price Road, Everman Kennedale Road, Anglin Road, Shelby Road, and Averett Road), is summarized on Table 2.1. As noted on Table 2.1, TxDOT traffic counts from 2019 (North Dick Price Road, South Dick Price Road, Anglin Drive, and Shelby Road), 2017 (Averett Road), and 2014 (Everman Kennedale Road) were available for all site access roads. The TxDOT traffic counts were adjusted to 2022 traffic conditions to account of the additional traffic created by area growth between the time volume data was collected in 2022. In summary, all access roads operate at a Level of Service (LOS) of D or better

throughout the projected life of the site. Only one road, Dick Price Road (south of Facility), decreases in LOS from 2022 to 2035, and this decrease is only from B to C. All access roads will provide adequate access to the landfill.

**FORT WORTH C&D  
PROPOSED EXPANSION  
TRAFFIC STUDY**

**Table 2.1  
2-Way Traffic Volumes**

Location	2022 Traffic Conditions <sup>1,2</sup>						Projected 2035 Traffic Conditions <sup>2</sup>					
	Daily			Peak Hour <sup>3</sup>			Daily			Peak Hour <sup>3</sup>		
	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total
Dick Price Road (North of Facility)	1,389	7,292	8,682	139	729	868	1,672	8,554	10,226	167	855	1,023
Dick Price Road (South of Facility)	1,389	3,655	5,044	139	365	504	1,672	4,270	5,942	167	427	594
Evermann Kennedale Road	1,389	140	1,529	139	14	153	1,672	135	1,807	167	14	181
Anglin Drive	1,389	2,538	3,928	139	254	393	1,672	2,955	4,627	167	295	463
Shelby Road	1,389	481	1,870	139	48	187	1,672	531	2,203	167	53	220
Averett Road	1,389	0	1,389	139	0	139	1,672	0	1,672	167	0	167

Notes:

<sup>1</sup> 2022 Traffic conditions are based on volumes provided on the NCTCOG 2019 Traffic Counts. These volumes are projected using population growth rates in the NCTCOG North Central Texas 2030 Demographic Forecast.

<sup>2</sup> The annual population growth rate is 1.86% for 2011-2020, 1.52% for 2021-2030, and 1.3% for 2031-2040.

<sup>3</sup> Peak hour volumes are assumed to be ten percent of the total daily traffic volume.

<sup>4</sup> 2022 Landfill trips are projected from 2020 landfill trips. 2020 landfill trips were adapted from traffic study report provided by the Geosyntec Consultants for Fort Worth C&D Landfill.

<sup>5</sup> It is conservatively assumed that 100 percent of all landfill traffic will travel Dick Price Road (north of landfill), Dick Price Roads (south of landfill), Evermann kennedale Road, Anglin Drive, Shelby Road and Averett Road.

**2-Way Traffic Volumes**

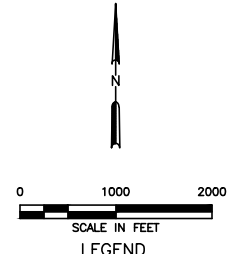
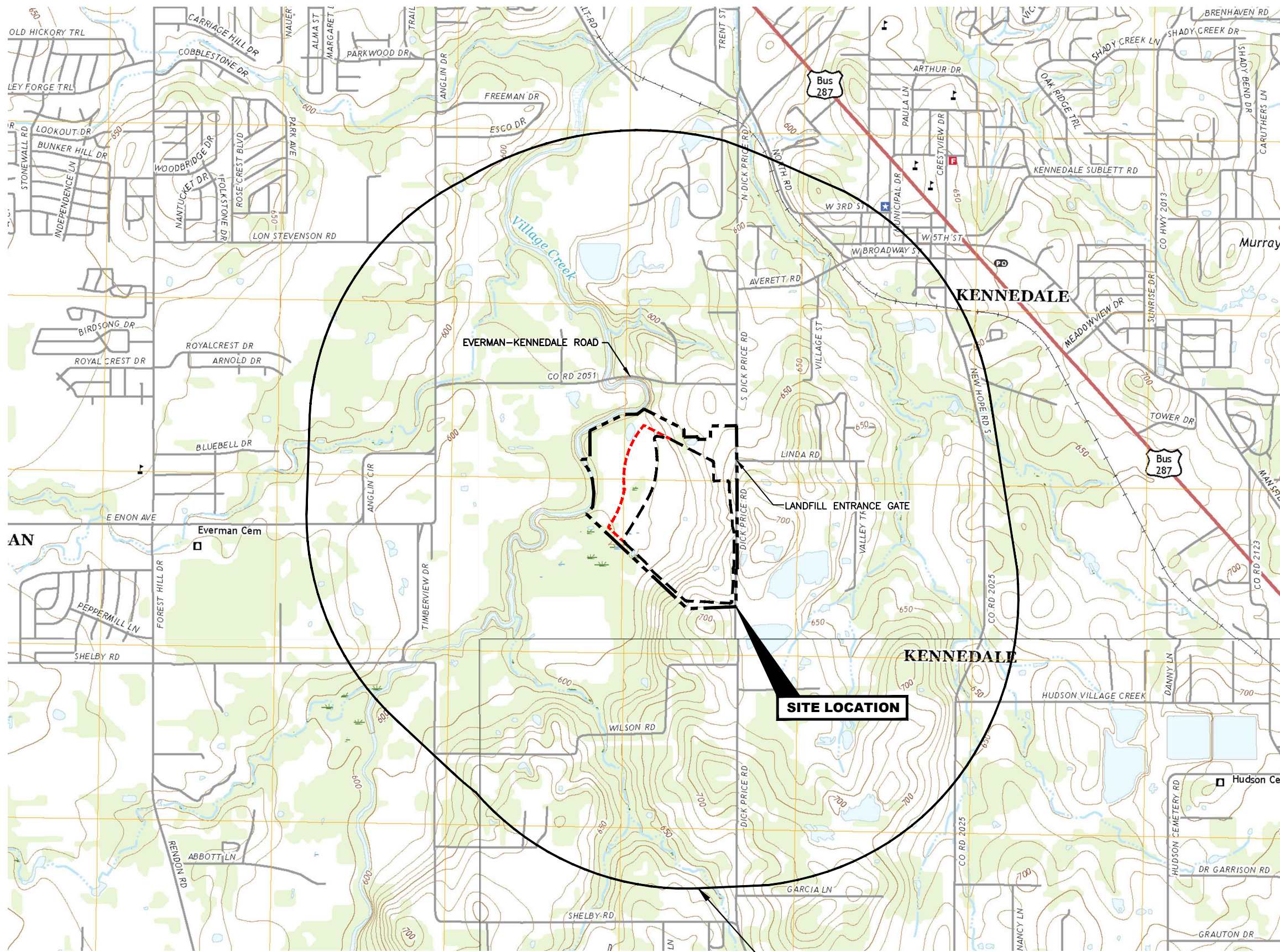
Location	2020 Traffic Conditions <sup>1,4</sup>						Projected 2022 Traffic Conditions <sup>2</sup>					
	Daily			Peak Hour <sup>3</sup>			Daily			Peak Hour <sup>3</sup>		
	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total
Dick Price Road (North of Facility)	1,348	7,334	8,682	135	733	868	1,389	7,292	8,682	139	729	868
Dick Price Road (South of Facility)	1,348	3,696	5,044	135	370	504	1,389	3,655	5,044	139	365	504
Evermann Kennedale Road	1,348	181	1,529	135	18	153	1,389	140	1,529	139	14	153
Anglin Drive	1,348	2,580	3,928	135	258	393	1,389	2,538	3,928	139	254	393
Shelby Road	1,348	522	1,870	135	52	187	1,389	481	1,870	139	48	187
Averett Road	1,348	0	1,348	135	0	135	1,389	0	1,389	139	0	139

**FORT WORTH C&D  
PROPOSED EXPANSION  
TRAFFIC STUDY**

**Table 2.2  
Traffic Impact Assessment<sup>1</sup>**

Location	Roadway Capacity (veh/hr)	2022 Traffic Conditions						Projected 2035 Traffic Conditions					
		Total Volume (vpd)	Landfill Vehicles (vpd)	Peak Hour Volume <sup>2</sup> (veh)	% of Roadway Capacity used	LOS <sup>1</sup>	% of Roadway Capacity Used by Landfill Vehicles	Total Volume (vpd)	Landfill Vehicles (vpd)	Peak Hour Volume <sup>2</sup> (veh)	% of Roadway Capacity used	LOS <sup>1</sup>	% of Roadway Capacity Used by Landfill Vehicles
Dick Price Road (North of Facility)	3,200	8,947	1,389	895	28.0%	D	4.3%	10,769	1,672	1,077	33.7%	D	5.2%
Dick Price Road (South of Facility)	3,200	5,199	1,389	520	16.2%	B	4.3%	6,257	1,672	626	19.6%	C	5.2%
Evermann Kennedale Road	3,200	1,581	1,389	158	4.9%	B	4.3%	1,903	1,672	190	5.9%	B	5.2%
Anglin Drive	3,200	4,048	1,389	405	12.7%	C	4.3%	4,872	1,672	487	15.2%	C	5.2%
Shelby Road	3,200	1,927	1,389	193	6.0%	A	4.3%	2,320	1,672	232	7.2%	A	5.2%
Averett Road	3,200	1,389	1,389	139	4.3%	A	4.3%	1,672	1,672	167	5.2%	A	5.2%

Notes:  
<sup>1</sup> Level of Service for Dick Price Road (North of the Facility), Dick Price Road (South of the Facility), Evermann Kennedale, Anglin Drive, Shelby Road and Averett Road is determined based on average travel speed from Reference 1, Chapter 15.  
<sup>2</sup> Peak hour volumes are assumed to be ten percent of the total daily traffic volume.

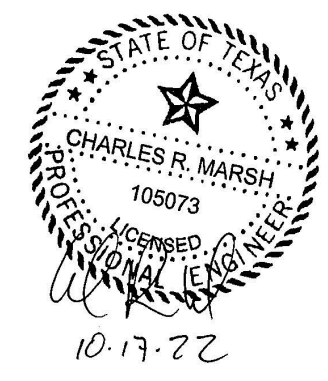


- LEGEND**
- PERMIT BOUNDARY
  - PERMITTED LIMIT OF WASTE
  - - - PROPOSED LIMIT OF WASTE
- ROAD CLASSIFICATION**
- Expressway (thick red line)
  - Secondary Hwy (red line)
  - Ramp (red line with blue triangle)
  - Interstate Route (blue shield)
  - Local Connector (thin black line)
  - Local Road (black line)
  - 4WD (black line with cross-ticks)
  - US Route (white shield)
  - State Route (circle)

**NOTES:**

- ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

<b>FORT WORTH, TX</b>	<b>KENNEDALE, TX</b>
2019	2019
<b>BURLESON, TX</b>	<b>MANSFIELD, TX</b>
2019	2019

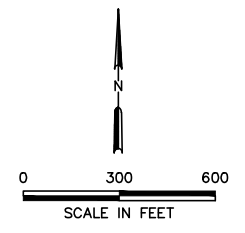


1-MILE RADIUS

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DATE: 10/2022	FILE: 0771-356-11	CAD: 2-1 ACCESS ROAD.DWG
DRAWN BY: SRF	DESIGN BY: JBP	REVIEWED BY: CRM
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		

PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		
REVISIONS		
NO.	DATE	DESCRIPTION

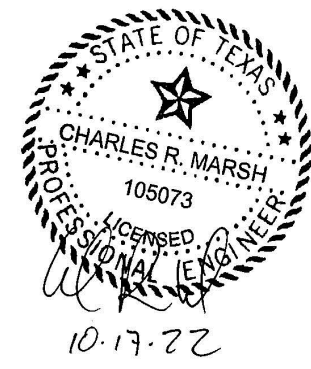
<b>MAJOR PERMIT AMENDMENT FACILITY ACCESS ROADS</b>	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 2-1



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

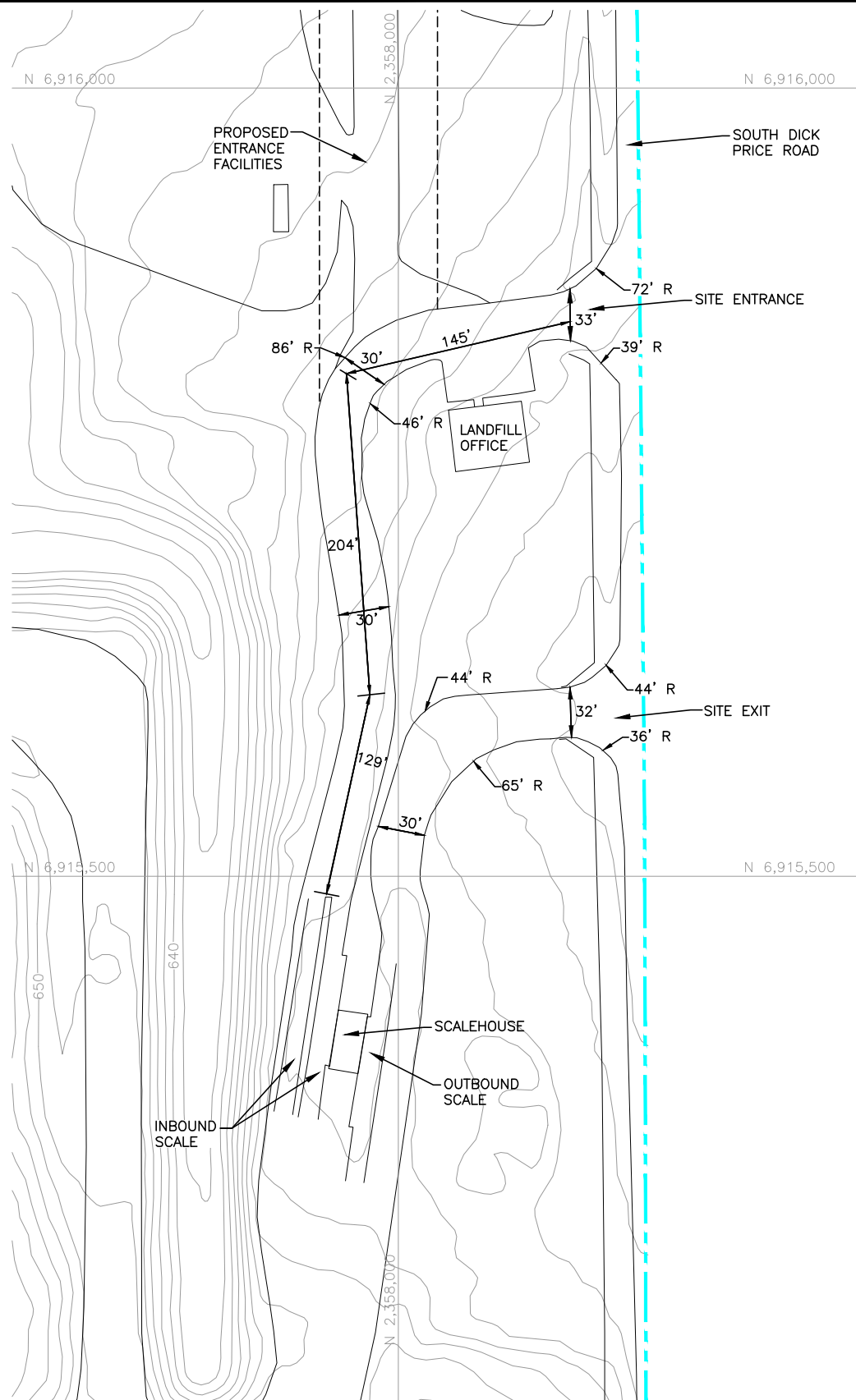
**NOTES:**  
 1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



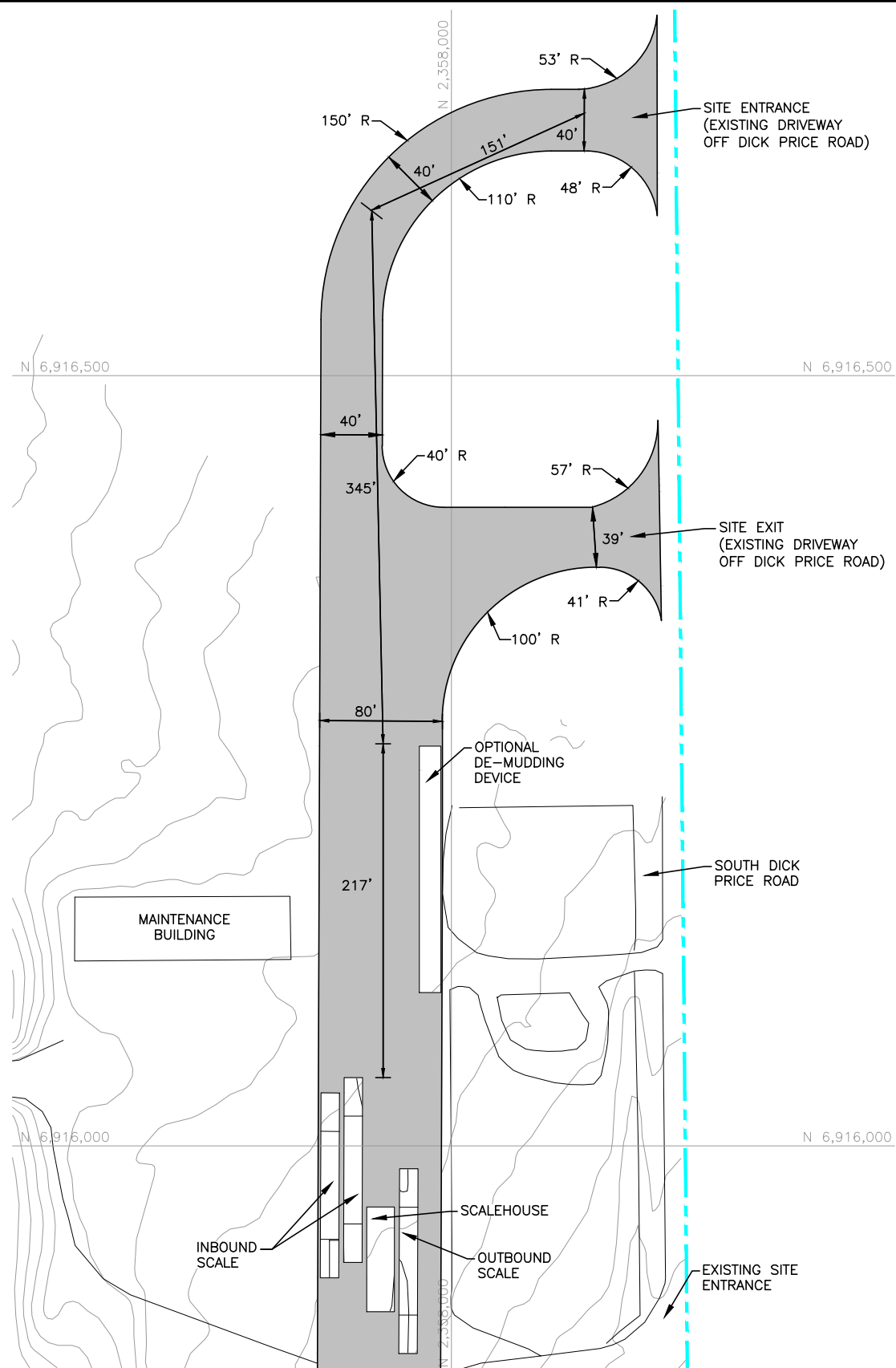
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          EXISTING CONDITION AERIAL PHOTO</b>	
	DATE: 10/2022 FILE: 0771-356-11 CAD: 2-2 ENTRANCE ROAD.DWG		
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		NO.    DATE    DESCRIPTION	WWW.WCGRP.COM <b>FIGURE 2-2</b>

I\IB-117

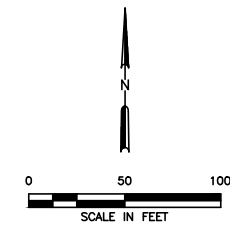
O:\0771\356\EXPANSION 2022\AGENCY COORDINATION\TRAFFIC STUDY\2-2 EXISTING CONDITION AERIAL PHOTO.dwg - jpubr - 1:2



EXISTING SITE ENTRANCE



PROPOSED SITE ENTRANCE

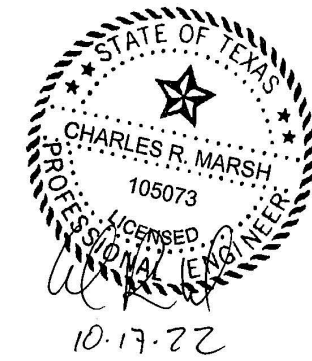


LEGEND

- LANDFILL PERMIT BOUNDARY
- STATE PLANE COORDINATE
- 650 EXISTING CONTOURS

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN ON 01-08-2021.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>  <b>MAJOR PERMIT AMENDMENT ENTRANCE FACILITY PLAN</b>	
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIGURE 2-3.DWG			FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS
DRAWN BY: RAA DESIGN BY: MB REVIEWED BY: CRM	REVISIONS		WWW.WCGRP.COM	
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727	NO.	DATE		DESCRIPTION

**APPENDIX A**  
**PROJECT SUMMARY AND SITE LOCATION MAPS**



# **Project Summary**

## **Fort Worth C&D Landfill Expansion**

### **Tarrant County, Texas**

## **Introduction**

Texas Regional Landfill Company, LP is in the process of developing a major permit amendment application to obtain authorization for an expansion of the existing Fort Worth C&D Landfill. This landfill expansion project will provide long-term disposal capacity for municipal solid waste that is generated in the area. The permit application will be submitted to the Texas Commission on Environmental Quality (TCEQ). The application will undergo a detailed review by the TCEQ before the permit for this facility is issued.

The objective of this summary is to provide an overview of the proposed landfill expansion. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

## **Owner/Operator Information**

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP, a subsidiary of Waste Connections, Inc. Waste Connections, Inc. is one of the leading providers of solid waste services in the nation and provides services to residential, municipal and commercial customers across the country.

## **Site Information**

The following drawings are attached to this summary.

- Figure 1 – Site Location Map. This drawing shows the site location on a standard TxDOT county highway map.
- Figure 2 – General Topographic Map. This drawing shows the existing permitted landfill permit boundary and the limits of disposal area on a USGS map.
- Figure 3 – Aerial Photograph. This figure details the existing permitted landfill permit boundary and limits of waste disposal area on an aerial photograph.
- Figure 4 – Site Plan. This plan highlights the existing permitted landfill permit boundary and the limits of disposal area on a detailed topographic map.
- Figure 5 – Existing and Proposed Landfill Completion Plan. This Plan provides a comparison between the currently permitted landfill and the proposed changes to the landfill completion plan.

## Site History

The Fort Worth C&D Landfill is an existing 184.3-acre Type IV municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) with approximately 100.3 acres approved for waste fill. The site is located approximately 2.4 miles south of Interstate Highway (IH) 20 and 5 miles east of IH-35W. The physical address of the site is 4144 Dick Price Road, Fort Worth, Texas 76140. The initial landfill facility Permit No. MSW 1983 was issued in 1988, and disposal operations began in 1997. The site at that time consisted of 38.1 acres, with roughly 26 acres used for waste fill. In December 2002, Permit No. MSW-1983B was issued, which expanded the landfill laterally resulting in a permitted site area of 151.73 acres with approximately 77.7 acres for waste fill. In January 2017, Permit No. MSW-1983C was issued which expanded the landfill vertically. In May of 2021, Permit No. MSW-1983D was issued expanding the permitted area to 184.3 acres with 100.3 acres for waste fill. The landfill presently operates under Permit No. MSW-1983D, with a total waste disposal capacity of 22,888,000 cubic yards. As of February 17, 2022, when the latest available aerial flyover was conducted, the remaining capacity of current Permit No. MSW-1983D is approximately 9,887,975 cubic yards.

## Design Summary

The following information presents a summary of the design and operations of the proposed Fort Worth C&D Landfill expansion.

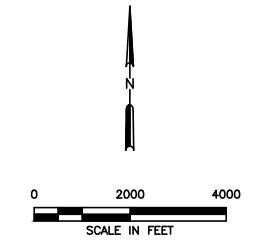
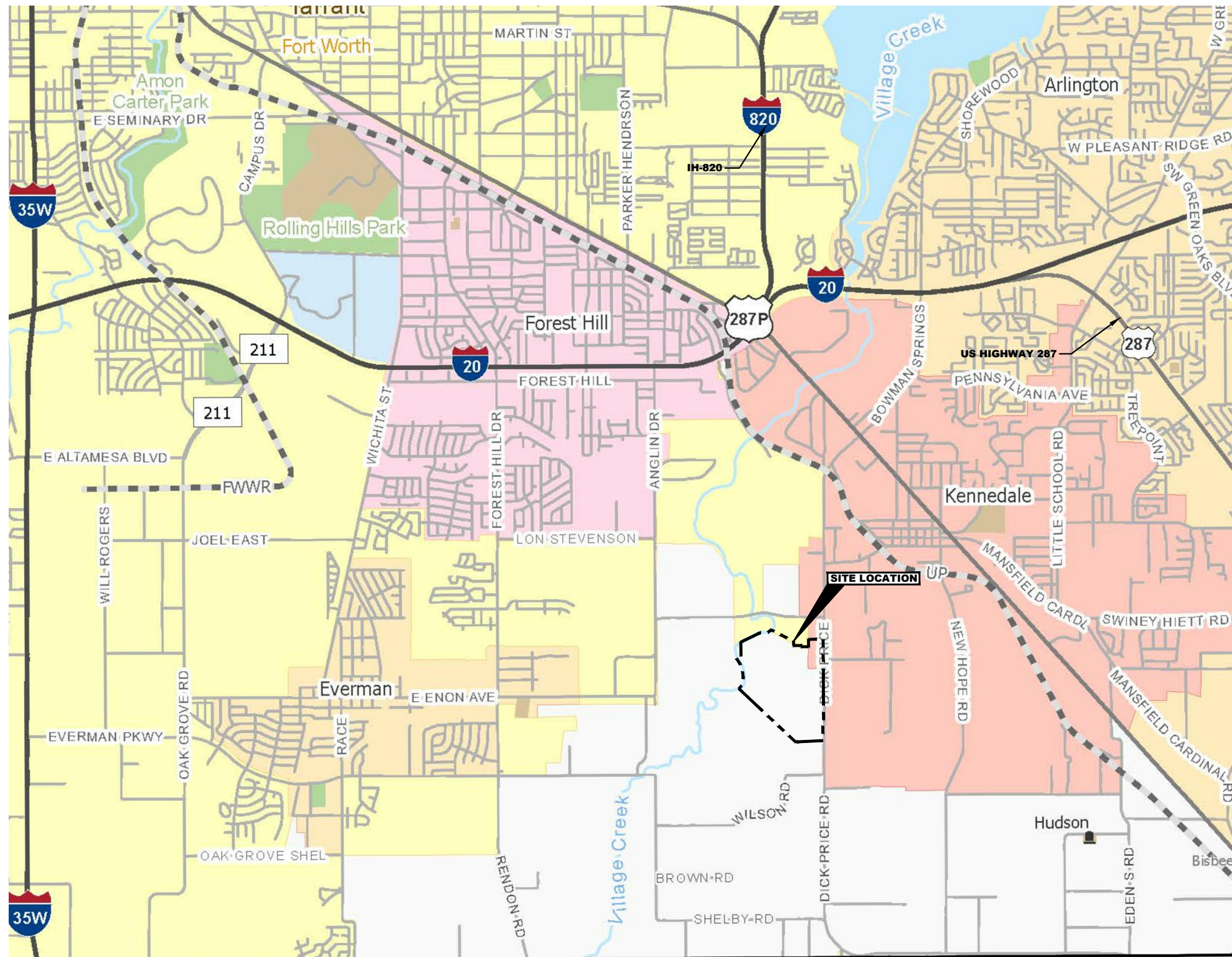
- The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill facility (MSW Permit No. MSW-1983D). The existing landfill currently serves residences and businesses in the communities of Tarrant, Johnson, Parker, Collin, Dallas and Denton Counties.
- With this expansion, the existing 184.3-acre permit boundary footprint will not be expanded. The permitted limits of waste will be expanded from approximately 100.3 acres to approximately 121.9 acres. The current peak elevation of 820 feet mean sea level (msl) will be expanded vertically to 860 feet msl.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include brush, construction-demolition waste, Class 2 and 3 industrial solid waste, tires, and some special wastes as approved by TCEQ.
- Access to the site will be provided via the existing site access roads. Based on travel patterns of existing landfill traffic, vehicles bound for the landfill will generally access the site using Dick Price Road, which is capable of handling the loads associated with landfill traffic.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The construction procedures of the liner and cover systems follow strict TCEQ-approved quality control procedures, which

are performed by a qualified independent licensed professional engineer specialized in landfill construction quality assurance. Each of the containment system components must be thoroughly reviewed and approved by the TCEQ before solid waste is placed in the landfill.

- To verify that the highest level of environmental protection is provided, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells located on the perimeter of the landfill, which are screened in the upper most water table. The water samples are tested by an accredited third-party analytical laboratory.
  - LFG Detection System. The purpose of the LFG detection system is to verify that LFG does not migrate off-site. LFG detection probes have been installed along the current permit boundary perimeter.

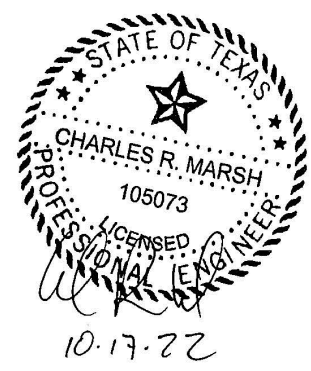
Each of these systems are sampled and tested periodically. The results are filed with the TCEQ and are public record.

- Site Operations. The site will be operated by personnel who have been trained and certified by the TCEQ. A detailed site operating plan will be included in the permit amendment application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with TCEQ regulations. The active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis to ensure the site is in compliance with state regulations.



- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⊠ Cemetery
  - ⊠ Cemetery (Inside City)
  - ⊠ Deep Draft Port
  - ⊠ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

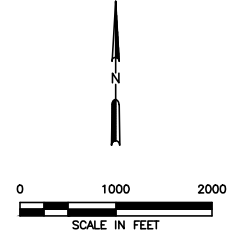
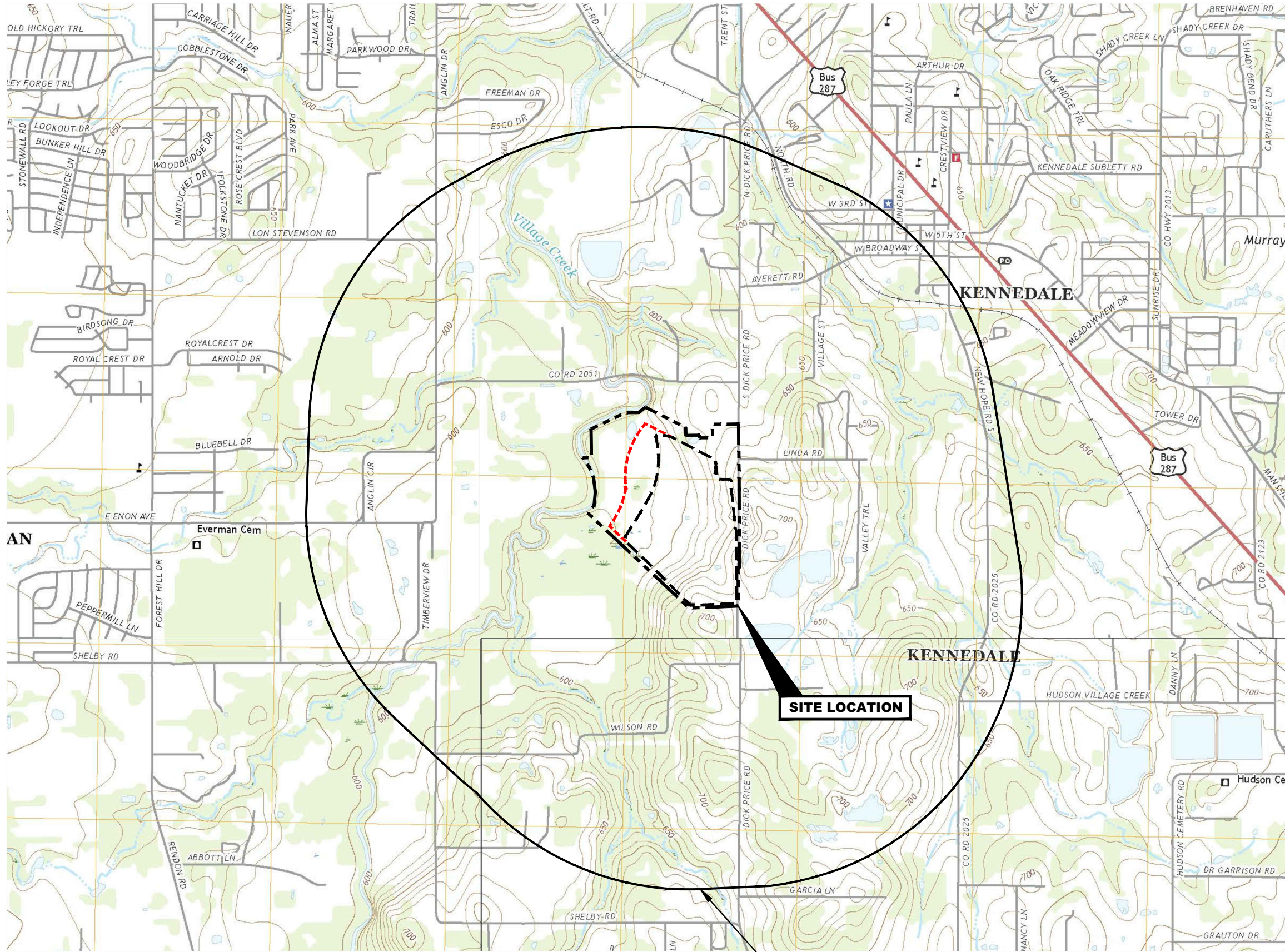
- NOTES:**
- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>SITE LOCATION MAP</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS  WWW.WCGRP.COM									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 1-SITE LOCATION MAP.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION						
NO.	DATE	DESCRIPTION									

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0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 1-SITE LOCATION MAP.dwg - jpubr - 1:2



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**ROAD CLASSIFICATION**

	Expressway		Local Connector
	Secondary Hwy		Local Road
	Ramp		4WD
	Interstate Route		US Route
			State Route

**NOTES:**

- ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



**SITE LOCATION**

1-MILE RADIUS

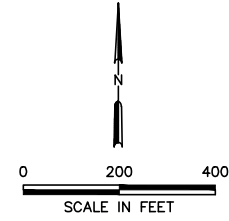
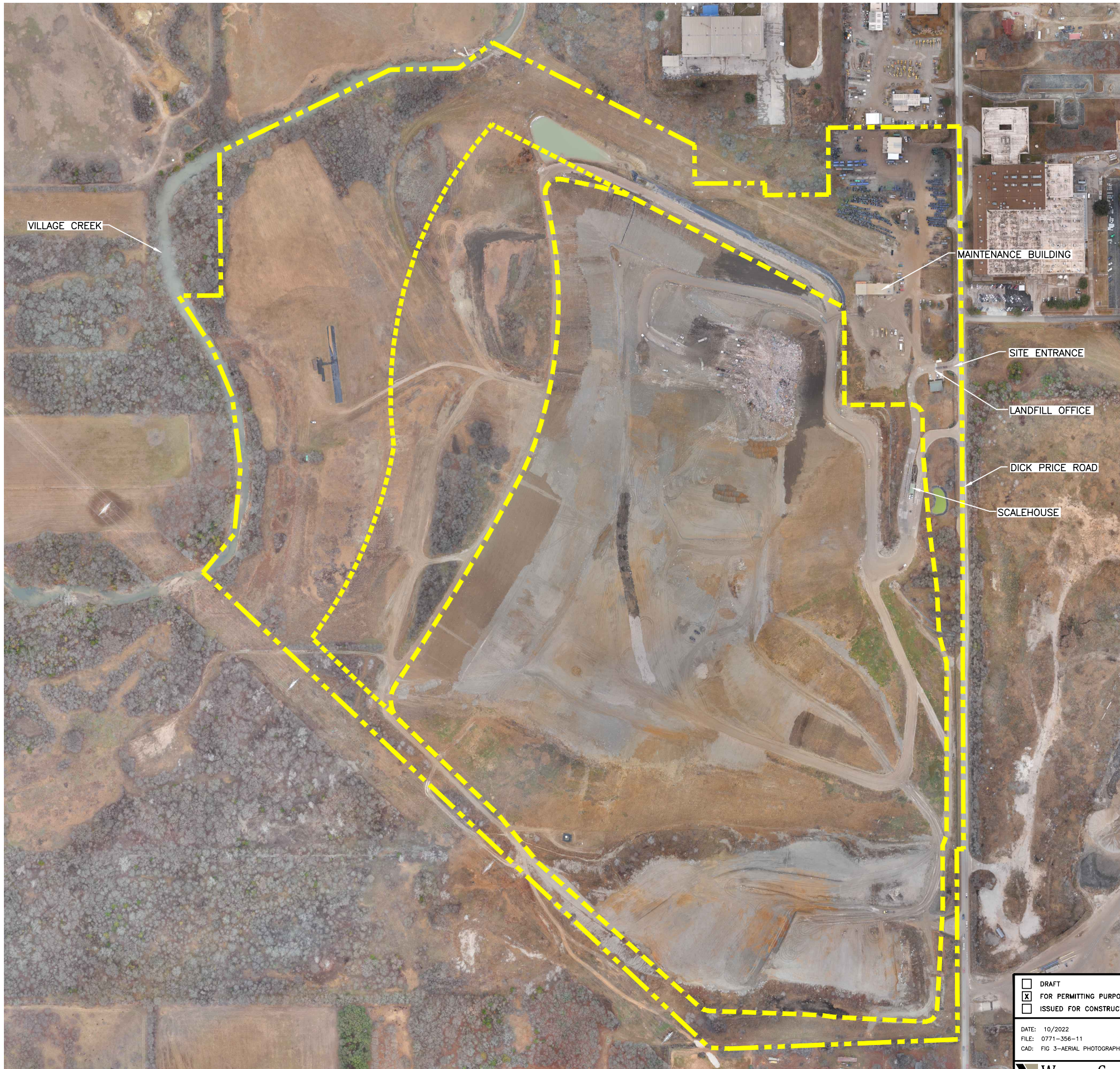
<input type="checkbox"/> DRAFT	<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	<input type="checkbox"/> ISSUED FOR CONSTRUCTION
DATE: 10/2022	FILE: 0771-356-11	CAD: FIG 2-GENERAL TOPO MAP.DWG
DRAWN BY: JDW	DESIGN BY: JBP	REVIEWED BY: CRM
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		

PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		
REVISIONS		
NO.	DATE	DESCRIPTION

<b>GENERAL TOPOGRAPHIC MAP</b>	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 2

I\IB-124

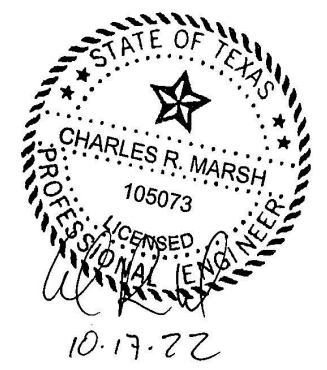
G:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 2-GENERAL TOPO MAP.dwg - jpbur - 1:2



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

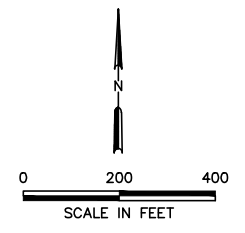
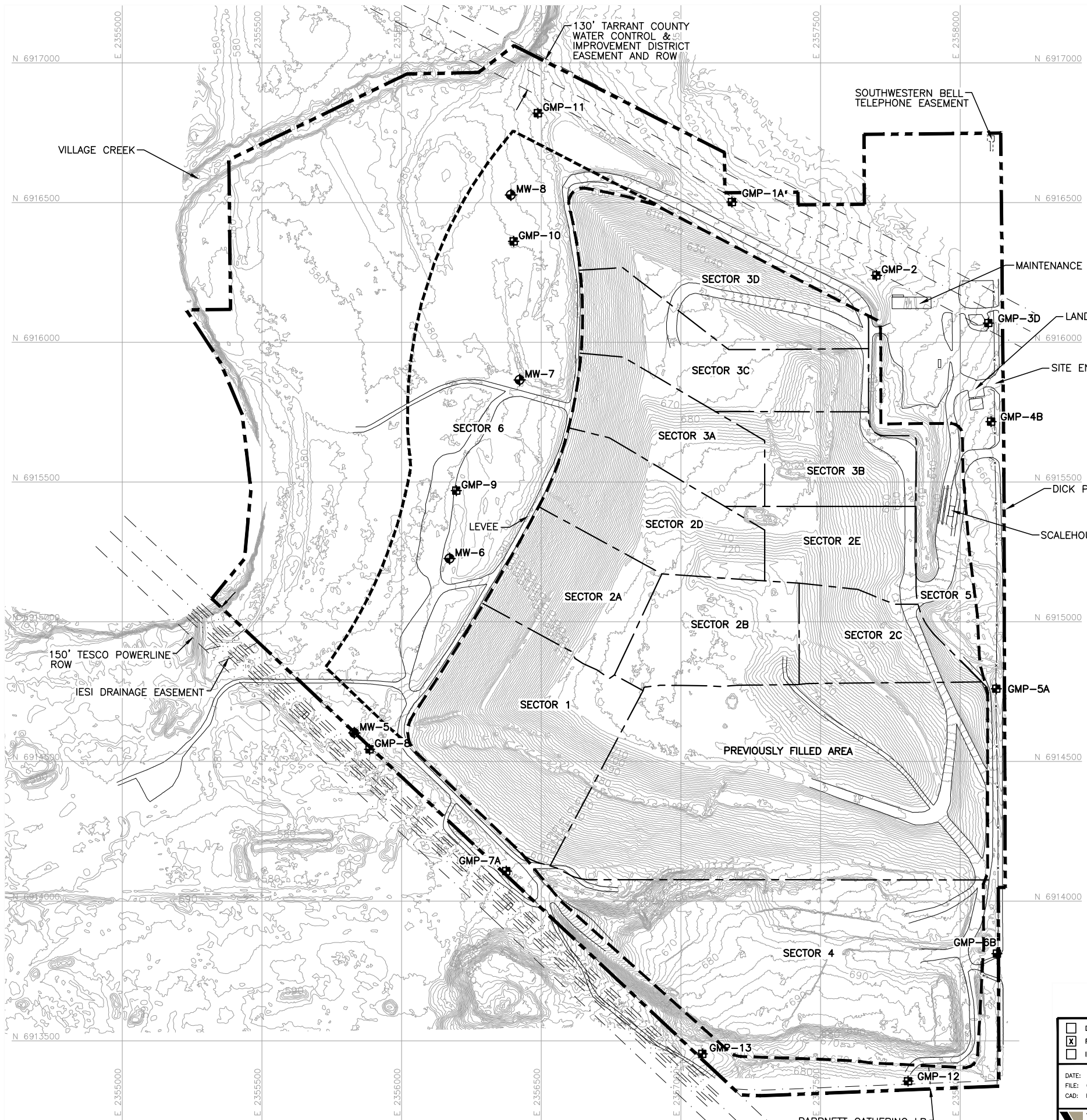
**NOTES:**  
 1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>AERIAL PHOTOGRAPH</b>  <b>FORT WORTH C&amp;D LANDFILL</b> <b>TARRANT COUNTY, TEXAS</b>									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 3-AERIAL PHOTOGRAPH.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION				
NO.	DATE	DESCRIPTION									
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM <b>FIGURE 3</b>									

I\IB-125

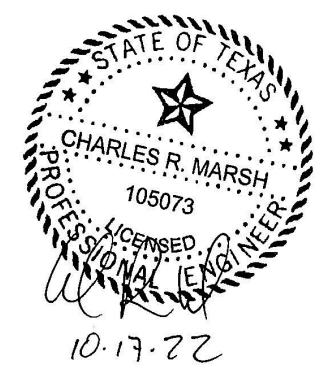
O:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 3-AERIAL PHOTOGRAPH.dwg, jpbur, 1:2



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	EASEMENT

**NOTES:**  
 1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



I\IIB-126

BARNETT GATHERING LP  
20' WIDE PIPELINE EASEMENT

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<input type="checkbox"/> ISSUED FOR CONSTRUCTION				
DATE: 10/2022	DRAWN BY: JDW	REVISIONS		
FILE: 0771-356-11	DESIGN BY: JBP	NO.	DATE	DESCRIPTION
CAD: FIG 4-SITE PLAN.DWG	REVIEWED BY: CRM			
<b>Weaver Consultants Group</b>				
TBPE REGISTRATION NO. F-3727				

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM

FIGURE 4

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 5-EXISTING AND PROPOSED COMPLETION PLANS.dwg - jpubr, 1:2



**PERMITTED LANDFILL COMPLETION PLAN**



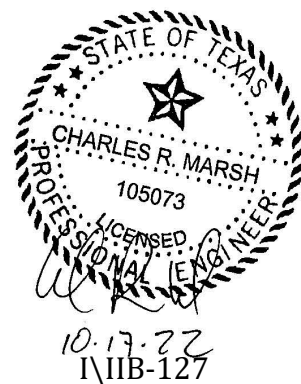
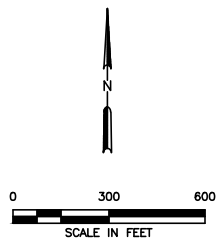
**PROPOSED LANDFILL COMPLETION PLAN**

**NOTES:**

- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED FINAL COVER CONTOUR



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>EXISTING AND PROPOSED LANDFILL COMPLETION PLAN</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS										
	DATE: 10/2022 FILE: 0771-356-11 CAD: 5-COMPLETION PLAN COMP.DWG				DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS		WWW.WCGRP.COM									
		<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			NO.	DATE	DESCRIPTION						
NO.	DATE	DESCRIPTION											



**COORDINATION WITH  
TEXAS PARKS AND WILDLIFE DEPARTMENT**

- TPWD response will be submitted to TCEQ when and if received.
- October 17, 2022 WCG Request for Review Letter.



October 17, 2022  
Project No. 0771-356-11-35

Ms. Julie Wicker  
Wildlife Habitat Assessment Program  
Texas Parks and Wildlife Department  
4200 Smith School Road  
Austin, Texas 78744

Re: Endangered or Threatened Species Assessment  
Proposed Fort Worth C&D Landfill Major Permit Amendment  
Tarrant County, Texas

Dear Ms. Wicker:

The purpose of this letter is to demonstrate coordination with the Texas Parks and Wildlife Department, consistent with Title 30 Texas Administrative Code (TAC) §330.61(n)(2). This regulation requires that a permit applicant for an expansion of a municipal solid waste facility coordinate with the Texas Parks and Wildlife Department regarding compliance with the Endangered Species Act.

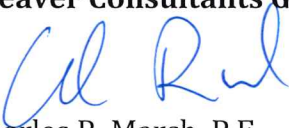
Weaver Consultants Group, LLC (WCG) is preparing a permit amendment application, on behalf of Texas Regional Landfill Company, LP, to vertically and horizontally expand the existing Type IV municipal solid waste landfill located approximately 15 miles southeast of downtown Fort Worth, Texas, and approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W. The expansion will be a vertical increase in the height of the landfill and a horizontal increase in the limits of waste disposal included in the current Texas Commission on Environmental Quality (TCEQ) permit. To assist you in your determination regarding threatened or endangered species or their critical habitat within or near the referenced project, please find attached (1) a project summary and site location maps and (2) a site-specific Threatened and Endangered Species Report completed by WCG in November 2021.

The site has operated as a landfill for over 30 years, and a significant portion of the area within the landfill footprint boundary has been disturbed by earth-moving activities (e.g., landfill operation, soil borrow area operations, etc.). A site specific Threatened and Endangered Species Review was completed in November 2021 by WCG. As discussed in the attached review, the site does not provide habitat for and would not likely be occupied by any federally listed and state listed threatened and endangered species. The report notes that, while it is possible that the migratory bird species may utilize the site during migration, use would be transitory in nature and of short duration. Lack of suitable habitat makes the occurrence of the migratory species highly unlikely.

To verify compliance with Title 30 TAC §330.61(n)(2), we will need to include a review letter from the Texas Parks and Wildlife Department within the permit application. As discussed in the attached WCG report, the site is not likely to be occupied by any federal or state-listed species. Therefore, it is requested that the Texas Parks and Wildlife Department concur with the conclusions made in the attached report.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,  
**Weaver Consultants Group, LLC**



Charles R. Marsh, P.E.  
Project Director

Attachment: Attachment 1 – Project Summary and Site Location Maps  
Attachment 2 – Threatened and Endangered Species Report

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT 1**  
**PROJECT SUMMARY AND SITE LOCATION MAPS**

# **Project Summary**

## **Fort Worth C&D Landfill Expansion**

### **Tarrant County, Texas**

## **Introduction**

Texas Regional Landfill Company, LP is in the process of developing a major permit amendment application to obtain authorization for an expansion of the existing Fort Worth C&D Landfill. This landfill expansion project will provide long-term disposal capacity for municipal solid waste that is generated in the area. The permit application will be submitted to the Texas Commission on Environmental Quality (TCEQ). The application will undergo a detailed review by the TCEQ before the permit for this facility is issued.

The objective of this summary is to provide an overview of the proposed landfill expansion. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

## **Owner/Operator Information**

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP, a subsidiary of Waste Connections, Inc. Waste Connections, Inc. is one of the leading providers of solid waste services in the nation and provides services to residential, municipal and commercial customers across the country.

## **Site Information**

The following drawings are attached to this summary.

- Figure 1 – Site Location Map. This drawing shows the site location on a standard TxDOT county highway map.
- Figure 2 – General Topographic Map. This drawing shows the existing permitted landfill permit boundary and the limits of disposal area on a USGS map.
- Figure 3 – Aerial Photograph. This figure details the existing permitted landfill permit boundary and limits of waste disposal area on an aerial photograph.
- Figure 4 – Site Plan. This plan highlights the existing permitted landfill permit boundary and the limits of disposal area on a detailed topographic map.
- Figure 5 – Existing and Proposed Landfill Completion Plan. This Plan provides a comparison between the currently permitted landfill and the proposed changes to the landfill completion plan.

## Site History

The Fort Worth C&D Landfill is an existing 184.3-acre Type IV municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) with approximately 100.3 acres approved for waste fill. The site is located approximately 2.4 miles south of Interstate Highway (IH) 20 and 5 miles east of IH-35W. The physical address of the site is 4144 Dick Price Road, Fort Worth, Texas 76140. The initial landfill facility Permit No. MSW 1983 was issued in 1988, and disposal operations began in 1997. The site at that time consisted of 38.1 acres, with roughly 26 acres used for waste fill. In December 2002, Permit No. MSW-1983B was issued, which expanded the landfill laterally resulting in a permitted site area of 151.73 acres with approximately 77.7 acres for waste fill. In January 2017, Permit No. MSW-1983C was issued which expanded the landfill vertically. In May of 2021, Permit No. MSW-1983D was issued expanding the permitted area to 184.3 acres with 100.3 acres for waste fill. The landfill presently operates under Permit No. MSW-1983D, with a total waste disposal capacity of 22,888,000 cubic yards. As of February 17, 2022, when the latest available aerial flyover was conducted, the remaining capacity of current Permit No. MSW-1983D is approximately 9,887,975 cubic yards.

## Design Summary

The following information presents a summary of the design and operations of the proposed Fort Worth C&D Landfill expansion.

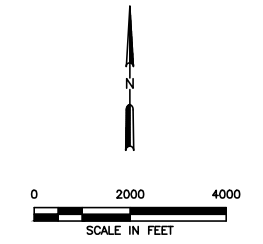
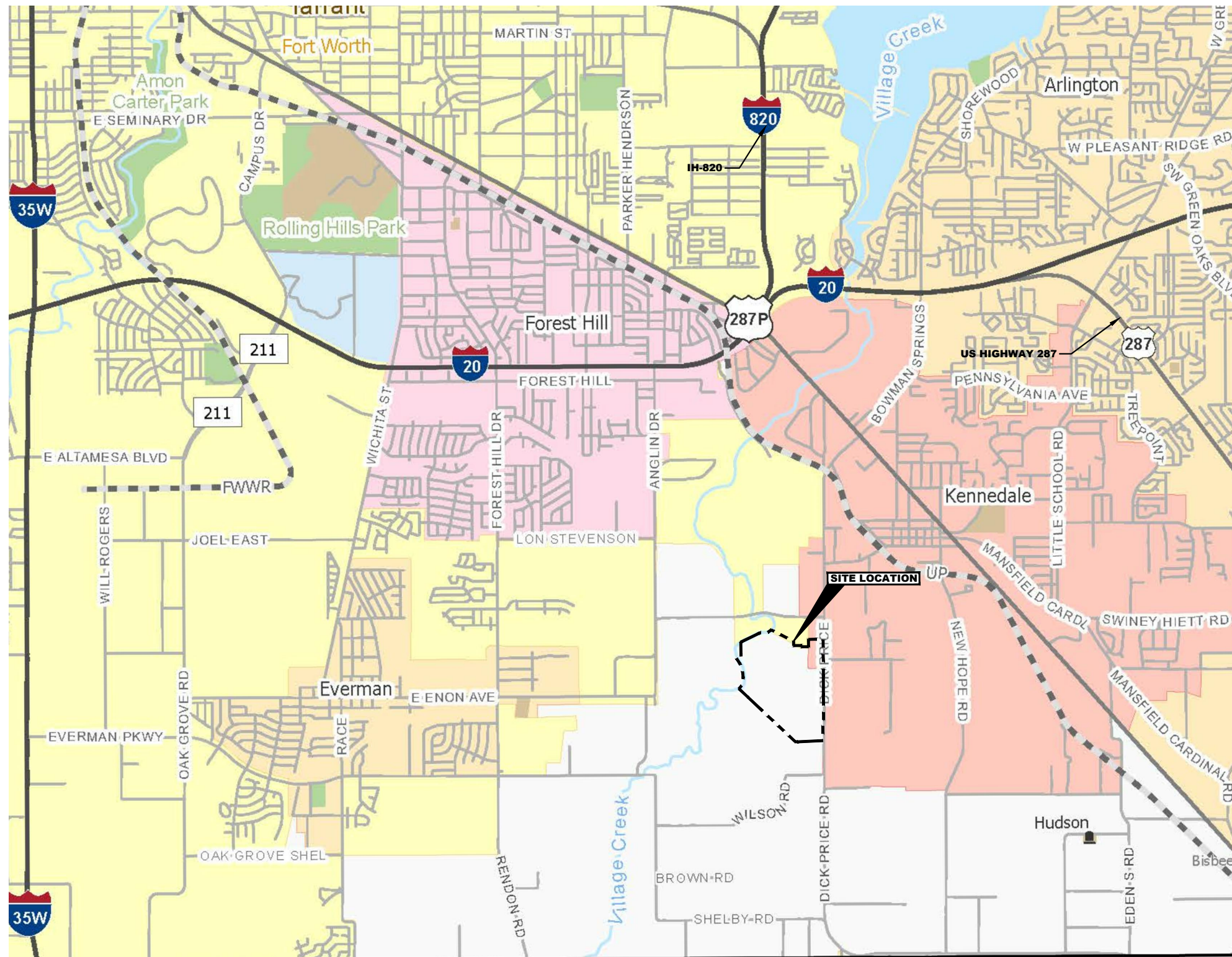
- The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill facility (MSW Permit No. MSW-1983D). The existing landfill currently serves residences and businesses in the communities of Tarrant, Johnson, Parker, Collin, Dallas and Denton Counties.
- With this expansion, the existing 184.3-acre permit boundary footprint will not be expanded. The permitted limits of waste will be expanded from approximately 100.3 acres to approximately 121.9 acres. The current peak elevation of 820 feet mean sea level (msl) will be expanded vertically to 860 feet msl.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include brush, construction-demolition waste, Class 2 and 3 industrial solid waste, tires, and some special wastes as approved by TCEQ.
- Access to the site will be provided via the existing site access roads. Based on travel patterns of existing landfill traffic, vehicles bound for the landfill will generally access the site using Dick Price Road, which is capable of handling the loads associated with landfill traffic.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The construction procedures of the liner and cover systems follow strict TCEQ-approved quality control procedures, which

are performed by a qualified independent licensed professional engineer specialized in landfill construction quality assurance. Each of the containment system components must be thoroughly reviewed and approved by the TCEQ before solid waste is placed in the landfill.

- To verify that the highest level of environmental protection is provided, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells located on the perimeter of the landfill, which are screened in the upper most water table. The water samples are tested by an accredited third-party analytical laboratory.
  - LFG Detection System. The purpose of the LFG detection system is to verify that LFG does not migrate off-site. LFG detection probes have been installed along the current permit boundary perimeter.

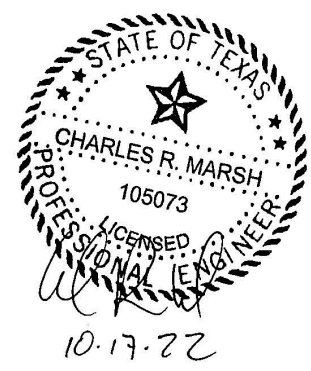
Each of these systems are sampled and tested periodically. The results are filed with the TCEQ and are public record.

- Site Operations. The site will be operated by personnel who have been trained and certified by the TCEQ. A detailed site operating plan will be included in the permit amendment application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with TCEQ regulations. The active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis to ensure the site is in compliance with state regulations.



- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⚰ Cemetery
  - ⊕ Cemetery (Inside City)
  - ⊕ Deep Draft Port
  - ⊕ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

- NOTES:**
- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.



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<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
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DATE: 10/2022	DRAWN BY: JDW
FILE: 0771-356-11	DESIGN BY: JBP
CAD: FIG 1-SITE LOCATION MAP.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

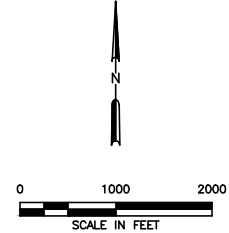
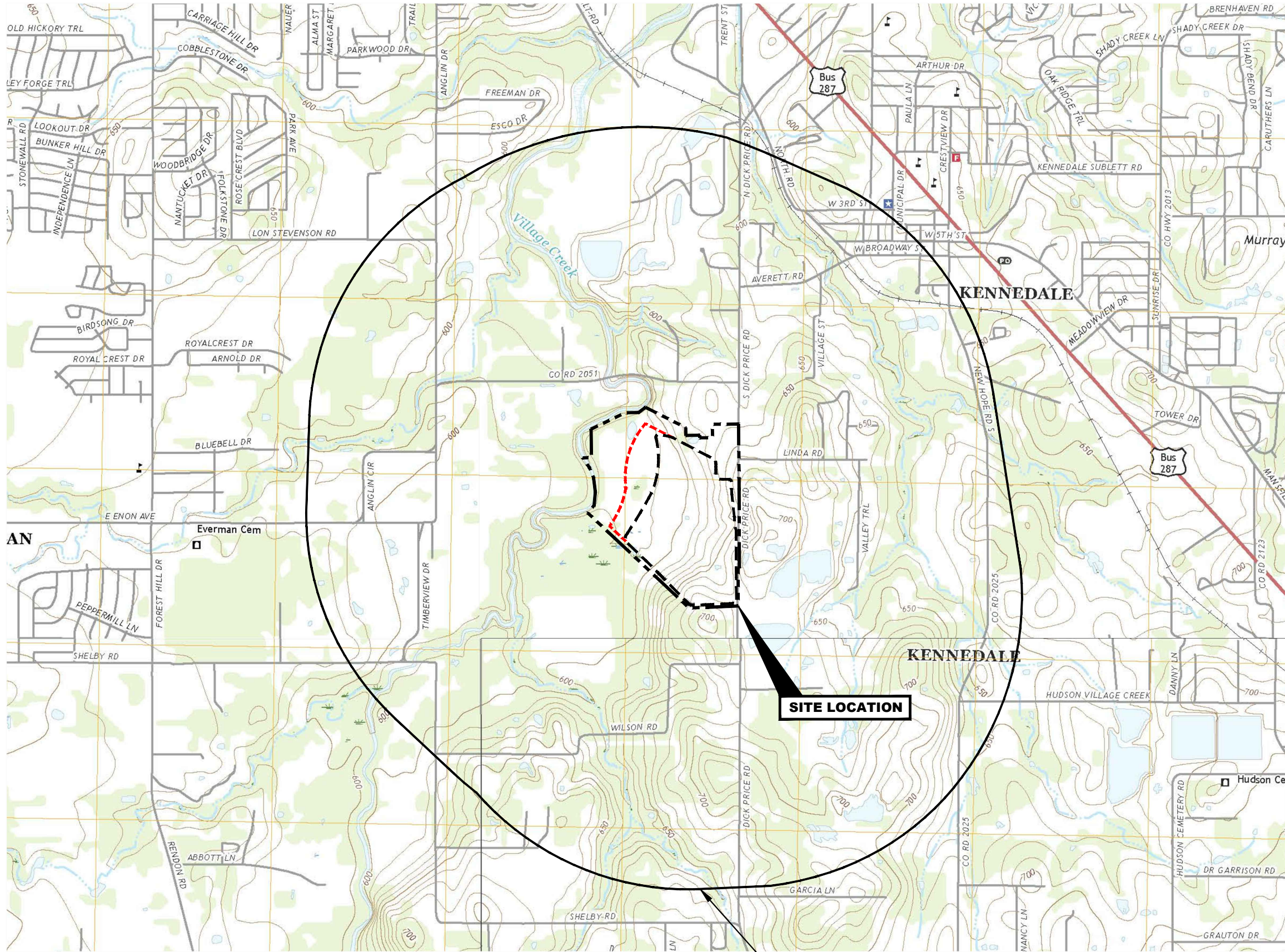
REVISIONS		
NO.	DATE	DESCRIPTION

<b>SITE LOCATION MAP</b>	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 1

I\IB-135

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 1-SITE LOCATION MAP.dwg - jpubr - 1:2





**LEGEND**

- - - - - PERMIT BOUNDARY  
 - - - - - PERMITTED LIMIT OF WASTE  
 - - - - - PROPOSED LIMIT OF WASTE

**ROAD CLASSIFICATION**

Expressway		Local Connector	
Secondary Hwy		Local Road	
Ramp		4WD	
Interstate Route		US Route	
		State Route	

**NOTES:**

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



**SITE LOCATION**

1-MILE RADIUS

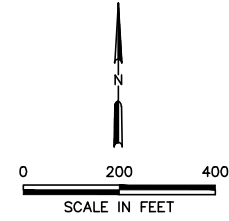
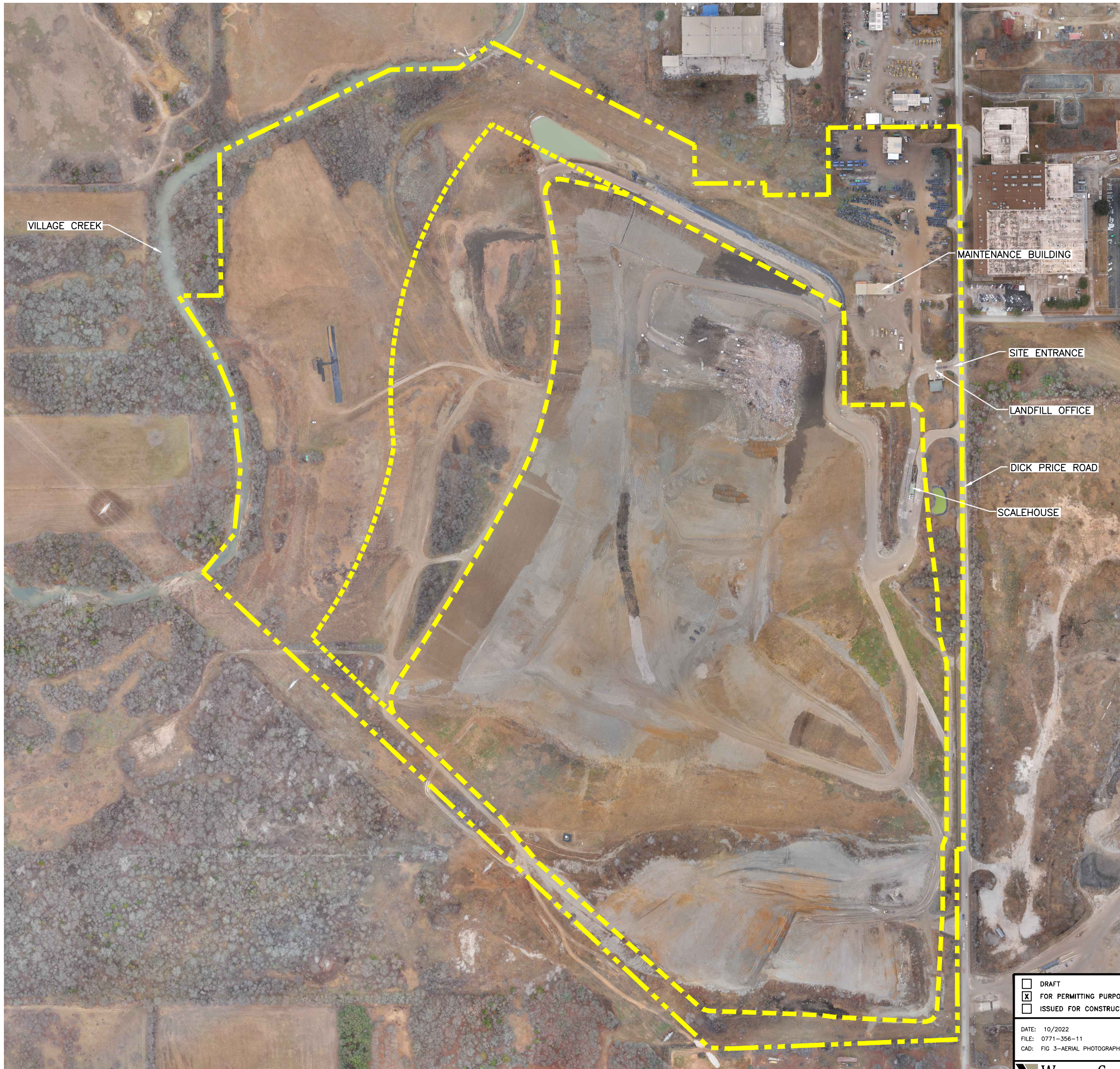
<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP												
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION														
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REVISIONS														
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FILE: 0771-356-11	DESIGN BY: JBP													
CAD: FIG 2-GENERAL TOPO MAP.DWG	REVIEWED BY: CRM													

WEAVER CONSULTANTS GROUP TBPE REGISTRATION NO. F-3727		
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GENERAL TOPOGRAPHIC MAP	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 2

IB-136

G:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 2-GENERAL TOPO MAP.dwg - jpbur - 1:2

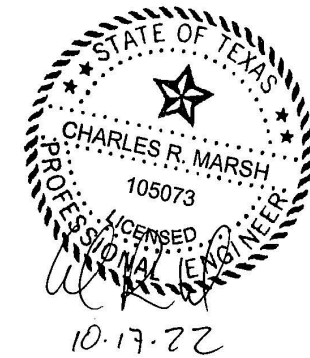


**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**NOTES:**

1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



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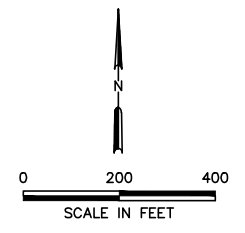
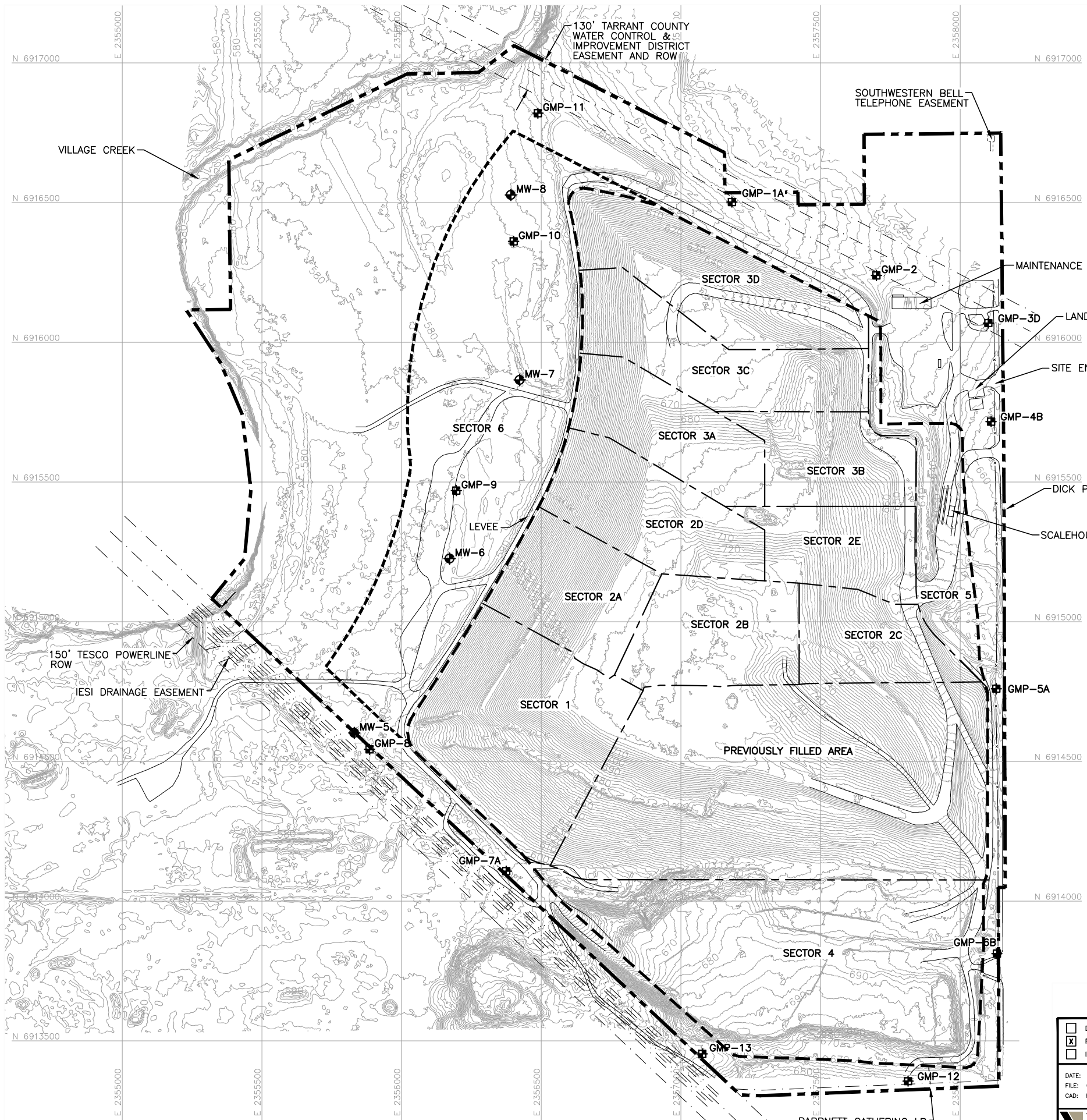
DATE: 10/2022	DRAWN BY: JDW
FILE: 0771-356-11	DESIGN BY: JBP
CAD: FIG 3-AERIAL PHOTOGRAPH.DWG	REVIEWED BY: CRM

REVISIONS		
NO.	DATE	DESCRIPTION

**Weaver Consultants Group**  
 TBPE REGISTRATION NO. F-3727

AERIAL PHOTOGRAPH	
FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
WWW.WCGRP.COM	FIGURE 3

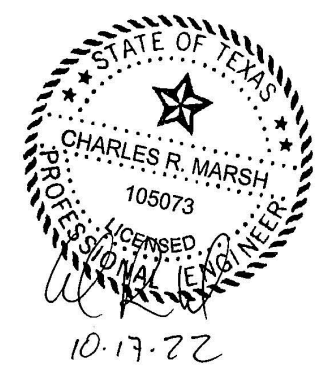
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**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	EASEMENT

**NOTES:**  
 1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



I\IIB-138

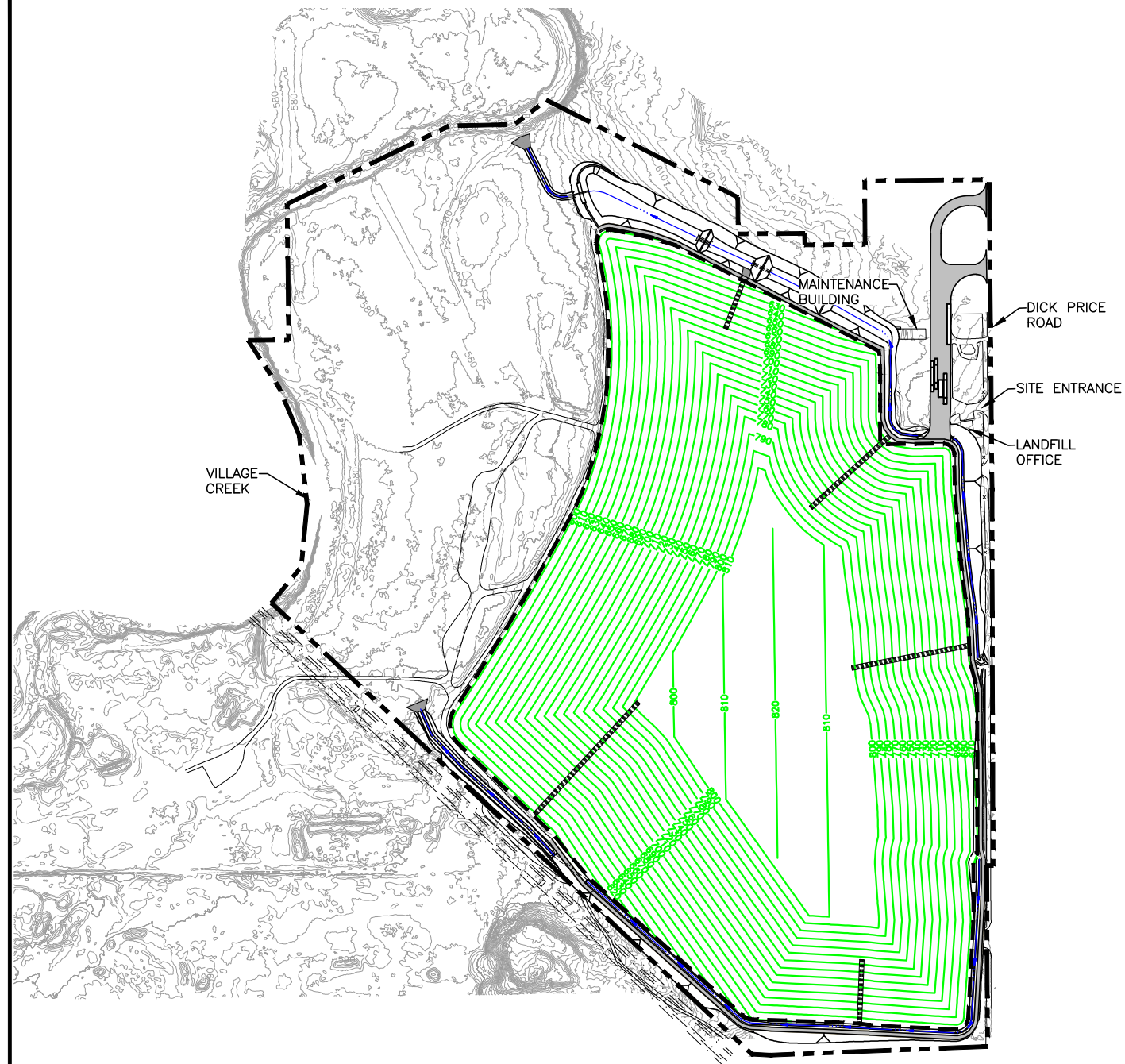
BARNETT GATHERING LP  
20' WIDE PIPELINE EASEMENT

<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION			
DATE: 10/2022	DRAWN BY: JDW	REVISIONS	
FILE: 0771-356-11	DESIGN BY: JBP	NO.	DATE
CAD: FIG 4-SITE PLAN.DWG	REVIEWED BY: CRM		DESCRIPTION
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			

PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
DATE: 10/2022			
FILE: 0771-356-11			
CAD: FIG 4-SITE PLAN.DWG			
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			

PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
DATE: 10/2022			
FILE: 0771-356-11			
CAD: FIG 4-SITE PLAN.DWG			
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			
		WWW.WCGRP.COM	FIGURE 4

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 5-EXISTING AND PROPOSED COMPLETION PLANS.dwg - jpubr, 1:2



**PERMITTED LANDFILL COMPLETION PLAN**



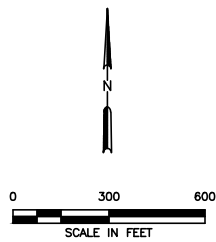
**PROPOSED LANDFILL COMPLETION PLAN**

**NOTES:**

- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED FINAL COVER CONTOUR



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	DATE: 10/2022 FILE: 0771-356-11 CAD: 5-COMPLETION PLAN COMP.DWG				DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS		WWW.WCGRP.COM									
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NO.	DATE	DESCRIPTION											

**ATTACHMENT 2**  
**THREATENED AND ENDANGERED SPECIES REPORT**

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## MEMORANDUM

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**To:** Chuck Marsh, Johnna Puhr  
**Date:** November 15, 2021

**From:** Peter D. McKone, CWB  
Weaver Consultants Group, LLC  
**Project No:** 0771-356-11-31-03

**Re:** Fort Worth C&D – Threatened and Endangered Species

---

The U.S. Fish and Wildlife Service (USFWS) lists two species as threatened and one species as endangered. The two threatened species included the piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*). The endangered species is the whooping crane (*Grus americana*).

In addition to the federally listed species, the Texas Parks and Wildlife Department (TPWD) listed 10 threatened species and one endangered species. The listed threatened species include the black rail (*Laterallus jamaicensis*), piping plover, red knot, white-faced ibis (*Plegadis chihi*), black bear (*Ursus americanus*), Louisiana pigtoe (*Pleurobema riddellii*), sandbank pocketbook (*Lampsilis satura*), Texas heelsplitter (*Potamilus amphichaenus*), alligator snapping turtle (*Macrochelys temminckii*), and Texas horned lizard (*Phrynosoma cornutum*). The one state-listed endangered species include the whooping crane.

The piping plover and red knot should be considered only for wind energy projects within the migratory route of these species. The whooping crane is considered migratory through this area. Although migratory species occasionally stop over at points along their migratory routes, use of the expansion area would be highly unlikely due to the current land uses of the site.

The black rail prefers salt, brackish, and freshwater marshes and wet meadows. This species nests in marshes on mats or the previous year's dead grasses. It is highly unlikely that this species would be found within the proposed project area.

Habitat for the white-faced ibis is not present on the site. Therefore, the proposed project would have no impact on this species.

The black bear was historically found throughout Texas. This species prefers bottomland hardwoods, floodplain forests, and large tracts of inaccessible forested areas. The proposed project would have no impact on this species.

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The Louisiana pigtoe, sandbank pocketbook, and Texas heelsplitter are mollusks. These species occur in small streams and large rivers with moderate currents with substrates of clay, mud, sand, and gravel. The proposed project is not expected to impact these species.

The alligator snapping turtle is an aquatic species found in perennial water bodies including rivers, canals, lakes, and oxbows. This species is not expected to be impacted by the proposed project.

The Texas horned lizard occupies open, arid, and semi-arid regions with sparse vegetation. Additionally, it prefers loose loamy or sandy soils. These lizards feed almost exclusively on harvester ants. No harvester ant colonies were observed during the field investigation. No Texas horned lizards were observed during the field investigation. It is unlikely that horned lizards would utilize the area.

## **SUMMARY**

No suitable habitat exists on the site for any species listed for Tarrant County, nor has critical habitat been designated in the project area for any threatened and endangered species. The landfill expansion will not result in the destruction or adverse modification of any federally designated critical habitat for any threatened or endangered species, nor cause or contribute to the taking of any listed threatened or endangered species. Therefore, no further investigation for threatened and endangered species is recommended.

Last Update: 10/1/2021

## TARRANT COUNTY

### AMPHIBIANS

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B,S3N

**Black Rail** *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

**Chestnut-collared Longspur** *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Franklin's gull** *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2N

#### DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.



## TARRANT COUNTY

### BIRDS

**interior least tern** *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: State Status: SGCN: N  
Endemic: N Global Rank: G4T3Q State Rank: S1B

**Lark Bunting** *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (*Koeleria*), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S4B

**mountain plover** *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

**piping plover** *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2N

**Rufa Red Knot** *Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G4T2 State Rank: S2N

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## TARRANT COUNTY

### BIRDS

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

### FISH

**Mississippi silvery minnow** *Hybognathus nuchalis*

Found in eastern Texas streams, from the Brazos River eastward and northward to the Red River; found in moderate current; silty, muddy, or rocky substrate. In Texas, adults likely to inhabit smaller tributary streams.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S4

### INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

**Comanche harvester ant** *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

### MAMMALS

**big brown bat** *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
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## TARRANT COUNTY

### MAMMALS

Endemic: N                                      Global Rank: G5                                      State Rank: S5

**big free-tailed bat**                                      *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G5                                      State Rank: S3

**black bear**                                      *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:                                      State Status: T                                      SGCN: Y  
Endemic: N                                      Global Rank: G5                                      State Rank: S3

**black-tailed prairie dog**                                      *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G4                                      State Rank: S3

**cave myotis bat**                                      *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G4G5                                      State Rank: S2S3

**eastern red bat**                                      *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G3G4                                      State Rank: S4

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## TARRANT COUNTY

### MAMMALS

#### eastern spotted skunk

*Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

#### hoary bat

*Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

#### long-tailed weasel

*Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### mountain lion

*Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

#### Muskrat

*Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### swamp rabbit

*Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### tricolored bat

*Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

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## TARRANT COUNTY

### MAMMALS

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

### MOLLUSKS

**Louisiana Pigtoe** *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

**Sandbank Pocketbook** *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

**Texas Heelsplitter** *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

### REPTILES

**alligator snapping turtle** *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**common garter snake** *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

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## TARRANT COUNTY

### REPTILES

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Prairie Skink** *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**slender glass lizard** *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**smooth softshell** *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Texas garter snake** *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G5T4 State Rank: S1

**Texas horned lizard** *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4G5 State Rank: S3

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## TARRANT COUNTY

### REPTILES

**timber (canebrake) rattlesnake** *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

**western box turtle** *Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**western chicken turtle** *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S2S3

**western massasauga** *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

### PLANTS

**earleaf false foxglove** *Agalinis auriculata*

Known in Texas from one late nineteenth century specimen record labeled -Benbrook-; in Oklahoma, degraded prairies, floodplains, fallow fields, and borders of upland sterile woods; in Arkansas, blackland prairie; Annual; Flowering August - October

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: SH

**Engelmann's bladderpod** *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

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## TARRANT COUNTY

### PLANTS

<b>Glen Rose yucca</b>	<i>Yucca necopina</i>		
Grasslands on sandy soils and limestone outcrops; flowering April-June			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G1G2	State Rank:	S3
<b>Hall's prairie clover</b>	<i>Dalea hallii</i>		
In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3	State Rank:	S2
<b>Osage Plains false foxglove</b>	<i>Agalinis densiflora</i>		
Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S2
<b>Reverchon's scurfpea</b>	<i>Pediomelum reverchonii</i>		
Mostly in prairies on shallow rocky calcareous substrates and limestone outcrops; Perennial; Flowering Jun-Sept; Fruiting June-July			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S3
<b>Shinner's sedge</b>	<i>Carex shimmersii</i>		
Occurs in ditches and swales in prairie landscapes (Carr 2015).			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S2
<b>Sutherland hawthorn</b>	<i>Crataegus viridis</i> var. <i>glabriuscula</i>		
In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above/near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G5T3T4	State Rank:	S3
<b>Texas milk vetch</b>	<i>Astragalus reflexus</i>		
Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3	State Rank:	S3

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## TARRANT COUNTY

### PLANTS

**Topeka purple-coneflower**      *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides;  
Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

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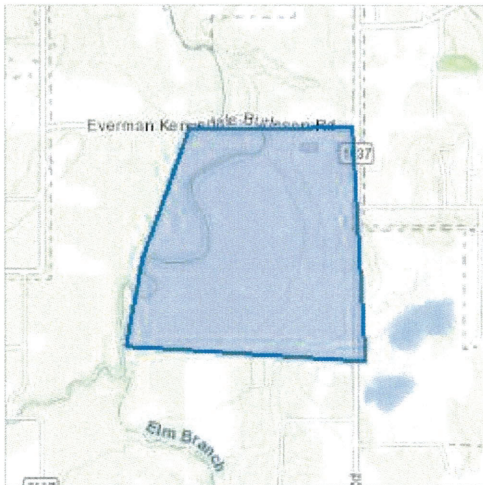
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Tarrant County, Texas



## Local office

Arlington Ecological Services Field Office

☎ (817) 277-1100

📅 (817) 277-1129

2005 Ne Green Oaks Blvd

Suite 140

Arlington, TX 76006-6247

<http://www.fws.gov/southwest/es/arlingontexas/>

I\IIB-153

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME

I\IIB-155

STATUS

**Piping Plover** *Charadrius melodus* **Threatened**  
 This species only needs to be considered if the following condition applies:  
 • Wind Energy Projects  
 There is **final** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/6039>

**Red Knot** *Calidris canutus rufa* **Threatened**  
 Wherever found  
 This species only needs to be considered if the following condition applies:  
 • Wind Energy Projects  
 There is **proposed** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/1864>

**Whooping Crane** *Grus americana* **Endangered**  
 There is **final** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/758>

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	<b>Candidate</b>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.p>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [e-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Lesser Yellowlegs** *Tringa flavipes*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

**Long-billed Curlew** *Numenius americanus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/5511>

**Red-headed Woodpecker** *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (🕒)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (|)**

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

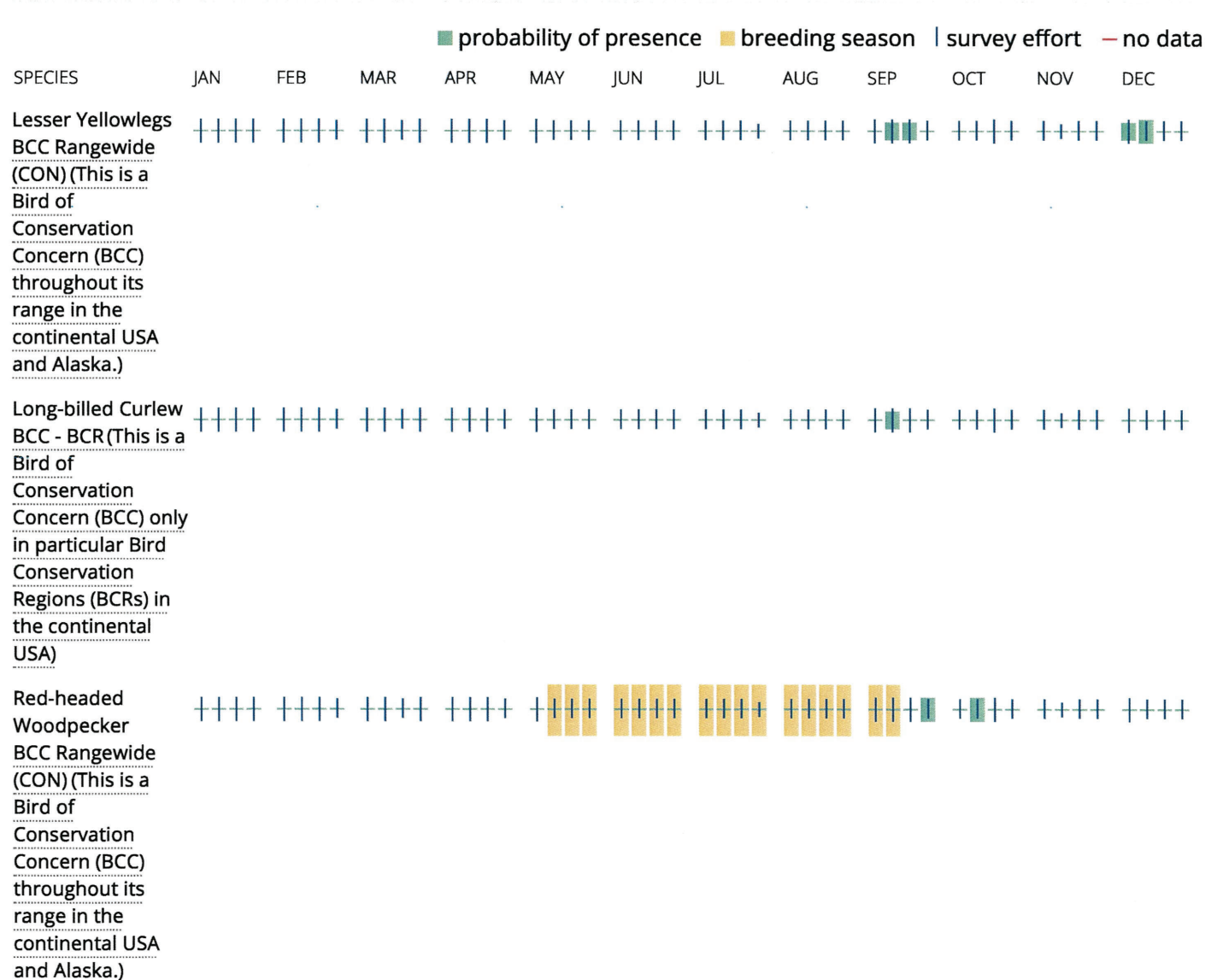
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (-)**

A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.



[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the [Probability of Presence Summary](#). [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the [Probability of Presence Summary](#) and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#) or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

I\IIB-162

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

## **COORDINATION WITH U.S. ARMY CORPS OF ENGINEERS**

- USACE Determination Letter will be submitted to TCEQ when and if received.
- November 18, 2022 WCG Request for Review Letter



November 18, 2022  
Project No. 0771-356-11-31-03

Mr. Stephen Brooks  
Chief - Regulatory Project Manager  
USACE Fort Worth District  
Regulatory Division, CESWF-PER-R  
819 Taylor Street, Room 3A37  
P.O. Box 17300  
Fort Worth, Texas 76012-0300

Re: Waters of the U.S. – AJD Request  
Fort Worth C&D Landfill  
Tarrant County, Texas

Dear Mr. Brooks:

On behalf of Texas Regional Landfill Company, LP, Weaver Consultants Group is submitting this request for review of the excerpts from the effective Storm Water Pollution Prevention Plan (SWPPP), the Notice of Intent (NOI) for the facility, excerpts from the Surface Water Management Plan included in the TCEQ permit application for the Fort Worth C&D Landfill, and the environmental report. The landfill, located at 4144 Dick Price Road in Fort Worth, Texas, has been in operation for over 30 years and is currently preparing a permit amendment application to expand the facility footprint. As a part of this process, we are asking the USACE to issue a determination on the jurisdictional status of waters within the permit boundary of the Fort Worth C&D Landfill.

The waters on the west side of the landfill were part of the permitted and monitored stormwater conveyance and management system for the facility. The excerpts from the SWPPP and TCEQ permit document the inclusion of these features in the permitted stormwater plan. The TCEQ permit excerpts also show that the three monitored discharge points from the facility (shown on Figure 4) have been the same permitted discharge locations for the facility even prior to the approved 2019 TCEQ application.

The borrow areas are located to the southwest and west of the landfill. The southwest borrow has been used as a borrow area for 20 years. The west borrow area is currently un-used.

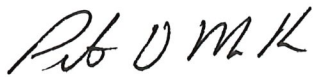
Based on this information, Texas Region Landfill Company, LP is requesting confirmation that these waters, both the stormwater facilities and the southwest

borrow area, are not jurisdictional based on the waste treatment exclusion and the use of these areas for the conveyance and storage of stormwater, consistent with 33 CFR §328.3(b)(10) and (12) and 40 CFR §120(b)(10) and (12), as well as use as existing borrow area.

Please contact us if you have any questions or comments regarding this submittal.

Sincerely,

**Weaver Consultants Group, LLC**



Peter D. McKone, CWB  
Senior Project Director



Charles R. Marsh, P.E.  
Project Director

Attachment 1 - AJD Form  
Attachment 2 - SWPPP Excerpts  
Attachment 3 - NOI  
Attachment 4 - TCEQ Permit Application Excerpts  
Attachment 5 - Environmental Report

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT 1**

**AJD FORM**





**U.S. ARMY CORPS OF ENGINEERS  
REGULATORY PROGRAM  
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)  
NAVIGABLE WATERS PROTECTION RULE**

**I. ADMINISTRATIVE INFORMATION**

Completion Date of Approved Jurisdictional Determination (AJD): [Select](#).  
 ORM Number: (e.g. [HQS-2020-00001-MSW](#)).  
 Associated JDs: [N/A](#) or [ORM numbers and identifiers \(e.g. HQS-2020-00001-MSW-MITSITE\)](#)  
 Review Area Location<sup>1</sup>: State/Territory: [Texas](#). City: [Fort Worth](#). County/Parish/Borough: [Tarrant](#).  
 Center Coordinates of Review Area: Latitude [32.63432](#). Longitude [-97.23941](#).

**II. FINDINGS**

**A. Summary:** Check all that apply. At least one box from the following list **MUST** be selected. Complete the corresponding sections/tables and summarize data sources.

- The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: [N/A](#) or [describe rationale](#).
- There are “navigable waters of the United States” within Rivers and Harbors Act jurisdiction within the review area (complete table in Section II.B).
- There are “waters of the United States” within Clean Water Act jurisdiction within the  review area (complete appropriate tables in Section II.C).
- There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in Section II.D).

**B. Rivers and Harbors Act of 1899 Section 10 (§ 10)<sup>2</sup>**

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
<a href="#">N/A.</a>	<a href="#">N/A.</a> <a href="#">N/A.</a>	<a href="#">N/A.</a>	<a href="#">N/A.</a>

**C. Clean Water Act Section 404**

Territorial Seas and Traditional Navigable Waters ((a)(1) waters): <sup>3</sup>			
(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
<a href="#">N/A.</a>	<a href="#">N/A.</a> <a href="#">N/A.</a>	<a href="#">N/A.</a>	<a href="#">N/A.</a>

Tributaries ((a)(2) waters):			
(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
<a href="#">N/A.</a>	<a href="#">N/A.</a> <a href="#">N/A.</a>	<a href="#">N/A.</a>	<a href="#">N/A.</a>

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):			
(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
<a href="#">N/A.</a>	<a href="#">N/A.</a> <a href="#">N/A.</a>	<a href="#">N/A.</a>	<a href="#">N/A.</a>

Adjacent wetlands ((a)(4) waters):			
(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
<a href="#">N/A.</a>	<a href="#">N/A.</a> <a href="#">N/A.</a>	<a href="#">N/A.</a>	<a href="#">N/A.</a>

<sup>1</sup> Map(s)/figure(s) are attached to the AJD provided to the requestor.  
<sup>2</sup> If the navigable water is not subject to the ebb and flow of the tide or included on the District’s list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.  
<sup>3</sup> A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD Form.



**U.S. ARMY CORPS OF ENGINEERS  
REGULATORY PROGRAM  
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)  
NAVIGABLE WATERS PROTECTION RULE**

**D. Excluded Waters or Features**

Excluded waters ((b)(1) – (b)(12)): <sup>4</sup>			
Exclusion Name	Exclusion Size	Exclusion <sup>5</sup>	Rationale for Exclusion Determination
Forested Wetland Detention ponds	0.04 0.42	Acre(s) Acres	(b)(12) Waste treatment system Component of an existing, monitored system under TPDES multi-sector storm water general permit no TXR050000

**III. SUPPORTING INFORMATION**

**A. Select/enter all resources** that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

- Information submitted by, or on behalf of, the applicant/consultant: **Title(s) and date(s)**  
This information **Select.** sufficient for purposes of this AJD.  
Rationale: **N/A or describe rationale for insufficiency (including partial insufficiency).**
- Data sheets prepared by the Corps: **Title(s) and/or date(s).**
- Photographs: **Select. Title(s) and/or date(s).**
- Corps site visit(s) conducted on: **Date(s).**
- Previous Jurisdictional Determinations (AJDs or PJDs): **ORM Number(s) and date(s).**
- Antecedent Precipitation Tool: **provide detailed discussion in Section III.B.**
- USDA NRCS Soil Survey: **Title(s) and/or date(s).**
- USFWS NWI maps: **Title(s) and/or date(s).**
- USGS topographic maps: **Title(s) and/or date(s).**

**Other data sources used to aid in this determination:**

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	N/A.

**B. Typical year assessment(s):** **N/A or provide typical year assessment for each relevant data source used to support the conclusions in the AJD.**

**C. Additional comments to support AJD:** **N/A or provide additional discussion as appropriate.**

<sup>4</sup> Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.

<sup>5</sup> Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions, but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

**ATTACHMENT 2**

**NOI**

Jon Niermann, *Chairman*  
Emily Lindley, *Commissioner*  
Bobby Janecka, *Commissioner*  
Toby Baker, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

November 8, 2021

Dear Applicant:

Re: TPDES Multi-Sector General Permit (MSGP, TXR050000)  
Notice of Intent (NOI) Authorization

Your Notice of Intent (NOI) application for authorization under the general permit for discharge of stormwater associated with industrial activities has been received. Pursuant to authorization from the Executive Director of the Texas Commission on Environmental Quality (TCEQ), the Division Deputy Director of the Water Quality Division has issued the enclosed Certificate.

Please refer to the attached certificate for the authorization number that was assigned to your facility/site and the effective date. Please use this number to reference this facility/site for future communications with the TCEQ.

**All authorizations that are active on September 1 of each year will be assessed an annual water quality fee.** The billing statement will be mailed to the Operator in December/January and payment must be made within 30 days to avoid late fees. **It is the responsibility of the Operator to notify the TCEQ of any change in address supplied on the original NOI by submitting a Notice of Change (NOC).**

A Notice of Termination (NOT) must be submitted when permit coverage is no longer needed. **The NOT must be submitted to the TCEQ before September 1 to avoid the annual water quality fee assessment.**

**All applications must be submitted online using TCEQ's ePermits (STEERS) system, unless the permittee requests and obtains an electronic reporting waiver.**

**Note:** Currently, the NetDMR system is not ready to accept monitoring report online submissions from MSGP permittees. The system will be ready on December 1, 2021. *Please do not attempt to access NetDMR prior to this date.*

For questions related to your application you may contact the Stormwater Processing Center by email at [SWPERMIT@tceq.texas.gov](mailto:SWPERMIT@tceq.texas.gov) or by telephone at (512) 239-3700. If you have any questions regarding coverage under the MSGP or other technical issues, you may contact the stormwater technical staff by email at [SWGPA@tceq.texas.gov](mailto:SWGPA@tceq.texas.gov) or by telephone at (512) 239-4671. Also, you may obtain information on the stormwater web site at <https://www.tceq.texas.gov/permitting/stormwater>. Permit and application status information can be found on the TCEQ web site at <https://www.tceq.texas.gov/goto/wq-dpa>.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Sadlier".

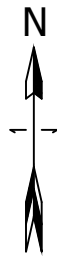
Robert Sadlier, Deputy Director  
Water Quality Division

I\II-B-171

P.O. Box 13087 \* Austin, Texas 78711-3087 \* 512-239-1000 \* [tceq.texas.gov](http://tceq.texas.gov)

[How is our customer service?](http://tceq.texas.gov/customersurvey) [tceq.texas.gov/customersurvey](http://tceq.texas.gov/customersurvey)

**ATTACHMENT 3**  
**TCEQ PERMIT APPLICATION EXCERPTS**



**NOTES:**

- 1.) THE FIRST NAMED RECEIVING WATERBODY IS: VILLAGE CREEK (SEGMENT 0828A), WHICH IS LISTED AS A 303(d) IMPAIRED WATERBODY BY THE TCEQ FOR BACTERIA (RECREATIONAL USE).
- 2.) THE FACILITY DISCHARGES TO THE DALLAS-FORT WORTH-ARLINGTON M54.
- 3.) THE APPROXIMATE LOCATION OF THE ENTRANCE TO THE FACILITY IS: 32.63375° N / -97.23428° W.
- 4.) PROPERTY IS COMPRISED OF APPROXIMATELY 254 ACRES.
- 5.) SCALE BAR ONLY APPLIES TO THE LARGE SITE MAP, AND NOT THE INSERT.
- 6.) NORTH ARROW APPLIES TO ONLY THE SITE MAP.

**TANKS**

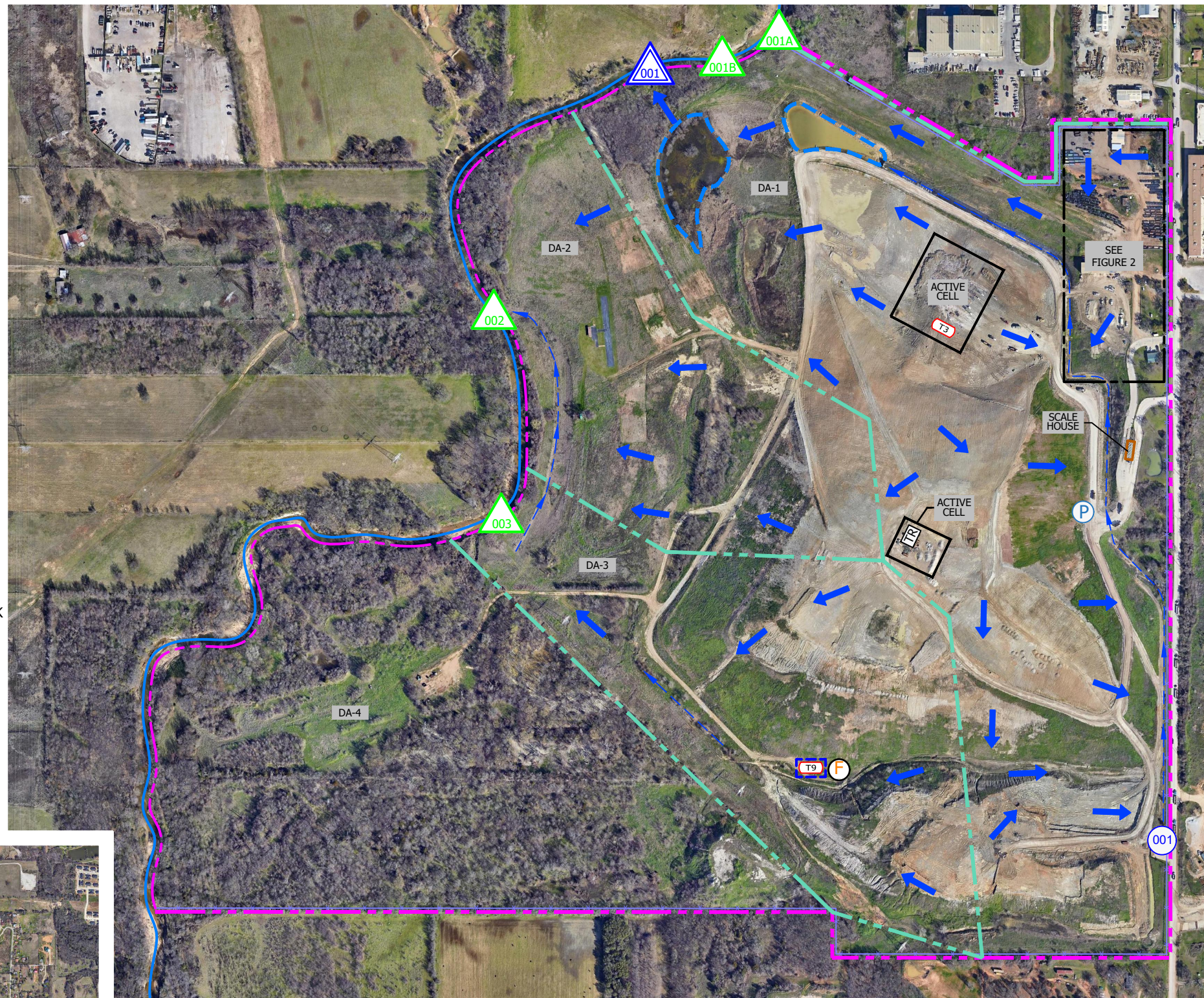
T1	DIESEL	1 – 12,000 GALLON DOUBLE-WALLED STEEL TANK
T2	GASOLINE	1 – 2,000 GALLON DOUBLE-WALLED STEEL TANK
T4	WASTE OIL	1 – 500 GALLON STEEL TANK
T5	GEAR OIL	1 – 275 GALLON STEEL TANK
T6	MOTOR OIL	1 – 275 GALLON STEEL TANK
T7	HYDRAULIC OIL	1 – 275 GALLON STEEL TANK
T8	TRANSMISSION OIL	1 – 275 GALLON STEEL TANK
T9	CONDENSATE	1 – 2,000 GALLON POLY TANK
T10	ANTIFREEZE	1 – 275 GALLON STEEL TANK

**MOBILE TANKS**

T3	DIESEL	1 – 500 GALLON STEEL TANK ON FUEL TRUCK
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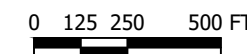
**TOTES & DRUMS**

D1 – D8	VARIOUS OIL BASED FLUIDS	8 – 55 GALLON DRUMS ON SPILL PALLETS
D9	DEF	2 – 300 GALLON IBC PLASTIC TOTE
D10	USED OIL FILTERS	1 – 330 GALLON



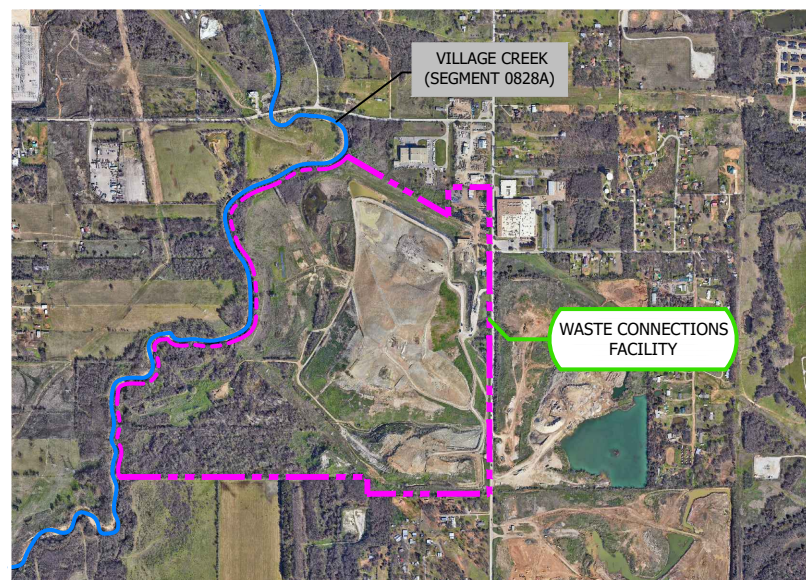
**LEGEND**

- PROPERTY BOUNDARY
- DRAINAGE BOUNDARY
- DETENTION POND
- POTENTIAL RECEIVING WATER BODY
- FENCE
- DITCH / CREEK / SWALE
- DRAINAGE STRUCTURES (PIPES, CULVERTS)
- FLOW DIRECTION
- DRAINAGE AREA
- LOADING / UNLOADING AREA
- OUTFALL (TO BE SAMPLED)
- OUTFALL (NOT SAMPLED)
- INFALL
- TIRE STORAGE IN ROLL-OFF CONTAINER
- PORT-A-JOHN
- DUMPSTER
- STRUCTURE
- SECONDARY CONTAINMENT
- SPILL KIT
- SCRAP METAL ROLLOFF/HOPPER
- AST (ABOVEGROUND STORAGE TANK) #
- PORTABLE CONTAINERS #
- DRUMS / TOTES / #
- FLARE
- RAIN GAUGE



**OUTFALL COORDINATES:**

OF 001	32.636252°N / -97.240929°W
OF 001A	32.636834°N / -97.239913°W
OF 001B	32.636766°N / -97.240167°W
OF 002	32.634032°N / -97.243197°W
OF 003	32.631638°N / -97.243274°W



I\IB-173

 1011 W. Lewis Street Conroe, TX 77301 281-210-0084 : www.rkci.com	<b>Fort Worth C &amp; D Landfill</b> 4144 Dick Price Rd. Fort Worth, TX 76140	SWPPP / SPCC SITE PLAN	FIGURE: <b>1</b>	 WASTE CONNECTIONS INC.
	JOB#: AWF2000702    Rev # 0	DSN: JC    SCALE: MAP SCALE    DATE: 07-13-2021		



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**  
**Texas Pollutant Discharge Elimination System**  
**Stormwater Multi-Sector General Permit**

The Notice of Intent (NOI) for the facility listed below was received on November 8, 2021. The intent to discharge stormwater associated with industrial activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) stormwater Multi-Sector General Permit (MSGP) TXR050000 is acknowledged. Your facility's unique TPDES MSGP stormwater authorization number is:

**TXR05AP26**

Coverage Effective: November 11, 2011

Sector: L Primary SIC code: 4953

TCEQ's stormwater MSGP requires certain stormwater pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a stormwater pollution prevention plan (SWP3) that is tailored to your industrial site. As a facility authorized to discharge under the stormwater MSGP, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

**Facility/Site Information:**

RN101478790  
Fort Worth C And D Landfill  
4144 Dick Price Rd  
Fort Worth, TX 76140  
Tarrant County

**Operator:**

CN601668486  
Texas Regional Landfill Company, LP  
3 Waterway Square Pl Ste 550  
The Woodlands, TX 77380

**The MSGP and all authorizations expire on August 14, 2026, unless otherwise amended.** If you have any questions related to your application, you may contact the Stormwater Processing Center by email at [SWPERMIT@tceq.texas.gov](mailto:SWPERMIT@tceq.texas.gov) or by telephone at (512) 239-3700. For technical issues, you may contact the stormwater technical staff by email at [SWGP@tceq.texas.gov](mailto:SWGP@tceq.texas.gov) or by telephone at (512) 239-4671. Also, you may obtain information on the TCEQ web site at <https://www.tceq.texas.gov/goto/wq-dpa>. A copy of this document should be kept with your SWP3.

A handwritten signature in black ink, appearing to read "T. J. Baker".

---

FOR THE COMMISSION

Issued Date: November 08, 2021

**ATTACHMENT 4**  
**ENVIRONMENTAL REPORT**



**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
ENVIRONMENTAL REPORT**

Prepared for  
Texas Regional Landfill Company, LP  
October 2022

Prepared by  
**Weaver Consultants Group, LLC**  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

WCG Project No. 0771-356-11-31-03

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	2.4 Threatened and Endangered Species	6
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### ATTACHMENTS

#### ATTACHMENT A

Figures

#### ATTACHMENT B

Photographs

#### ATTACHMENT C

Historical Aerials and Topographic Maps

#### ATTACHMENT D

Table 1 – Potential Effects to Listed Species Possibly Occurring within the Project Area (Tarrant County, Texas)

# 1 INTRODUCTION

---

Texas Regional Landfill Company, LP contracted Weaver Consultants Group to perform an environmental assessment of the proposed Fort Worth C&D Landfill expansion project and borrow area (Attachment A). The environmental assessment included an evaluation of waters of the U.S., threatened and endangered species investigation, and examination of other pertinent environmental issues. The Fort Worth C&D Creek Landfill project is located in Tarrant County approximately two miles south of the intersection of U.S. Interstate Highway 20 (I-20) and Business 287 (Attachments A through C).

The purpose of this report is to describe conditions on the site and provide an assessment of the potential presence of jurisdictional waters, threatened and endangered species, and other relevant environmental topics to ensure compliance with Sections 404 and 401 of the Clean Water Act for expansion of the landfill.

## 2 METHODS

---

### 2.1 Desktop Analysis

The assessment looked at the proposed expansion area as well as the two proposed borrow sites. The project area was mapped and analyzed to include:

- United States Geological Survey (USGS) – Geologic Map Database
- United States Department of Agriculture, Natural Resources Conservation Service (NRCS) Soils Data
- USGS 7.5-minute Topographic Map
- United States Fish and Wildlife Service (USFWS) – National Wetland Inventory (NWI)
- United States Environmental Protection Agency (EPA) Ecoregions
- United States Fish and Wildlife Service (USFWS), Threatened & Endangered Species for Tarrant County,

### 2.2 Soils

Five soil units were found within the project area and included the following:

- Arents, frequently flooded
- Crosstell fine sandy loam, 3 to 8 percent slopes,
- Frio silty clay, frequently flooded,
- Gasil fine sandy loam, 3 to 8 percent slopes, and
- Whitesboro loam, frequently flooded.

The Arents, frequently flooded consist of deep, loamy soil materials from the overburden of excavated areas of gravel and sand mining operations on nearly level floodplains of large streams. The soils materials are extremely varied.

The Crosstell fine sandy loam, 3 to 8 percent slopes soil unit is located on ridges and comes from clayey residuum weathered from claystone and sandstone. The drainage class is moderately well drained and the runoff class is very high. This soil unit is not

listed as a hydric soil nor is it listed as Prime Farmland. The ecological site designation is Tight Sandy Loam.

The Frio silty clay, frequently flooded soil unit is found in floodplains and is derived from loamy alluvium. The natural drainage class is well drained, the runoff class is low, and frequency of flooding is frequent to none. This soil unit is not listed as a hydric soil nor is it listed as Prime Farmland. The ecological site designation is Loamy Bottomland.

The Gasil fine sandy loam, 3 to 8 percent slopes soil unit is formed from ridges with parent material from loamy residuum weathered from sandstone. The drainage class is well drained and the runoff class is medium. This soil unit is not listed as a hydric soil and is not listed as Prime Farmland. The ecological site designation is Sandy Loam.

The Whitesboro loam, frequently flooded soil unit formed in loamy alluvial sediment. Slopes range from 0 to 1 percent. This soil unit is found in floodplains of major streams. The drainage class is well drained, permeability is moderate, and surface runoff is slow. This soil unit is not listed as a hydric soil and is not listed as Prime Farmland. The ecological site designation is Loamy Bottomland.

## 2.3 Waters of the United States

### Legal Background

The U.S. Army Corps of Engineers (USACE) regulates certain activities occurring in waters of the U.S. (WOUS) per Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899 (RHA). Under Section 404 of the CWA, authorization must be obtained from the USACE for discharges of dredged and fill material into WOUS. Under Section 10 of the RHA, the USACE regulates work in, or affecting, navigable WOUS.

Agencies that regulate impacts to the nation's water resources located within Texas include the USACE, U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), and the Texas Commission on Environmental Quality (TCEQ). Jurisdictional waters, or WOUS, are protected under guidelines outlined in Executive Order 11990 (Protection of Wetlands) in Sections 401 and 404 of the CWA and by the state's water quality review process. The USACE has primary regulatory authority for enforcing Section 404 requirements for WOUS, including wetlands.

Under Section 10 of the RHA, the USACE regulates navigable WOUS. Navigable waters are defined at 33 CFR 329 as those waters that are subject to the ebb and flow of the tide and/or are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability,

once made, applies laterally over the entire surface of the waterbody and is not extinguished by later actions or events that impede or destroy navigability. Navigable WOUS include many coastal waters, including bays and portions of major rivers.

The limit of USACE jurisdiction for non-tidal WOUS in the absence of adjacent wetlands is the ordinary high-water mark (OHWM). The OHWM is defined as that line on the shore established by the fluctuations of water and indicated by physical characteristics such as the following:

- Clear, natural line impressed on the bank,
- Shelving,
- Changes in the character of the soil,
- Destruction of terrestrial vegetation,
- Presence of litter and debris, or
- Other appropriate means that consider the characteristics of the surrounding areas.

Jurisdictional wetlands are a category of WOUS and are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Delineations of wetlands must be conducted using the “Corps of Engineers Wetland Delineation Manual,” USACE Waterways Experiment Station Wetlands Research Program Technical Report Y-87-1, dated January 1987, including all supplemental guidance. Jack County is located within the region covered by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), dated March 2010 (USACE 2010).

In January 2001, the U.S. Supreme Court decided the Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. case. This case centered on how isolated wetlands would be regulated. In its decision, the court ruled that the USACE does not have jurisdiction over intrastate isolated waters that have no nexus to interstate commerce other than use by migratory birds. In the Western U.S., the ruling mostly affected regulation/protection of playa lakes, abandoned mining and borrow pits, hillside seeps, and other potentially isolated waters.

On June 19, 2006, the U.S. Supreme Court decided the Rapanos, et ux., et al. v. U.S. case. Following this decision, the USACE and EPA issued joint guidance on delineation of WOUS based on the Supreme Court decision. Under this guidance, potential WOUS have been classified as traditional navigable waters (TNW), relatively permanent waters (RPW) (having flow most of the year at least seasonally), or non-RPWs. Based on the guidance, TNWs and their adjacent wetlands and RPWs and their adjacent wetlands are WOUS. Wetlands that are bordering, contiguous, or neighboring another

WOUS are considered adjacent. Additionally, wetlands that are within the 100-year floodplain of another WOUS are considered adjacent. Non-RPWs, wetlands contiguous or adjacent to non-RPWs, and wetlands adjacent to but that do not directly abut an RPW must demonstrate significant nexus on a case-by-case basis to determine the jurisdictional nature of these water features. The significant nexus test requires that a waterbody must have a substantial connection to a TNW by direct flow or have a biological, chemical, and/or hydrological influence on a TNW. This guidance did not void the SWANCC decision.

## Observations

A field investigation was conducted of the project site in February and April, 2021. Several manmade structures, one previously authorized compensatory mitigation site, Village Creek (a perennial creek), numerous older borrow pits, and one forested wetland were found on the site. The several manmade structures were constructed as detention ponds and have been functioning in that role since their inception. These manmade features are part of an all-inclusive stormwater program permitted by the Texas Commission on Environmental Quality (TPDES Multi-sector General Permit – MSGP, TXR050000). Although these features possess wetland characteristics, they would be considered non-jurisdictional due to their manmade functions.

The forested wetland was located in the northwest section of the site. This site is dominated by green ash with some large black willows. Soils contained hydric characteristics, there were water marks on the trees and some displayed buttressed trunks, and the area was a depressional area between Village Creek and the uplands. Heavy beaver (*Castor canadensis*) activity was observed throughout the area with wood cuttings and a beaver run into Village Creek.

The older borrow pits are scattered throughout the south area planned for continued excavation of borrow material as the future borrow area. This area has been in continual use as a borrow area for the associated landfill operation. These areas generally contained ordinary high water marks, steep slopes, and wooded fringes. All were dry during the field visits in Spring 2021. Surrounding vegetation consisted of American elm (*Ulmus americana*), eastern redcedar (*Juniperus virginiana*), poison ivy (*Toxicodendron radicans*), cedar elm (*Ulmus crassifolia*), mesquite, sugar hackberry (*Celtis laevigata*), green ash (*Fraxinus pennsylvanica*), giant ragweed (*Ambrosia trifida*), honey locust (*Gleditsia triacanthos*), and black willow (*Salix nigra*).

The compensatory wetland mitigation area in the southwest corner of the property was for a Section 404 permit issued in 2002. Although it was permitted as a compensatory wetland mitigation area with upland buffer, an assessment of the mitigation area determined it is functioning as an upland and has mesquite (*Prosopis glandulosa*) encroachment. Two small excavated depressional areas in the southern portion appear to be contain enough hydrology to support hydrophytic vegetation.

However, these two small areas do not serve as an example of the predominantly upland features in the remainder of the mitigation area.

## 2.4 Threatened and Endangered Species

The piping plover and red knot should be considered only for wind energy projects within the migratory route of these species. The whooping crane is considered migratory through this area. Although migratory species occasionally stop over at points along their migratory routes, use of the expansion area would be highly unlikely due to the current land uses of the site.

Although the bald eagle was federally delisted, it is still protected at the state level and via the federal Bald and Golden Eagle Protection Act. This species has both resident and migratory populations in the state of Texas. Nesting and wintering eagles are typically found around large bodies of water with large trees for roosting nearby. The project site does not provide habitat for bald eagles.

The black rail is a federally listed and state-listed threatened species that prefers marshes, ponds borders, wet meadows, and grass swamps. The county distribution for this species includes geographic areas that the species may use during migration. As such, the proposed project would have no impact on this species.

Habitat for the white-faced ibis is not present on the site. Therefore, the proposed project would have no impact on this species.

The black bear has been extirpated from North Central Texas and is not expected to occur in the region. This species prefers bottomland hardwoods and large tracts of inaccessible forested areas.

Three mollusks are state-listed as threatened and include the Louisiana pigtoe, sandback pocketbook, and Texas heelsplitter. Appropriate habitat was not found within the project area.

The alligator snapping turtle is state-listed as threatened and has been proposed to be listed at the federal level as threatened. The proposed project is not expected to impact this species.

The Texas horned lizard occupies open, arid, and semi-arid regions with sparse vegetation. Additionally, it prefers loose loamy or sandy soils. These lizards feed almost exclusively on harvester ants. No harvester ant colonies were observed during the field investigation. No Texas horned lizards were observed during the field investigation. It is unlikely that horned lizards would utilize the area.



## 2.5 Migratory Birds

The Migratory Bird Treaty Act of 1918 provides protection for a large number of migratory bird species. The Act specifically is a treaty between the U.S., Japan, Canada, Mexico, and Russia. The Act prohibits, unless permitted by regulations, any person to do the following for any species protected by the Act:

- Pursue; hunt; take; capture; kill; attempt to take, capture, or kill; possess; offer for sale; sell; offer to purchase; deliver for shipment; ship; cause to be shipped; deliver for transportation; transport; cause to be transported; carry; caused to be carried by any means whatever; receive for shipment, transportation or carriage; or export at any time or in any manner any migratory bird....or any part, nest, or egg of any such bird.

The Act is regulated by the USFWS. If a species is found, or an active nest is found, a permit from the USFWS must be obtained before take of the species can occur.

### 3 RESULTS AND RECOMMENDATIONS

---

The remaining waterbodies were determined to be manmade and are currently serving the functions for which they were constructed. These manmade features are part of an all-inclusive stormwater program permitted by the Texas Commission on Environmental Quality (TPDES Multi-sector General Permit – MSGP, TXR050000). The borrow areas in the south tract appear to have been constructed as part of an ongoing borrow program. As a result, these waterbodies were determined to be non-jurisdictional.

The compensatory mitigation area in the southwest portion of the property did not possess any wetland characteristics, with the exception of two small depressional areas. Filling in this area would require a modification to any existing protective easement.

No suitable habitat exists on the site for any species listed for Tarrant County, nor has critical habitat been designated in the project area for any threatened and endangered species. The landfill expansion will not result in the destruction or adverse modification of any federally designated critical habitat for any threatened or endangered species, nor cause or contribute to the taking of any listed threatened or endangered species. Therefore, no further investigation for threatened and endangered species is recommended.

## 4 REFERENCES

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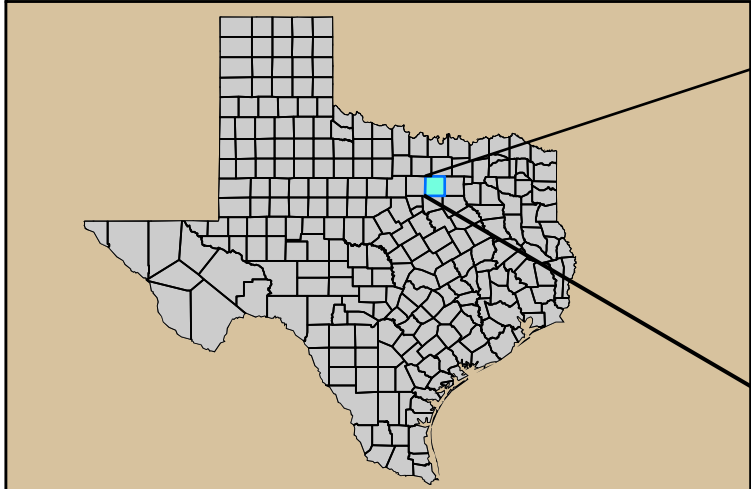
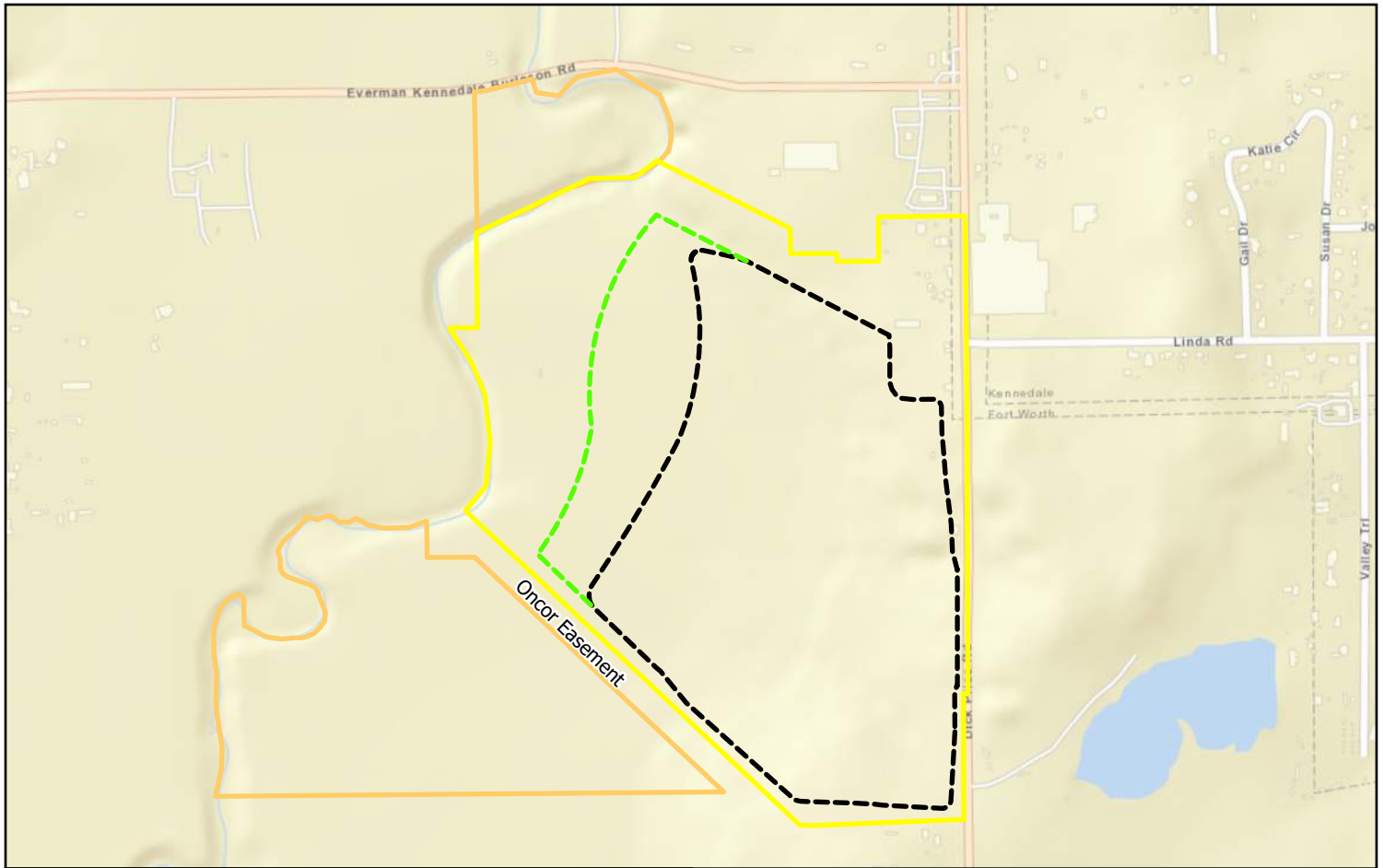
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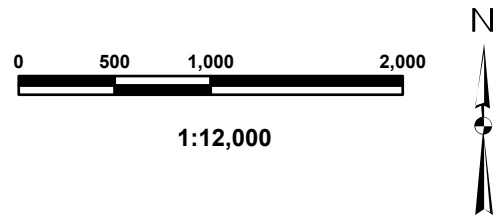
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**ATTACHMENT A**  
**FIGURES**



- Permit Boundary
- - - Proposed Limit of Waste
- - - Permitted Limit of Waste
- Borrow Areas



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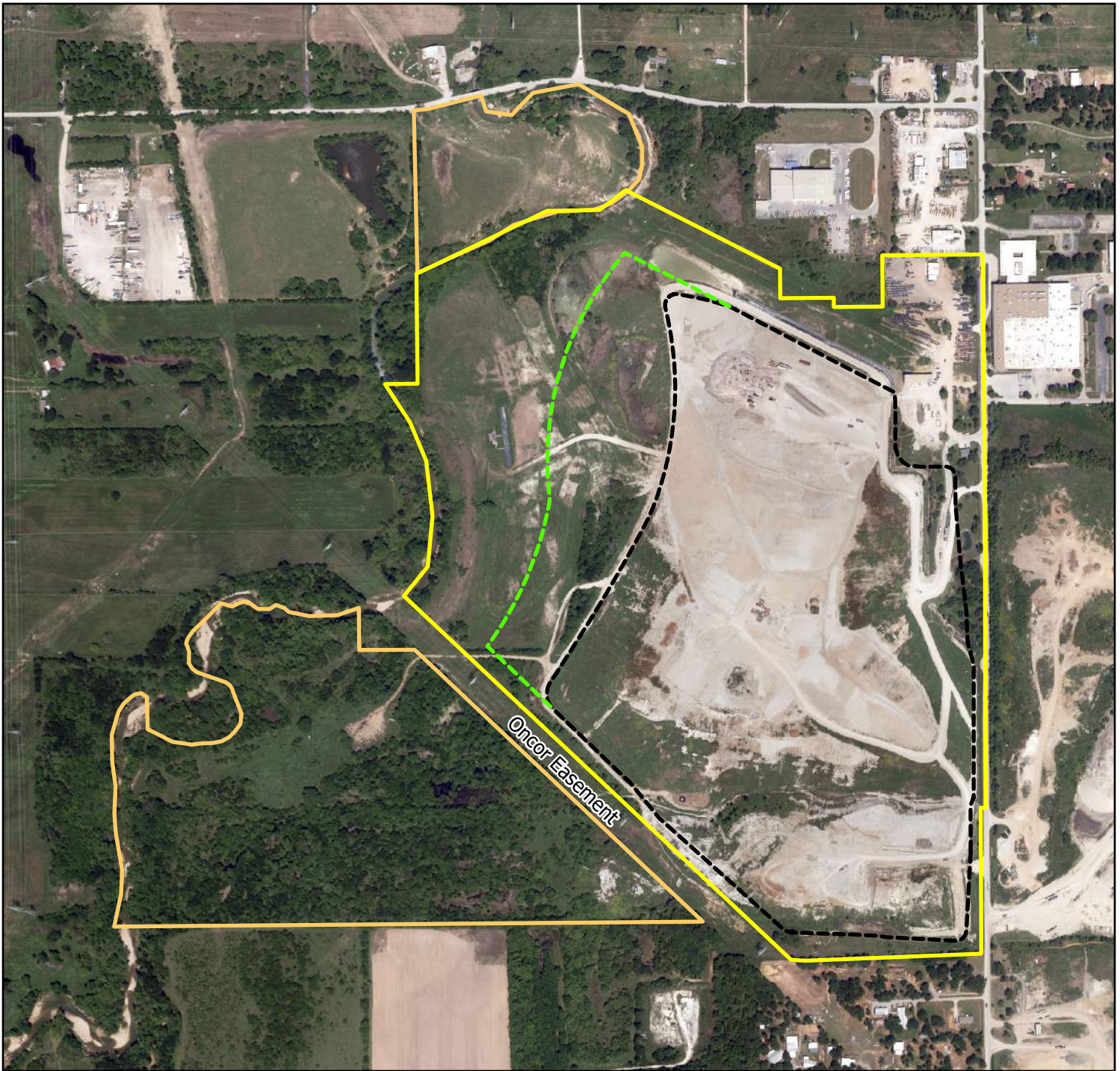
**LOCATION MAP**  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

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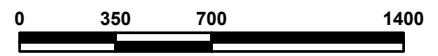
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<b>FIGURE</b>	<b>1</b>



- Permit Boundary
- - - Proposed Limit of Waste
- Permitted Limit of Waste
- Borrow Areas



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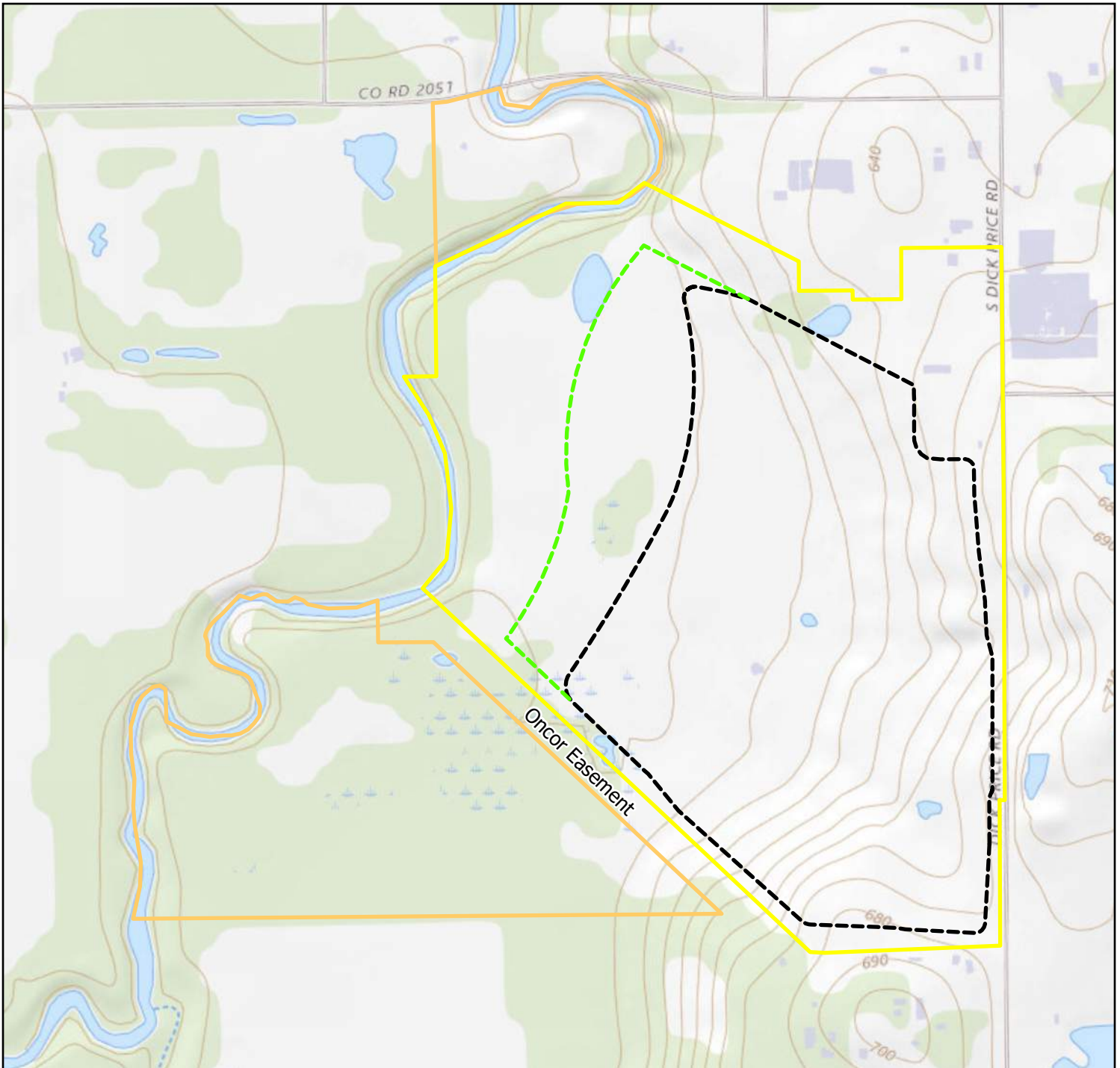
**AERIAL MAP**  
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 TARRANT COUNTY, TEXAS

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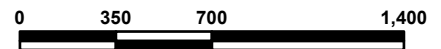
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<b>FIGURE</b>	<b>2</b>



- Permit Boundary
- - - Proposed Limit of Waste
- - - Permitted Limit of Waste
- Borrow Areas



1:8,400



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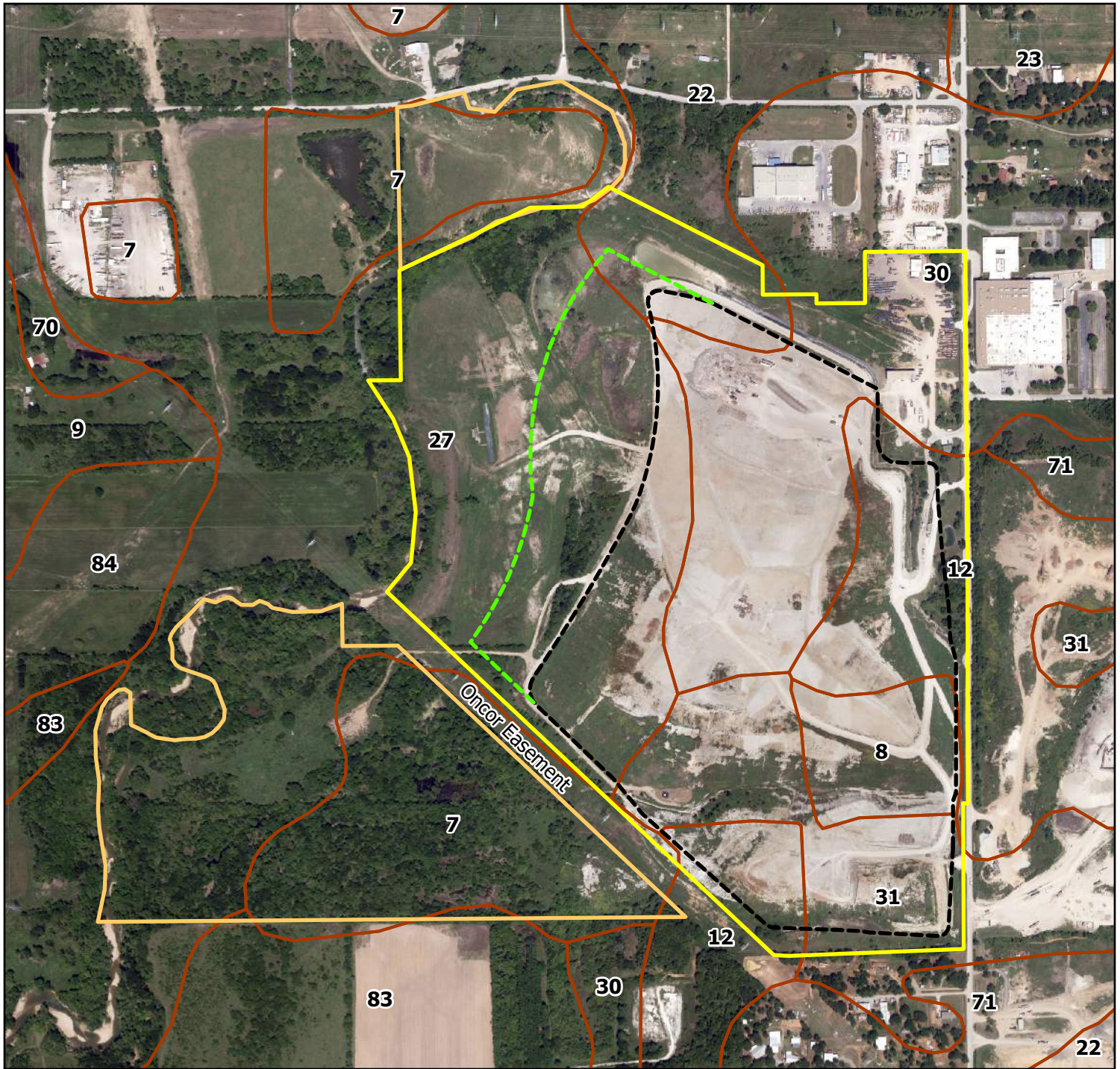
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**USGS TOPOGRAPHIC MAP**  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

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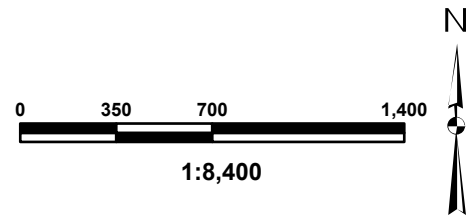
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<b>FIGURE</b>	<b>3</b>



- Permit Boundary
- - - Proposed Limit of Waste
- - - Permitted Limit of Waste
- Borrow Areas
- USDA Soils Map Units

Soil Types within Project Area	
7	Arents, frequently flooded
8	Arents, loamy
12	Birome-Aubrey-Rayex complex, 5 to 15 percent slopes
22	Crosstell fine sandy loam, 3 to 8 percent slopes
27	Frio silty clay, frequently flooded
30	Gasil fine sandy loam, 3 to 8 percent slopes
31	Gasil sandy clay loam, graded, 1 to 5 percent slopes
83	Whitesboro loam, frequently flooded



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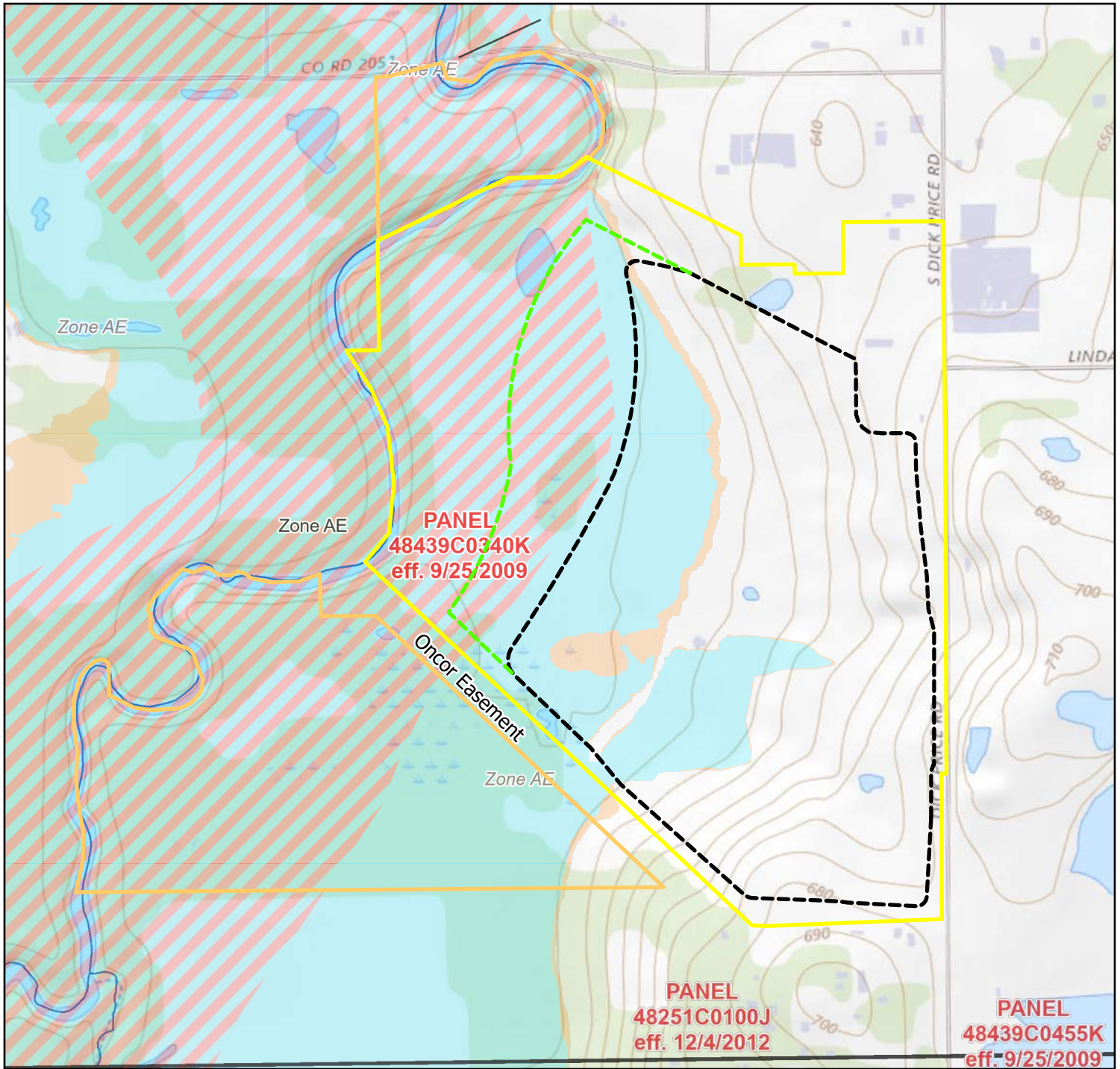
**SOILS MAP**  
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 TARRANT COUNTY, TEXAS

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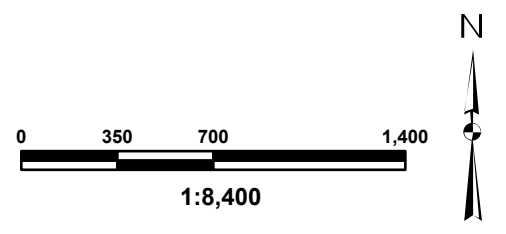
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**FIGURE 4**



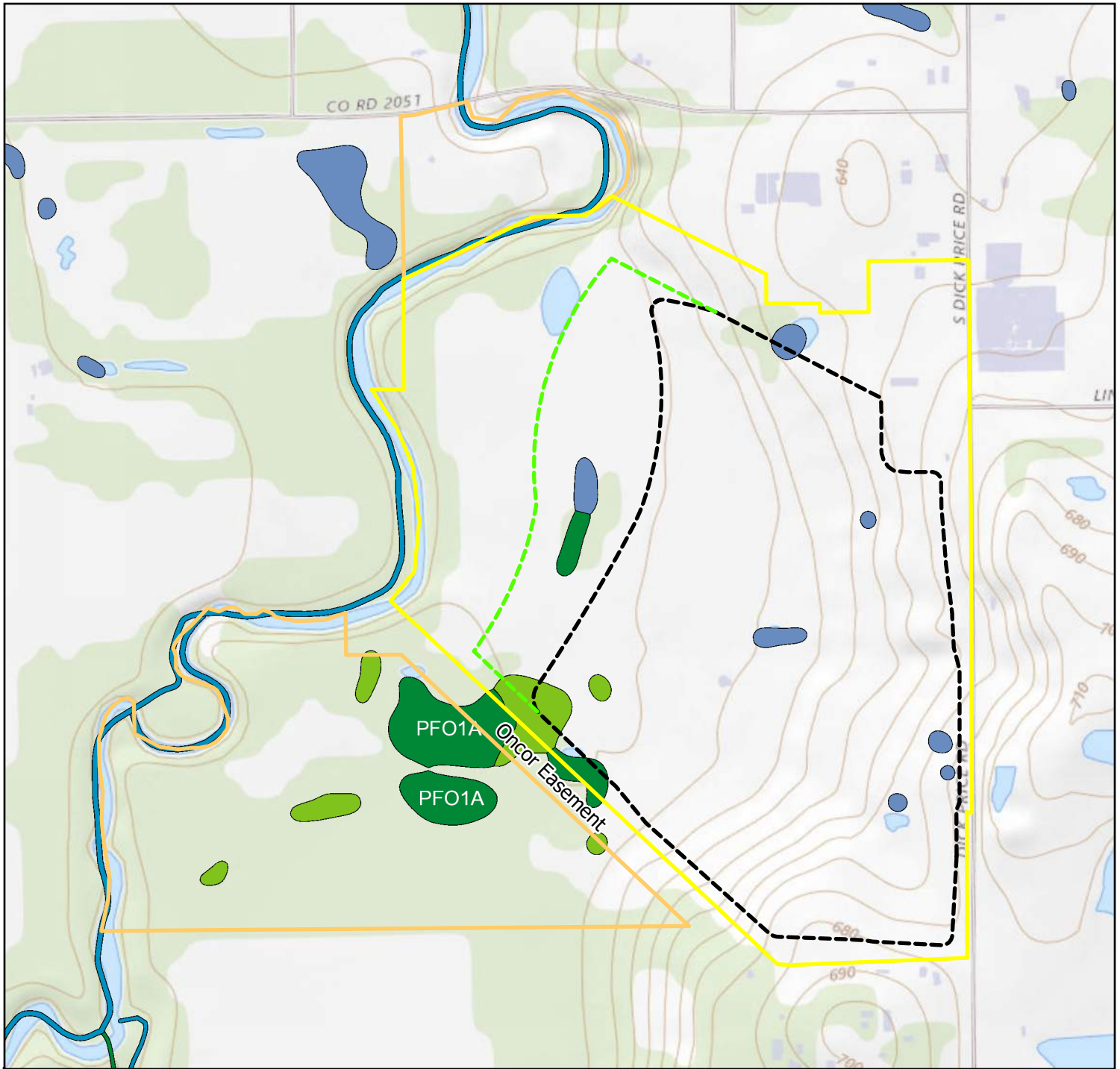


- Permit Boundary
  - - - Proposed Limit of Waste
  - Permitted Limit of Waste
  - Borrow Areas
- Flood Hazard Zones**
- 1% Annual Chance Flood Hazard
  - 0.2% Annual Chance Flood Hazard
  - Regulatory Floodway
  - Special Floodway
  - Area of Undetermined Flood Hazard
  - Future Conditions 1% Annual Chance Flood Hazard
  - Area with Reduced Risk Due to Levee



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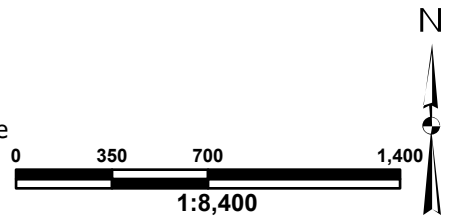
PREPARED FOR: <b>Texas Regional Landfill Company, LP</b>	<b>FLOODPLAIN MAP</b> FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	 <b>Weaver Consultants Group</b> 305 E. Virginia St., # 301 McKinney, TX 75069 817-735-9770 www.wcgrp.com	DRAWN BY: CSS REVIEWED BY: JKW DATE: 9/9/2021 FILE: None CAD: PeteTemplates_TX <b>FIGURE 5</b>
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- Permit Boundary
- - - Permitted Limit of Waste
- - - Proposed Limit of Waste
- Borrow Areas

**US FWS Wetlands**

- Estuarine and Marine Deepwater
- Freshwater Forested/Shrub Wetland
- Other
- Estuarine and Marine Wetland
- Freshwater Pond
- Riverine
- Freshwater Emergent Wetland
- Lake



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**Texas Regional  
 Landfill Company, LP**

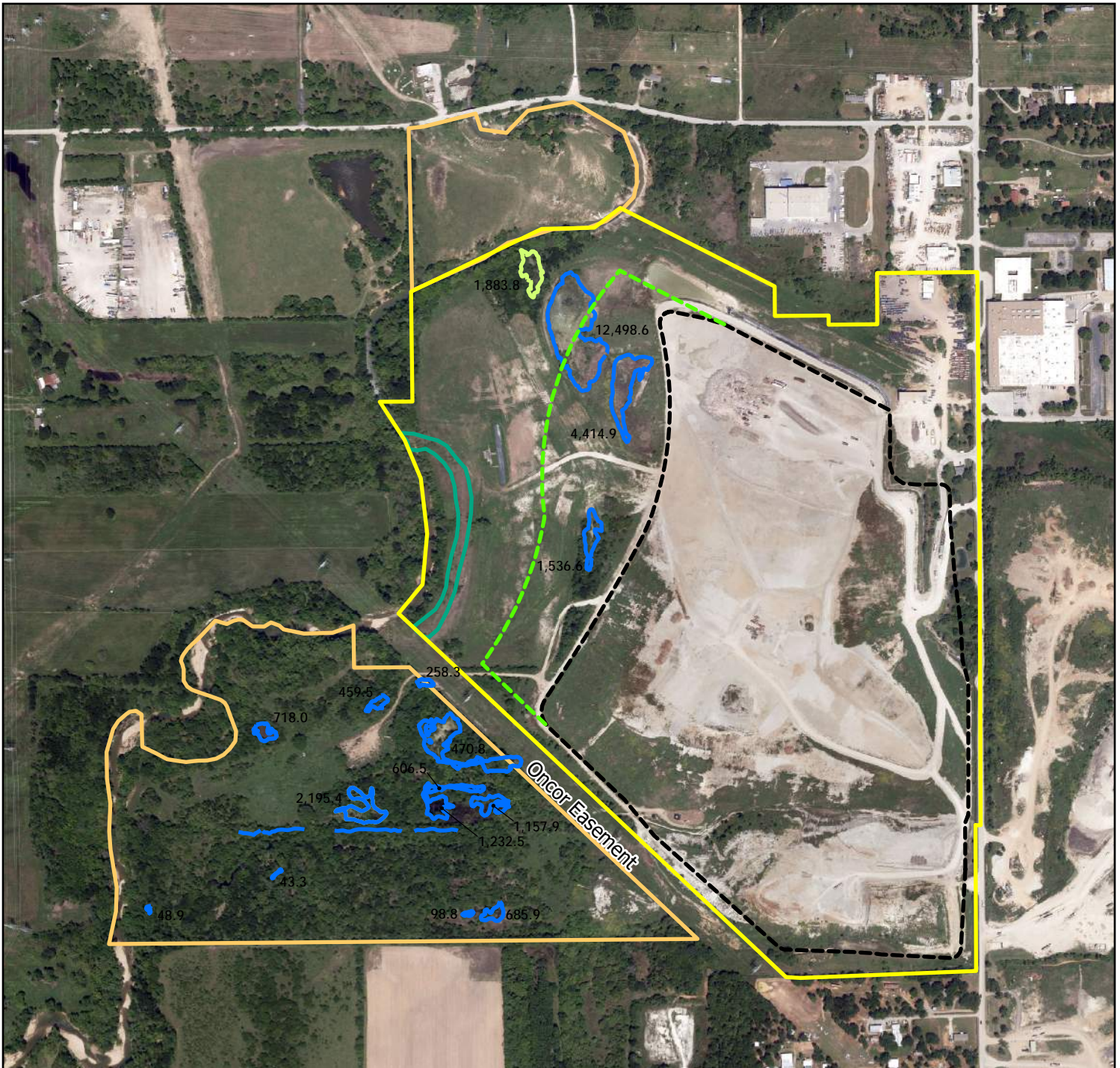
**NATIONAL WETLANDS INVENTORY**  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

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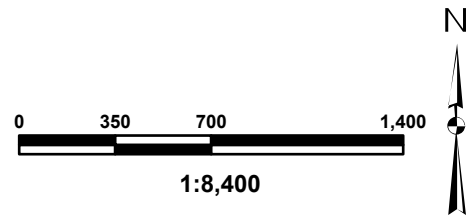
**Weaver  
 Consultants  
 Group**

305 E. Virginia St., # 301  
 McKinney, TX 75069  
 817-735-9770 www.wcgrp.com

DRAWN BY:	CSS
REVIEWED BY:	JKW
DATE:	9/9/2021
FILE:	None
CAD:	PeteTemplates_TX
<b>FIGURE</b>	<b>6</b>



- Waterbodies (Total: 28,584.6 Square Feet)
- Wetlands (Total: 1,883.8 Square Feet)
- Permit Boundary
- Proposed Limit of Waste
- Permitted Limit of Waste
- Borrow Areas
- Wetland Mitigation Area (Total: 73,596.0 Square Feet)



DISCLAIMER: This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It may include data produced by others. It represents only the approximate relative location of property boundaries. Weaver Consultants Group assumes no liability or damages due to errors or omissions. Data sources may include: Maxar

PREPARED FOR:  
**Texas Regional  
 Landfill Company, LP**

**WATERS OF THE US**  
 FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

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 McKinney, TX 75069  
 817-735-9770 www.wcgrp.com

DRAWN BY:	CSS
REVIEWED BY:	JKW
DATE:	9/16/2022
FILE:	None
CAD:	PeteTemplates_TX
<b>FIGURE</b>	<b>7</b>

**ATTACHMENT B**  
**PHOTOGRAPHS**



Photo 1 – View of the expansion area looking northwest.



Photo 2 – View of the expansion area looking southwest.



Photo 3 – View of eastern edge of expansion area looking north.



Photo 4 – View of Village Creek immediately north of expansion area.



Photo 5 – View of Village Creek with view of westernmost borrow area in background.



Photo 6 – View of forested wetland in western edge of expansion area (February 2021).



Photo 7 – View of drainage through forested wetland in western edge of expansion area (February 2021).



Photo 8 – View of forested wetland in western edge of expansion area (March 2021).





Photo 9 – View of forested wetlands looking north along the western edge (March 2021).



Photo 10 – View of Village Creek with western borrow area in the background.



Photo 11 – Typical view of uplands within the expansion area.



Photo 12 – View of previously permitted mitigation area with mesquite. Small airfield in middle of photo, upland within expansion area, and existing landfill in the background.



Photo 13 – View of previously permitted mitigation area looking south.



Photo 14 – Depressional area within previously permitted mitigation area.



Photo 15 – View of uplands within southern half of expansion area.



Photo 16 – View looking east at manmade basin.



Photo 17 – View looking east at manmade basin with existing landfill in the background.



Photo 18 – View looking west toward manmade basin.



Photo 19 – View of manmade basin, note heavy sediment load.



Photo 20 – View of borrow pit in southern tract.



Photo 21 – View of cracks in borrow pit substrate. Note seedlings in background.



Photo 22 – Borrow pit with seedlings.



Photo 23 – View of borrow pit.



Photo 24 – View of upland area within southern tract.





Photo 25 – View of large mound in northeast corner of southern borrow area.



Photo 26 – View of drainage ditch in southern borrow tract.



Photo 27 – View of borrow pit in southern tract.



Photo 28 – View of Village Creek on the western edge of the southern borrow tract.



Photo 29 – View of upland in southern borrow tract.



Photo 30 – View of western borrow tract.



Photo 31 – View of Village Creek and northern edge of the western borrow tract.



Photo 32 – View of wooded area within western borrow tract.

**ATTACHMENT C**  
**HISTORICAL AERIALS AND TOPOGRAPHIC MAPS**



# Historical Aerial Photo Report | 2021

Order Number: 54112

Report Generated: 04/24/2021

Project Name:

Project Number:

4144 Dick Price Rd  
4144 Dick Price Rd  
Fort Worth, TX, 76140

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2 Corporate Dr  
Suite 450  
Shelton, CT 06484  
Toll Free: 866-211-2028  
[www.envirositecorp.com](http://www.envirositecorp.com)

Envirosite's Historical Aerial Photo Report is designed to assist in evaluating a subject property resulting from past activities. EnviroSite's Historical Aerial Photo Report includes a search of available historical aerial photographs, dating back to the 1930s, or earliest available photographs.

## **ENVIROSITE SEARCHED SOURCES**

### **SUBJECT PROPERTY:**

4144 Dick Price Rd  
4144 Dick Price Rd  
Fort Worth, TX, 76140

<b><u>YEAR:</u></b>	<b><u>SCALE:</u></b>	<b><u>SOURCE:</u></b>
1952	1" = 1,000'	U.S.G.S
1953	1" = 1,000'	U.S.G.S
1968	1" = 1,000'	U.S.G.S
1970	1" = 1,000'	U.S.G.S
1981	1" = 1,000'	NHAP
1982	1" = 1,000'	U.S.G.S
1989	1" = 1,000'	U.S.G.S
1990	1" = 1,000'	NAPP
1995	1" = 1,000'	DOQ
1999	1" = 1,000'	U.S.D.A
2001	1" = 1,000'	U.S.D.A
2003	1" = 1,000'	U.S.D.A
2005	1" = 1,000'	U.S.D.A
2007	1" = 1,000'	U.S.D.A
2009	1" = 1,000'	U.S.D.A
2010	1" = 1,000'	NAIP
2012	1" = 1,000'	NAIP
2014	1" = 1,000'	NAIP
2016	1" = 1,000'	NAIP
2018	1" = 1,000'	NAIP
2020	1" = 1,000'	NAIP


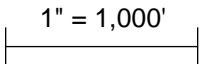
### **Disclaimer - Copyright and Trademark Notice**

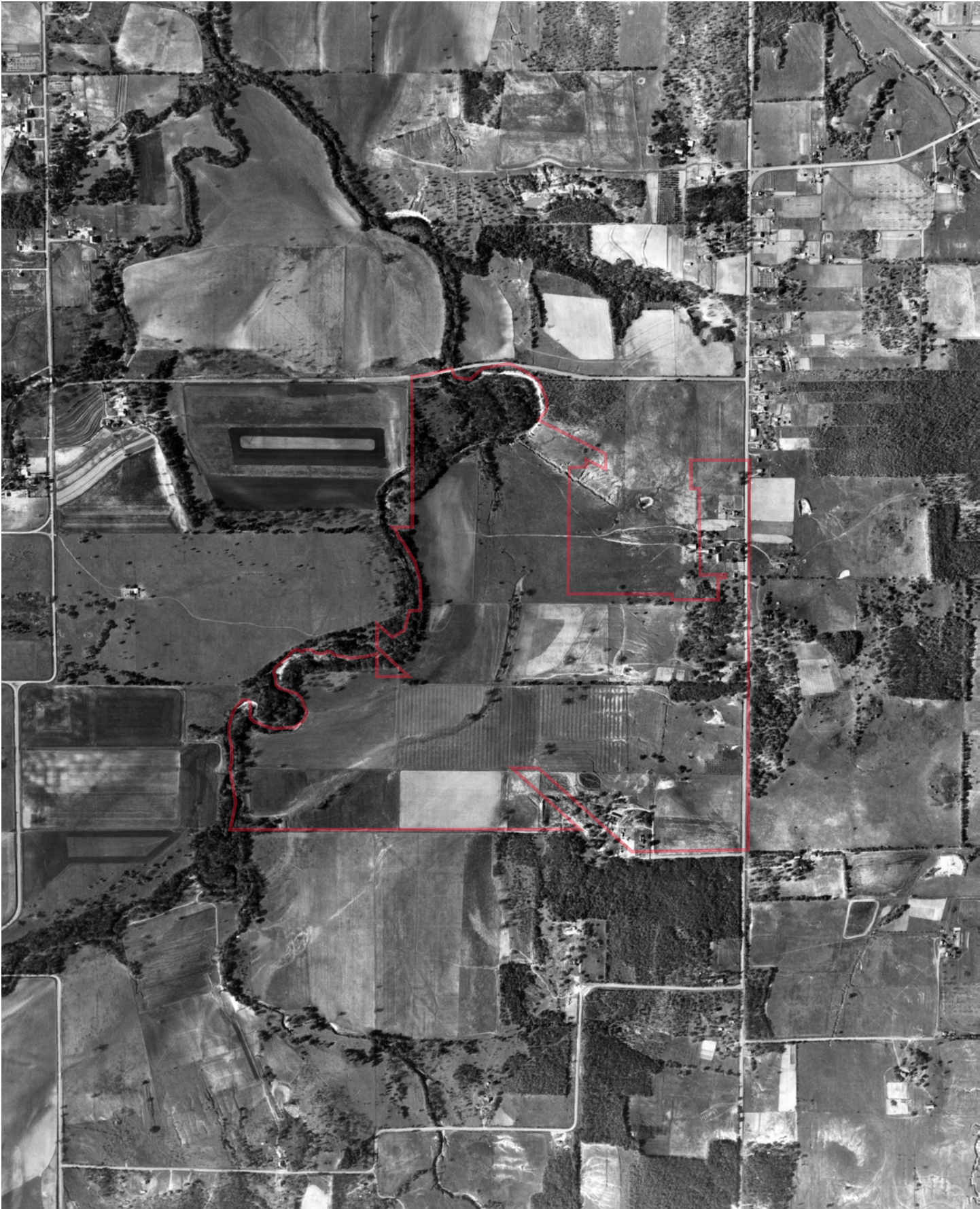
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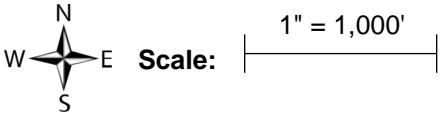
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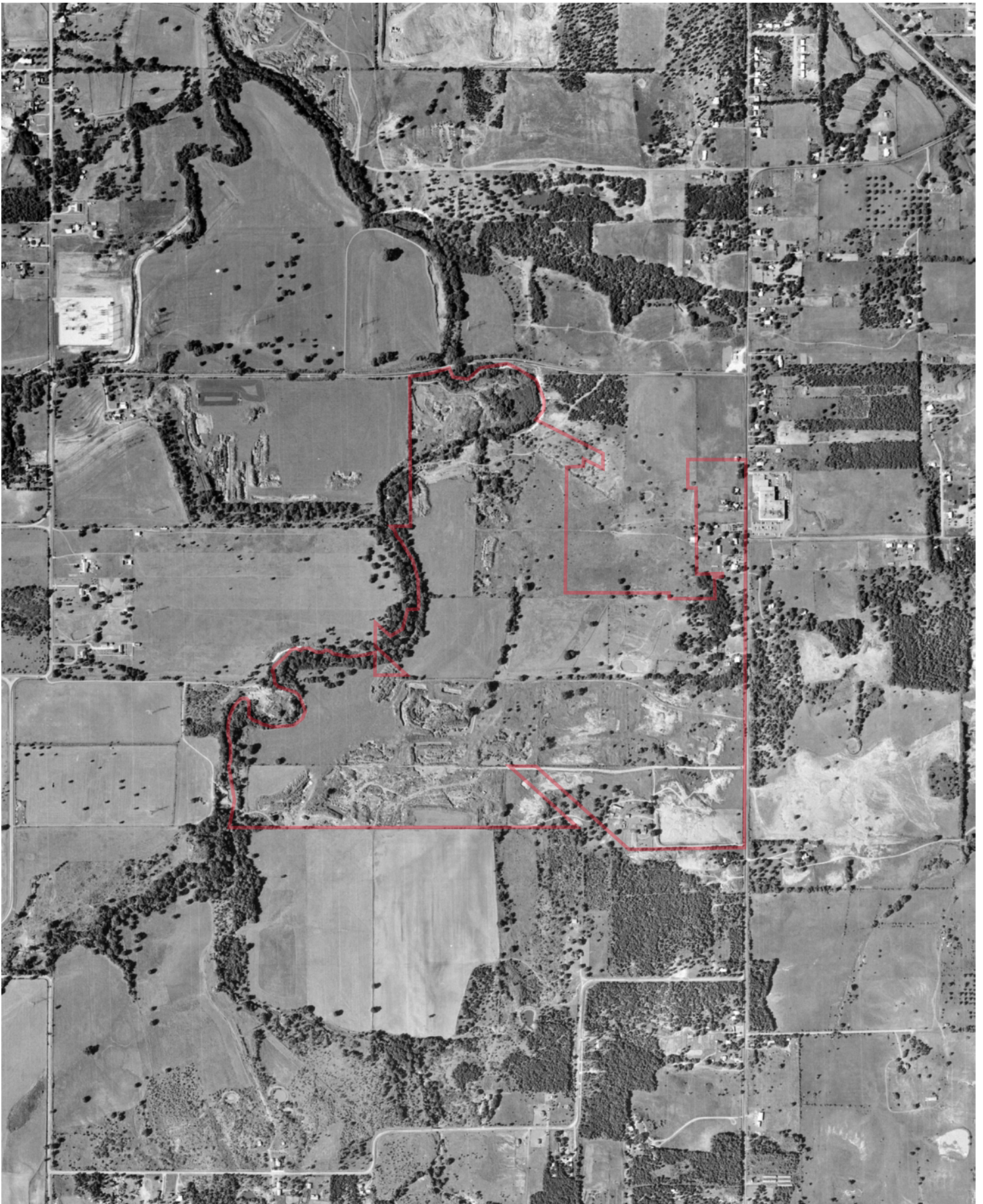


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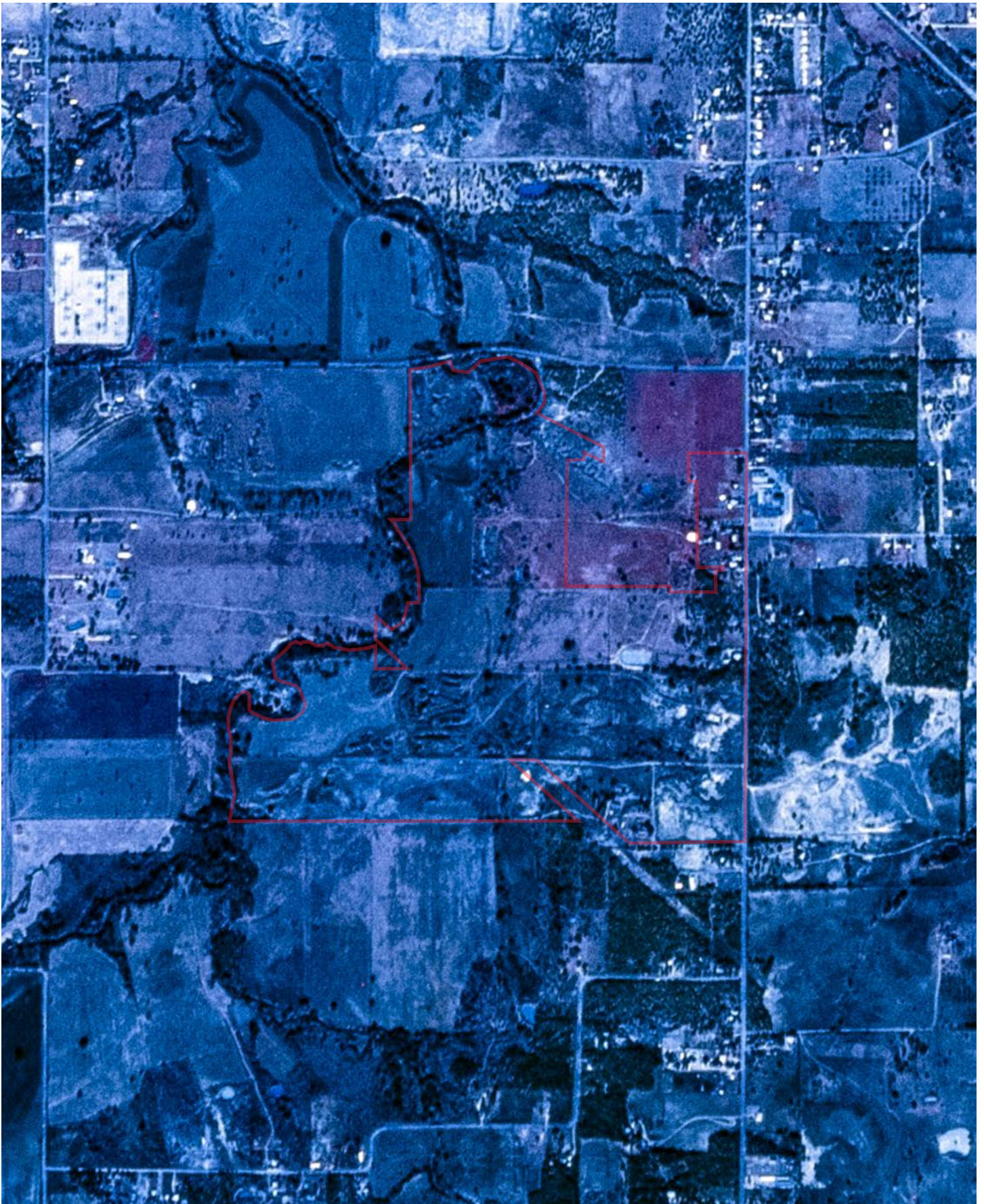
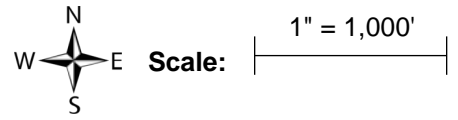
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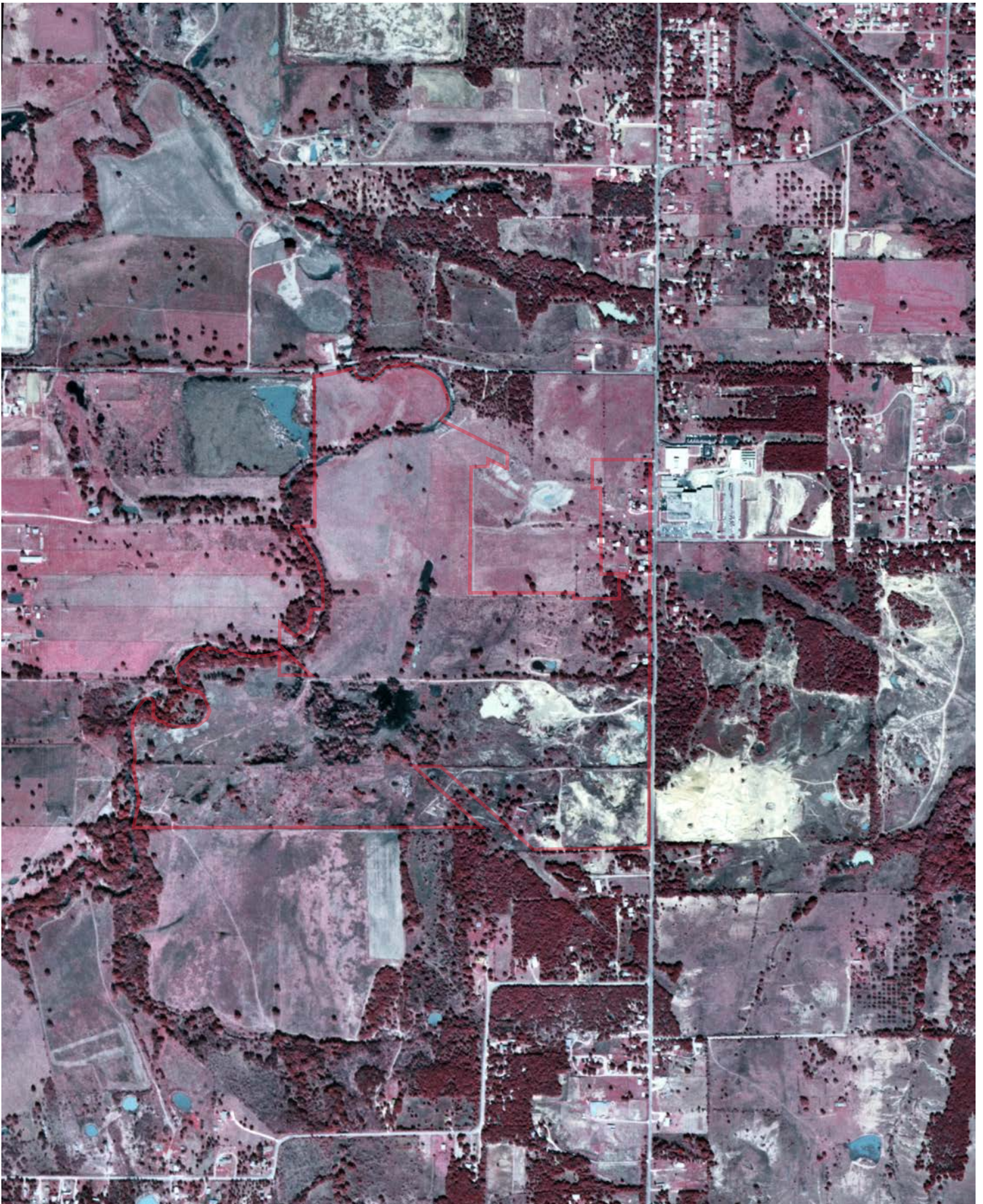
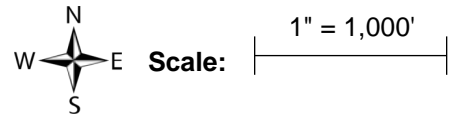
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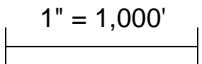
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1981

**Subject Cannot Be Centered**



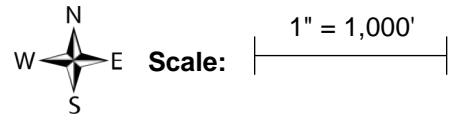
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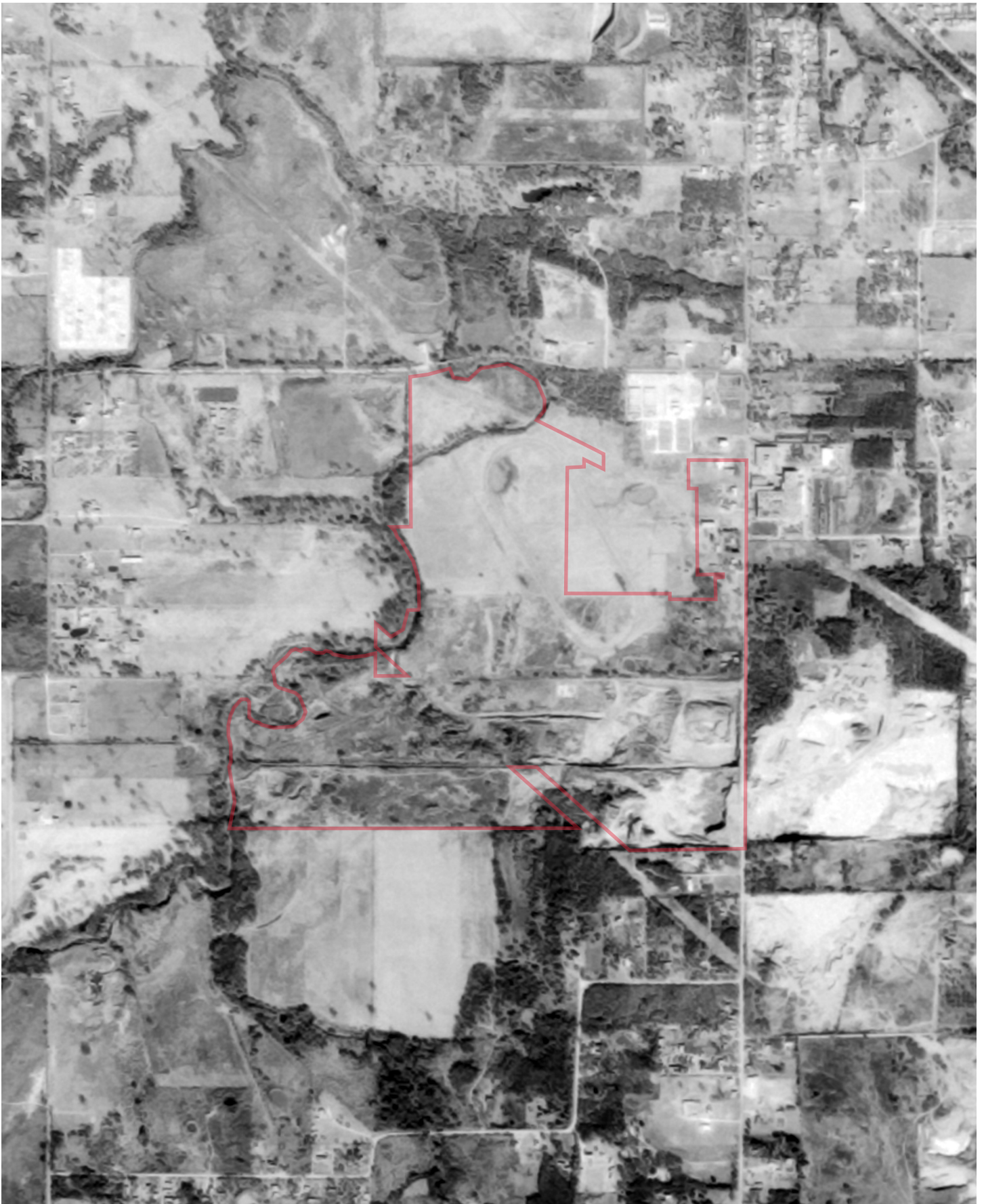
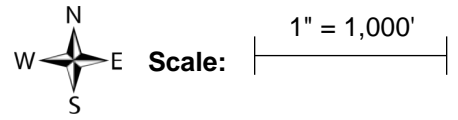


**FLIGHT YEAR:**  
1989




I\IB-221

**FLIGHT YEAR:**  
1990



IVIB-222

**FLIGHT YEAR:**  
1995

N  
W  E  
S

**Scale:** |-----|  
1" = 1,000'





**FLIGHT YEAR:**  
1999


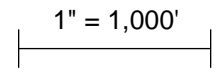


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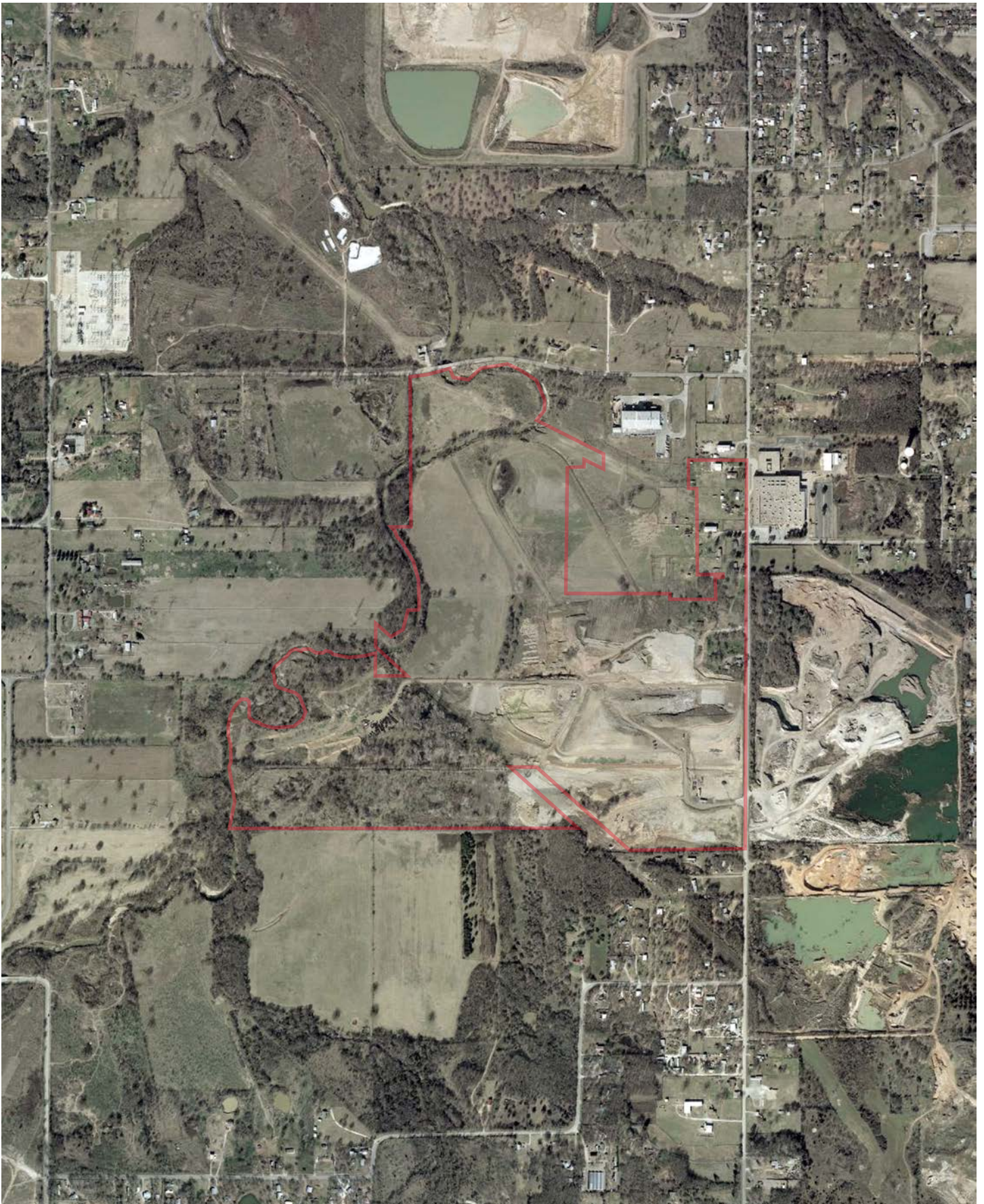
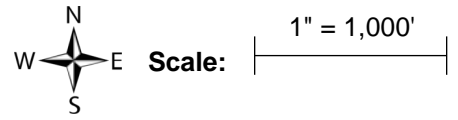
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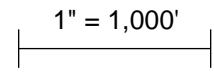


**FLIGHT YEAR:**  
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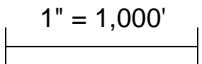
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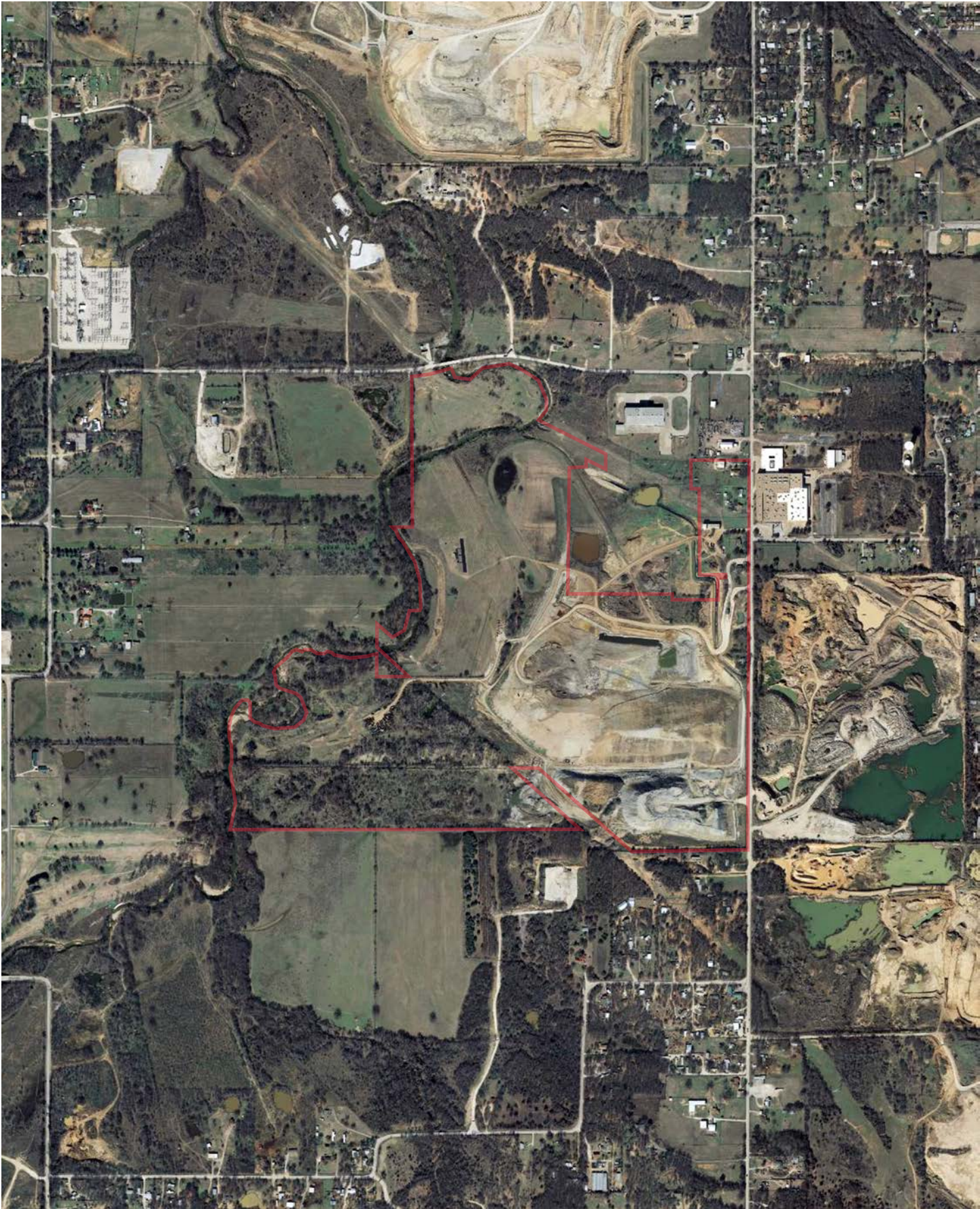
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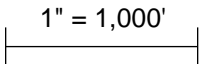


**FLIGHT YEAR:**  
2007

 **Scale:**  1" = 1,000'




**FLIGHT YEAR:**  
2009

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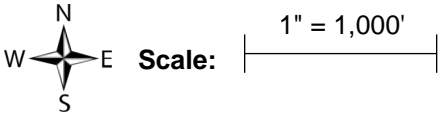


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2010

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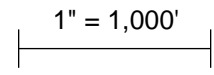


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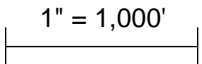


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2014

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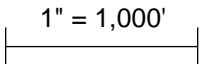


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2016

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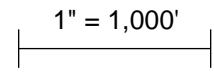


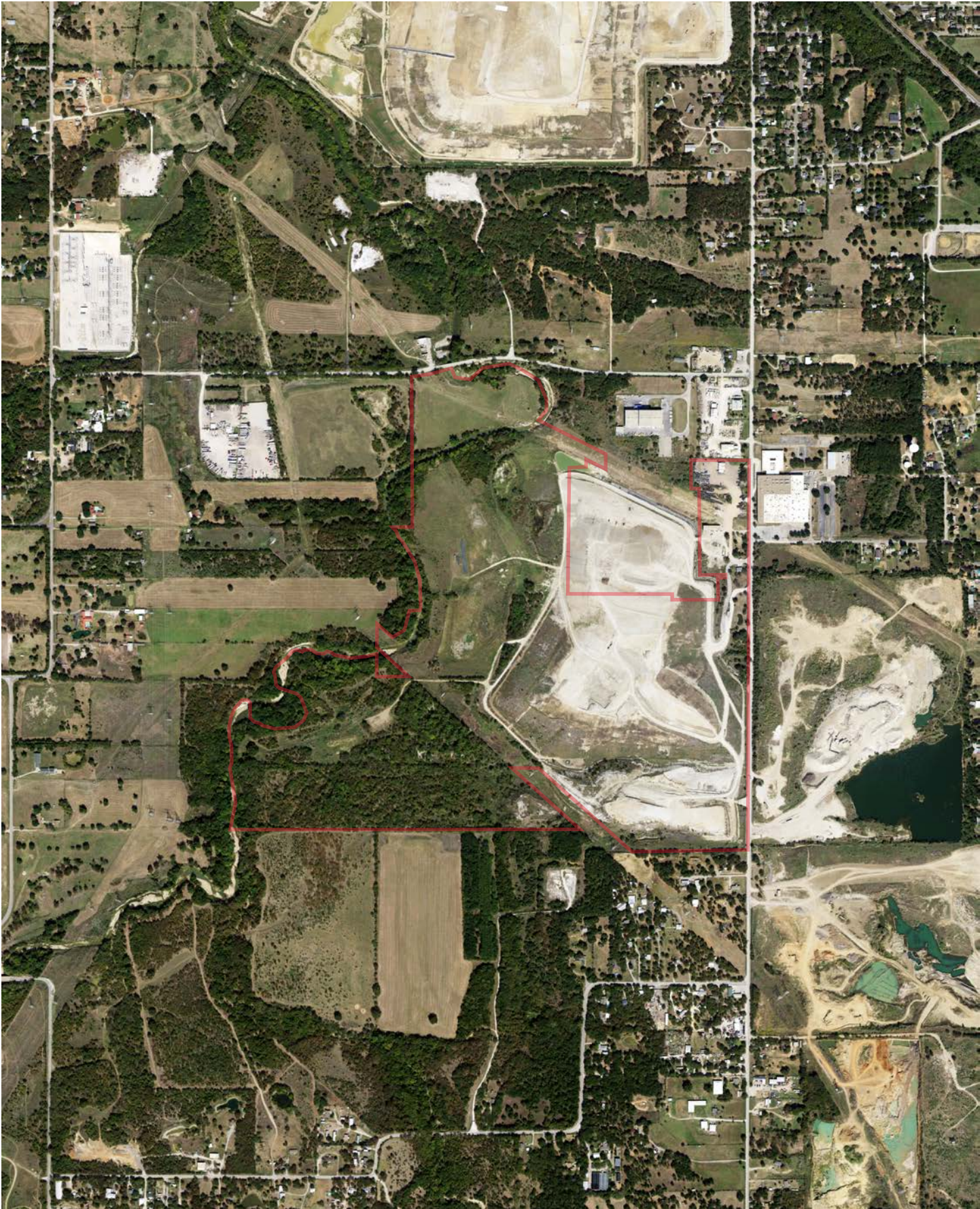
**FLIGHT YEAR:**  
2018

 **Scale:**  1" = 1,000'



**FLIGHT YEAR:**  
2020

 **Scale:**  1" = 1,000'



1\11B-235



## Historical Topographic Map Report | 2021

Order Number: 54112

Report Generated: 04/23/2021

Project Name:

Project Number:

4144 Dick Price Rd  
4144 Dick Price Rd  
Fort Worth, TX 76140

---

2 Corporate Drive  
Suite 450  
Shelton, CT 06484  
Toll Free: 866-211-2028  
[www.envirositecorp.com](http://www.envirositecorp.com)

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**TOPOGRAPHIC MAPS FOUND:**

	<u>Map Name:</u>	<u>Year:</u>	<u>Revision Year:</u>	<u>Scale:</u>
1.	<u>Kennedale</u>	1959	N/R	1 : 24000
2.	<u>Kennedale</u>	1959	1968	1 : 24000
3.	<u>Kennedale</u>	1959	1973	1 : 24000
4.	<u>Kennedale</u>	1959	1981	1 : 24000
5.	<u>Arlington</u>	1959	N/R	1 : 62500
6.	<u>Kennedale</u>	1995	N/R	1 : 24000
7.	<u>Kennedale</u>	2010	N/R	1 : 24000
8.	<u>Kennedale</u>	2012	N/R	1 : 24000
9.	<u>Kennedale</u>	2016	N/R	1 : 24000
10.	<u>Kennedale</u>	2019	N/R	1 : 24000

The USGS 7.5 minute series includes scales 1:24,000 / 1:25,000 / 1:31,680. The USGS 15 minute series includes scales 1:48,000 / 1:62,500 / 1:63,360. The USGS 30x60 minute series scale is 1:100,000.

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SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

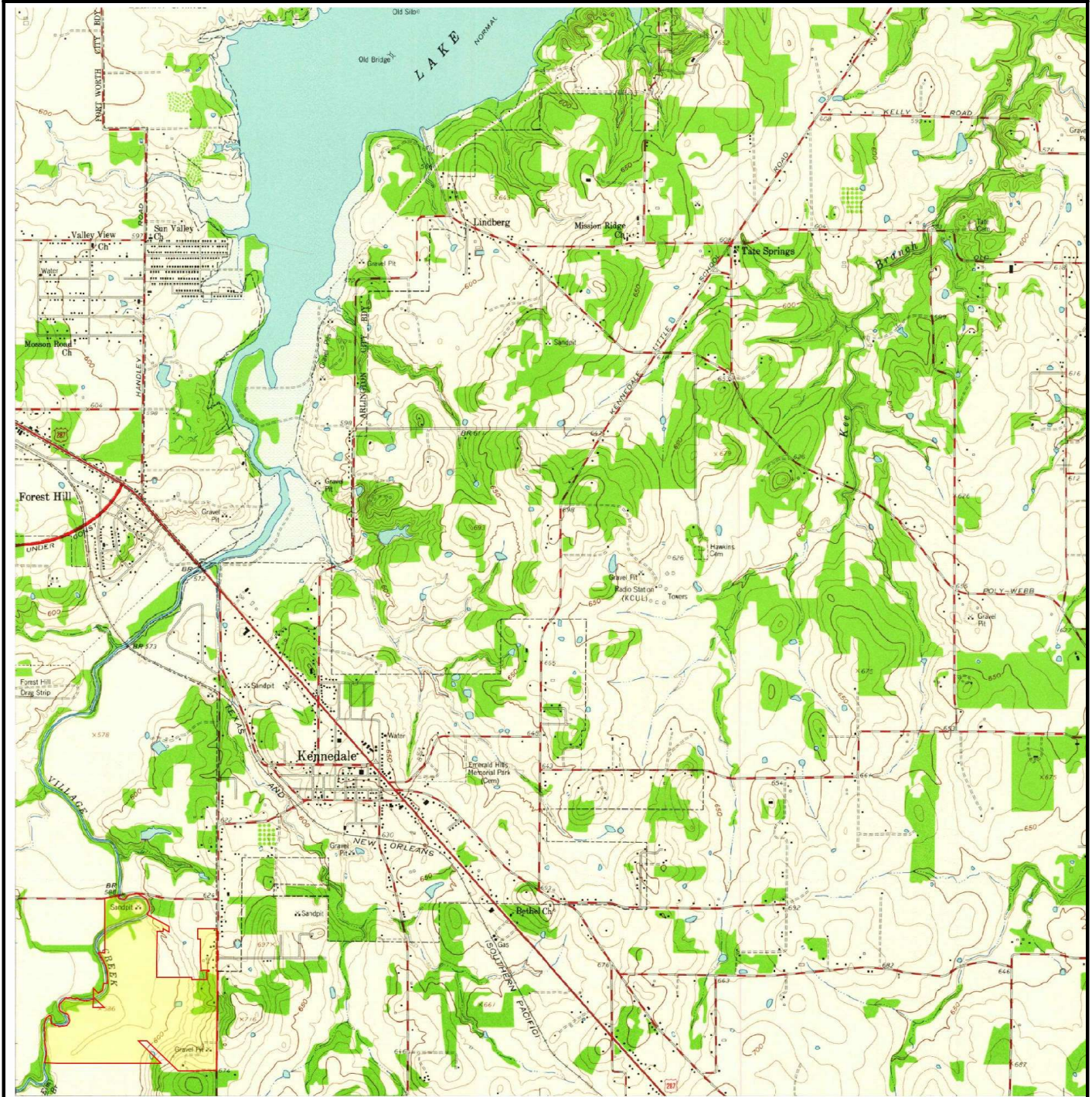
MAP NAME: Kennedale

MAP YEAR: 1959

REVISION YEAR: N/R

SCALE: 1 : 24000

Part 1



SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

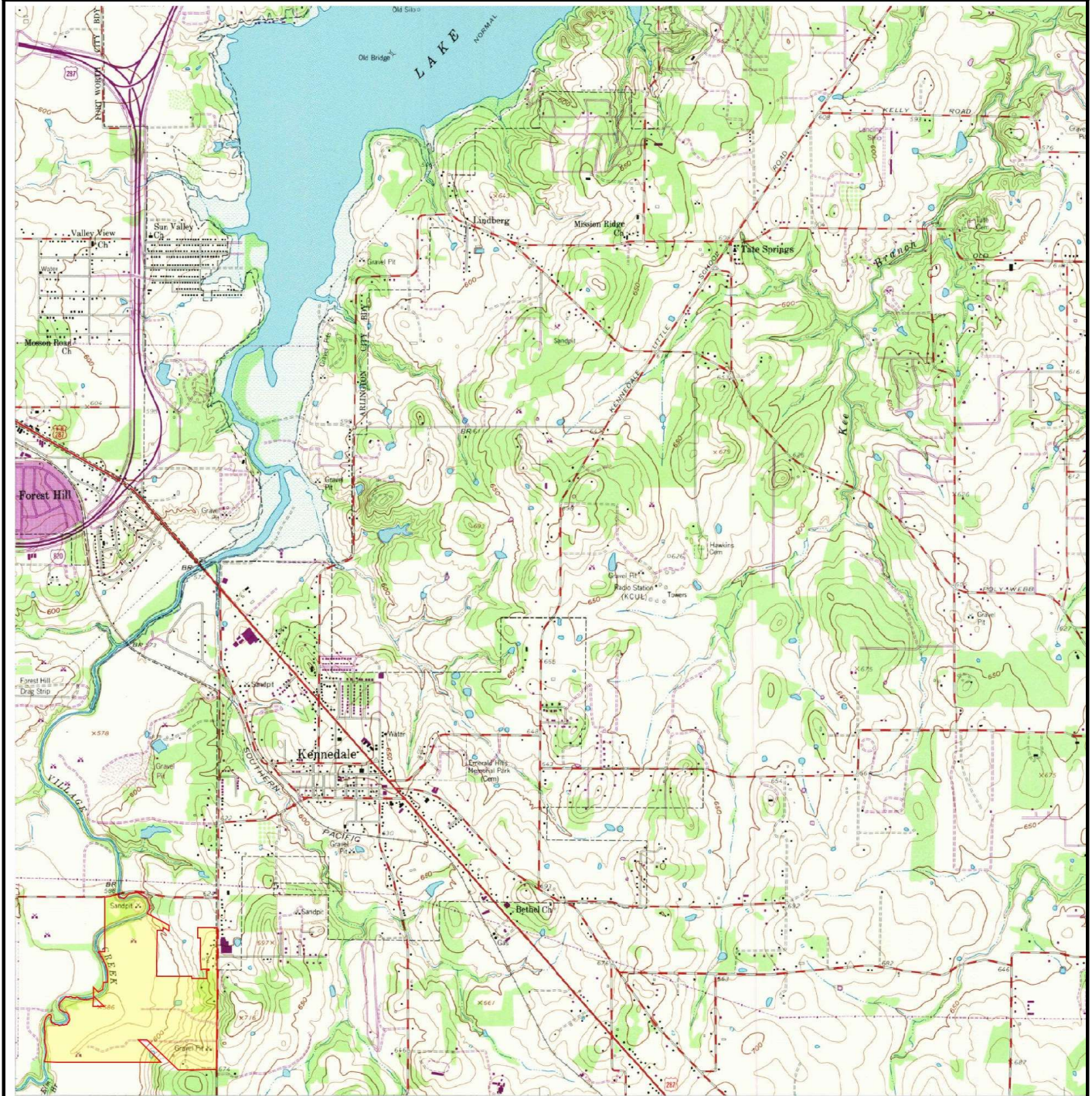
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MAP YEAR: 1959

REVISION YEAR: 1968

SCALE: 1 : 24000

Part 1





SUBJECT NAME: 4144 Dick Price Rd  
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LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

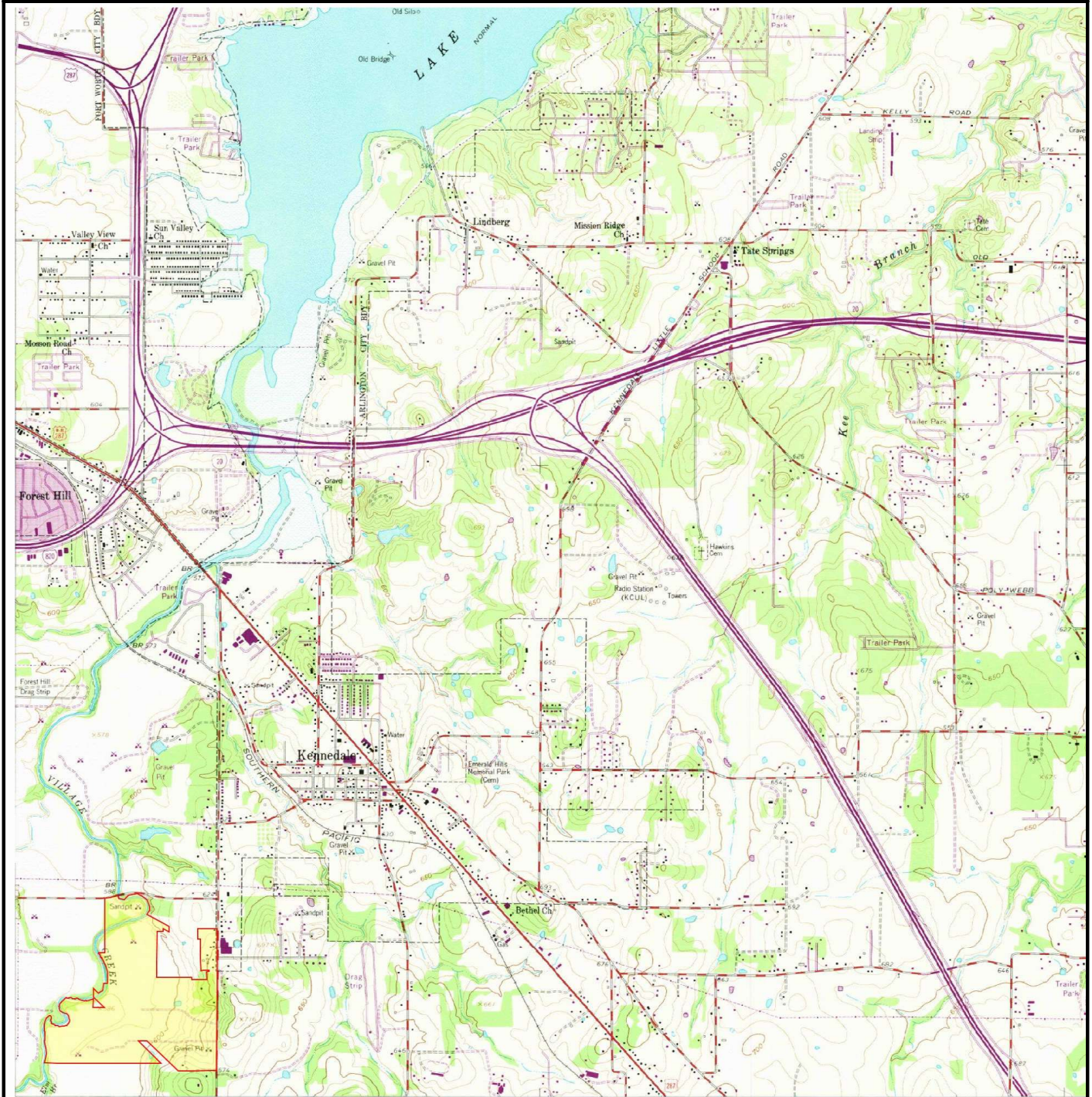
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MAP YEAR: 1959

REVISION YEAR: 1973

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Part 1



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ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

MAP NAME: Kennedale

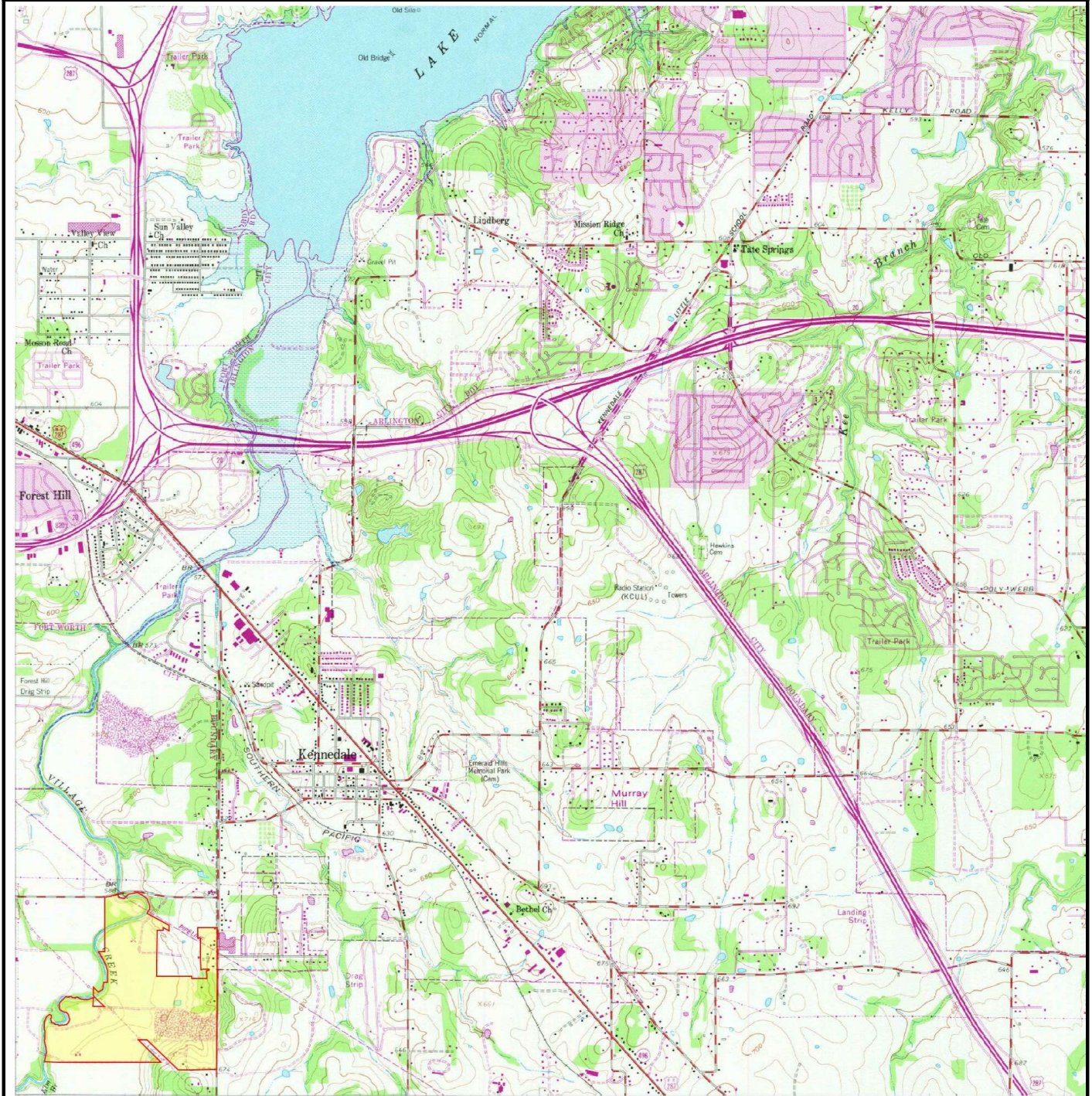
MAP YEAR: 1959

REVISION YEAR: 1981



SCALE: 1 : 24000

Part 1





SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group-TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

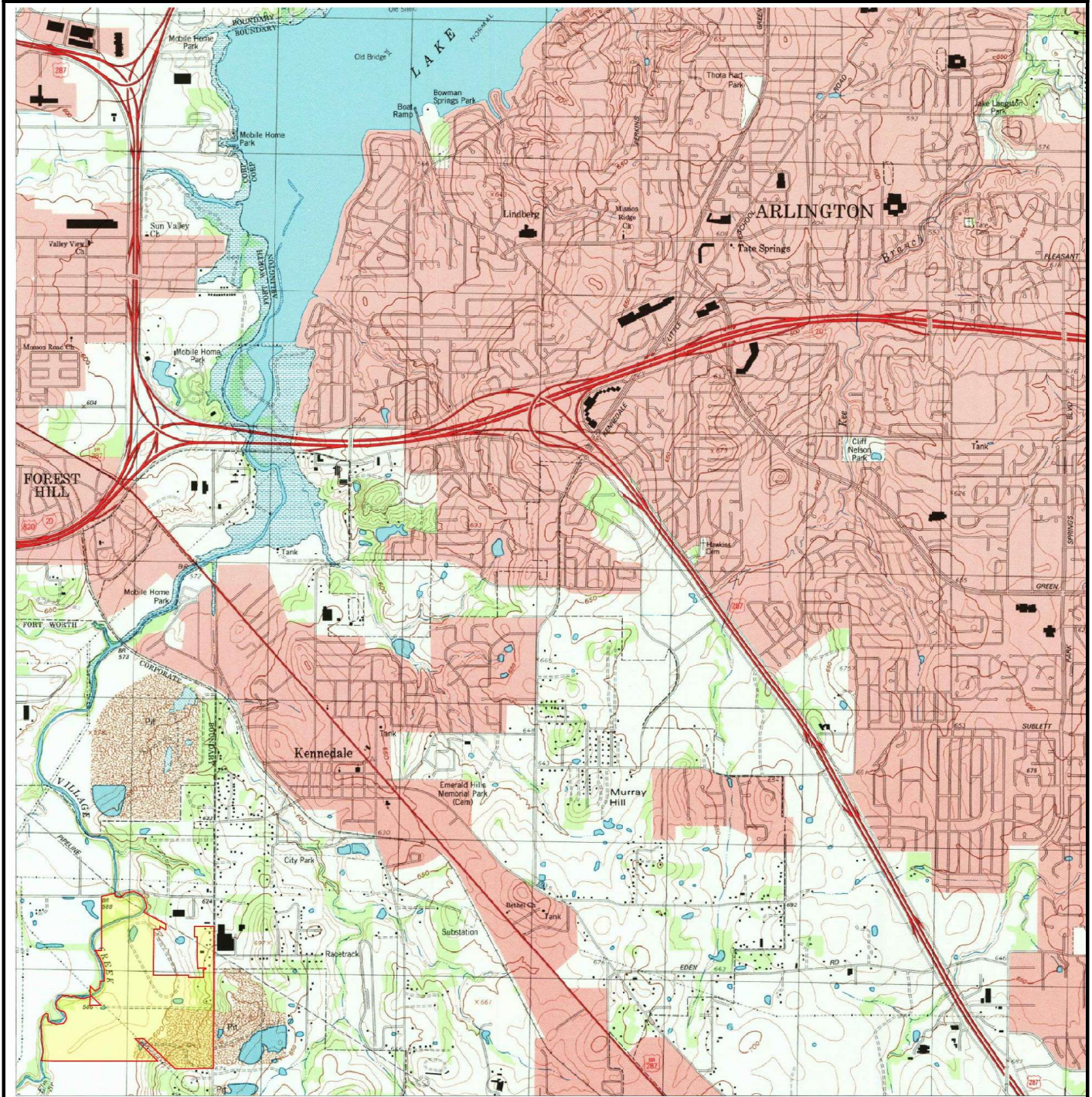
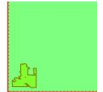
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MAP YEAR: 1995

REVISION YEAR: N/R

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Part 1

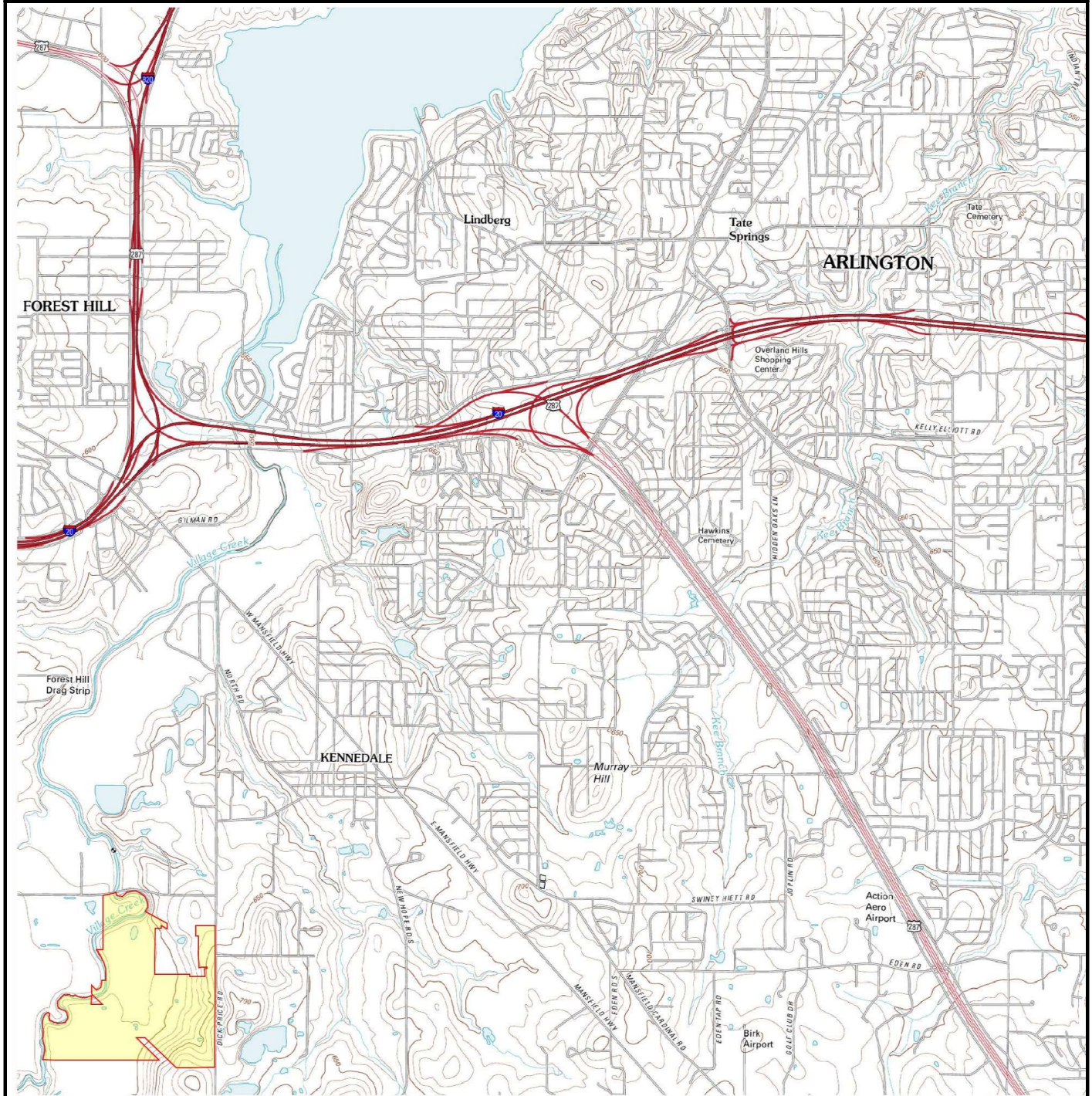
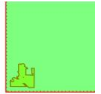


SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

MAP NAME:	Kennedale	MAP YEAR:	2010	REVISION YEAR:	N/R
SCALE:	1 : 24000	Part	1		



SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

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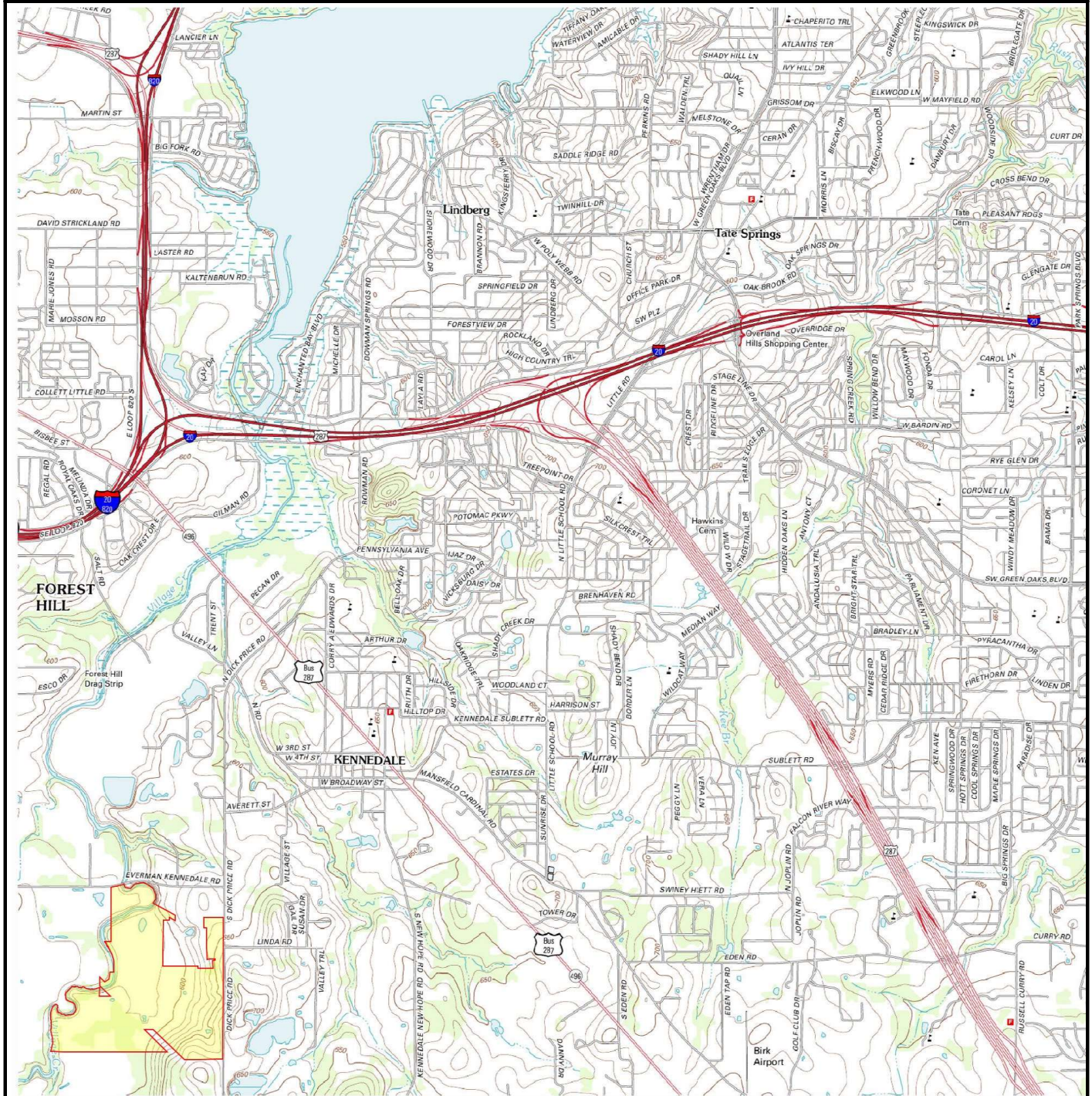
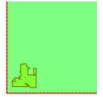
MAP NAME: Kennedale

MAP YEAR: 2012

REVISION YEAR: N/R

SCALE: 1 : 24000

Part 1



SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

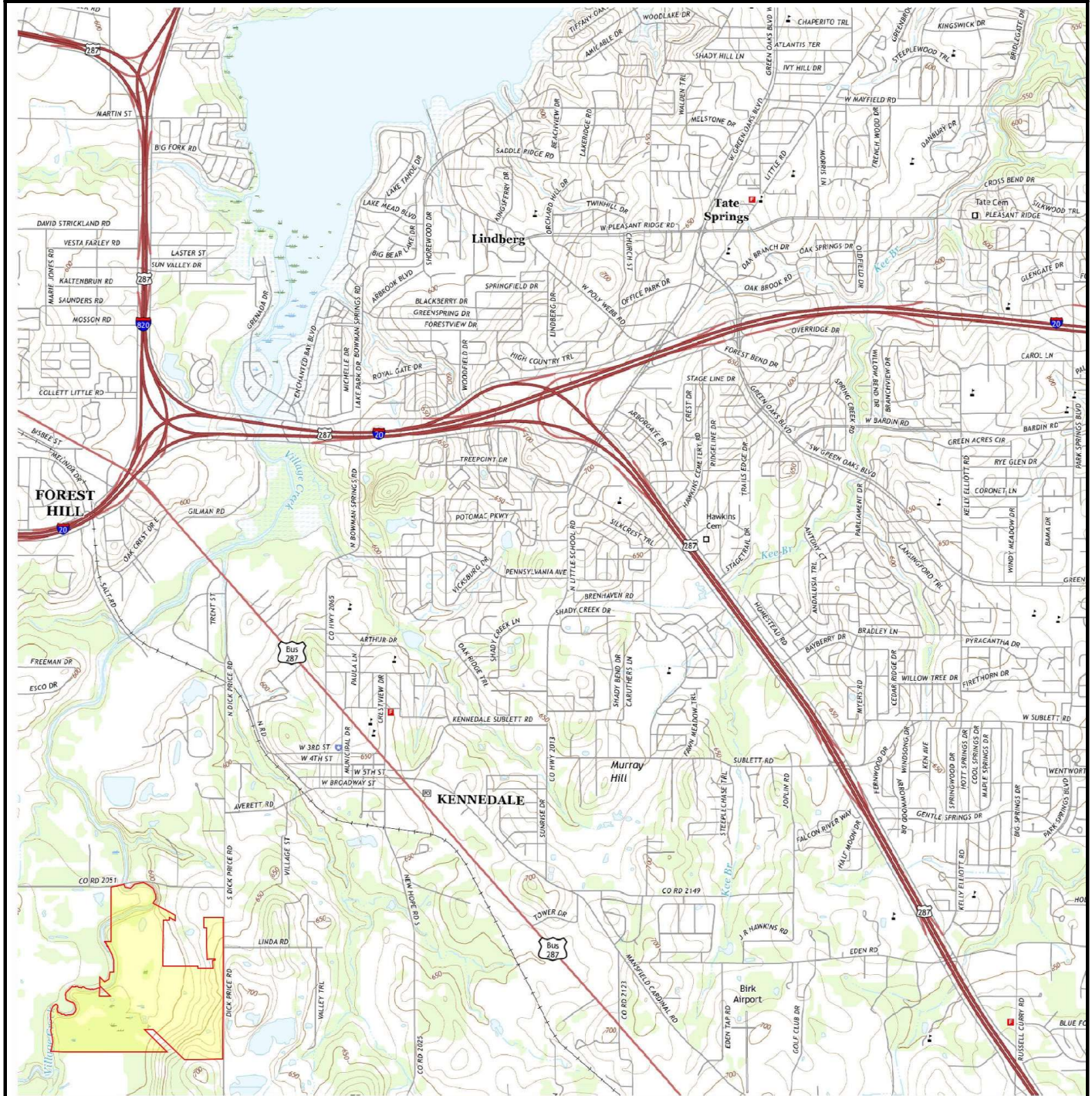
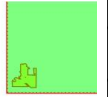
MAP NAME: Kennedale

MAP YEAR: 2016

REVISION YEAR: N/R

SCALE: 1 : 24000

Part 1



SUBJECT NAME: 4144 Dick Price Rd  
ADDRESS: 4144 Dick Price Rd, Fort Worth, TX, 76140  
LAT/LONG: 32.631415 / -97.240289

PREPARED FOR: Weaver Consultants Group- TX  
ORDER #: 54112  
REPORT DATE: 04/23/2021

SUBJECT QUAD:

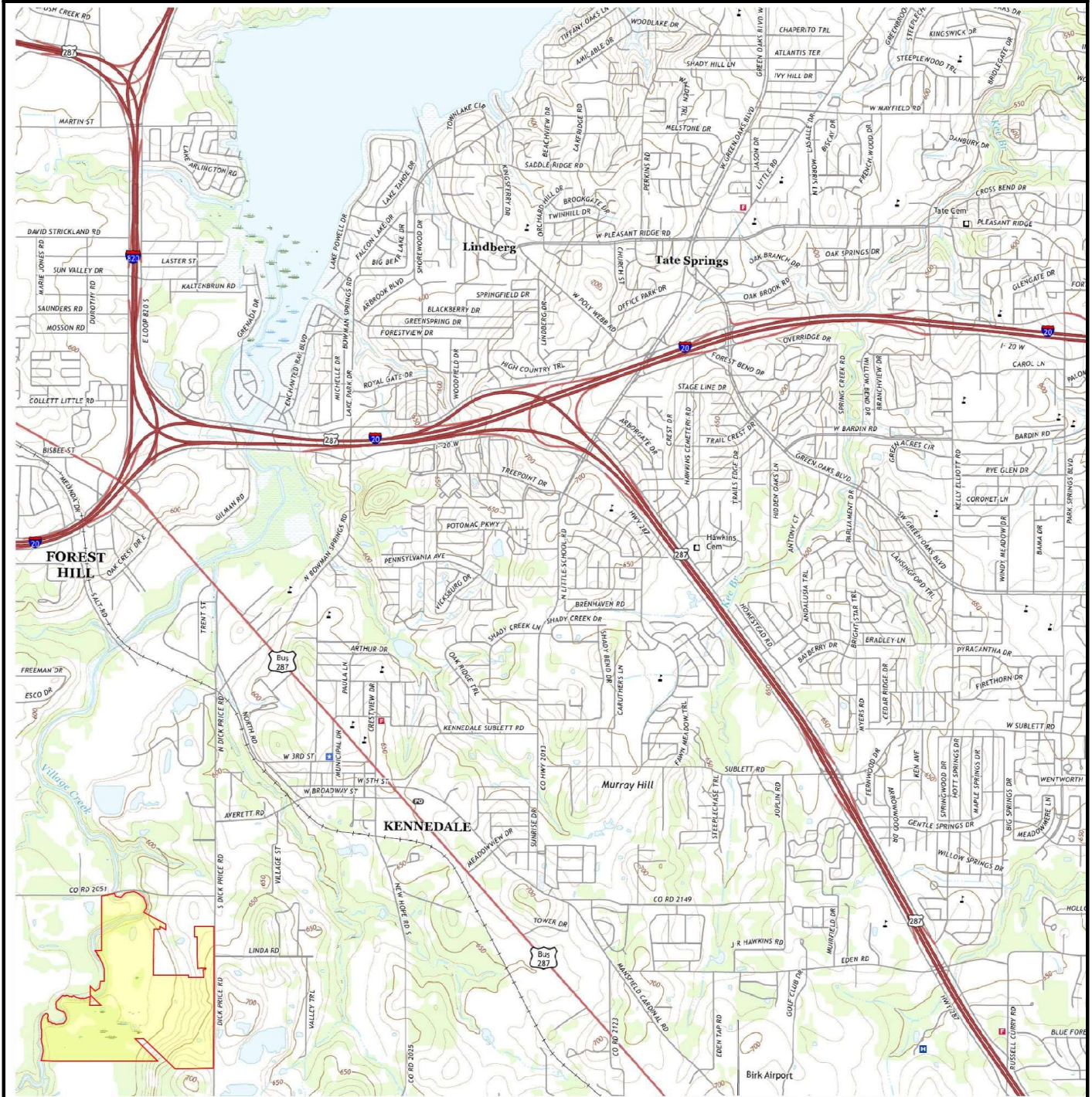
MAP NAME: Kennedale

MAP YEAR: 2019

REVISION YEAR: N/R

SCALE: 1 : 24000

Part 1





**ATTACHMENT D**

**TABLE 1 – POTENTIAL EFFECTS TO LISTED SPECIES POSSIBLY  
OCCURRING WITHIN THE PROJECT AREA  
(TARRANT COUNTY, TEXAS)**

## TARRANT COUNTY

### AMPHIBIANS

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B,S3N

**black rail** *Laterallus jamaicensis*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

**chestnut-collared longspur** *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Franklin's gull** *Leucophaeus pipixcan*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2N

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## TARRANT COUNTY

### BIRDS

**lark bunting** *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (*Koeleria*), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

**mountain plover** *Charadrius montanus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**piping plover** *Charadrius melodus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

**rufa red knot** *Calidris canutus rufa*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

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## TARRANT COUNTY

### BIRDS

#### **Sprague's pipit**

*Anthus spragueii*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat during migration and in winter consists of pastures and weedy fields (AOU 1983), including grasslands with dense herbaceous vegetation or grassy agricultural fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3N

#### **western burrowing owl**

*Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

#### **white-faced ibis**

*Plegadis chihi*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

#### **whooping crane**

*Grus americana*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

### FISH

#### **Mississippi silvery minnow**

*Hybognathus nuchalis*

Found in eastern Texas streams, from the Brazos River eastward and northward to the Red River; found in moderate current; silty, muddy, or rocky substrate. In Texas, adults likely to inhabit smaller tributary streams.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S4

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## TARRANT COUNTY

### INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G3G4 State Rank: SNR

**Comanche harvester ant** *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2G3 State Rank: S2

### MAMMALS

**big brown bat** *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**big free-tailed bat** *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**black bear** *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**black-tailed prairie dog** *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S3

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## TARRANT COUNTY

### MAMMALS

**cave myotis bat** *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S2S3

**eastern red bat** *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

**eastern spotted skunk** *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. *S.p. ssp. interrupta* found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

**hoary bat** *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

**long-tailed weasel** *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**mountain lion** *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

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## TARRANT COUNTY

### MAMMALS

**muskkrat** *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**swamp rabbit** *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**tricolored bat** *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

### MOLLUSKS

**Louisiana pigtoe** *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

**sandbank pocketbook** *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

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## TARRANT COUNTY

### MOLLUSKS

**Texas heelsplitter** *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

### REPTILES

**alligator snapping turtle** *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**prairie skink** *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2

**slender glass lizard** *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**smooth softshell** *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

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## TARRANT COUNTY

### REPTILES

**Texas garter snake** *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G5T4 State Rank: S1

**Texas horned lizard** *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4G5 State Rank: S3

**timber (canebrake) rattlesnake** *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S4

**western box turtle** *Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**western chicken turtle** *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5T5 State Rank: S2S3

**western massasauga** *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3G4 State Rank: S3

### PLANTS

**Comanche Peak prairie clover** *Dalea reverchonii*

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## TARRANT COUNTY

### PLANTS

Shallow, calcareous clay to sandy clay soils over limestone in grasslands or openings in post oak woodlands, often among sparse vegetation in barren, exposed sites, most known sites are underlain by Goodland Limestone, most known sites are on roadway right-of-ways; flowering April-June, one account for October

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2S3

**earleaf false foxglove**      *Agalinis auriculata*

Known in Texas from one late nineteenth century specimen record labeled -Benbrook-; in Oklahoma, degraded prairies, floodplains, fallow fields, and borders of upland sterile woods; in Arkansas, blackland prairie; Annual; Flowering August - October

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: SH

**Engelmann's bladderpod**      *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**Glen Rose yucca**      *Yucca necopina*

Grasslands on sandy soils and limestone outcrops; flowering April-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S3

**Hall's prairie clover**      *Dalea hallii*

In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

**Osage Plains false foxglove**      *Agalinis densiflora*

Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**Reverchon's scurfpea**      *Pedimelum reverchonii*

Mostly in prairies on shallow rocky calcareous substrates and limestone outcrops; Perennial; Flowering Jun-Sept; Fruiting June-July

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

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## TARRANT COUNTY

### PLANTS

**Shinner's sedge**

*Carex shimmersii*

Occurs in ditches and swales in prairie landscapes (Carr 2015).

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S2

**Sutherland hawthorn**

*Crataegus viridis* var. *glabriuscula*

In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above/near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5T3T4

State Rank: S3

**Texas milk vetch**

*Astragalus reflexus*

Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

**Topeka purple-coneflower**

*Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

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# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Tarrant County, Texas



## Local office

Arlington Ecological Services Field Office

☎ (817) 277-1100

📅 (817) 277-1129

✉ [arles@fws.gov](mailto:arles@fws.gov)

IVIB-259

2005 Ne Green Oaks Blvd  
Suite 140  
Arlington, TX 76006-6247

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
<p>Tricolored Bat <i>Perimyotis subflavus</i>            Wherever found            No critical habitat has been designated for this species.  <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a></p>	Proposed Endangered

## Birds

NAME	STATUS
<p>Piping Plover <i>Charadrius melodus</i>            This species only needs to be considered if the following condition applies:  <ul style="list-style-type: none"> <li>• Wind Energy Projects</li> </ul>           There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.  <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i>            Wherever found            This species only needs to be considered if the following condition applies:  <ul style="list-style-type: none"> <li>• Wind Energy Projects</li> </ul>           There is <b>proposed</b> critical habitat for this species.  <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p>Whooping Crane <i>Grus americana</i>            There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.  <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a></p>	Endangered

## Reptiles

NAME	STATUS
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**Alligator Snapping Turtle** *Macrochelys temminckii*

Proposed Threatened

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4658>

## Insects

NAME

STATUS

**Monarch Butterfly** *Danaus plexippus*

Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation->



[measures.pdf](#)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p><b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p>	Breeds Sep 1 to Jul 31
<p><b>Chimney Swift</b> <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 25
<p><b>Lesser Yellowlegs</b> <i>Tringa flavipes</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a></p>	Breeds elsewhere
<p><b>Little Blue Heron</b> <i>Egretta caerulea</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Mar 10 to Oct 15
<p><b>Long-billed Curlew</b> <i>Numenius americanus</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a></p>	Breeds elsewhere

**Red-headed Woodpecker** *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Sprague's Pipit** *Anthus spragueii*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8964>

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

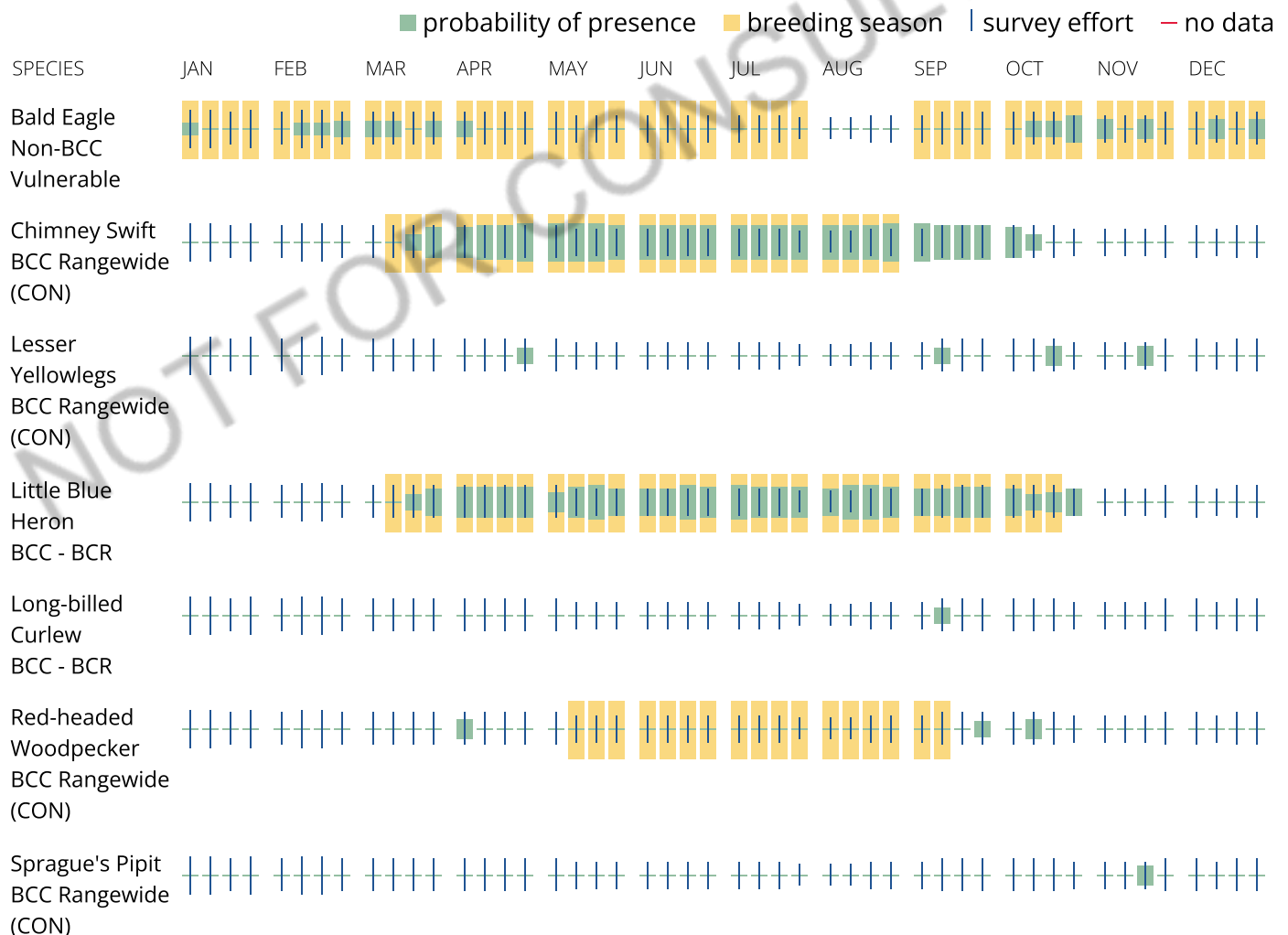
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (-)

A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



## **Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

## **What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

## **What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

## **How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

## **What are the levels of concern for migratory birds?**

I\II-B-267

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn

more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

### Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

### Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact [CBRA@fws.gov](mailto:CBRA@fws.gov).

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

### Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



**COORDINATION WITH  
U.S. DEPARTMENT OF THE INTERIOR,  
FISH AND WILDLIFE SERVICE**

- FWS response will be submitted to TCEQ when and if received.
- October 17, 2022 WCG Request for Review Letter dated.



October 17, 2022  
Project No. 0771-356-11-35

Ms. Debra Bills, Field Supervisor  
U.S. Department of the Interior  
Fish and Wildlife Service  
2005 NE Green Oaks Blvd., Suite 140  
Arlington, Texas 76006

Re: Endangered or Threatened Species Assessment  
Proposed Fort Worth C&D Landfill Major Permit Amendment  
Tarrant County, Texas

Dear Ms. Bills:

The purpose of this letter is to demonstrate coordination with the U.S. Department of the Interior, Fish and Wildlife Service, consistent with Title 30 Texas Administrative Code (TAC) §330.61(n)(2). This regulation requires that a permit applicant for an expansion of a municipal solid waste facility coordinate with the Fish and Wildlife Service regarding compliance with the Endangered Species Act.

Weaver Consultants Group, LLC (WCG) is preparing a permit amendment application, on behalf of Texas Regional Landfill Company, LP to horizontally and vertically expand the existing Type IV municipal solid waste landfill located approximately 15 miles southeast of downtown Fort Worth, Texas and approximately 2.4 miles south of IH-20 and 5 miles east of IH-35W. The expansion will include a vertical increase in the height of the landfill and a horizontal increase in the limits of waste disposal included in the current Texas Commission on Environmental Quality (TCEQ) permit. To assist you in your determination regarding threatened or endangered species or their critical habitat within or near the referenced project, please find attached (1) a project summary and site location maps and (2) a site-specific Threatened and Endangered Species Report completed by WCG in November 2021.

The site has operated as a landfill for over 30 years, and a significant portion of the area within the landfill permit boundary has been disturbed by earth-moving activities (e.g., landfill operation, soil borrow area operations, etc.). As discussed in the attached review, the site does not provide habitat for and would not likely be occupied by any federally listed and state listed threatened and endangered species. The WCG report notes that, while it is possible that the migratory bird species may utilize the site during migration, use would be transitory in nature and of short duration. Lack of suitable habitat makes the occurrence of the migratory species highly unlikely.

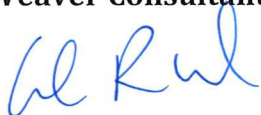
in nature and of short duration. Lack of suitable habitat makes the occurrence of the migratory species highly unlikely.

To verify compliance with §330.61(n)(2), we will need to include a review letter from the U.S. Fish and Wildlife Service within the permit application. As discussed in the attached Horizon report, the site is not likely to be occupied by any federal or state-listed species. Therefore, it is requested that the U.S. Fish and Wildlife Service concur with the conclusions made in the attached report.

Your assistance with this matter is sincerely appreciated. Please call if you have any questions or need additional information.

Sincerely,

**Weaver Consultants Group, LLC**



Charles R. Marsh, P.E.

Project Director

Attachments: Attachment 1 – Project Summary and Site Location Maps

Attachment 2 – Threatened and Endangered Species Report

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

**ATTACHMENT 1**  
**PROJECT SUMMARY AND SITE LOCATION MAPS**

# **Project Summary**

## **Fort Worth C&D Landfill Expansion**

### **Tarrant County, Texas**

## **Introduction**

Texas Regional Landfill Company, LP is in the process of developing a major permit amendment application to obtain authorization for an expansion of the existing Fort Worth C&D Landfill. This landfill expansion project will provide long-term disposal capacity for municipal solid waste that is generated in the area. The permit application will be submitted to the Texas Commission on Environmental Quality (TCEQ). The application will undergo a detailed review by the TCEQ before the permit for this facility is issued.

The objective of this summary is to provide an overview of the proposed landfill expansion. The following subsections detail information regarding the owner and operator of the site, general site information, and a summary of the proposed site design.

## **Owner/Operator Information**

The Fort Worth C&D Landfill is owned and operated by Texas Regional Landfill Company, LP, a subsidiary of Waste Connections, Inc. Waste Connections, Inc. is one of the leading providers of solid waste services in the nation and provides services to residential, municipal and commercial customers across the country.

## **Site Information**

The following drawings are attached to this summary.

- Figure 1 – Site Location Map. This drawing shows the site location on a standard TxDOT county highway map.
- Figure 2 – General Topographic Map. This drawing shows the existing permitted landfill permit boundary and the limits of disposal area on a USGS map.
- Figure 3 – Aerial Photograph. This figure details the existing permitted landfill permit boundary and limits of waste disposal area on an aerial photograph.
- Figure 4 – Site Plan. This plan highlights the existing permitted landfill permit boundary and the limits of disposal area on a detailed topographic map.
- Figure 5 – Existing and Proposed Landfill Completion Plan. This Plan provides a comparison between the currently permitted landfill and the proposed changes to the landfill completion plan.

## Site History

The Fort Worth C&D Landfill is an existing 184.3-acre Type IV municipal solid waste (MSW) landfill (TCEQ Permit No. MSW-1983D) with approximately 100.3 acres approved for waste fill. The site is located approximately 2.4 miles south of Interstate Highway (IH) 20 and 5 miles east of IH-35W. The physical address of the site is 4144 Dick Price Road, Fort Worth, Texas 76140. The initial landfill facility Permit No. MSW 1983 was issued in 1988, and disposal operations began in 1997. The site at that time consisted of 38.1 acres, with roughly 26 acres used for waste fill. In December 2002, Permit No. MSW-1983B was issued, which expanded the landfill laterally resulting in a permitted site area of 151.73 acres with approximately 77.7 acres for waste fill. In January 2017, Permit No. MSW-1983C was issued which expanded the landfill vertically. In May of 2021, Permit No. MSW-1983D was issued expanding the permitted area to 184.3 acres with 100.3 acres for waste fill. The landfill presently operates under Permit No. MSW-1983D, with a total waste disposal capacity of 22,888,000 cubic yards. As of February 17, 2022, when the latest available aerial flyover was conducted, the remaining capacity of current Permit No. MSW-1983D is approximately 9,887,975 cubic yards.

## Design Summary

The following information presents a summary of the design and operations of the proposed Fort Worth C&D Landfill expansion.

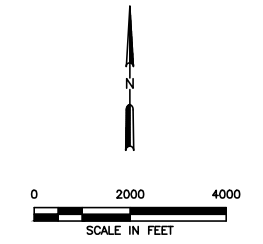
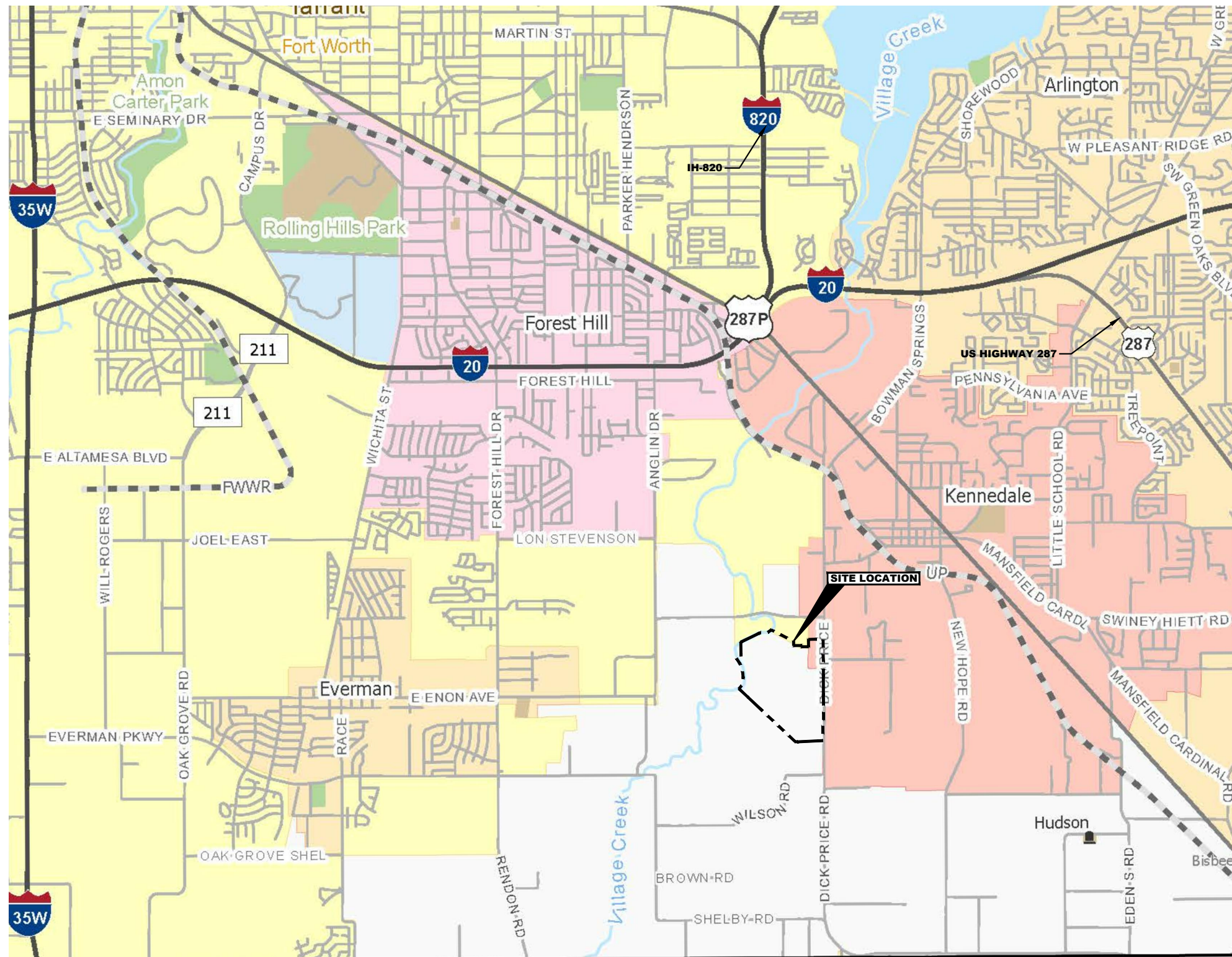
- The Fort Worth C&D Landfill is an existing Type IV municipal solid waste landfill facility (MSW Permit No. MSW-1983D). The existing landfill currently serves residences and businesses in the communities of Tarrant, Johnson, Parker, Collin, Dallas and Denton Counties.
- With this expansion, the existing 184.3-acre permit boundary footprint will not be expanded. The permitted limits of waste will be expanded from approximately 100.3 acres to approximately 121.9 acres. The current peak elevation of 820 feet mean sea level (msl) will be expanded vertically to 860 feet msl.
- Accepted wastes will remain consistent with the current municipal solid waste landfill permit. The major classifications of solid waste to be accepted at the Fort Worth C&D Landfill include brush, construction-demolition waste, Class 2 and 3 industrial solid waste, tires, and some special wastes as approved by TCEQ.
- Access to the site will be provided via the existing site access roads. Based on travel patterns of existing landfill traffic, vehicles bound for the landfill will generally access the site using Dick Price Road, which is capable of handling the loads associated with landfill traffic.
- A liner and final cover system that meets all regulatory requirements will be used for the solid waste containment system. The construction procedures of the liner and cover systems follow strict TCEQ-approved quality control procedures, which

are performed by a qualified independent licensed professional engineer specialized in landfill construction quality assurance. Each of the containment system components must be thoroughly reviewed and approved by the TCEQ before solid waste is placed in the landfill.

- To verify that the highest level of environmental protection is provided, the following landfill monitoring systems are provided:
  - Groundwater Monitoring System. The purpose of the groundwater monitoring system is to verify the integrity of the containment system and verify that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining water samples from the monitor wells located on the perimeter of the landfill, which are screened in the upper most water table. The water samples are tested by an accredited third-party analytical laboratory.
  - LFG Detection System. The purpose of the LFG detection system is to verify that LFG does not migrate off-site. LFG detection probes have been installed along the current permit boundary perimeter.

Each of these systems are sampled and tested periodically. The results are filed with the TCEQ and are public record.

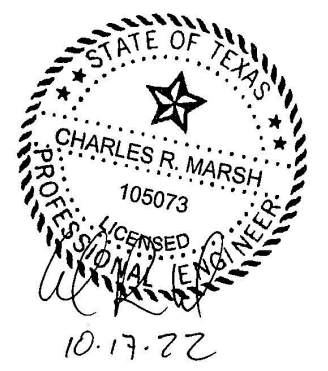
- Site Operations. The site will be operated by personnel who have been trained and certified by the TCEQ. A detailed site operating plan will be included in the permit amendment application. The plan will detail the required equipment, personnel, and safety procedures required to operate the site in accordance with TCEQ regulations. The active landfill area will be covered at the end of each workday to prevent potential nuisance conditions such as odors and vectors. The Fort Worth C&D Landfill will continue to be inspected by the TCEQ on a regular basis to ensure the site is in compliance with state regulations.



- LEGEND**
- PERMIT BOUNDARY
  - Unincorporated Community
  - ⊙ County Seat
  - ⊕ Border Crossing
  - ⚰ Cemetery
  - ⚰ Cemetery (Inside City)
  - ⊕ Deep Draft Port
  - ⊕ Shallow Draft Port
  - Railroad
  - Dam
  - River or Stream
  - TXDOT District
  - Lakes
  - Education
  - Military
  - Airport Runway
  - Airport
  - Prison
  - Parks and Other Public Land
- CITY OF FORT WORTH CITY LIMITS

**NOTES:**

- ADAPTED FROM TEXAS DEPARTMENT OF TRANSPORTATION HIGHWAY MAY, 2018.

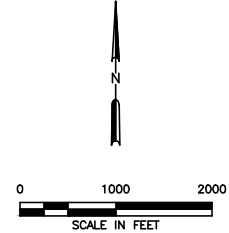
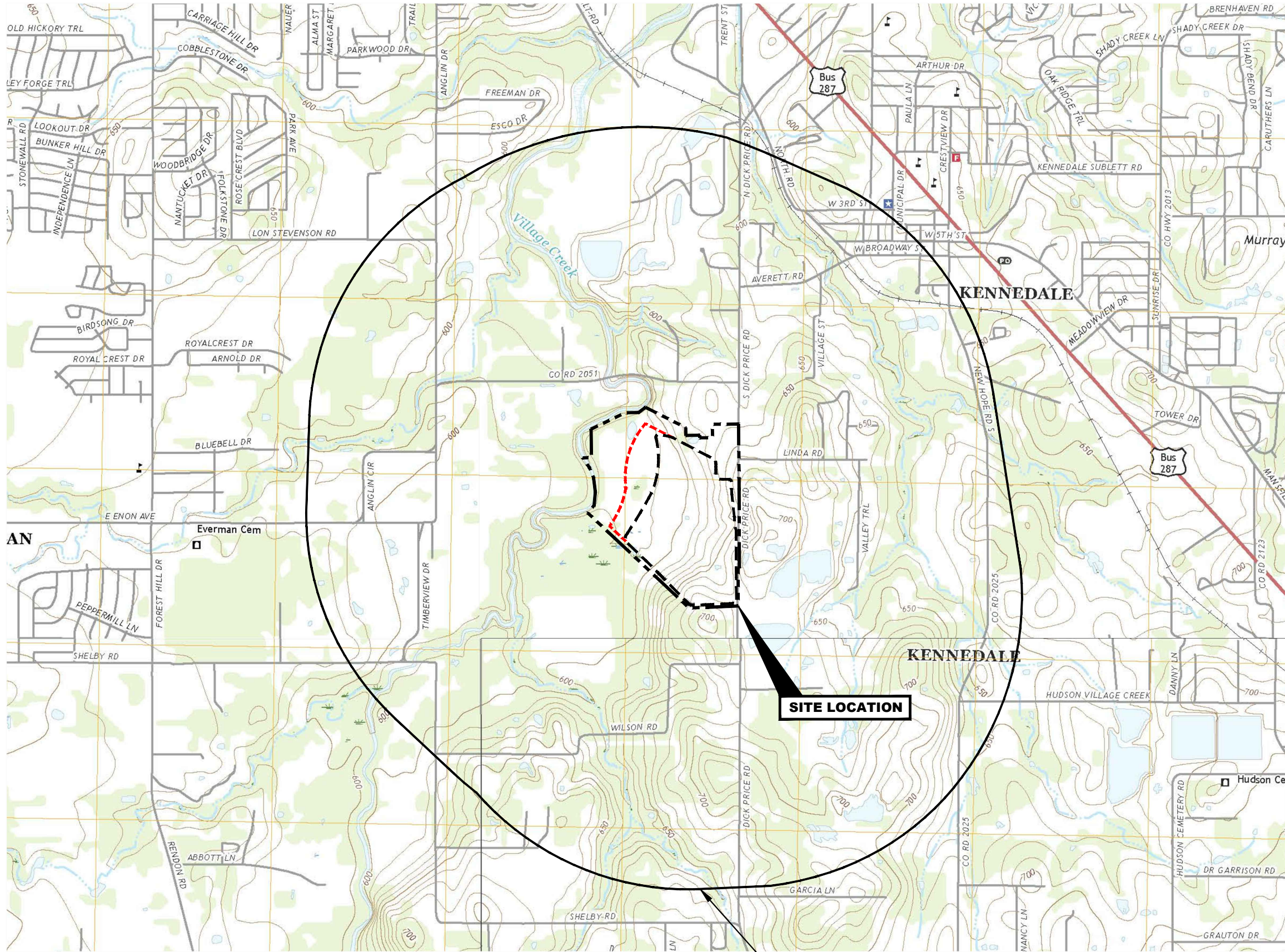


<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>SITE LOCATION MAP</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS  WWW.WCGRP.COM									
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIG 1-SITE LOCATION MAP.DWG		DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM								
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION						
NO.	DATE	DESCRIPTION									

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0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 1-SITE LOCATION MAP.dwg - jpubr - 1:2





**LEGEND**

- - - - - PERMIT BOUNDARY  
 - - - - - PERMITTED LIMIT OF WASTE  
 - - - - - PROPOSED LIMIT OF WASTE

**ROAD CLASSIFICATION**

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

**NOTES:**

1. ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

FORT WORTH, TX 2019	KENNEDALE, TX 2019
BURLESON, TX 2019	MANSFIELD, TX 2019



1-MILE RADIUS

<input type="checkbox"/> DRAFT	PREPARED FOR
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY	TEXAS REGIONAL LANDFILL COMPANY, LP
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	
DATE: 10/2022	DRAWN BY: JDW
FILE: 0771-356-11	DESIGN BY: JBP
CAD: FIG 2-GENERAL TOPO MAP.DWG	REVIEWED BY: CRM
<b>Weaver Consultants Group</b>	
TBPE REGISTRATION NO. F-3727	

REVISIONS		
NO.	DATE	DESCRIPTION

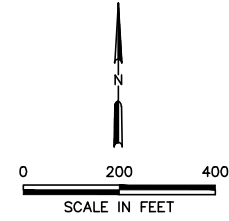
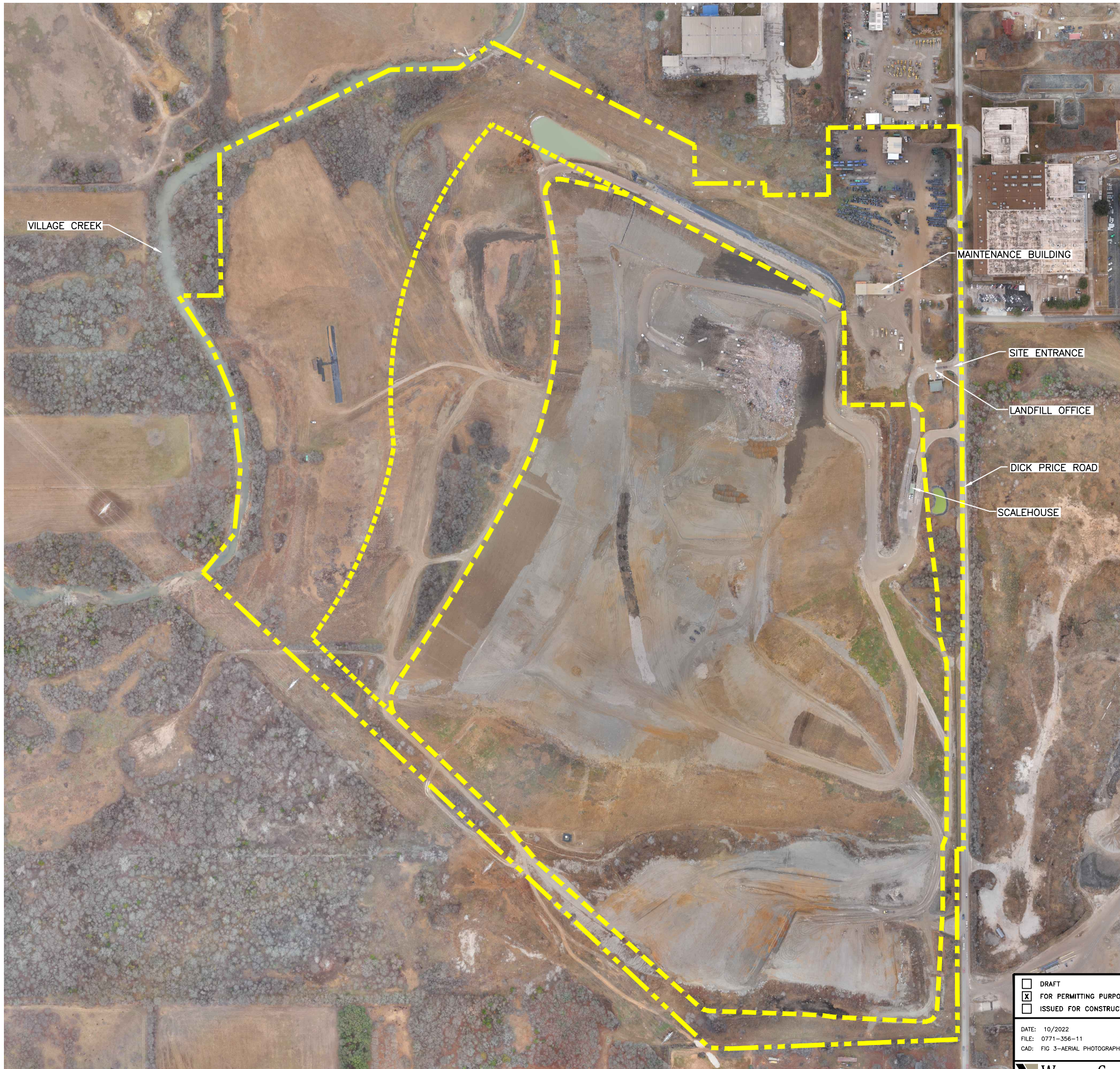
GENERAL TOPOGRAPHIC MAP

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM      FIGURE 2

I\IB-280

G:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 2-GENERAL TOPO MAP.dwg - jpbur - 1:2

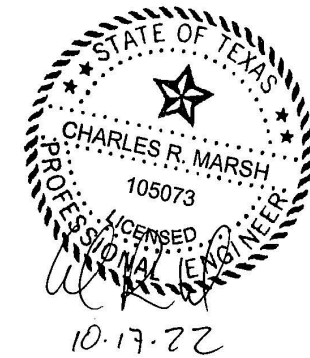


**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

**NOTES:**

1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP												
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DATE: 10/2022	DRAWN BY: JDW	<table border="1"> <thead> <tr> <th colspan="3">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS			NO.	DATE	DESCRIPTION						
REVISIONS														
NO.	DATE		DESCRIPTION											
FILE: 0771-356-11	DESIGN BY: JBP													
CAD: FIG 3-AERIAL PHOTOGRAPH.DWG	REVIEWED BY: CRM													
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727														

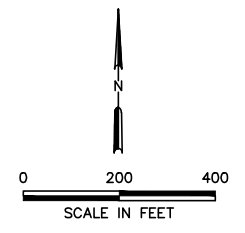
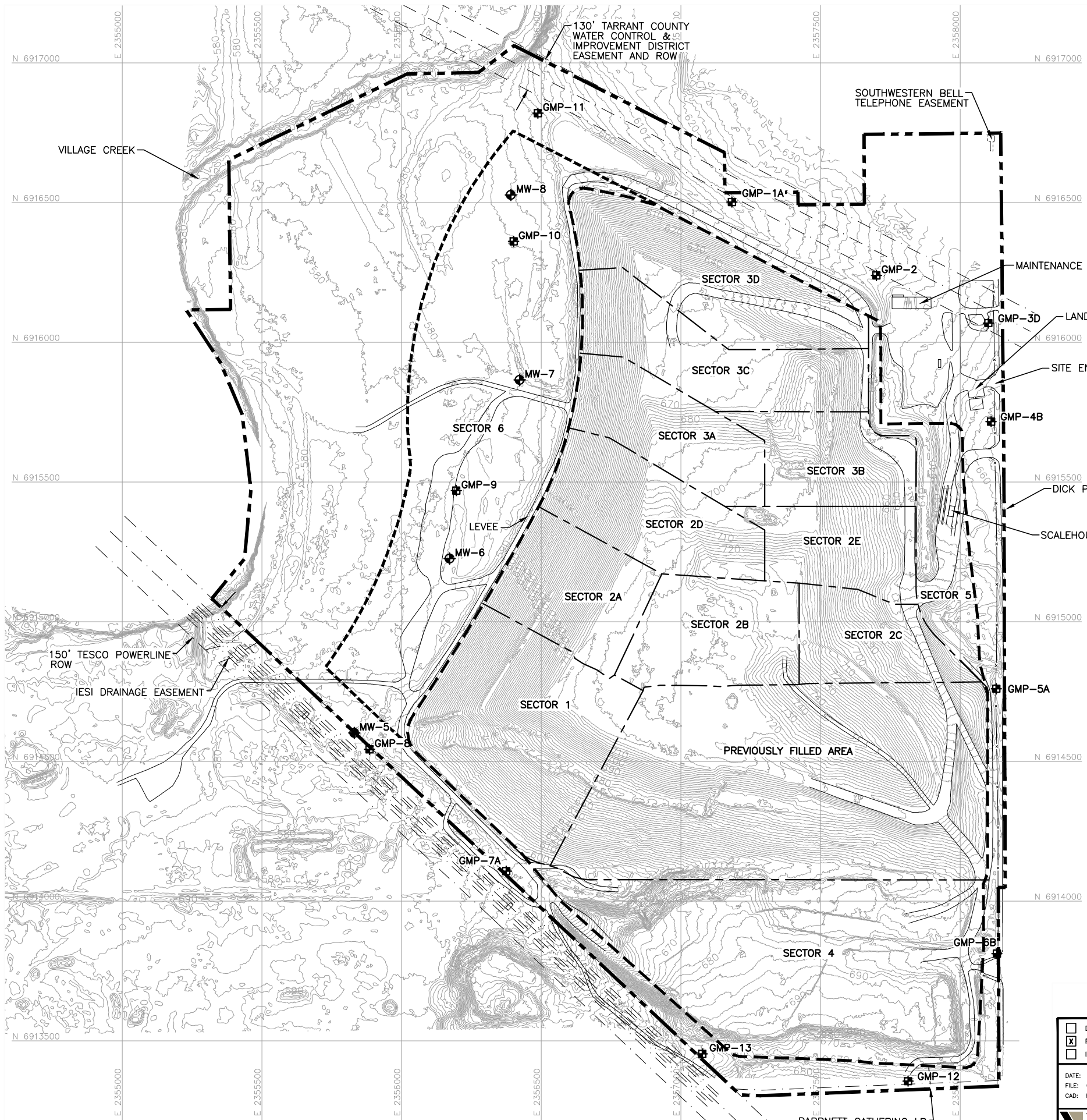
AERIAL PHOTOGRAPH

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

WWW.WCGRP.COM

FIGURE 3

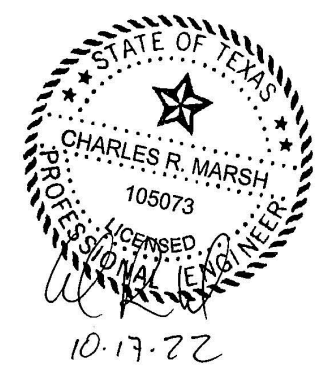
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**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EXISTING GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	EASEMENT

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



I\IB-282

BARNETT GATHERING LP  
20' WIDE PIPELINE EASEMENT

<input type="checkbox"/> DRAFT	PREPARED FOR	TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
<input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY			
<input type="checkbox"/> ISSUED FOR CONSTRUCTION			
DATE: 10/2022	DRAWN BY: JDW	REVISIONS	
FILE: 0771-356-11	DESIGN BY: JBP	NO.	DATE
CAD: FIG 4-SITE PLAN.DWG	REVIEWED BY: CRM		DESCRIPTION
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			

PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
DATE: 10/2022			
FILE: 0771-356-11			
CAD: FIG 4-SITE PLAN.DWG			
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			

PREPARED FOR		TEXAS REGIONAL LANDFILL COMPANY, LP	SITE PLAN
DATE: 10/2022			
FILE: 0771-356-11			
CAD: FIG 4-SITE PLAN.DWG			
<b>Weaver Consultants Group</b>			
TBPE REGISTRATION NO. F-3727			
		WWW.WCGRP.COM	FIGURE 4

0:\0771\356\EXPANSION 2022\PROJECT SUMMARY\FIG 5-EXISTING AND PROPOSED COMPLETION PLANS.dwg - jpubr, 1:2



**PERMITTED LANDFILL COMPLETION PLAN**



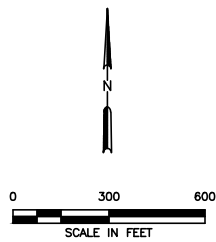
**PROPOSED LANDFILL COMPLETION PLAN**

**NOTES:**

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.

**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- EXISTING CONTOUR (SEE NOTE 1)
- PROPOSED FINAL COVER CONTOUR



IIB-283

10.17.22

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>EXISTING AND PROPOSED LANDFILL COMPLETION PLAN</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS														
	DATE: 10/2022 FILE: 0771-356-11 CAD: 5-COMPLETION PLAN COMP.DWG				DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM												
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION										WWW.WCGRP.COM	<b>FIGURE 5</b>
NO.	DATE	DESCRIPTION															

**ATTACHMENT 2**  
**THREATENED AND ENDANGERED SPECIES REPORT**



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The Louisiana pigtoe, sandbank pocketbook, and Texas heelsplitter are mollusks. These species occur in small streams and large rivers with moderate currents with substrates of clay, mud, sand, and gravel. The proposed project is not expected to impact these species.

The alligator snapping turtle is an aquatic species found in perennial water bodies including rivers, canals, lakes, and oxbows. This species is not expected to be impacted by the proposed project.

The Texas horned lizard occupies open, arid, and semi-arid regions with sparse vegetation. Additionally, it prefers loose loamy or sandy soils. These lizards feed almost exclusively on harvester ants. No harvester ant colonies were observed during the field investigation. No Texas horned lizards were observed during the field investigation. It is unlikely that horned lizards would utilize the area.

## **SUMMARY**

No suitable habitat exists on the site for any species listed for Tarrant County, nor has critical habitat been designated in the project area for any threatened and endangered species. The landfill expansion will not result in the destruction or adverse modification of any federally designated critical habitat for any threatened or endangered species, nor cause or contribute to the taking of any listed threatened or endangered species. Therefore, no further investigation for threatened and endangered species is recommended.

Last Update: 10/1/2021

## TARRANT COUNTY

### AMPHIBIANS

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: SU

### BIRDS

**bald eagle** *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3B,S3N

**Black Rail** *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT State Status: T SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S2

**Chestnut-collared Longspur** *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Franklin's gull** *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S2N

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## TARRANT COUNTY

### BIRDS

#### interior least tern

*Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

#### Lark Bunting

*Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (*Koeleria*), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

#### mountain plover

*Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

#### piping plover

*Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

#### Rufa Red Knot

*Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

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## TARRANT COUNTY

### BIRDS

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

### FISH

**Mississippi silvery minnow** *Hybognathus nuchalis*

Found in eastern Texas streams, from the Brazos River eastward and northward to the Red River; found in moderate current; silty, muddy, or rocky substrate. In Texas, adults likely to inhabit smaller tributary streams.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S4

### INSECTS

**American bumblebee** *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

**Comanche harvester ant** *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

### MAMMALS

**big brown bat** *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
-----------------	---------------	---------

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## TARRANT COUNTY

### MAMMALS

Endemic: N                                      Global Rank: G5                                      State Rank: S5

**big free-tailed bat**                                      *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G5                                      State Rank: S3

**black bear**                                      *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:                                      State Status: T                                      SGCN: Y  
Endemic: N                                      Global Rank: G5                                      State Rank: S3

**black-tailed prairie dog**                                      *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G4                                      State Rank: S3

**cave myotis bat**                                      *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G4G5                                      State Rank: S2S3

**eastern red bat**                                      *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:                                      State Status:                                      SGCN: Y  
Endemic: N                                      Global Rank: G3G4                                      State Rank: S4

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## TARRANT COUNTY

### MAMMALS

#### eastern spotted skunk

*Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

#### hoary bat

*Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

#### long-tailed weasel

*Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### mountain lion

*Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

#### Muskrat

*Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### swamp rabbit

*Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### tricolored bat

*Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

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## TARRANT COUNTY

### MAMMALS

**western hog-nosed skunk** *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

### MOLLUSKS

**Louisiana Pigtoe** *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

**Sandbank Pocketbook** *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

**Texas Heelsplitter** *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

### REPTILES

**alligator snapping turtle** *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**common garter snake** *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

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## TARRANT COUNTY

### REPTILES

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Prairie Skink** *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S5

**slender glass lizard** *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**smooth softshell** *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Texas garter snake** *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G5T4 State Rank: S1

**Texas horned lizard** *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4G5 State Rank: S3

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## TARRANT COUNTY

### REPTILES

**timber (canebrake) rattlesnake**     *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

**western box turtle**     *Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**western chicken turtle**     *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S2S3

**western massasauga**     *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

### PLANTS

**earleaf false foxglove**     *Agalinis auriculata*

Known in Texas from one late nineteenth century specimen record labeled -Benbrook-; in Oklahoma, degraded prairies, floodplains, fallow fields, and borders of upland sterile woods; in Arkansas, blackland prairie; Annual; Flowering August - October

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: SH

**Engelmann's bladderpod**     *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

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## TARRANT COUNTY

### PLANTS

<b>Glen Rose yucca</b>	<i>Yucca necopina</i>		
Grasslands on sandy soils and limestone outcrops; flowering April-June			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G1G2	State Rank:	S3
<b>Hall's prairie clover</b>	<i>Dalea hallii</i>		
In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3	State Rank:	S2
<b>Osage Plains false foxglove</b>	<i>Agalinis densiflora</i>		
Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S2
<b>Reverchon's scurfpea</b>	<i>Pediomelum reverchonii</i>		
Mostly in prairies on shallow rocky calcareous substrates and limestone outcrops; Perennial; Flowering Jun-Sept; Fruiting June-July			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S3
<b>Shinner's sedge</b>	<i>Carex shimmersii</i>		
Occurs in ditches and swales in prairie landscapes (Carr 2015).			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G3	State Rank:	S2
<b>Sutherland hawthorn</b>	<i>Crataegus viridis</i> var. <i>glabriuscula</i>		
In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above/near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.			
Federal Status:	State Status:	SGCN:	Y
Endemic: N	Global Rank: G5T3T4	State Rank:	S3
<b>Texas milk vetch</b>	<i>Astragalus reflexus</i>		
Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June			
Federal Status:	State Status:	SGCN:	Y
Endemic: Y	Global Rank: G3	State Rank:	S3

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## TARRANT COUNTY

### PLANTS

**Topeka purple-coneflower**      *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides;  
Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

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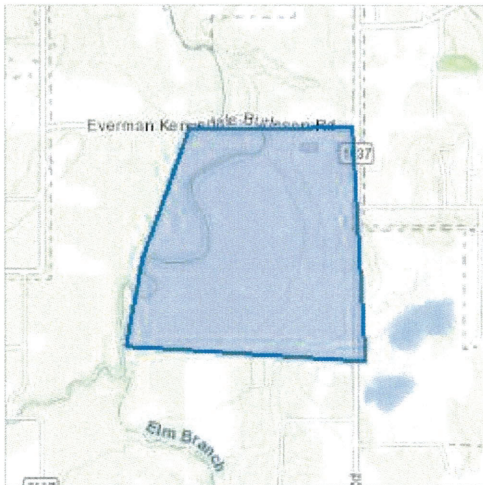
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Tarrant County, Texas



## Local office

Arlington Ecological Services Field Office

☎ (817) 277-1100

📅 (817) 277-1129

2005 Ne Green Oaks Blvd

Suite 140

Arlington, TX 76006-6247

<http://www.fws.gov/southwest/es/arlingontexas/>

I\IIB-297

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Birds

NAME

I\IIB-299

STATUS

**Piping Plover** *Charadrius melodus* **Threatened**  
 This species only needs to be considered if the following condition applies:  
 • Wind Energy Projects  
 There is **final** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/6039>

**Red Knot** *Calidris canutus rufa* **Threatened**  
 Wherever found  
 This species only needs to be considered if the following condition applies:  
 • Wind Energy Projects  
 There is **proposed** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/1864>

**Whooping Crane** *Grus americana* **Endangered**  
 There is **final** critical habitat for this species. The location of the critical habitat is not available.  
<https://ecos.fws.gov/ecp/species/758>

## Insects

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	<b>Candidate</b>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.p>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [e-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

**Lesser Yellowlegs** *Tringa flavipes*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

**Long-billed Curlew** *Numenius americanus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/5511>

**Red-headed Woodpecker** *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (🕒)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (|)**

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

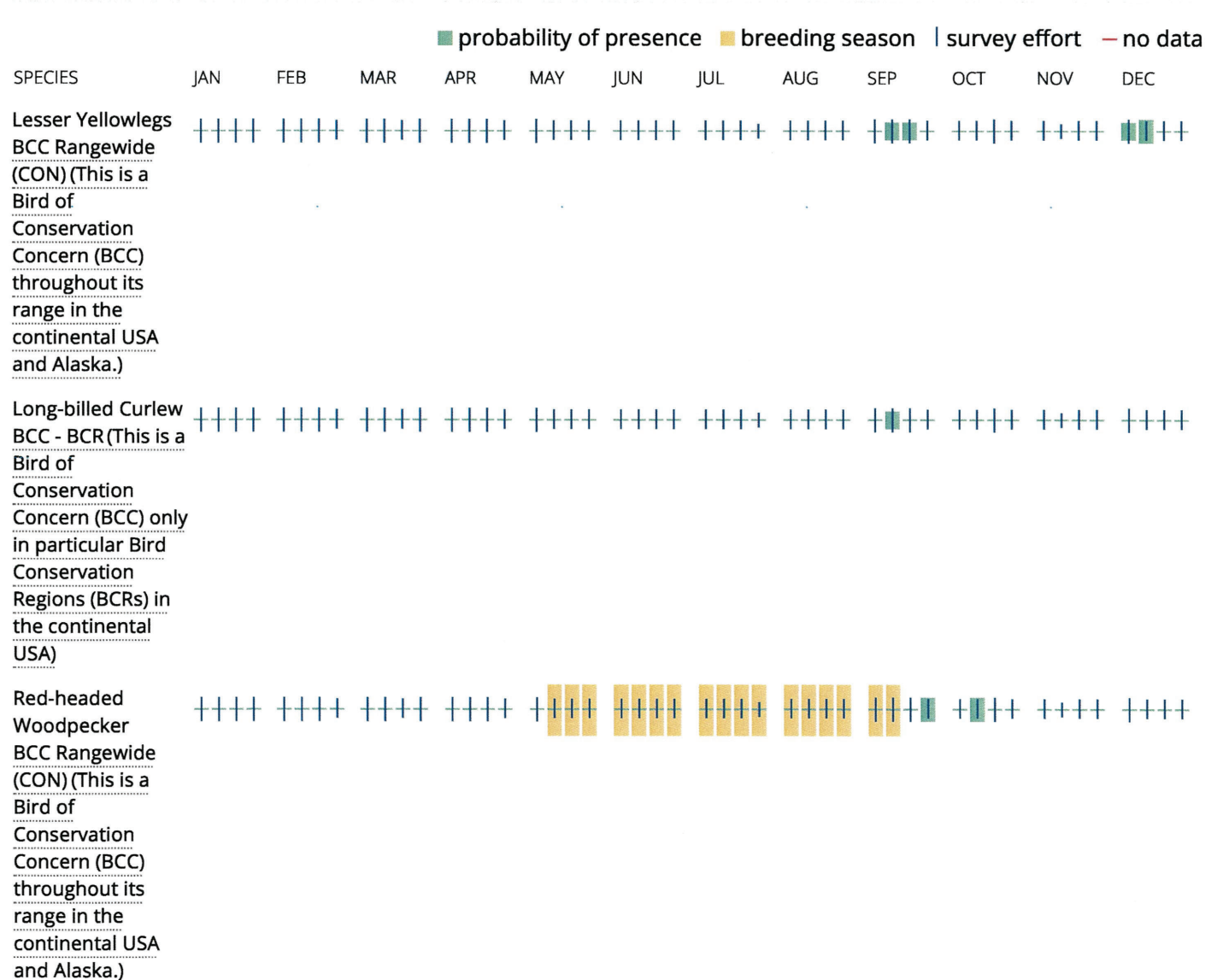
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (-)**

A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.



[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the [Probability of Presence Summary](#). [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

### What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

### What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the [Probability of Presence Summary](#) and then click on the "Tell me about these graphs" link.

### How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#) or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

### What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

## Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

## Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

I\IIB-306

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this

inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

**COORDINATION WITH  
NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS**

- February 9, 2023 NCTCOG Review Request Letter

Mr. Jeff Mayfield  
Environment and Development Planner  
North Central Texas Council of Governments  
616 Six Flags Drive  
Arlington, TX 76011

Re: NCTCOG Conformance Review Request  
Major Permit Amendment Application – MSW 1983D  
Fort Worth C&D Landfill

Dear Mr. Mayfield:

Consistent with the requirements of Title 30 Texas Administrative Code (TAC) §330.61(p), please find attached a copy of Parts I/II of the referenced major permit amendment application which has been prepared for Texas Regional Landfill Company, LP. The purpose of the major permit amendment is to increase the disposal capacity of the Fort Worth C&D Landfill by expanding the landfill. The currently permitted peak elevation of 820 feet mean sea level (ft-msl) will be increased to 860 ft-msl and the existing 99.9-acre waste disposal area will be expanded to 121.9 acres, which will increase the permitted disposal capacity by approximately 8.4 million cubic yards. The continued operation of the Fort Worth C&D Landfill will provide for the long-term disposal needs of Tarrant County and surrounding communities.

The major permit amendment application was submitted to TCEQ on February 9, 2023. The submittal of Parts I/II of the application to the North Central Texas Council of Governments (NCTCOG) is made pursuant to Title 30 TAC §330.61(p), which reads:

*“Council of governments and local government review request. The owner or operator shall submit documentation that Parts I and II of the application were submitted for review to the applicable council of governments for compliance with regional solid waste plans. The owner or operator shall also submit documentation that a review letter was requested from any local governments as appropriate for compliance with local solid waste plans. A review letter is not a prerequisite to a final determination on a permit or registration application.”*

We believe that the continued development of the Fort Worth C&D Landfill is consistent with the NCTCOG Regional Solid Waste Plan for the following reasons:

- One of the goals of the NCTCOG’s Regional Solid Waste Plan is to develop regional cost-effective, efficient and environmentally-suitable solid waste management systems. The Fort Worth C&D Landfill is identified as a key part of

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the PRPC Regional Solid Waste Plan. The continued development of the facility will provide an economical option for continued disposal.

- The Fort Worth C&D Landfill is specifically listed in the NCTCOG Regional Plan and is consistent with NCTCOG's goal of providing integrated waste management practices to provide ample, convenient collection and disposal options.
- The additional capacity gained by the approval of this expansion project will contribute to meeting NCTCOG's goal to regionally, ensure continued, adequate disposal capability.

Also enclosed is the completed North Central Texas Council of Governments (NCTCOG) "Regional Review of MSW Facility Application Evaluation Form" for the referenced project.

Your assistance with this matter is appreciated. We also are prepared to make a presentation to the NCTCOG, if requested. Please call if you have any questions or need additional information.

Sincerely,

**Weaver Consultants Group, LLC**



Charles R. Marsh, P.E.  
Project Director

cc: Gary Bartels, Texas Regional Landfill Company, LP  
Elijah Vandergriff, Texas Regional Landfill Company, LP

Enclosures: Attachment 1 – Parts I/II, Fort Worth C&D Landfill Major Permit  
Amendment Application  
Attachment 2 – Regional Review of MSW Facility Application Evaluation  
Form

**ATTACHMENT 1**

**PARTS I/II, FORT WORTH C&D LANDFILL  
MAJOR PERMIT AMENDMENT APPLICATION**



**ATTACHMENT 2**

**REGIONAL REVIEW OF MSW FACILITY  
APPLICATION EVALUATION FORM**

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

**Section 1: General Applicant Information**

1.1 Applicant's Name: Texas Regional Landfill Company, LLP  
Mailing Address: 3 Waterway Square Place, Ste. 550  
City, State, Zip Code: The Woodlands, TX 77380  
Facility Contact Person: Gary Bartels, Southern Region Engineer

1.2 Site Location  
Address: 4144 Dick Price Road  
Zip Code: 76140  
Nearest City: Fort Worth, Texas  
County: Tarrant

1.3 Is this a new facility or an amendment to a current permit/registration?  
 New Facility                       Amendment to current permit/registration

1.4 Is this a permit or a registration application?  
 Permit No. 1983D (current)       Registration No. \_\_\_\_\_  
*Note: NCTCOG's 08-09 Solid Waste Grants Program contract with TCEQ (section 4.6) requires review of all permit and registration applications.*

1.5 What type of MSW facility is being registered or permitted?  
 Type I Landfill                       Type IV AE Landfill  
 Type I AE Landfill                   Type V Facility  
 Type IV Landfill                       Other (please describe)

Describe "Other" below:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

1.6 What types of waste(s) are currently accepted at your facility?

- |                                     |                     |                                     |                                 |
|-------------------------------------|---------------------|-------------------------------------|---------------------------------|
| <input type="checkbox"/>            | Municipal Waste     | <input checked="" type="checkbox"/> | Industrial Class III            |
| <input type="checkbox"/>            | Industrial Class I  | <input type="checkbox"/>            | Special Waste (please describe) |
| <input checked="" type="checkbox"/> | Industrial Class II | <input type="checkbox"/>            | Other (please describe)         |

Describe "Special Waste" and/or "Other" below:

The facility currently accepts Class 2 and 3 non-hazardous industrial waste, yard waste, construction and demolition waste, rubbish, non-regulated asbestos-containing materials (non-RACM), empty containers that have been used for pesticides, herbicides, fungicides, or rodenticides, mechanical shredding waste that is nonhazardous industrial waste, contains no free liquids and is not hazardous waste, and scrap tires.

Source: TAC 30, §330.61(b) (1)

1.7 What types of waste(s) will be accepted at your facility in the future?

- |                                     |                     |                                     |                                 |
|-------------------------------------|---------------------|-------------------------------------|---------------------------------|
| <input type="checkbox"/>            | Municipal Waste     | <input checked="" type="checkbox"/> | Industrial Class III            |
| <input type="checkbox"/>            | Industrial Class I  | <input checked="" type="checkbox"/> | Special Waste (please describe) |
| <input checked="" type="checkbox"/> | Industrial Class II | <input type="checkbox"/>            | Other (please describe)         |

Describe "Special Waste" and/or "Other" below:

The facility currently accepts Class 2 and 3 non-hazardous industrial waste, yard waste, construction and demolition waste, rubbish, non-regulated asbestos-containing materials (non-RACM), empty containers that have been used for pesticides, herbicides, fungicides, or rodenticides, mechanical shredding waste that is nonhazardous industrial waste, contains no free liquids and is not hazardous waste, and scrap tires.

Source: TAC 30, §330.61(b) (1)

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

**Section 2:**

**Land Use Conformance – Compliance with Local Zoning or Ordinance**

2.1 Is the site of your facility subject to local zoning or ordinances regarding the siting of solid waste facilities?

Yes                       No (please proceed directly to Section 3)

If yes, which government zoning or siting standards does this facility have to comply?

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If yes, please attach documentation from the local zoning or siting entity indicating that the facility is in compliance with the standards or that a formal variance has been granted. If applicable, provide maps detailing all boundaries of the areas included in the ordinance and the location of the facility.

*Source: TCEQ correspondence from the Executive Director to each COG, March 4, 2003.*

**If documentation is provided to NCTCOG proving the facility is in compliance with the local city zoning or county siting ordinance (per §364.012 of the Texas Health and Safety Code), then the applicant does not need to answer the remaining land use questions in Section 3. Please proceed to Section 4 and continue completing the application. Once the application is complete, please return the MSW facility application evaluation form and requested documentation to NCTCOG.**

# North Central Texas Council of Governments

## Regional Review of MSW Facility Application Evaluation Form

### Section 3: Land Use Conformance – Key Issues

Texas Commission on Environmental Quality Rule 330.61 defines key land use and transportation issues that need to be addressed as a part of the regional MSW facility application evaluation process. The following questions are based on the rules, and are intended to provide information for NCTCOG to develop its conformance recommendation.

- 3.1 Describe the current character of surrounding land uses within one mile of the facility boundary. Please provide site design map(s) and/ or aerial photos of the area that adequately show land use.

Land use within a 1-mile radius of the landfill property is predominantly undeveloped, floodplain, open/agricultural lands, and single-family residential with scattered commercial and light industrial facilities located in the near vicinity of the landfill property.

Major commercial/light industrial facilities are located primarily to the east/northeast and west within the 1-mile radius of the landfill property. Pipeline and utility corridors, another permitted landfill, manufactured housing, and mining/excavation operations make up smaller portions of the remaining 1-mile radius area around the landfill property.

There are several rural residential areas scattered around the landfill property, including single-family, multi-family, and mobile home residences.

South of the landfill property, undeveloped, park/park-like, or agricultural land is predominately found including Village Creek, Sonora Park, and Timberview Golf Course.

#### LAND USE WITHIN 1 MILE RADIUS OF PERMIT BOUNDARY

	ACRES	PERCENT
RESIDENTIAL	805	22.4
COMMERCIAL	54	1.5
INDUSTRIAL	331	9.2
INSTITUTIONAL	10	0.3
INFRASTRUCTURE	364	10.2
DEDICATED	481	13.4
UNDEVELOPED/AGRICULTURAL	1334	37.2
POND/LAKE	24	0.7
FLOODPLAIN*	1086	--
FORT WORTH C&D LANDFILL	184	5.1
<b>TOTAL</b>	<b>3587</b>	<b>100</b>

\* THE AREA OF FLOODPLAIN (389.8 ACRES) IS NOT USED TO CALCULATE THE PERCENT AREA OR TOTAL ACREAGE IN THE ABOVE TABLE.

Source: TAC 30, §330.61 (h) (2)

# North Central Texas Council of Governments

## Regional Review of MSW Facility Application Evaluation Form

- 3.2 Provide the proximity to residences and other uses (e.g., schools, licensed day-care facilities, hospitals, churches, cemeteries, ponds, lakes, historic structures and sites, archaeologically significant sites, sites having exceptional aesthetic quality, commercial, and recreational areas) within one mile of the facility boundary. Please provide approximate number of residences and business establishments.

The nearest identified residence is found approximately 90 feet from the landfill property along the south property boundary. The nearest business property is located to the south, with approximately 1,300 feet measured between fence line to fence line of the properties on aerial photography.

There are a total of six churches within one mile of the facility. The nearest church is located approximately 4,600 feet northeast of the landfill property. There are no known hospitals, schools, cemeteries, archaeological sites, historical sites, lakes, or sites with exceptional aesthetic qualities located within a 1-mile radius of the landfill permit boundary. There are two parks within one mile of the facility, located approximately 0.5 miles northeast and one mile northwest of the landfill.

Source: TAC 30, §330.61 (g & h)

- 3.3 How is the facility compatible with land uses surrounding the site?

Please explain and /or provide title and published date for any applicable land use study and provide web link if available.

A land use evaluation for the landfill is presented in Parts I/II, Section 7 of the permit amendment application.

- 3.4 Are there any plats on file in state or local government offices for development within one mile of the facility boundary?

Yes  No

If yes, please describe and provide documentation.

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- 3.5 Is the facility consistent with growth trends of the nearest community of communities with directions of major development?

Yes  No

Please explain.

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

This is an existing landfill facility, permitted and in operation for over 30 years. While some growth is occurring in Tarrant County (1.451 percent annually for the period 2010 to 2020), growth observed over the past 20 years in the near vicinity of the landfill property (i.e., within the 1-mile radius), as observed from aerial photography, is minimal and generally limited to commercial/light industrial facilities to the east/northeast.

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- 3.6 Explain how the facility will be designed to avoid any impact to all known water wells within 500 feet of the facility boundary.

No known water wells are located within the facility boundary. The landfill liner system is designed to comply with Title 30 TAC §330.331(d)(1) and 330.331 (a)(2).

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*Source: TAC 30, §330.61 (c) (2)*

- 3.7 Will roads be available and adequate for access to the facility?

Yes  No

Please explain.

The primary route to the site is Dick Price Road, with vehicles traveling from the north and south to access the landfill. A traffic study was submitted to the Texas Department of Transportation (TxDOT) that demonstrates that Dick Price Road and supporting access roads and structures will not be negatively impacted by the proposed expansion of the landfill and will provide adequate access to the facility.

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*Source: TAC 30, §330.61(i) (1)*

- 3.8 Will traffic into and out of the facility impact traffic patterns, within one mile of the facility, that currently exist and will occur over the expected life of the facility?

Yes  No

Please explain.

Additional discussion regarding the impacts from traffic entering and exiting the facility can be found in Appendix I/II D of the permit amendment application. As demonstrated within the traffic study, the landfill expansion will not have a significant impact on traffic patterns on Dick Price Road, or negatively impact the access roads and structures that serve the landfill property.

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*Source: TAC 30, §330.61(i) (2)*

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

The remaining questions refer to land use issues that NCTCOG feels are important for the regional MSW facility application evaluation.

- 3.9 Describe any additional information that will be beneficial regarding how the facility will be built and operated to be compatible with the current land uses of adjacent properties. (Optional)

The landfill is situated in a rural part of Tarrant County, and is surrounded by sparsely populated rural properties, open and wooded areas, agricultural lands, and commercial/industrial properties. The eastern border of the landfill property abuts Dick Price Road. The landfill has been in operation for over 30 years, and has an excellent record of operation and controlling impacts (litter, noise, odor) to neighboring properties.

- 3.10 Describe measures to minimize the impact from trash, odor and any other potential nuisances related to your operation on surrounding land use.

As a Type IV MSW facility, the allowable waste stream (i.e., brush, C&D, and rubbish-type materials) will reduce the potential for odor generation compared to other MSW facilities (e.g., Type I MSW landfills). Specifically, more odorous putrescible wastes, sludges, grease or grit trap wastes, liquid wastes, or dead animals are not allowed to be accepted at the facility, thereby eliminating the potential for generation of odors by these sources. Additionally, wastes will be promptly landfilled, cover soil is applied at least weekly, and contaminated/ponded water will be minimized.

*Source: TAC 30, §330.63(b)*

- 3.11 If the facility is a landfill, what will be the maximum permitted elevation of the facility? (Please provide a final contour map or graphic representation of the facility.)

The final elevation of the permitted landfill will be increased to 860 feet sea level. A completion plan (Figure I/II-A.8) is included in the Part I/II application.

How will the facility compare to the general terrain of the area, within two miles of the facility boundary?

Surrounding areas are generally flat to lightly rolling hills. The landfill will be higher than the general terrain of the area, however, the implementation of vegetation screening will be utilized to blend the facility into the existing terrain.

*Source:.*

- 3.12 Describe any measures that you will implement to screen and/or blend the facility with surrounding features.

Existing woody vegetation existing on landfill property will be maintained and not removed except as needed for landfill operations. Additional screening will be provided through the use of fencing, planted vegetation, and natural vegetation in the buffer zones.

*Source: TAC 30, §330.61(d) (7)*



**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

- 3.13 Describe any landscaping measures that you will implement to improve the aesthetics of the facility. (Please attach any landscaping plans.)

Currently the landfill utilizes trees and vegetation in buffer areas to improve the aesthetics of the facility. As the site develops, additional trees and vegetation will be established as needed.

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*Source:*

# North Central Texas Council of Governments

## Regional Review of MSW Facility Application Evaluation Form

### **Section 4: Regional Conformance**

Another component of evaluating conformance includes how the facility will affect the regional solid waste management goals of the North Central Texas Council of Governments that are included in the regional solid waste management plan, *See Less Trash Regional Solid Waste Management Plan*. In order to complete this evaluation, please provide a description of how your facility will contribute to the attainment of these goals.

In requesting this information, NCTCOG recognizes that individual facilities alone will not be held responsible to achieve these regional goals. However, solid waste facilities represent an important component of a regional integrated solid waste management system, and can contribute to the attainment of regional goals. Facilities will be expected to make a good faith effort to contribute to the attainment of the regional solid waste goals.

To assist in the completion of this section, examples of activities/programs that could be implemented to assist in the attainment of these regional goals are listed for each of the three goals. These examples are based directly on objectives included in the *See Less Trash Regional Solid Waste Management Plan*. However, they are intended to only serve as examples, as individual facilities need to determine how they will contribute to regional goals.

#### **Goal No. 1: Time to Recycle**

The regional goal for Time to Recycle is that purchased materials are reused and recycled wherever possible, while increasing waste prevention and reduction throughout the region.

##### **Examples for Facilities to Consider**

- Assist in the development of outreach and education programs to facilitate long-term changes in attitudes about source reduction, reuse and recycling.
- Contribute to efforts to expand commercial recycling efforts by businesses and governments across the region.
- Contribute to efforts to increase citizen participation in reuse and recycling through the following types of programs:
  - Facility has a drop-off site to accept materials for recycling; or
  - Facility diverts clean loads of brush/yard waste for alternative uses (e.g. mulching, composting, daily cover, surface stabilization for landfill traffic and equipment due to wet conditions).
- Assist efforts to expand the collection and management of special waste, which includes materials such as household hazardous waste, tires and sludge.
- Promote innovative technologies to reduce waste.

# North Central Texas Council of Governments

## Regional Review of MSW Facility Application Evaluation Form

- 4.1 Please describe any services or activities that you can provide, or are currently providing, to the region to assist with meeting this regional goal.

The Fort Worth C&D Landfill maintains areas for collection of white goods, compost/wood waste, and C&D recyclable materials.

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### Goal No. 2: Stop Illegal Dumping

The regional goal for Stop Illegal Dumping is to see that illegal dumping is significantly reduced in the North Central Texas region.

#### Examples for Facilities to Consider

- Contribute to efforts to facilitate public awareness and education opportunities to reduce littering and illegal dumping.
- Use public awareness materials (e.g. signs, brochures, etc.) developed by NCTCOG to help stop illegal dumping.
- Participate in community clean-up efforts to reduce illegal dumping.
- Support efforts to increase enforcement against illegal dumping crimes.

- 4.2 Please describe any services or activities that you can provide, or are currently providing, to the region to assist with meeting this regional goal.

The facility will be responsible for daily inspection and clean-up of waste materials spilled on access roads within a distance of two miles from the site entrance.

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**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

**Goal No. 3: Assuring Capacity for Trash**

The regional goal for Assuring Capacity for Trash is that remaining waste be handled in a safe manner at permitted facilities.

**Examples for Facilities to Consider**

- Facility helps efforts to maintain a minimum of 10 years of capacity for that area of the NCTCOG planning region.<sup>1</sup>
  - Landfills may specifically contribute to this by increasing capacity.
  - Transfer stations can contribute to this by providing more efficient transportation to more distant landfills.
- Facility helps provide ample and convenient collection and disposal options in rural and other underserved areas.
  - Facility provides opportunities for residents and other low volume customers to dispose of solid waste in a convenient and affordable manner.

4.3 Please describe any services or activities that you can provide, or are currently providing, to the region to assist with meeting this regional goal.

The additional capacity gained by the approval of this project will contribute to meeting the NCTCOG's goal of providing long-term disposal capacity for the North Texas region.

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<sup>1</sup> Capacity issues can be considered to demonstrate the need for a facility, but cannot be used as a basis against a facility.

**North Central Texas Council of Governments**  
**Regional Review of MSW Facility Application Evaluation Form**

**Section 5: Certification**

I certify that the information contained in this form is complete and accurate and that the information in fact represents the MSW facility for which this entity is requesting a TCEQ permit or registration.

Gary Bartels

**Type or Printed Name of Applicant's Chief Administrative Officer**

Southern Region Engineer

**Title of Chief Administrative Officer**

  
**Signature of Chief Administrative Officer**

2/9/2023  
**Date**

**NOTE:**

Please complete this form as fully and as accurately as possible. Responses to Sections 2 and 3 of the evaluation form that address the issue of land use compatibility will be submitted to the Texas Commission on Environmental Quality along with the NCTCOG's regional review of MSW facility application recommendation form.

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

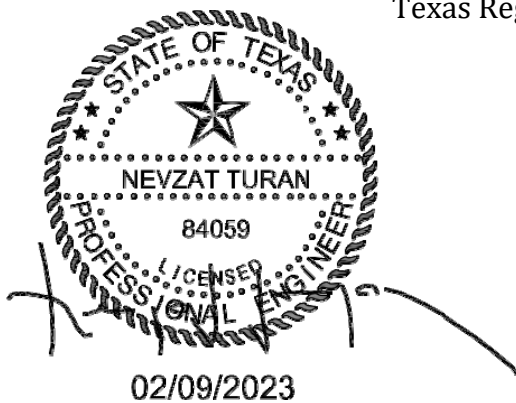
**MAJOR PERMIT AMENDMENT**

**APPENDIX I/IIC  
LOCATION RESTRICTION DEMONSTRATIONS**

Prepared for

Texas Regional Landfill Company, LP

February 2023



Prepared by

**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

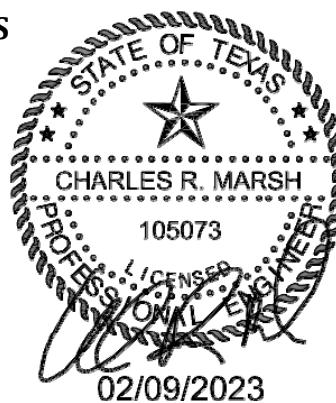
WCG Project No. 0771-356-11-35

This document is intended for permitting purposes only.

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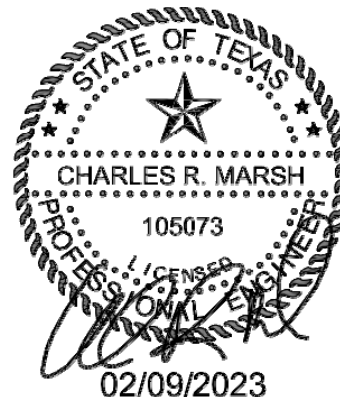
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# 1 INTRODUCTION

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The purpose of this appendix is to provide demonstrations of the location restrictions for the Fort Worth C&D Landfill. Title 30 Texas Administrative Code (TAC) §330, Subchapter M identifies eleven location restrictions for the protection of human health and the environment. The eleven location restrictions include easements and buffer zones, airports, floodplains, groundwater, endangered or threatened species, wetlands, fault areas, seismic impact zones, unstable areas, coastal areas, and Type I and Type IV landfill permit issuance prohibited areas.

The Subtitle D regulations also require that the owner of a site must demonstrate either that the location restrictions do not apply or that the landfill, while located in a restricted area, is designed and operated in such a way that it protects human health and the environment.

## 2 EASEMENTS AND BUFFER ZONES

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The easements and buffer zones location restrictions within Title 30 TAC §330.543 require that no solid waste disposal shall occur within 25 feet of the center line of any utility line or pipeline easement but no closer than the easement, unless otherwise authorized by the Executive Director. Also, all pipeline and utility easements shall be clearly marked with posts that extend at least six feet above ground level, spaced at intervals no greater than 300 feet. In addition, for vertical or horizontal expansions, the owner or operator shall establish and maintain a 50-foot buffer zone for any newly permitted airspace.

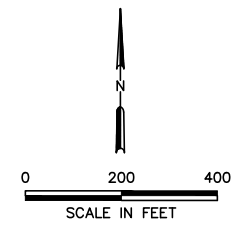
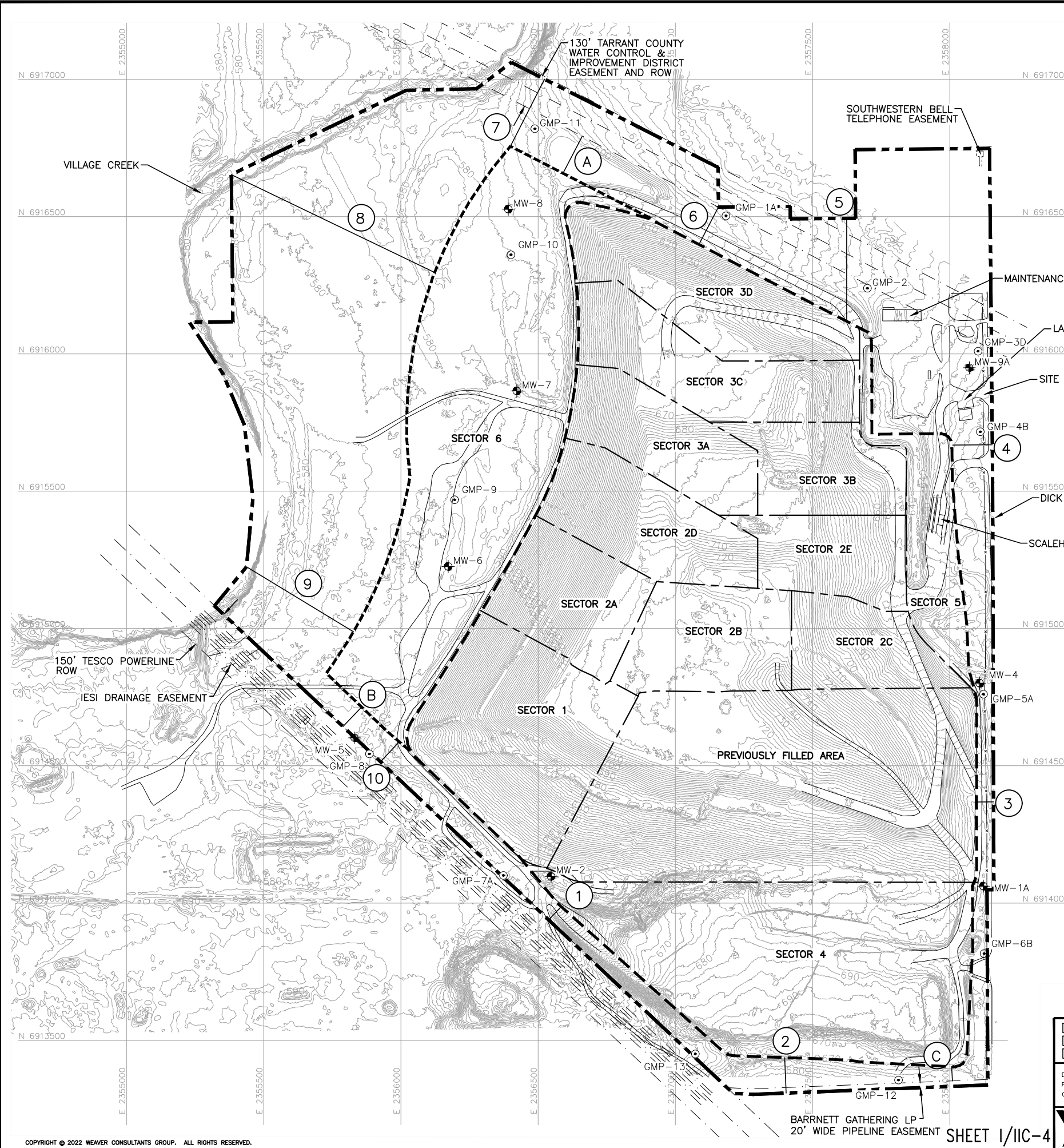
The proposed buffer zones for the site are shown on Drawing I/IIC-1 and are discussed below.

- **Existing Permitted Limits of Waste.** As shown on Drawing I/IIC-1, a buffer zone of at least 50 feet is maintained between the permit boundary and the permitted limits of waste defined in TCEQ Permit No. 1983E.
- **Expansion Area.** As shown on Drawing I/IIC-1, a minimum 50-foot buffer zone is maintained between the permit boundary and the proposed new waste disposal airspace (labeled as “newly permitted airspace limit of waste”), consistent with Title 30 TAC §330.543(b)(1). No waste is proposed to be placed between the permitted limits of waste and the newly permitted airspace limits of waste.

There are three easements located within the permit boundary. A 130-foot Tarrant Regional Water District (TRWD) water pipeline easement is located along the northern portion of the permit boundary, a 20-foot wide Barnett Gathering LP natural gas pipeline easement is located at the southern portion of the permit boundary, and a Southwestern Bell Telephone utility easement is located at the northeastern corner of the permit boundary. No easement center lines are within 25 feet of the existing or proposed limits of waste, thereby providing the required separation between the easement and the waste footprint. In addition, all utility line and pipeline easements will be clearly marked in accordance with the Site Operating Plan.

Given the above, the site is in compliance with the easements and buffer zone location restrictions. Within the TRWD easement there are three raw waterline pipes. The TRWD easement and associated pipelines are oriented in a general southeast to northwest direction. The closest edge of the TRWD easement is

separated from the northern waste fill limits by approximately 150 feet. As shown on Drawing I/IIC-1 there is an Oncor overhead electric easement located along the southwest edge of the permit boundary that is offsite but forms the southwest side of the permit boundary. An IESI drainage easement is also located along the southwestern side of the permit boundary. The IESI drainage easement is held by the owner/operator of the facility and will not be affected by the landfill or related development.



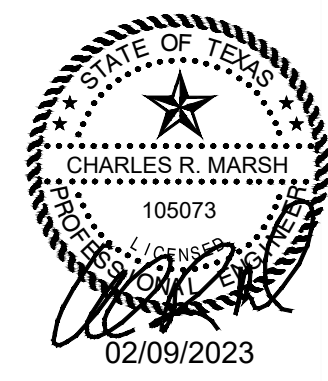
**LEGEND**

- PERMIT BOUNDARY
- PERMITTED LIMIT OF WASTE
- PROPOSED LIMIT OF WASTE
- 630- EXISTING CONTOUR
- N 6915000 STATE PLANE COORDINATE
- SECTOR BOUNDARY
- EASEMENT (SEE NOTE 3)
- MW-2A PERMITTED GROUNDWATER MONITORING WELL
- GMP-4B PERMITTED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
  - AS SHOWN IN APPENDIX I/IC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50- FEET FOR EXISTING WASTE. THE BUFFER ZONE BETWEEN THE PERMIT BOUNDARY AND THE PROPOSED LIMIT OF WASTE (PERMIT NO. 1983E) IS AT LEAST 50- FEET.

BUFFER ZONE INFORMATION		
LOCATION	BUFFER ZONE BETWEEN EASEMENT BOUNDARY AND EXISTING/PERMITTED LIMIT OF WASTE	BUFFER ZONE BETWEEN EASEMENT BOUNDARY AND NEWLY PERMITTED AIRSPACE
A	-	152 FEET
B	-	131 FEET
C	52 FEET	52 FEET

BUFFER ZONE INFORMATION		
LOCATION	BUFFER ZONE BETWEEN PERMIT BOUNDARY AND EXISTING/PERMITTED LIMIT OF WASTE	BUFFER ZONE BETWEEN PERMIT BOUNDARY AND NEWLY PERMITTED AIRSPACE
1	67 FEET	67 FEET
2	130 FEET	130 FEET
3	59 FEET	59 FEET
4	144 FEET	144 FEET
5	371 FEET	371 FEET
6	154 FEET	154 FEET
7	-	274 FEET
8	1,402 FEET	822 FEET
9	810 FEET	456 FEET
10	100 FEET	100 FEET



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 ISSUED FOR CONSTRUCTION

DATE: 12/2022  
 FILE: 0771-356-11  
 CAD: C-1 BUFFER\_ZONE.DWG

DRAWN BY: JDW  
 DESIGN BY: DS  
 REVIEWED BY: CRM

**Weaver Consultants Group**  
 TBPE REGISTRATION NO. F-3727

PREPARED FOR  
**TEXAS REGIONAL LANDFILL COMPANY, LP**

REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT  
 BUFFER ZONE PLAN**

FORT WORTH C&D LANDFILL  
 TARRANT COUNTY, TEXAS

WWW.WCGRP.COM    **DRAWING I/IC-1**

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### 3 AIRPORT SAFETY

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The Airport Safety Location Restrictions within Title 30 TAC §330.545 require that airports within the vicinity of the landfill site be identified. The regulation states that landfill sites located within 10,000 feet of an airport runway end used by turbojet aircraft or within 5,000 feet of an airport runway end used by piston-type aircraft shall demonstrate that the units are designed and operated so that the landfill does not pose a bird hazard to aircrafts.

The Fort Worth C&D Landfill will not pose a bird hazard as it is a Type IV landfill and does not accept any putrescible waste. Based on the location map, the landfill is not located within a 5,000 feet range of general aviation airport serving a piston-powered aircraft nor located within 10,000 feet of an airport serving turbine powered aircraft.

Two publicly-owned airports and one privately owned airport are identified as being located within the 6-mile radius of the landfill. Spinks and Sycamore Strip Airports are public use airports located to the south and west of the Fort Worth C&D Landfill. Hess Airport is a private use, turf runway airport. There are no large general public commercial airports located within the 5-mile radius of the site (or) within a proximity to any airports that would penetrate any 14 CFR Part 77 flight path surface nor trigger any obstruction evaluation airport airspace analysis (OE/AAA) under 14 CFR Part 77.9.

The FAA reviewed the proposed major permit amendment to determine the potential for the site to be a hazard to air navigation. As documented on their letters, the proposed major permit amendment does not pose a hazard to air navigation (refer to Appendix I/IIB for more information).

In addition, Title 30 TAC §330.545(b) requires that small general service airports located within a 6-mile radius of a lateral expansion be notified of the proposed expansion. There are two small general service airports located within 6 miles of the site. The Spinks Airport and Sycamore Strip Airports are both designated as public use, and the private use Hess Airport are located within a 6-mile radius of the site. The two small general service airports have been notified. Title 30 TAC §330.545(b) also requires that large general public commercial airports located within a 5-mile radius of a vertical or lateral expansion be notified of the proposed expansion. No large general public commercial airports are located within a 5-mile radius of the site.

Given the above, the site is in compliance with the Airport Location Restriction.

## 4 FLOODPLAINS

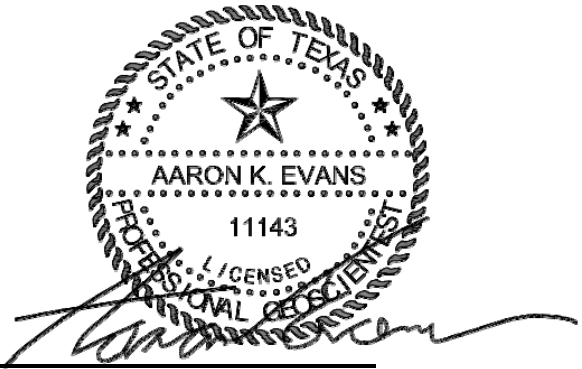
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Title 30 TAC §330.547 prohibits waste disposal operations located in the 100-year floodway as defined by FEMA and requires that new expansion areas not restrict the flow of the 100-year flood, reduce the temporary water stage capacity of the floodplain, or result in washout of solid waste; and requires storage and processing facilities to be located outside of the 100-year floodplain.

Supporting floodplain information is included in Parts I/II, Section 11.1. Compliance with each floodplain location/coordination regulation is listed in Table 4-1.

**Table 4-1  
Floodplain Location Restriction Requirements**

Regulatory Citation	Regulation Summary	How Regulation is Addressed
<b>330.547(a)</b>	No disposal operations located in a 100-year floodway.	No disposal operations occur within the 100-year floodway associated with the floodway of Fort Worth C&D or its tributaries in the project vicinity.
<b>330.547(b)</b>	Proposed developments shall not restrict the flow of the 100-year flood, reduce floodplain storage capacity, or result in solid waste washout.	The current landfill, which is proposed to be horizontally and vertically expanded, was developed based on the CLOMR dated February 2022. The proposed expansion is located within the 100-year floodplain of Fort Worth C&D. The drainage analysis provided in Part III, Appendix IIIF, provides a demonstration that proposed developments will not restrict the flow of the 100-year flood.
<b>330.547(c)</b>	Storage and processing facilities located outside of 100-year floodplain unless facilities prevent washout during 100-year event.	There are no storage and processing facilities located inside the 100-year floodplain.



## 5 GROUNDWATER

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02/09/2023

### 5.1 Groundwater

The groundwater location restriction within Title 30 TAC §330.549(a) prohibits a Type I or Type IAE landfill on the recharge zone of the Edwards Aquifer. Given that the Fort Worth C&D Landfill is not located on the recharge zone of the Edwards Aquifer, the site is in compliance with the groundwater location restriction.

### 5.2 Surface Water

#### 5.2.1 Area Surface Water Features

Regionally, the site is in Tarrant County, within the Lower West Fork Trinity watershed of the Trinity River Basin. The site is part of the Village Creek watershed (about 122,500 acres) and more specifically, the Village Creek-Lake Arlington sub-watershed (about 24,000 acres).

At the site, Village Creek is located along the western side of the site. Village Creek is a tributary of the West Fork Trinity River, and is in the Village Creek-Lake Arlington sub-watershed. Village Creek originates southwest of the site and flows in a general northeast direction, and flows into Lake Arlington approximately 2.7 miles north of the site.

#### 5.2.2 Site Surface Water Features

As mentioned, Village Creek is located in the western side of the site and flows in a northeasterly direction as it passes by the site. All of the site area is part of the Village Creek watershed. The natural terrain is rolling on the east side of the site, transitioning into a flat river valley of Village Creek on the west side of the site. Uncontaminated stormwater runoff from the existing landfill is also routed towards the west and ultimately is discharged to Village Creek. The proposed landfill expansion will continue to route uncontaminated surface water (i.e., clean storm water runoff) in this same general manner, to pass through a surface water pond or overland flow, and discharge into Village Creek.

As required by 30 TAC §330.63(c), the facility surface water drainage evaluation and design is included in Part III of the Permit Amendment Application (Part III, Attachment 2 – Facility Surface Water Drainage Report).

### 5.2.3 Facility Stormwater Permit

The facility has been designed to prevent the discharge of pollutants into waters of the state of Texas or waters of the United States, as defined by the Texas Water Code and the federal Clean Water Act, respectively. Surface water from the facility is discharged under Texas Pollutant Discharge Elimination System (TPDES) Multi-Sector Storm Water General Permit TXR050000 (Permit No. TXR05AP26). Documentation of this active permit is included in Appendix IIE of this report.





## 6 ENDANGERED OR THREATENED SPECIES

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The endangered or threatened species location restrictions within Title 30 TAC §330.551 requires that the facility and the operation of the facility shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species, or contribute to the taking of any endangered or threatened species.

The U.S. Fish and Wildlife Services (FWS) and Texas Parks and Wildlife Department (TPWD) were contacted to request information regarding endangered or threatened species or their critical habitat with respect to the site. The FWS and TPWD response letters are included in Appendix I/IIB. In addition, a site-specific threatened and endangered species habitat assessment was completed by Weaver Consultants Group, LLC in November 2021 (refer to the TPWD tab in Appendix I/IIB). This study concluded that the area within the permit boundary would not likely be occupied by any federally-listed threatened and endangered species.

Therefore, it is concluded that the expansion of the Fort Worth C&D Landfill will not result in the destruction or adverse modification of the critical habitat of any threatened or endangered species, or cause or contribute to the taking of any threatened or endangered species.

Given the above, the site is in compliance with the endangered or threatened species location restriction.

## 7 WETLANDS

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The Fort Worth C&D Landfill property was examined for compliance with wetlands-related location restriction provisions as described in Title 30 TAC §330.553, which states that new MSWLF units, lateral expansions, and material recovery operations from a landfill shall not be located in wetlands, unless the owner or operator makes appropriate demonstrations involving wetlands. A jurisdictional determination was completed in September 2021 by Weaver Consultants Group, LLC (correspondence with the USACE is included in Appendix I/IIB).

Given the above, the site is in compliance with the Wetland Location Restriction.



## 8 FAULT AREAS

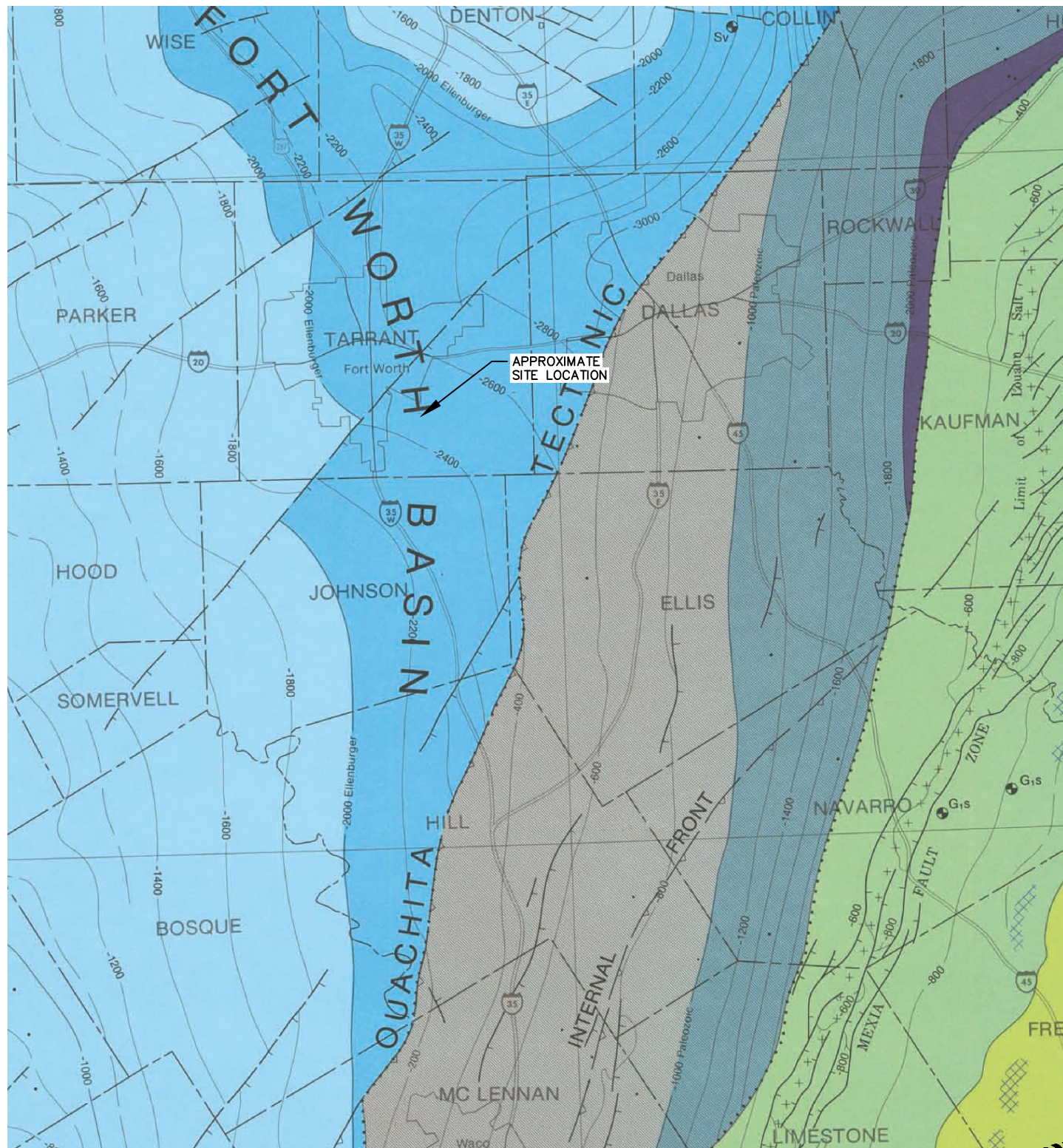
02/09/2023

The Fort Worth C&D Landfill and the surrounding area were examined by Aaron K. Evans, P.G., a Texas licensed WCG professional geoscientist, for indications of the presence of Holocene (last 11,000 years) faulting according to Title 30 TAC §330.555 criteria. The study included a physical inspection of the site and surrounding area, and reviews of a previous fault investigation, available literature and maps, and a current aerial photograph. The following is a summary of the findings from the study.

Consistent with Title 30 TAC §330.555, the fault study included a literary review of the Tectonic Map of Texas (BEG, 1991), Lineaments of Texas Map (BEG, 1981), the USGS Quaternary Fault and Fold Database (accessed August 2022), area USGS 7.5 Minute Topographic Quadrangle Maps (Fort Worth, TX, Kennedale, TX, Burleson, TX, and Mandfield, TX; 2019), Google Earth aerial imagery of Tarrant County (accessed August 2022), and field reconnaissance of the Fort Worth C&D Landfill and the surrounding areas performed in August 2022. The study was conducted to identify pre-Holocene faults that may indicate areas of concern or areas that may warrant additional investigation in the immediate landfill vicinity.

The site location is plotted on Drawing I/IIC-2 – Regional Tectonic Map, and Drawing I/IIC-3 – Regional Lineament Map. As indicated on these figures, Fort Worth C&D Landfill is about 2 miles southeast of the nearest mapped fault and is greater than one mile from the nearest mapped lineament. Review of the USGS Quaternary Fault and Fold Database of the United States indicated no recently active faults are located within 50 miles of the facility.

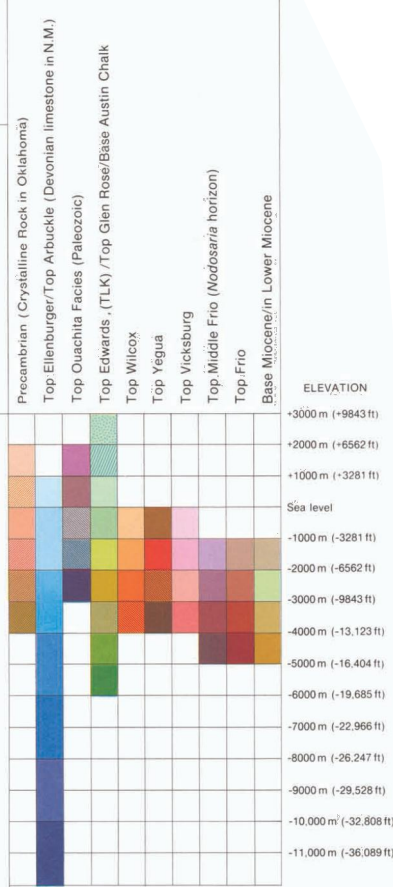
Based on review of the aforementioned references and field reconnaissance from area roadways, no areas of concern were noted in the landfill vicinity. No unusual scarps, topographic breaks, vegetation changes, or lineations were interpreted within 200 feet of the site. No structural damage to facilities, natural surface depressions, or surface indications of crude oil and natural gas accumulations were observed. No structural influence of stream courses was observed. In addition, no unusual relief or topographic features, such as sag ponds, truncated alluvial spurs, or offset tributary alignments, were observed. In summary, there is no evidence of Holocene faulting within 200 feet of the site. Therefore, the facility complies with the fault area location restriction listed in Title 30 TAC §330.555.



### EXPLANATION

TECTONIC PERIOD	EXPOSED UNITS		SUBSURFACE CONTOURS	OTHER FEATURES
	SEDIMENTARY	IGNEOUS		
TERTIARY (and Quaternary)	Bolson fill <b>Ts</b>	Late basalts <b>Tb*</b>	Lower Miocene (LM <sub>1</sub> , LM <sub>2</sub> ) (2 horizons)	Calderas
		Trans-Pecos volcanic rocks (mafic to felsic, slightly to highly alkalic) <b>Tv</b>	Top of Frio Fm. (TF) Middle Frio (Nodosaria) N. Fm. Top of Vicksburg Fm. (TV) Top of Yegua Fm. (TY) Top of Wilcox Gp. (TWX)	
LARAMIDE	Deformed Cretaceous strata <b>Ls<sub>2</sub></b>		Top of Edwards Gp. (EDS)	Front of Laramide deformation
	Deformed Jurassic strata (including evaporites) <b>Ls<sub>1</sub></b>		Top of Lower Cretaceous (TLK) Top of Glen Rose Fm.	
GULF COAST	POSTRIFT Cretaceous strata (where subsurface is not contoured) <b>K</b>	ULTRACONCRETE PROVINCE Ultramafic and mafic volcanic rocks <b>Gv*</b>	Base of Austin Chalk (BAC) Top of Edwards Gp. (EDS) Top of Paleozoic (PZ)	Woodbine Fm. pinch-out Lower Cretaceous reef trends
	SYNRIFT Red beds (Eagle Mills) (identified in wells only) <b>G<sub>1</sub>S</b>	Basalt and diabase (in wells only) <b>G<sub>1</sub>I</b>		Louann Salt pinch-out (Sabine area)
OUACHITA and ARBUCKLE	Upper Paleozoic foreland strata (where subsurface is not contoured) <b>P</b>	Volcanic rocks (Hutton tuff in Ouachita Mountains; unnamed rhyolite in Sabine Island; volcanics in South Texas) <b>Ov</b>	Top of Siluro-Devonian limestone (SD) (in New Mexico) Top of Ellenburger (ELL) or Arbuckle Gp. Precambrian (PC)	Fronts of Ouachita deformation
	Upper Paleozoic flysch <b>O<sub>2</sub></b>			
	Lower Paleozoic strata (“starved basin”) <b>O<sub>1</sub></b>	Metamorphic rocks (Sierra del Carmen) <b>O<sub>m</sub></b>	Crystalline basement (Bsm <sub>t</sub> ) (in Oklahoma)	Capitan reef and Horseshoe Atoll
SOUTHERN OKLAHOMA	Cambrian-Ordovician strata (Carbonate platform) <b>CO</b>	Post-Cambrian igneous rock (one well only) <b>Sv</b>		Ellenburger Group pinch-out marked by change in contour horizons in West and North Texas
	O-P Ordovician-Pennsylvanian, Hueco Mtns. <b>SS</b>	Cambrian felsic rocks (Wichita granite, Carlton rhyolite) <b>Sf</b>		
	Cambrian(?) strata (Meers Quartzite) <b>SS</b>	Cambrian mafic rocks (Raggedy Mountain gabbro group) <b>Sm</b>		
VAN HORN	Young sedimentary strata younger than Vr (Van Horn sandstone) <b>Vs</b>	Late rhyolite and granite (Franklin Mtns.) <b>Vr</b>		
LLANO	Metasedimentary and metavolcanic rocks (Packsaddle, Carrizo Mtn.) <b>Li<sub>2</sub></b>	Late granites (Town Mountain) <b>Li<sub>2</sub></b>		
	Gneisses (Valley Spring) <b>Li<sub>1</sub></b>	Earlier granites <b>Li<sub>1</sub></b>		
SWISHER-DE BACA	Sedimentary rocks (Hazel, Allamore-Van Horn area, Castner, Mundy, Lanoria and Franklin Mtns.) <b>Ds</b>	Ultramafic rocks (Coal Creek) <b>Li<sub>0</sub></b>	Not differentiated (see basement inset)	
SIERRA GRANDE		Granite (Fishingo) <b>SG</b>		
CHAVES		Gneiss, Granite (Blue River, Troy) <b>C</b>		

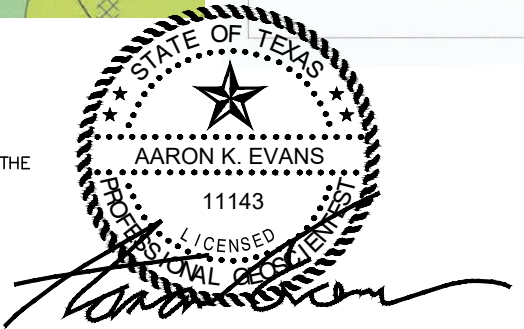
### CONTOUR SHADING



### SYMBOLS

- FAULT TRACES** (dashed where inferred or approximately located):
- Nature undetermined, downthrown side indicated
  - El Central Fault: Normal fault, downthrown side indicated
  - Dugout Creek: Thrust fault, teeth on upper plate
  - Reverse fault, teeth on upthrown block
  - Strike-slip fault
  - Trend of major normal faults (offshore)
  - Front of orogenic activity
- FOLD AXIAL TRACES:**
- Anticline, with plunge
  - Syncline, with plunge
  - Monocline
  - Overturned anticline
  - Overturned syncline
  - Axial trend in highly folded rocks
  - Strike trend in highly folded rocks (Van Horn)
- CONTACTS and CONTOURS:**
- Contact of exposed units
  - Contour, 200-m interval, tick on down dip side
  - Supplemental contour, 100-m interval
  - Change of contour horizon
  - Limit of volcanic cover, in Marfa Basin area
- DIAPIRS and related structures:**
- Gyp Hill: Salt diapir piercing the contour horizon
  - Stetson: Salt diapir below the contour horizon; inferred offshore diapirs
  - Conroe: Salt pillow
  - Katy: Turtle structure
  - Portillo: Shale diapir
- OTHER:**
- Volcanic center
  - Well of interest, with unit penetrated
  - Impact crater
  - Well control (where sparse)
  - COST: Continental offshore stratigraphic test
- Note: All faults and fold traces shown at the contoured horizon. Faults dashed where inferred, dotted where buried.

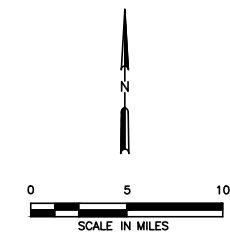
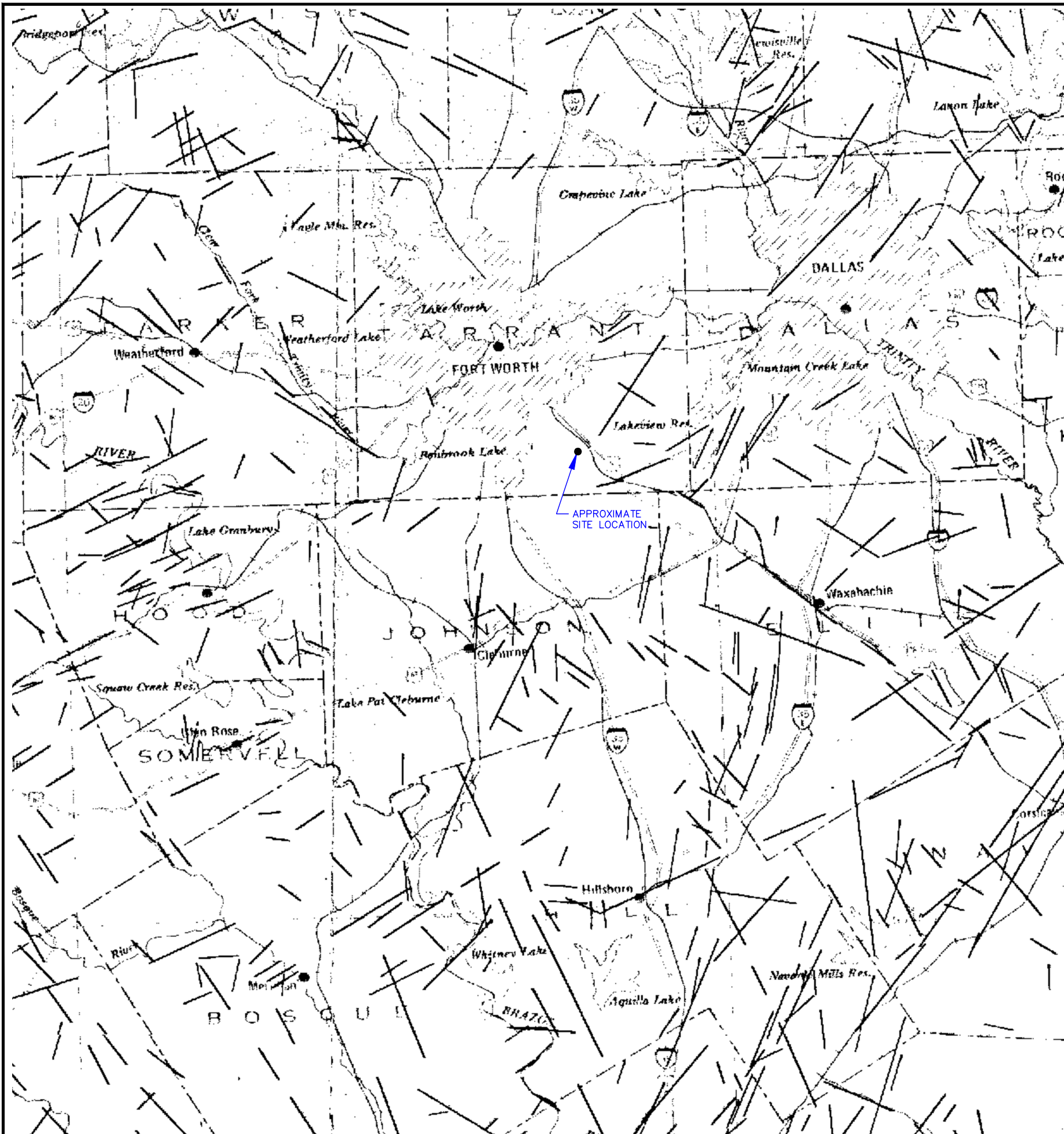
**NOTE:**  
1. MAP ADAPTED FROM TECTONIC MAP OF TEXAS, T.E. EWING et al, 1991, BUREAU OF ECONOMIC GEOLOGY, THE UNIVERSITY OF TEXAS AT AUSTIN.



02/09/2023 SHEET 1/IIC-12

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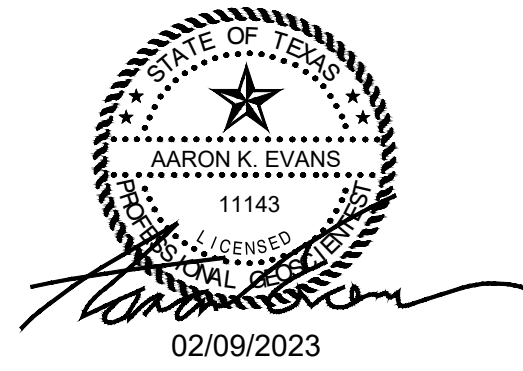
**LINEAMENTS OF TEXAS**  
1981

THE UNIVERSITY OF TEXAS AT AUSTIN  
BUREAU OF ECONOMIC GEOLOGY

BY C. M. WOODRUFF, JR., S. CHRISTOPHER GARAN, AND ERIC J. THOMPSON

Prepared for the U.S. Department of Energy, Division of Geothermal Energy  
Under Contract No. DE-AS07-79-1D12057, Geothermal Resource Assessment  
for the State of Texas

- NOTE:**
1. LINEAMENT MAP ADAPTED FROM LINEAMENTS OF TEXAS, C.M. WOODRUFF et al, 1981, BUREAU OF ECONOMIC GEOLOGY, THE UNIVERSITY OF TEXAS AT AUSTIN.



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TBPE REGISTRATION NO. F-3727	

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NO.	DATE	DESCRIPTION

<b>MAJOR PERMIT AMENDMENT REGIONAL LINEAMENT MAP</b>	
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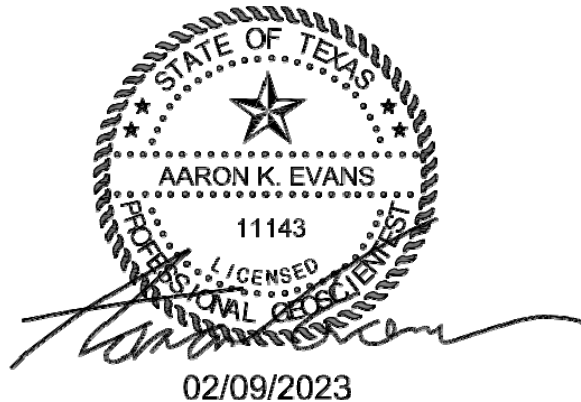
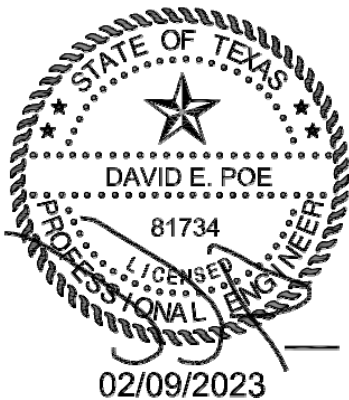
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## 9 SEISMIC IMPACT ZONES

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The seismic impact zone location restriction defined by Title 30 TAC §330.557 is an area with a 10 percent or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's standard gravitational pull, will exceed 0.10 g in 250 years. Drawing I/IIC-4 is a Seismic Impact Zone Map adapted from USGS seismic hazard maps for peak ground acceleration with a 2 percent in 50 years return period (USGS, 2018). According to the USGS, a 10 percent probability in 250 years is equivalent to a 2 percent probability in 50 years. According to this figure, the site has lower than a 10 percent in 250 year probability of seismic impact and the seismic impact zone location restriction does not apply.

According to USGS, the maximum seismic horizontal acceleration in the area of the site with a 2 percent exceedance probability in a 50-year time period is listed as 0.042g (4.2 percent of standard gravity). As such, the USGS-derived horizontal acceleration of the force of gravity is below the 0.10g (10 percent of the force of standard gravity) definition of a seismic impact zone, and the site complies with the seismic impact zone location restriction.



50°N 120°W

110°W

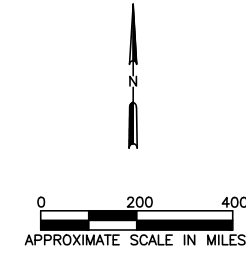
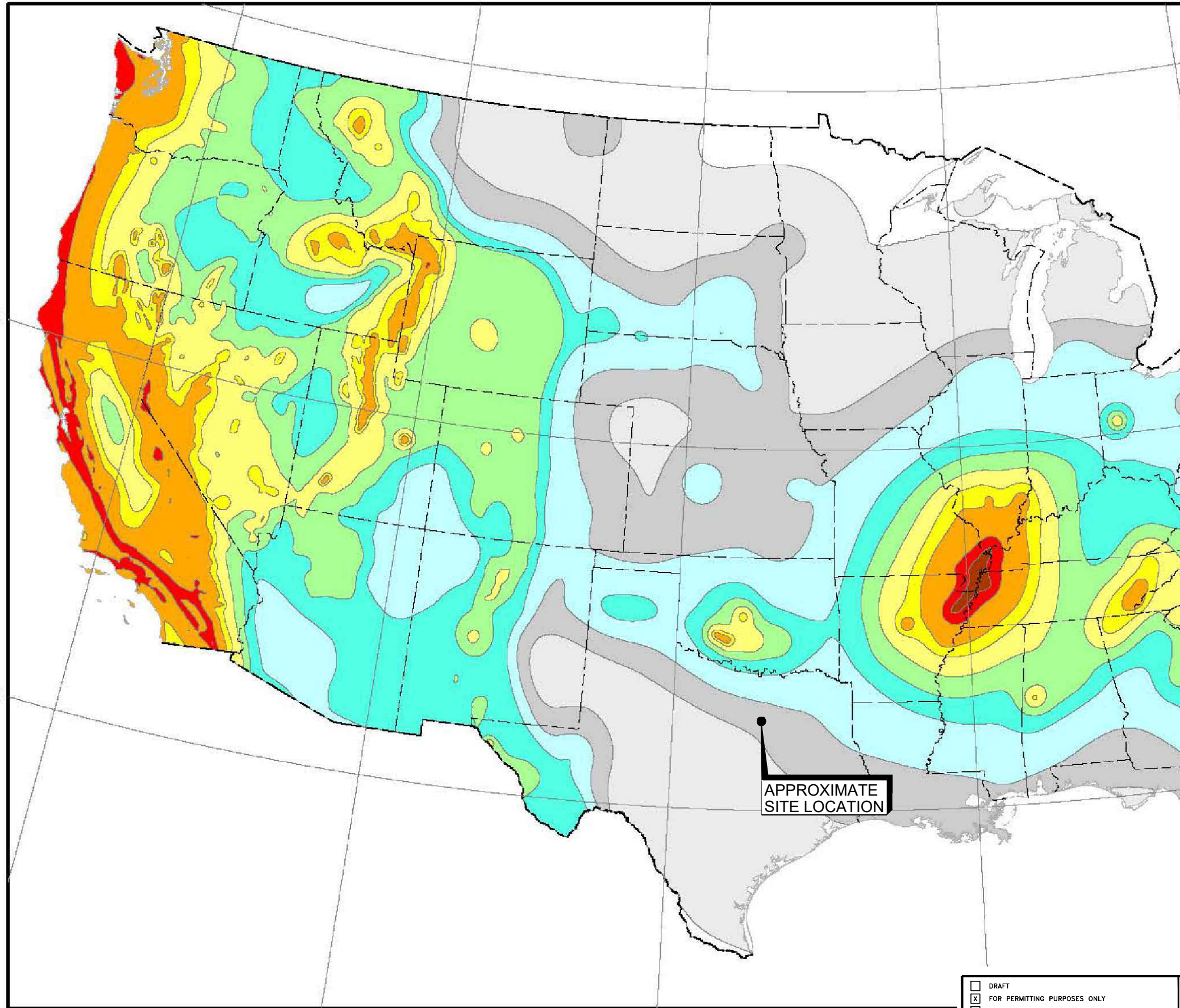
100°W

90°W

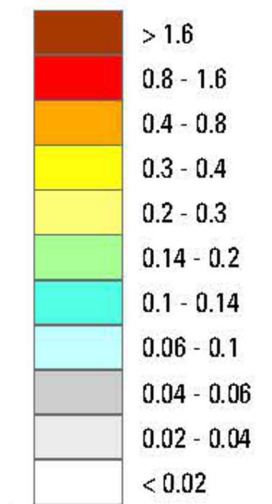
80°W

40°N

30°N



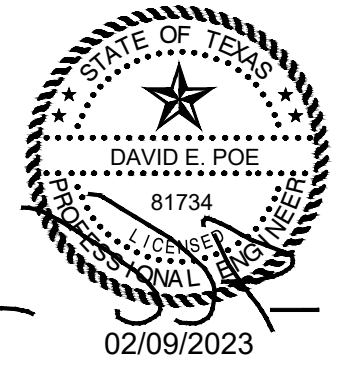
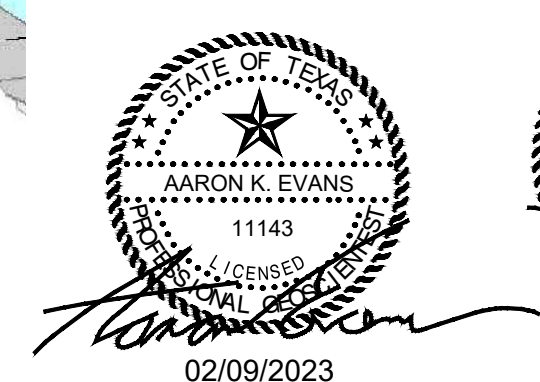
**Peak horizontal acceleration (g)**



**NOTES:**

1. SEISMIC IMPACT ZONE MAP MODIFIED FROM 2018 USGS NATIONAL SEISMIC HAZARD MAP FOR 2% EXCEEDANCE PROBABILITY IN A 50 YEAR TIME FRAME.
2. ACCORDING TO THE USGS EARTHQUAKE HAZARD WEBSITE (<http://earthquake.usgs.gov>), THE PROBABILITY THAT THE PEAK GROUND ACCELERATION WILL EXCEED 0.04g IN A 250-YEAR TIME PERIOD AT THE FORT WORTH C&D LANDFILL IS 4.2 PERCENT.

APPROXIMATE  
SITE LOCATION



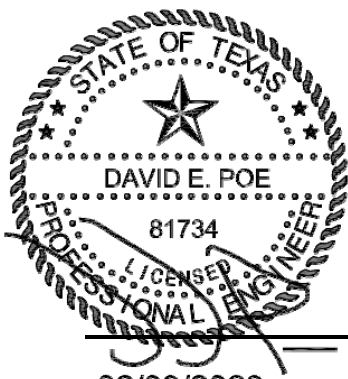
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MAJOR PERMIT AMENDMENT SEISMIC IMPACT ZONE MAP  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS		
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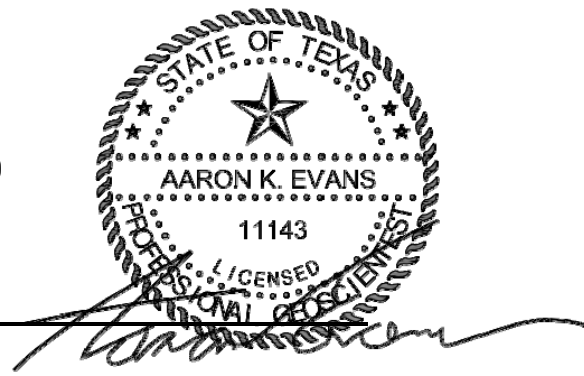
**Weaver Consultants Group**  
 TBPE REGISTRATION NO. F-3727

O:\0771\356\EXPANSION 2022\PARTS I-IIC\I-4-SEISMIC IMPACT ZONE.dwg, jwilson, 1:1  
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(Engineer's seal  
pertains to non-  
italicized text in  
Section 10 of  
Appendix I/IIC.)

(Geoscientist's  
seal pertains to  
italicized text in  
Section 10 of  
Appendix I/IIC.)



## 10 UNSTABLE AREAS

02/09/2023

02/09/2023

### 10.1 Introduction

The location restriction criteria in Title 30 TAC §330.559 require engineering measures to be incorporated into the design of a disposal unit located in an unstable area to ensure that the integrity of the structural components of the disposal unit will not be disrupted. Unstable areas, by definition, are areas susceptible to natural or human-induced events or forces that are capable of impairing the integrity of some or all structural components (i.e., liner systems, leachate collection systems, and final cover systems) of a disposal unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movement, or karst terrain.

These three potential unstable area conditions are discussed in the following three subsections.

### 10.2 Foundation Conditions

#### 10.2.1 Bottom Liner Foundation Condition

*As described in Appendix IIIG – Geology Report, Quaternary Alluvium and Woodbine Formation represent the uppermost aquifer at the site, which primarily consists of sand, silt, and clay sediments. The proposed landfill excavation grades (in addition to the existing fill area) are founded in the Grayson Shale Formation sediments. A foundation settlement analysis is included in Appendix IIIE (Appendix IIIE-B) to verify that the amount of consolidation of the natural soils below the site will not adversely affect the integrity of the existing and future liner systems. As noted in Appendix IIIM, the strain on the liner system caused by differential settlement is within acceptable limits for the liner system materials.*

*On-site and local geologic and geomorphologic features were evaluated as part of Appendix IIIG for naturally induced events or forces that would have the potential to affect the integrity of the landfill or the landfill's components. No potential for subsidence due to local groundwater withdrawal was identified in this evaluation. According to the water well searches performed by WCG, the area within a one-mile radius of the landfill receives domestic, irrigation, process, and stock water obtained from water wells screened in the Woodbine Aquifer and domestic, process, and public supply water obtained from water wells screened in the deeper Trinity Aquifer. The potential for unstable areas due to subsidence was evaluated based on area groundwater use and salt karst dissolution potential. Although the regional drawdown of water in the Woodbine and Trinity aquifers has been noted in the*

**Weaver Consultants Group, LLC**



*regional investigatory literature published by the Texas Water Development Board, no subsidence has been noted or reported in the landfill vicinity. For these reasons, there is no existing potential for landfill subsidence due to groundwater withdrawal.*

Given the above, it is concluded that no natural or human-induced event or forces will adversely affect the landfill or the landfill components.

### **10.2.2 Final Cover Foundation Condition**

The geotechnical design in Appendix IIIM includes demonstrations that the proposed final cover system will function as designed after the final settlement of waste placed below the final cover area is complete. The demonstrations also include a strain analysis showing that the differential settlement of waste will not be detrimental to the final cover system and the maximum estimated strain will be below allowable strain values for each final cover system component.

## **10.3 Mass Movement**

The geotechnical design in Appendix IIIM includes an analysis that the mass movement of natural soils and the landfill will not occur at the site. A detailed summary of the slope stability analyses is provided in Section 5 of Appendix IIIE. The analyses show that the excavated and constructed slopes will be stable. The analyses incorporate various interim fill conditions and the final configuration condition of the landfill. The results of the stability analyses indicate that the proposed excavation, constructed liner, interim waste fill slopes, and final configuration slopes are stable under the conditions analyzed. The results of the stability analyses demonstrate that the calculated factor of safety values are higher than the recommended minimum factor of safety. The recommended minimum factors of safety for the conditions analyzed were determined using recommendations from the USACE “Design and Construction of Levees” manual (EM 1110-2-1913) and the EPA’s “Technical Guidance Manual for Design of Solid Waste Disposal Facilities.” An infinite slope stability analysis was also developed for the liner and final cover systems and are discussed in more detail in Section 6.5 of Appendix IIIM. The results of both the generalized slope stability and interface slope stability analyses indicate that the landfill and its components will be geotechnically stable as designed.

## **10.4 Karst Terrain**

*As discussed in Appendix IIIG of Part III, the site is located in the Grand Prairie regional physiographic province. Most of the province is underlain predominately by Cretaceous-age sediments. Aaron K. Evans, P.G. (a WCG Texas licensed professional geoscientist) reviewed the Texas Speleological Survey Cave and Karst Database (2008), area USGS 7.5 Minute Topographic Quadrangle Maps (Alvarado, TX and*

*Grandview, TX; 2016), Google Earth aerial imagery of Tarrant County (accessed August 2021), site boring logs data, and performed onsite field investigations of the Fort Worth C&D Landfill and the surrounding areas (conducted August 2022).*

*Based on review of the aforementioned references and field investigation from area roadways, no characteristic karstic map features are present, no surface indications of karst development were observed, and no karst topography or sinkholes exist in the site vicinity. Based on borehole data and regional stratigraphy, the conditions necessary for karst development (e.g., shallow unit of fractured or elevated porosity limestone) is not present in the area immediately beneath the landfill permit boundary.*

## **10.5 Summary**

In summary, the bottom liner system is founded in the Grayson Marl (shale) that will provide an excellent foundation layer. In addition, the final cover system is designed to ensure that the integrity of these systems will be maintained. The stability analysis shows that each landfill component will be stable and no mass movements will occur. *Finally, there is no evidence of karst development in the area.* The expanded site will continue to be in compliance with this location restriction.

Given the above, it is concluded that no natural or human-induced event or forces will adversely affect the landfill or the landfill components. This conclusion is based on a review of the site in its current state, site development, and the facility operations itself; there are no on-site local soil conditions, *geologic conditions, or geomorphologic features* as well as no human induced features or events (both surface and subsurface) that would result in significant differential settlement or other unstable conditions. Therefore, the site meets the requirements of Title 30 TAC §330.559.

## 11 COASTAL AREAS

---

The coastal areas location restriction within Title 30 TAC §330.561 requires that a new landfill cell or expansion of an existing cell of a landfill managing Class 1 Industrial Solid Waste not be located on a barrier island or peninsula, or within 1,000 feet of an active coastal shoreline erosion.

The Fort Worth C&D Landfill does accept Class 1 Industrial Solid Waste but is not located near the coast. Therefore, the site is in compliance with the coastal areas location restriction.

## **12 TYPE I AND TYPE IV LANDFILL PERMIT ISSUANCE PROHIBITED**

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The Type I and Type IV Landfill Permit Issuance Prohibited location restriction within Title 30 TAC §330.563 prohibits the issuance of a permit for a Type IV landfill that is located within 100 feet of a canal that is used as a public drinking water source or for irrigation of crops used for human or animal consumption or that is located in a county with a population of more than 225,000 that is located adjacent to the Gulf of Mexico. The location restriction also prohibits the issuance of a permit for a new Type I or Type IV landfill or a permit amendment authorizing the conversion of a Type IV landfill to a Type I landfill only if the landfill is located adjacent to a county with a population of more than 3.3 million and inside the boundaries of a national forest, as designated by the United States Forest Service, on public or private land.

Given that the Fort Worth C&D Landfill is a Type IV landfill and is not located inside the boundaries of a national forest, the site is in compliance with the Type I and Type IV landfill permit issuance prohibited location restriction.

**APPENDIX I/II**

**TRAFFIC STUDY**

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E  
ENGINEERING STUDY**

Prepared for  
Texas Regional Landfill Company, LP  
October 2022



Prepared by  
**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Blvd., Suite 206  
Fort Worth, Texas 76109  
817-735-9770

Project No. 0771-356-11-35

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1.2	Summary of Proposed Landfill Expansion	1
<b>2</b>	<b>TRAFFIC INFORMATION</b>	<b>2</b>
2.1	Availability and Adequacy of Roads	2
2.2	Volume of Vehicular Traffic	2

### APPENDIX A

Project Summary and Site Location Maps



# 1 INTRODUCTION

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## 1.1 Purpose

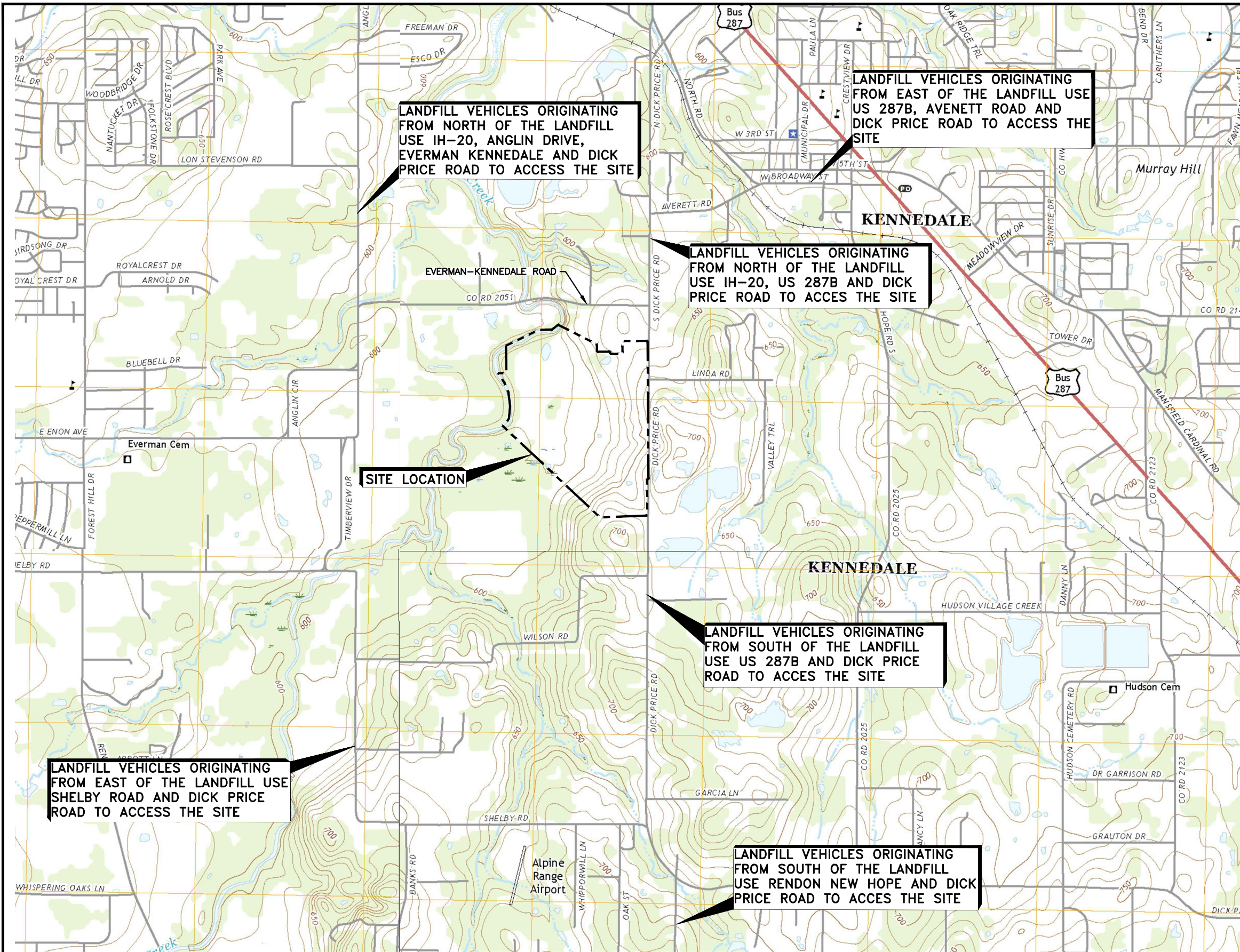
Weaver Consultants Group, LLC is in the process of developing a Major Permit Amendment Application, on behalf of Texas Regional Landfill Company, LP, to authorize the future expansion of the Fort Worth C&D Landfill. The purpose of this study is to demonstrate that the access roads to the Fort Worth C&D Landfill (Dick Price Road (North and South), Everman Kennedale Road, Anglin Drive, Shelby Road, and Averett Road)) will provide adequate access to the site. The Engineering Study is completed consistent with the requirements listed in 30 TAC §330.61(i), which requires the following information.

- Provide data on the availability and adequacy of roads that the owner or operator will use to access the site;
- Provide data on the volume of vehicular traffic on access roads within one mile of the proposed facility, both existing and expected, during the expected life of the proposed facility;
- Project the volume of traffic expected to be generated by the facility on the access roads within one mile of the proposed facility; and
- Submit documentation of coordination of all designs of proposed public roadway improvements such as turning lanes, storage lanes, etc., associated with site entrances with the agency exercising maintenance responsibility of the public roadway involved. In addition, the owner or operator shall submit documentation of coordination with the Texas Department of Transportation for traffic and location restrictions.

## 1.2 Summary of Proposed Landfill Expansion

Fort Worth C&D Landfill is an existing municipal solid waste landfill located in Tarrant County, Texas at 4144 Dick Price Road, Fort Worth, Texas 76140. The current landfill waste disposal unit is approximately 100.3 acres. The proposed permit amendment includes a horizontal and vertical expansion of the existing permitted waste disposal footprint area. The proposed horizontal expansion has a total area of approximately 21.6 acres. The proposed vertical expansion will increase the current maximum final cover elevation by 40 feet from a current peak elevation of 820 ft-msl to 860 ft-msl. The proposed expansion areas are located entirely within the existing 184.3-acre permit boundary.





LANDFILL VEHICLES ORIGINATING FROM NORTH OF THE LANDFILL USE IH-20, ANGLIN DRIVE, EVERMAN KENNEDALE AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM EAST OF THE LANDFILL USE US 287B, AVENETT ROAD AND DICK PRICE ROAD TO ACCESS THE SITE

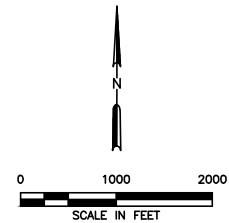
LANDFILL VEHICLES ORIGINATING FROM NORTH OF THE LANDFILL USE IH-20, US 287B AND DICK PRICE ROAD TO ACCESS THE SITE

SITE LOCATION

LANDFILL VEHICLES ORIGINATING FROM SOUTH OF THE LANDFILL USE US 287B AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM EAST OF THE LANDFILL USE SHELBY ROAD AND DICK PRICE ROAD TO ACCESS THE SITE

LANDFILL VEHICLES ORIGINATING FROM SOUTH OF THE LANDFILL USE RENDON NEW HOPE AND DICK PRICE ROAD TO ACCESS THE SITE



**LEGEND**

--- LANDFILL PERMIT BOUNDARY

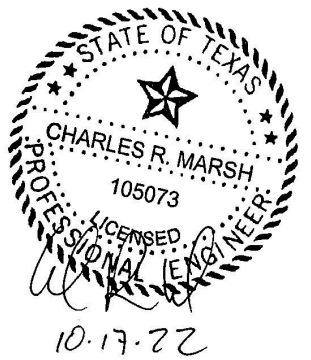
**ROAD CLASSIFICATION**

Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

FORT WORTH, TX	KENNEDALE, TX
2019	2019
BURLESON, TX	MANSFIELD, TX
2019	2019

Produced by the United States Geological Survey  
 North American Datum of 1983 (NAD83)  
 World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 14S  
 This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....	NAIP, September 2016 - November 2016
Roads.....	U.S. Census Bureau, 2015 - 2018
Names.....	National Hydrography Dataset, 1979 - 2018
Hydrography.....	National Elevation Dataset, 2000 - 2018
Contours.....	National Elevation Dataset, 2003
Boundaries.....	Multiple sources; see metadata file 2016 - 2017
Wetlands.....	FWS National Wetlands Inventory 1981



- NOTES:**
- REPRODUCED FROM 2019 USGS 7.5 QUADRANGLES: FORT WORTH, KENNEDALE, BURLESON, AND MANSFIELD.

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	DATE: 10/2022 FILE: 0771-356-11 CAD: FIGURE 1-1.DWG		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	
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DRAWN BY: RAA DESIGN BY: MB REVIEWED BY: CRM	WWW.WCGRP.COM	FIGURE 1-1					

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## 2 TRAFFIC INFORMATION

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### 2.1 Availability and Adequacy of Roads

As shown on Figure 2-1, the roads within one mile of the site are North Dick Price Road (two-lane, asphalt-paved, 35 mph), South Dick Price Road (two-lane, asphalt-paved, 35 mph), Everman Kennedale Road (two-lane, asphalt-paved, 35 mph), Anglin Road (two-lane, asphalt-paved, 30 mph), Shelby Road (two-lane, asphalt-paved, 30 mph), and Averett Road (two-lane, asphalt-paved, 30 mph). South Dick Price Road is the main access road that waste collection vehicles will use to access the site. Other nearby roads may be periodically used by landfill vehicles to serve residences and businesses located along or near there roadways.

The Fort Worth C&D Landfill site access road enters the landfill at the west side of South Dick Price Road by two existing driveways along Dick Price Road, each providing two lanes for ingress and egress from the site. In the future, TRLC plans to shift the main waste hauling vehicle entrance and exit points northward approximately 500 feet. Figure 2-3 provides an overview of the site entrances.

The existing and future entrances to the landfill are shown on Figure 2-3. As shown on Figure 2-3, the existing site entrance includes an approximately 30-foot-wide concrete road from South Dick Price Road to the scalehouse. The length of the entrance road is approximately 475 feet, which provides a more than ample queuing area for waste vehicles. In the future, the landfill entrance will be relocated north approximately 500 feet to utilize two other existing driveways off of Dick Price Road. This condition is shown as the “Proposed Site Entrance” on Figure 2-3. This configuration includes a 40-foot-wide roadway to the scale house and provides over 700 feet of queueing space.

### 2.2 Volume of Vehicular Traffic

The volume of vehicle traffic on the site access roads (South Dick Price Road, Everman Kennedale Road, Anglin Road, Shelby Road, and Averett Road), is summarized on Table 2.1. As noted on Table 2.1, TxDOT traffic counts from 2019 (North Dick Price Road, South Dick Price Road, Anglin Drive, and Shelby Road), 2017 (Averett Road), and 2014 (Everman Kennedale Road) were available for all site access roads. The TxDOT traffic counts were adjusted to 2022 traffic conditions to account of the additional traffic created by area growth between the time volume data was collected in 2022. In summary, all access roads operate at a Level of Service (LOS) of D or better

throughout the projected life of the site. Only one road, Dick Price Road (south of Facility), decreases in LOS from 2022 to 2035, and this decrease is only from B to C. All access roads will provide adequate access to the landfill.

**FORT WORTH C&D  
PROPOSED EXPANSION  
TRAFFIC STUDY**

**Table 2.1**

**2-Way Traffic Volumes**

Location	2022 Traffic Conditions <sup>1,2</sup>						Projected 2035 Traffic Conditions <sup>2</sup>					
	Daily			Peak Hour <sup>3</sup>			Daily			Peak Hour <sup>3</sup>		
	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total
Dick Price Road (North of Facility)	1,389	7,292	8,682	139	729	868	1,672	8,554	10,226	167	855	1,023
Dick Price Road (South of Facility)	1,389	3,655	5,044	139	365	504	1,672	4,270	5,942	167	427	594
Evermann Kennedale Road	1,389	140	1,529	139	14	153	1,672	135	1,807	167	14	181
Anglin Drive	1,389	2,538	3,928	139	254	393	1,672	2,955	4,627	167	295	463
Shelby Road	1,389	481	1,870	139	48	187	1,672	531	2,203	167	53	220
Averett Road	1,389	0	1,389	139	0	139	1,672	0	1,672	167	0	167

Notes:

<sup>1</sup> 2022 Traffic conditions are based on volumes provided on the NCTCOG 2019 Traffic Counts. These volumes are projected using population growth rates in the NCTCOG North Central Texas 2030 Demographic Forecast.

<sup>2</sup> The annual population growth rate is 1.86% for 2011-2020, 1.52% for 2021-2030, and 1.3% for 2031-2040.

<sup>3</sup> Peak hour volumes are assumed to be ten percent of the total daily traffic volume.

<sup>4</sup> 2022 Landfill trips are projected from 2020 landfill trips. 2020 landfill trips were adapted from traffic study report provided by the Geosyntec Consultants for Fort Worth C&D Landfill.

<sup>5</sup> It is conservatively assumed that 100 percent of all landfill traffic will travel Dick Price Road (north of landfill), Dick Price Roads (south of landfill), Evermann kennedale Road, Anglin Drive, Shelby Road and Averett Road.

**2-Way Traffic Volumes**

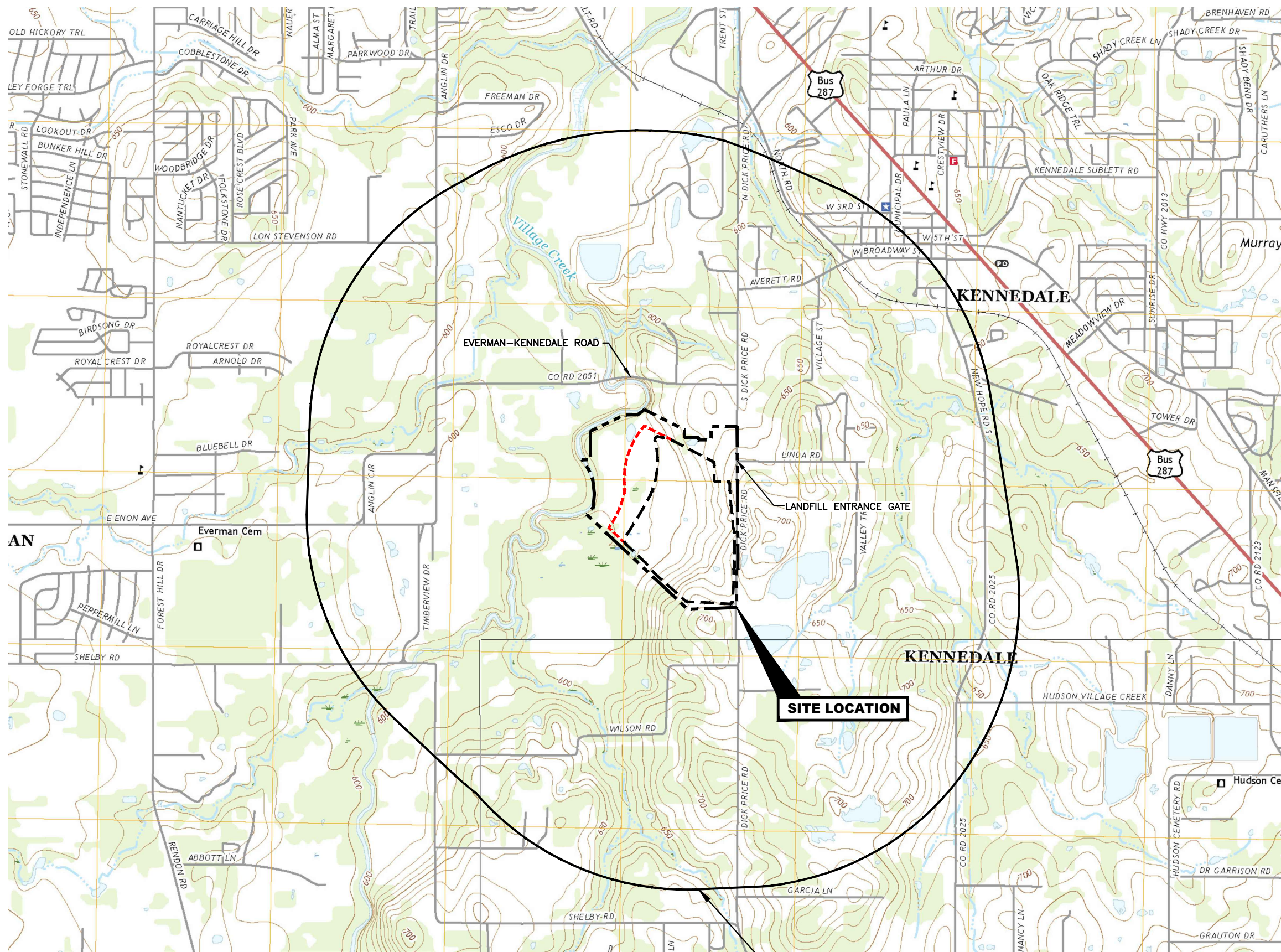
Location	2020 Traffic Conditions <sup>1,4</sup>						Projected 2022 Traffic Conditions <sup>2</sup>					
	Daily			Peak Hour <sup>3</sup>			Daily			Peak Hour <sup>3</sup>		
	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total	Landfill Trips <sup>4</sup>	Non-Landfill Trips	Total	Landfill Trips	Non-Landfill Trips	Total
Dick Price Road (North of Facility)	1,348	7,334	8,682	135	733	868	1,389	7,292	8,682	139	729	868
Dick Price Road (South of Facility)	1,348	3,696	5,044	135	370	504	1,389	3,655	5,044	139	365	504
Evermann Kennedale Road	1,348	181	1,529	135	18	153	1,389	140	1,529	139	14	153
Anglin Drive	1,348	2,580	3,928	135	258	393	1,389	2,538	3,928	139	254	393
Shelby Road	1,348	522	1,870	135	52	187	1,389	481	1,870	139	48	187
Averett Road	1,348	0	1,348	135	0	135	1,389	0	1,389	139	0	139

**FORT WORTH C&D  
PROPOSED EXPANSION  
TRAFFIC STUDY**

**Table 2.2  
Traffic Impact Assessment<sup>1</sup>**

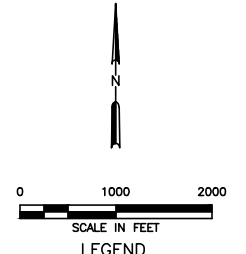
Location	Roadway Capacity (veh/hr)	2022 Traffic Conditions						Projected 2035 Traffic Conditions					
		Total Volume (vpd)	Landfill Vehicles (vpd)	Peak Hour Volume <sup>2</sup> (veh)	% of Roadway Capacity used	LOS <sup>1</sup>	% of Roadway Capacity Used by Landfill Vehicles	Total Volume (vpd)	Landfill Vehicles (vpd)	Peak Hour Volume <sup>2</sup> (veh)	% of Roadway Capacity used	LOS <sup>1</sup>	% of Roadway Capacity Used by Landfill Vehicles
Dick Price Road (North of Facility)	3,200	8,947	1,389	895	28.0%	D	4.3%	10,769	1,672	1,077	33.7%	D	5.2%
Dick Price Road (South of Facility)	3,200	5,199	1,389	520	16.2%	B	4.3%	6,257	1,672	626	19.6%	C	5.2%
Evermann Kennedale Road	3,200	1,581	1,389	158	4.9%	B	4.3%	1,903	1,672	190	5.9%	B	5.2%
Anglin Drive	3,200	4,048	1,389	405	12.7%	C	4.3%	4,872	1,672	487	15.2%	C	5.2%
Shelby Road	3,200	1,927	1,389	193	6.0%	A	4.3%	2,320	1,672	232	7.2%	A	5.2%
Averett Road	3,200	1,389	1,389	139	4.3%	A	4.3%	1,672	1,672	167	5.2%	A	5.2%

Notes:  
<sup>1</sup> Level of Service for Dick Price Road (North of the Facility), Dick Price Road (South of the Facility), Evermann Kennedale, Anglin Drive, Shelby Road and Averett Road is determined based on average travel speed from Reference 1, Chapter 15.  
<sup>2</sup> Peak hour volumes are assumed to be ten percent of the total daily traffic volume.



**SITE LOCATION**

1-MILE RADIUS

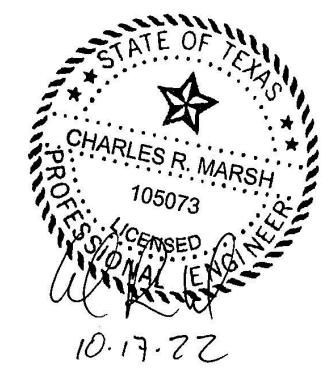


- LEGEND**
- PERMIT BOUNDARY
  - PERMITTED LIMIT OF WASTE
  - - - PROPOSED LIMIT OF WASTE
- ROAD CLASSIFICATION**
- Expressway
  - Secondary Hwy
  - Ramp
  - Interstate Route
  - Local Connector
  - Local Road
  - 4WD
  - US Route
  - State Route

**NOTES:**

- ADAPTED FROM USGS 7.5 MINUTE QUADRANGLE TOPOGRAPHIC MAP (FORT WORTH, KENNEDALE, BURLESON AND MANSFIELD, TEXAS, 2019).

<b>FORT WORTH, TX</b>	<b>KENNEDALE, TX</b>
2019	2019
<b>BURLESON, TX</b>	<b>MANSFIELD, TX</b>
2019	2019



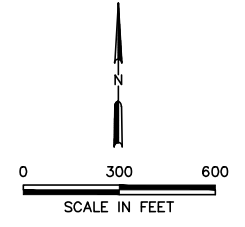
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REVIEWED BY: CRM		
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		

PREPARED FOR		
TEXAS REGIONAL LANDFILL COMPANY, LP		
REVISIONS		
NO.	DATE	DESCRIPTION

**MAJOR PERMIT AMENDMENT  
FACILITY ACCESS ROADS**

FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS

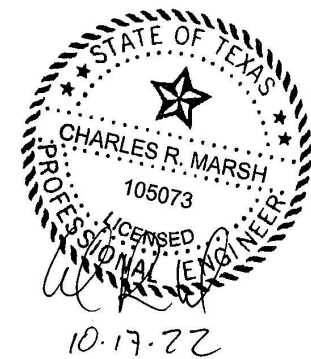
WWW.WCGRP.COM      FIGURE 2-1



**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	PROPOSED LIMIT OF WASTE

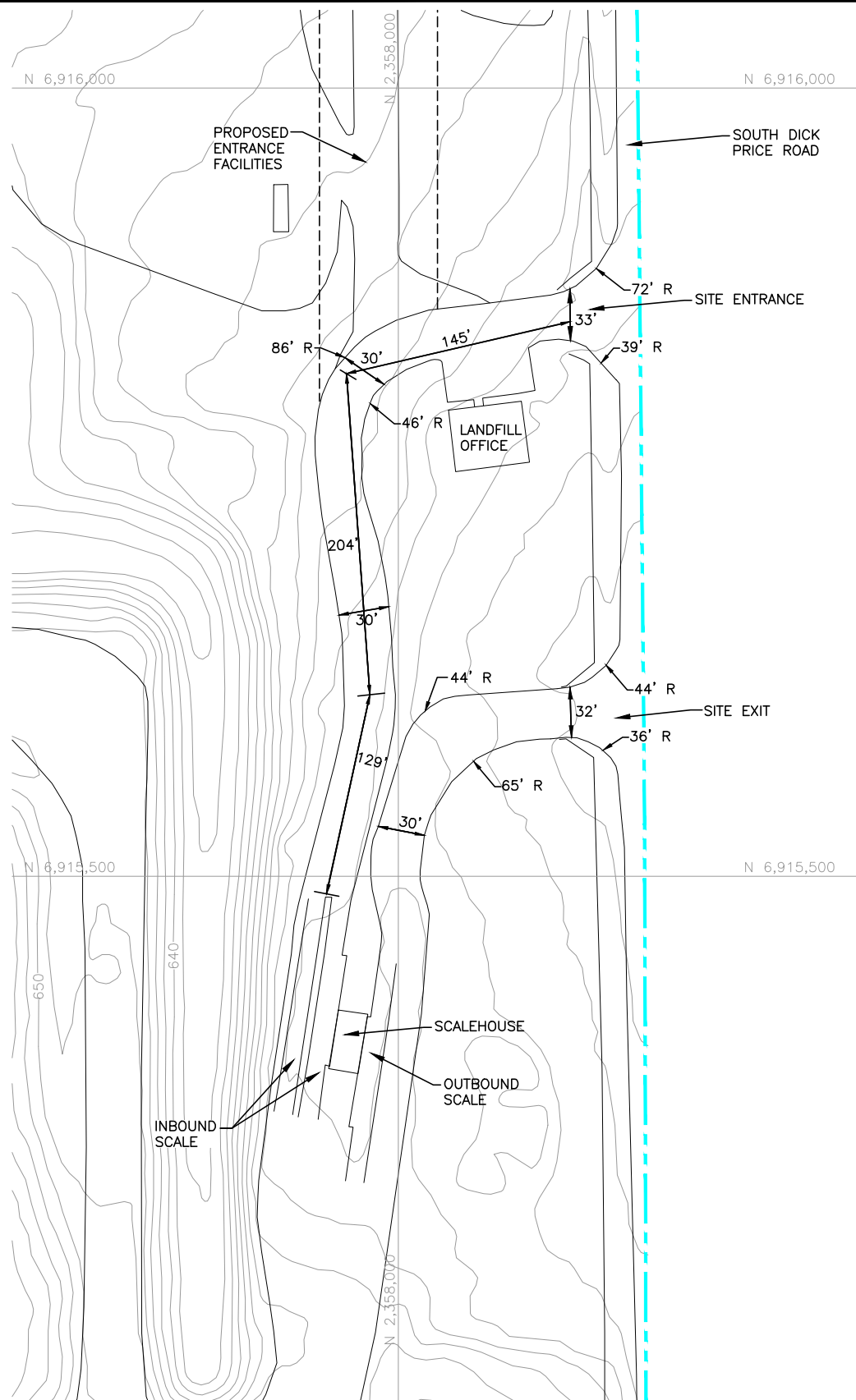
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 1. AERIAL IMAGERY PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.



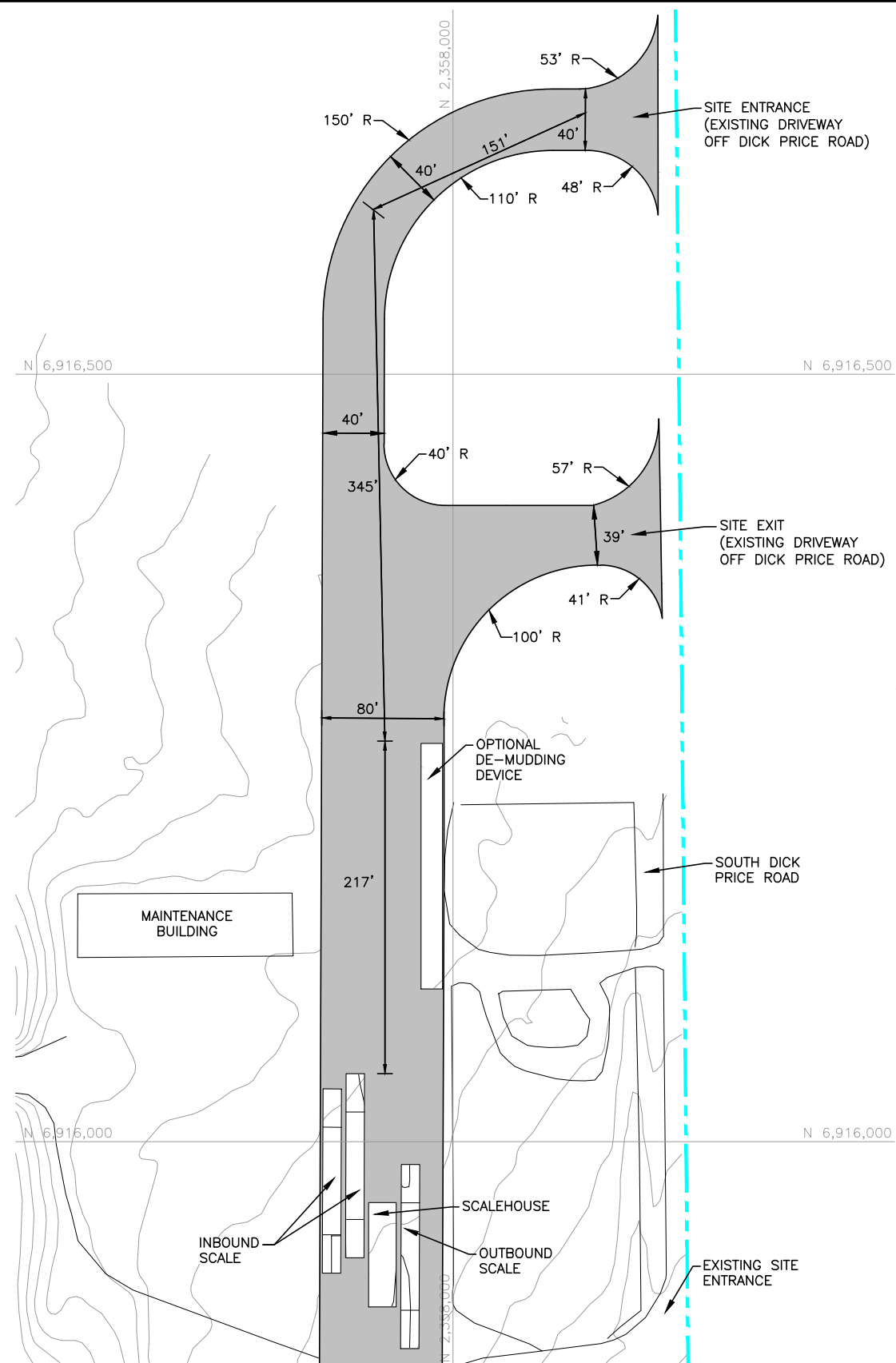
<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          EXISTING CONDITION AERIAL PHOTO</b>												
	DATE: 10/2022 FILE: 0771-356-11 CAD: 2-2 ENTRANCE ROAD.DWG			DRAWN BY: JDW DESIGN BY: JBP REVIEWED BY: CRM	<b>FORT WORTH C&amp;D LANDFILL          TARRANT COUNTY, TEXAS</b>									
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION							WWW.WCGRP.COM	<b>FIGURE 2-2</b>
NO.	DATE	DESCRIPTION												

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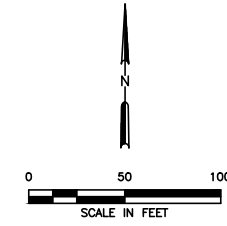
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EXISTING SITE ENTRANCE



PROPOSED SITE ENTRANCE

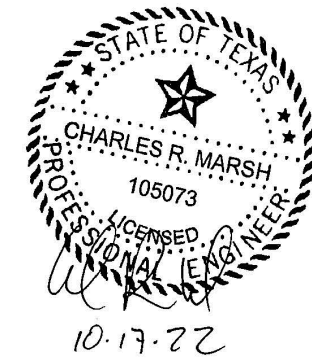


LEGEND

- LANDFILL PERMIT BOUNDARY
- STATE PLANE COORDINATE
- 650 EXISTING CONTOURS

NOTES:

1. EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN ON 01-08-2021.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR INFORMATIONAL PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT ENTRANCE FACILITY PLAN</b>
	DATE: 10/2022 FILE: 0771-356-11 CAD: FIGURE 2-3.DWG	DRAWN BY: RAA DESIGN BY: MB REVIEWED BY: CRM		
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		NO.      DATE      DESCRIPTION	FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
			WWW.WCGRP.COM	FIGURE 2-3



**APPENDIX I/II**

**TPDES PERMIT**



**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**  
**Texas Pollutant Discharge Elimination System**  
**Stormwater Multi-Sector General Permit**

The Notice of Intent (NOI) for the facility listed below was received on November 8, 2021. The intent to discharge stormwater associated with industrial activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) stormwater Multi-Sector General Permit (MSGP) TXR050000 is acknowledged. Your facility's unique TPDES MSGP stormwater authorization number is:

**TXR05AP26**

Coverage Effective: November 11, 2011

Sector: L Primary SIC code: 4953

TCEQ's stormwater MSGP requires certain stormwater pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a stormwater pollution prevention plan (SWP3) that is tailored to your industrial site. As a facility authorized to discharge under the stormwater MSGP, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

**Facility/Site Information:**

RN101478790  
Fort Worth C And D Landfill  
4144 Dick Price Rd  
Fort Worth, TX 76140  
Tarrant County

**Operator:**

CN601668486  
Texas Regional Landfill Company, LP  
3 Waterway Square Pl Ste 550  
The Woodlands, TX 77380

**The MSGP and all authorizations expire on August 14, 2026, unless otherwise amended.** If you have any questions related to your application, you may contact the Stormwater Processing Center by email at [SWPERMIT@tceq.texas.gov](mailto:SWPERMIT@tceq.texas.gov) or by telephone at (512) 239-3700. For technical issues, you may contact the stormwater technical staff by email at [SWG@tceq.texas.gov](mailto:SWG@tceq.texas.gov) or by telephone at (512) 239-4671. Also, you may obtain information on the TCEQ web site at <https://www.tceq.texas.gov/goto/wq-dpa>. A copy of this document should be kept with your SWP3.

A handwritten signature in black ink, appearing to read "T. J. Baker", positioned above a horizontal line.

FOR THE COMMISSION

Issued Date: November 08, 2021

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

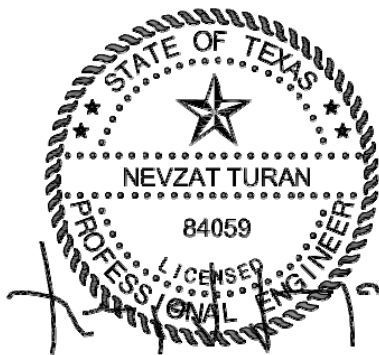
**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
SITE DEVELOPMENT PLAN NARRATIVE**

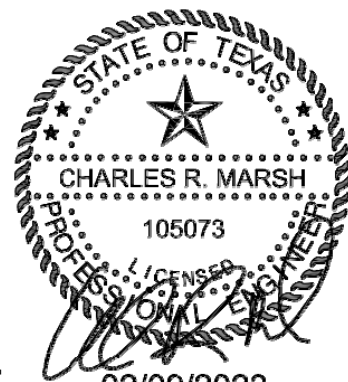
Prepared for

Texas Regional Landfill Company, LP

February 2023



02/09/2023



02/09/2023

Prepared by

**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

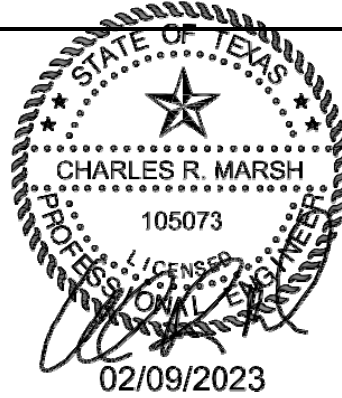
WCG Project No. 0771-356-11-35

This document is intended for permitting purposes only.

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## CONTENTS (Continued)

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### APPENDIX III L

Closure and Postclosure Care Cost Estimates

### APPENDIX III M

Geotechnical Report



## LIST OF ACRONYMS

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ASTM – American Society for Testing and Materials

BER – Ballast Evaluation Report

BMPs – best management practices

CFR – Code of Federal Regulations

CLOMR – Conditional Letter of Map Revision

CMP – corrugated metal pipe

CN – curve number

COC – chain-of-custody

CQA – construction quality assurance

CU – consolidated-undrained

EDE – elevation of the deepest excavation

EPA – Environmental Protection Agency

ETJ – extra territorial jurisdiction

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

ft-msl – feet above mean sea level

FTB – film tear bond

FWS – U.S. Fish and Wildlife Service

GWSAP – groundwater sampling and analysis plan

## LIST OF ACRONYMS (Continued)

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LEL – Lower Explosive Limit

LFG – landfill gas

LQCP – Liner Quality Control Plan

MCLs – maximum contaminant levels

msl – mean sea level

MSW – municipal solid waste

NAAQS – National Ambient Air Quality Standards

NCRS – Natural Resources Conservation Service

NCTCOG – North Central Texas Council of Governments

NFIP – National Flood Insurance Program

NOI – Notice of Intent

NSF – National Sanitation Foundation

NSPS – New Source Performance Standards

NWP – Nationwide Permit

NWS – National Weather Service

O&M – operations and maintenance

PCBs – polychlorinated biphenyls

PI – point of intersection

PVI – Point of Vertical Intersection

POR – Professional of Record

POTW – publicly owned treatment works



## LIST OF ACRONYMS (Continued)

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QA/QC – quality assurance/quality control  
RCRA – Resource Conservation Recovery Act  
SBP – soil boring plan  
SCS – Soil Conservation Service  
SDP – site development plan  
SLER – soils and liner evaluation report  
SOP – site operating plan  
SSC – statistically significant change  
TAC – Texas Administrative Code  
TCEQ – Texas Commission on Environmental Quality  
TDH – Texas Department of Health  
THC – Texas Historical Commission  
TPDES – Texas Pollutant Discharge Elimination System  
TPWD – Texas Parks and Wildlife Department  
TWC - Texas Water Commission  
TWDB – Texas Water Development Board  
TxDOT – Texas Department of Transportation  
UEL – upper explosive limit  
USACE – United States Army Corps of Engineers  
USCS – Unified Soil Classification System  
USGS – United States Geological Survey  
USLE – universal soil loss equation

## LIST OF ACRONYMS (Continued)

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UTM – Universal Transverse Mercator System

WCG – Weaver Consultants Group

## 1 INTRODUCTION (§330.63(a))

---

This Site Development Plan (SDP) for the Fort Worth C&D Landfill has been prepared consistent with the MSW regulations within Title 30 TAC Chapter 330, including §330.63. This SDP provides the design details needed to provide for the safeguarding of the health, welfare, and physical property of the people and the environment through consideration of geology, soil conditions, drainage, land use, zoning, and adequacy of access roads and highways. Any modifications will be submitted to the executive director in accordance with Title 30 TAC §305.45(2)(8)(A).

*This section addresses § 330.63. Additional specific regulatory cites addressed by each section of Part III are listed in the heading.*

## **2 GENERAL FACILITY DESIGN (§330.63(b))**

---

### **2.1 Facility Access (§330.63(b)(1))**

#### **2.1.1 Site Access**

The site is located on the west side of Dick Price Road, approximately 2.4 miles south of IH-20 at US (Business) 287; and approximately 5 miles east of IH-35. The site is accessed by Dick Price Road, either from the north or from the south. Regional access to the site from the north is primarily by IH-20 and US (Business) 287 to Dick Price Road. Access to the site from the south is primarily by IH-35W to FM 1187 (Rendon Crowley Road), to Rendon New Hope Road, and to Dick Price Road. The site entrance and exit points are paved driveways on the west side of Dick Price Road. There are no known weight restrictions on these roads in one mile proximity to the facility, other than the maximum legal weight limit of 80,000 pounds.

#### **2.1.2 Access Control**

Vehicle access to the landfill will be controlled at the site entrance by signs that direct all landfill traffic to the scalehouse during site operating hours. Personnel on duty at the entrance regulate access to the landfill. Outside operating hours, the gate to the site will be locked to prevent unauthorized vehicle access. Fencing and gates will serve as the primary landfill access controls. To discourage unauthorized entry into the landfill facility, the perimeter of the facility will be protected by fencing along the north, east, and south sides of the site. The fence will be composed of (at minimum) barbed wire, woven wire, wooden fencing, plastic fencing, pipe fencing, field fence, or other fence materials. To the west, the site is bounded by natural barriers including Village Creek and dense vegetation, which, along with the presence of adjacent floodplains, provide a natural barrier to the facility to prevent unauthorized access.

Texas Regional Landfill Company, LP will restrict entry to the landfill to designated site operations personnel, solid waste haulers authorized to use the facility, TCEQ personnel, and properly identified persons whose entry is authorized by the Landfill Manager or his designee. Texas Regional Landfill Company, LP reserves the right to deny access to the landfill to persons not demonstrating a legitimate purpose for visiting. Visitors are allowed on the active area of the landfill only when

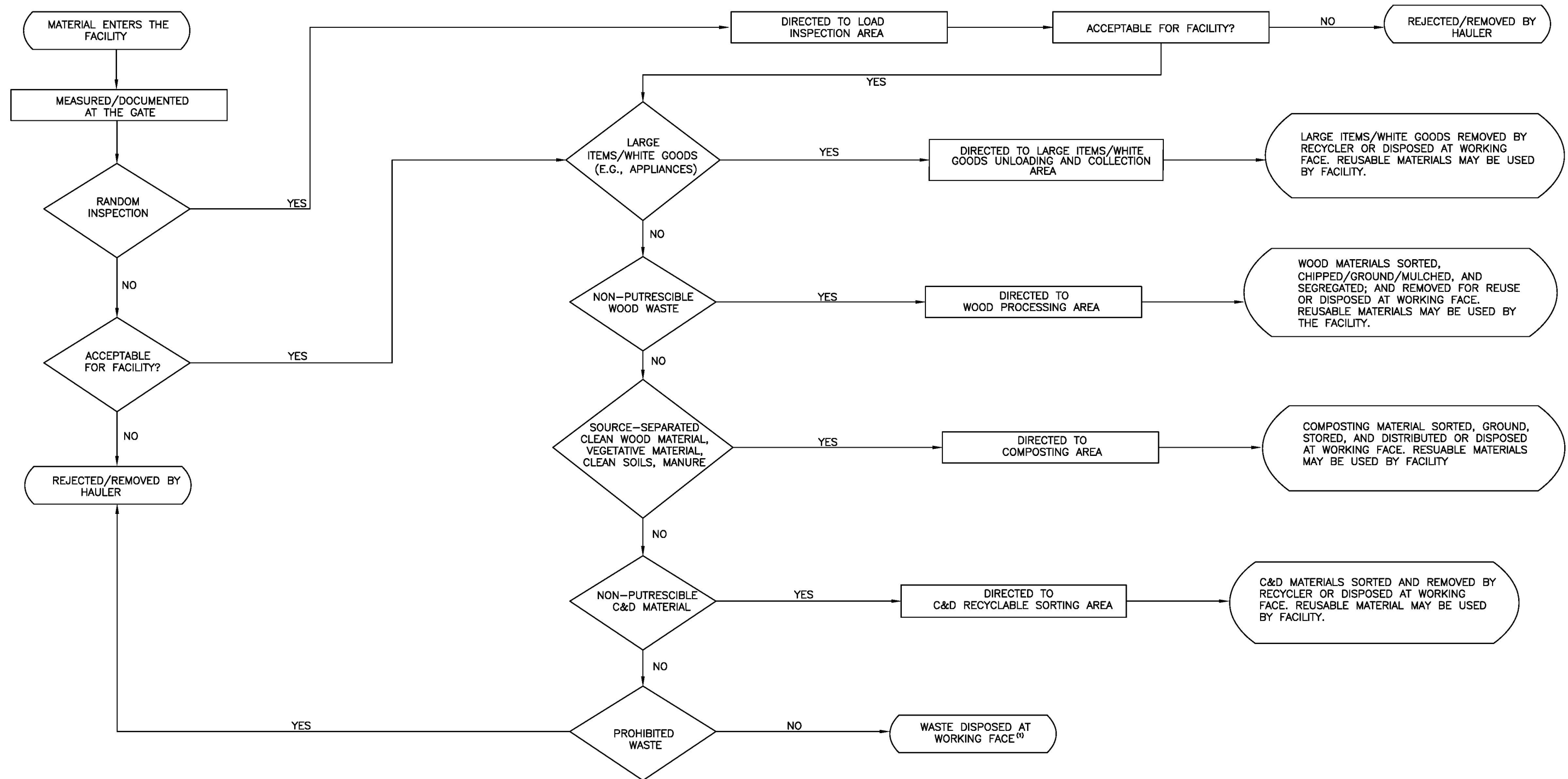
accompanied by the Landfill Manager or his designee (refer to Part IV – SOP, Section 7 for additional information).

## **2.2 Waste Movement (§330.63(b)(2))**

### **2.2.1 Waste Movement Flow Diagram (§330.63(b)(2)(A))**

Figure III-1 (shown on the following page) provides a waste movement flow diagram for the Fort Worth C&D Landfill. The flow diagram provides a summary of the disposal sequence for waste that is accepted at the facility. Detailed waste acceptance procedures are detailed in Part IV – SOP.

**FIGURE III-1  
WASTE FLOW DIAGRAM**



## **2.2.2 Waste Disposal Schematic View (§330.63(b)(2)(B))**

Figure III-1 provides a schematic view of the Fort Worth C&D Landfill operations. Additional detailed drawings of the various phases of site sequencing and development are provided in Parts I/II, Appendix I/IIA; Part III, Appendix IIIA; and throughout the SDP.

## **2.2.3 Ventilation and Odor Control (§330.63(b)(2)(C))**

Landfill disposal operations will occur in open areas within the permitted waste disposal footprint; therefore, adequate ventilation will be provided. The site will comply with all the applicable air quality rules and regulations.

As a Type IV MSW facility, the allowable waste stream (i.e., brush, C&D, and rubbish-type materials) will reduce the potential for odor generation compared to other MSW facilities (e.g., Type I MSW landfills). Specifically, more odorous putrescible wastes, sludges, grease or grit trap wastes, liquid wastes, or dead animals are not allowed to be accepted at the facility, thereby eliminating the potential for generation of odors by these sources. Potential odor sources at the facility may include allowable wastes delivered to the landfill and undergoing decomposition, the open working face, ponded water, or contaminated water.

Steps will be taken to limit the impact of the facility's operation on air quality and reduce potential odors. Among the measures set forth in Part IV – SOP (Section 16) to be employed are the following:

- Contaminated water will be segregated from clean surface water.
- Cover will be applied on a weekly basis at a minimum.
- Incoming waste will be promptly compacted into the working face area.
- Ponded water at the site will be controlled.

## **2.2.4 Generalized Construction Details (§330.63(b)(2)(D))**

Generalized construction details for the landfill are included in Parts I/II, Appendix I/IIA and in this SDP (e.g., Appendix IIIA).

## **2.3 Water Pollution Control (§330.63(b)(4))**

The site is designed to prevent discharge of pollutants into waters of the state or waters of the United States, as defined by the Texas Water Code and the Federal Clean Water Act, respectively. The Fort Worth C&D Landfill is subject to TCEQ's storm water permit requirements. A copy of the TPDES permit is included in

Appendix I/IIE. Surface water monitoring will be conducted consistent with TPDES requirements.

## **2.4 Protection of Endangered Species (§330.63(b)(5))**

Information regarding the protection of endangered species in accordance with Title 30 TAC §330.61(n) and §330.63(b)(5) is provided in Parts I/II, Section 12 – Protection of Endangered Species; and Part IV, Section 20. No endangered or threatened species have been documented at the site nor has a critical habitat for such species been identified at the site. Neither the facility nor its operation will result in the destruction or adverse modification of the critical habitat of endangered or threatened species. If endangered or threatened species are encountered during site operations, Texas Parks and Wildlife and U.S. Fish and Wildlife will be notified. A site specific Threatened and Endangered Species Habitat Assessment is included in Parts I/II, Appendix I/IIB (refer to the TPWD and FWS tabs).



## **3 FACILITY SURFACE WATER DRAINAGE REPORT (§330.63(c))**

---

### **3.1 General**

This facility has been designed to comply with the requirements of Title 30 TAC §330.303 and §330.63(c). Part III, Appendix IIIF contains the Surface Water Drainage Plan and permit information for the portion of the facility that is located adjacent to the floodplain (also refer to Section 3.7).

In accordance with Title 30 TAC §330.15(h), the facility has been designed to prevent discharge of pollutants into waters of the State or waters of the United States, as follows:

- No discharge of solid waste or pollutants into or adjacent to waters of the State, including wetlands, that is in violation of the requirements of the Texas Water Code, §26.121 will occur. During the active life of the facility all stormwater coming into contact with solid waste will be retained as contaminated water and treated or disposed of as outlined in Part III, Appendix IIIC - Contaminated Water Management Plan.
- No discharge of pollutants into or adjacent to waters of the United States, including wetlands, that violates any requirement of the Clean Water Act, including, but not limited to, the TPDES requirements, pursuant to §402 as amended, and demonstrated in Part III, Appendix IIIF – Surface Water Drainage Plan, will occur. A copy of the TPDES permit is included in Parts I/II, Appendix I/IIIE. Surface water monitoring will be conducted consistent with the TPDES requirements.
- No discharge of nonpoint source pollutants to waters of the United States, including wetlands, that violates any requirement of an area-wide or statewide water quality management plan that has been approved under the Federal Clean Water Act, §208 or §319, as amended will occur. The site will comply with §208 of the Federal Clean Water Act.
- No discharge of dredged or fill materials to waters of the United States, including wetlands, that is in violation of the requirements under the Federal Clean Water Act, §404, as amended, as demonstrated in Parts I/II, Appendix I/IIB (USACE coordination letter) will occur.

## **3.2 Site Drainage Patterns**

Stormwater runoff collected in swales located on the top dome and sideslopes of the landfill will be conveyed to drainage letdown structures (chutes) down the slopes to the perimeter channels. The perimeter channels collect runoff from drainage letdowns and convey the runoff to stormwater detention ponds. The perimeter channels will be constructed incrementally as the site develops. As shown on Drawing III.F.1 – Drainage Structure Plan, runoff generated from the developed areas will be conveyed through perimeter channels on the south and east sides of the fill areas and a series of detention ponds on the north side to be attenuated before being discharged into Village Creek.

The site is designed to prevent discharge of pollutants into waters of the state or waters of the United States, as defined by the Texas Water Code and the Federal Clean Water Act, respectively. The Fort Worth C&D Landfill is subject to TCEQ's storm water permit requirements. A copy of the TPDES permit is included in Appendix I/II.E. Surface water monitoring will be conducted consistent with TPDES requirements. Given the above, the applicant understands and is in full compliance with TPDES under the Clean Water Act, Section 402 as amended.

## **3.3 Perimeter Drainage System**

The stormwater controls for the landfill have been designed consistent with the TCEQ regulations for Type IV MSW landfills. The runoff/runoff stormwater controls have been designed for a 25-year storm event. These include drainage controls for the final cover, perimeter drainage channels, culverts, and detention ponds. Details for the perimeter drainage system and associated calculations are included in Part III, Appendix III.F-B.

The drainage system is detailed in Part III, Drawing III.F.1 – Drainage Structure Plan. Drainage from the landfill itself is directed through a system of swales, chutes, and perimeter channels to the stormwater detention ponds. The detention ponds and pond outlet structures are detailed in Part III, Appendix III.F – Surface Water Drainage Plan.

## **3.4 Below Grade Stormwater Controls**

Control of stormwater runoff and runoff within excavation areas will be achieved using temporary stormwater control structures (e.g., diversion berms, channels, and containment areas) as needed. The temporary stormwater control structures are used to divert uncontaminated stormwater runoff into temporary storage areas as shown in Parts I/II, Drawings I/II-A.4 through I/II-A.6 – Sector Development Plans. The uncontaminated stormwater will be used for liner construction, control of dust,

and establishing vegetation. If discharge of uncontaminated stormwater is required, it will be discharged consistent with TPDES requirements.

Contaminated stormwater consists of stormwater that has come into contact with waste. Control of the contaminated stormwater will be provided through temporary diversion berms, channels, and containment areas. Temporary runoff and runoff controls are shown in Parts I/II, Drawings I/II-A.4 through I/II-A.6 – Sector Development Plans and detailed in Appendix IIIC – Contaminated Water Management Plan, Appendix IIIC-A – Containment Berm and Diversion Berm Calculations. Contaminated stormwater will be diverted and contained on approved areas only. Contaminated stormwater will be managed in accordance with the guidelines set forth in Appendix IIIC – Contaminated Water Management Plan.

### **3.5 Aerial Fill Stormwater Controls**

Additional stormwater controls will be necessary as the site is brought above grade. Temporary diversion berms, channels, and containment areas will continue to be used for control of uncontaminated and contaminated stormwater runoff and runoff. Runoff and runoff temporary diversion berm sizing is provided in Part III, Appendix IIIC – Contaminated Water Management Plan, Appendix IIIC-A – Containment Berm and Diversion Berm Calculations. Separation of the contaminated stormwater and uncontaminated stormwater runoff will be provided. Diversion berms, channels, and containment areas will be implemented for the aerial fill portions of the landfill. Sector development plans for above grade scenarios are presented in Parts I/II, Drawings I/II-A.4 through I/II-A.6 – Sector Development Plans.

The final cover will incorporate drainage swales and letdown structures or chutes for conveyance of stormwater off of the final cover. These swales and chutes have been designed to protect the final cover from erosion. As areas of the final cover are completed, vegetation will be established to provide additional erosion protection. Details of the final cover design are provided in Part III, Appendix IIIA-A – Liner and Final Cover System Details. Drainage details are provided in Part III, Appendix IIIF – Surface Water Drainage Plan.

Surface water runoff and runoff will be managed consistent with the TCEQ regulations. Specifically, areas that have received waste but will be inactive for longer than 180 days will be provided with intermediate cover. As such, runoff from these areas will be considered uncontaminated consistent with Title 30 TAC §330.207. Also, the site design and proper operating practices will minimize contaminated water. Routine daily cover, in combination with the other operating practices, will minimize the generation of contaminated water. Contaminated water will be managed consistent with the practices outlined in Part III, Appendix IIIC – Contaminated Water Management Plan.

The Fort Worth C&D Landfill will use various interim and permanent erosion and sedimentation controls throughout the life of the site. The interim controls will be used around active areas and external embankment sideslopes and top dome surfaces. These controls will include temporary letdown structures, soil berms, and vegetation of intermediate cover areas to minimize the erosion potential from these areas. These interim controls will be used during all phases of landfill development to provide effective erosion stability for the external sideslopes and top dome surfaces. Refer to Appendix IIIF-F – Erosion Control Plan for All Phases of Landfill Operation for more information.

### **3.6 Erosion and Sedimentation Control**

Erosion and sedimentation control is provided on site during construction activities and is incorporated into the design of the perimeter drainage system and final cover system. During construction of the various sectors, perimeter berms, perimeter drainage channels, and detention ponds, erosion and sedimentation control will be provided through the use of temporary diversion berms, drainage channels, silt fences, and hay bales. These measures will provide for control of erosion and sediment prior to stormwater flows leaving the site. An erosion and sedimentation control plan is presented in Part III, Appendix IIIF – Surface Water Drainage Plan.

Permanent erosion control features have been included in the site design. These features include design of perimeter channels for non-erodible velocities. In areas where erosion has been anticipated, erosion protection of the channels in the form of gabions, rock riprap, or turf reinforcement matting is provided. Permanent erosion protection measures are also shown in Appendix IIIF – Surface Water Drainage Plan. In addition to grass cover, permanent erosion features included in the final cover design are drainage swales and chutes shown on Parts I/II, Drawing I/IIA.8 – Landfill Completion Plan.

### **3.7 Floodplain Information (§330.63(c)(2))**

Detailed floodplain information is included in Parts I/II, Section II and Appendix IIIF. A Conditional Letter of Map Revision (CLOMR) has been submitted to FEMA for review, given that the 100-year floodplain is located within the proposed development areas. Excerpts from the proposed CLOMR are included in Appendix IIIF-G.

### **3.8 Wetlands Information**

The Fort Worth C&D Landfill property was examined for compliance with wetlands issues as described in Title 30 TAC §330.553, which states that new MSWLF units, lateral expansions, and material recovery operations from a landfill shall not be

located in wetlands, unless the owner or operator makes appropriate demonstrations involving wetlands. As noted in Parts I/II – Section 11.2, the proposed expansion will require Department of the Army authorization under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899, and a USACE permit is required (refer to Parts I/II – Section 11.2 for additional wetlands information). Refer to Appendix I/II-B for USACE Coordination.

## **4 LANDFILL UNIT DESIGN (§330.63(d)(4))**

---

Consistent with Title 30 Texas Administrative Code (TAC) §330.63(d)(4), this Site Development Plan was prepared to address the requirements for the landfill unit at the Fort Worth C&D Landfill. The following subsections discuss provisions for all-weather operations and access, the proposed landfill method, minimum and maximum design elevations, solid waste acceptance rates, site life, cross-sections and design details, and a liner quality control plan. In addition to these items as required by §330.63(d)(4), additional information regarding the geotechnical analyses, the liner design, and management are also presented.

### **4.1 All-Weather Operation (§330.63(d)(4)(A))**

The landfill perimeter roads, haul road, and interior access roads (see Parts I/II, Drawings I/II-A.4 through I/II-A.6 – Sector Development Plans) will be constructed of crushed stone, rough gravel, or other suitable material and will provide access from the entrance road to the fill area. From the entrance, the landfill haul road is an all-weather asphalt-paved road. The paved access road and rough gravel haul road will serve as mud control for waste hauling vehicles prior to exiting the site and returning to the site access roads. The rough gravel haul road and perimeter road will be maintained for all-weather access by site personnel. Additional mud control measures will be taken if these mud control measures do not effectively minimize tracking of mud onto public roads. For example, a wheel wash may be utilized within the permit boundary.

On-site stockpiles of crushed stone, concrete rubble, masonry demolition debris, or other similar material will be provided as needed for use in maintaining passable access roads. Grading equipment or other appropriate equipment will be used, as necessary, to control or remove mud accumulations on the perimeter access road around the landfill, the landfill haul road, and the paved entrance facility area.

The landfill haul road and perimeter roads will be passable under inclement weather conditions to allow access to the working face area.

## 4.2 Landfill Methods (§330.63(d)(4)(B))

The proposed landfill development method for the site is a combination of area-excitation fill followed by aerial fill to the proposed landfill completion height.

The landfill drawings depicting existing site conditions, excavation, final fill height, sector fill layout, sector sections, sequence of development plans, site contour maps, and landfill completion plan are included in Parts I/II, Appendix I/IIA – Facility Layout Maps.

The excavation side slopes will be no steeper than 3 horizontal to 1 vertical (3H:1V), the aerial fill side slopes will be 3H:1V, and the aerial fill top slope will be 5 percent. Final cover placement will generally follow the sequence of development as shown in Parts I/II, Drawings I/II-A.4 through I/II-A.6, and will be ongoing as the site is developed. Sectors will be closed according to the closure plan provided in Part III, Appendix IIIJ – Closure Plan.

## 4.3 Liner and Final Cover System Design (§330.63(d)(4)(C))

### 4.3.1 Liner System for the Undeveloped Portion of the Solid Waste Disposal Area

The proposed liner system is designed to meet the requirements of Title 30 TAC §330.331(d). The liner system that will be constructed within the undeveloped sectors is described below.

**Table III-1  
Liner System Components**

Liner System
4-foot-thick minimum intact in-situ shale layer or
3-foot-thick recompacted (i.e., constructed) clay liner having a coefficient of permeability no greater than $1 \times 10^{-7}$ cm/sec (i.e., $k \leq 1 \times 10^{-7}$ cm/sec) with 1-foot-thick overlying protective cover layer

A summary of the liner system design and the liner system details are included in Part III, Appendix IIIA – Landfill Unit Design Information. Information regarding liner materials and construction quality assurance are included in Part III, Appendix IIID – Soil Liner Quality Control Plan. The elevation of the deepest excavation is 550 feet above mean sea level (ft-msl) (if in-situ liner is used) or 546 ft-msl (if constructed liner is used).

### 4.3.2 Final Cover System

The final cover system for the site is summarized in Table III-2. The final cover system will provide a low maintenance cover, protect against erosion, reduce rainfall percolation through the cover system, and subsequently minimize generation within the landfill. As depicted on Parts I/II, Drawing I/II-A.8 – Landfill Completion Plan, a 5 percent top slope and 3H:1V sideslopes are provided to minimize erosion and facilitate drainage of the landfill. The final cover system options are described in the following table with layers listed from top to bottom.

A demonstration that the specified final cover design will provide effective long-term erosional stability is included in Part III, Appendix IIIF – Surface Water Drainage Plan (Appendix IIIF-D). The final cover system will be constructed as outlined in Part III, Appendix IIIJ – Closure Plan.

The maximum elevation of final cover is 860 ft-msl and the maximum waste elevation is 857.5 ft-msl (which is calculated based on the 2.5-foot-thick final cover system).

**Table III-2  
Final Cover System Components**

Final Cover System
1.5-foot-thick compacted soil layer composed of clayey soil, classified by the Unified Soils Classification System (USCS) as “SC” (clayey sand), “CL” (lean clay), or “CH” (fat clay) and having a coefficient of permeability (i.e., a hydraulic conductivity) no greater than $1 \times 10^{-5}$ cm/sec (i.e., $k \leq 1 \times 10^{-5}$ cm/sec); and
A 6-inch or 12-inch-thick topsoil layer <sup>1</sup> capable of sustaining native plant growth and seeded immediately following the application of final cover.

<sup>1</sup> If the underlying compacted soil layer is classified as SC or CL, the minimum topsoil thickness is 6 inches. If the underlying compacted soil layer is classified as CH, the minimum topsoil thickness is 12 inches.

### 4.3.3 Groundwater Monitoring System

The purpose of the groundwater monitoring system is to verify the integrity of the containment systems discussed in the previous sections and to confirm that area groundwater is not adversely impacted by the landfill. This is accomplished by obtaining groundwater samples from the monitoring wells on the perimeter of the landfill, which are screened in the uppermost groundwater zone. Refer to Appendices IIIG and IIIH for additional information.

## 4.4 Estimated Rate of Solid Waste Deposition (§330.63(d)(4)(D))

The Fort Worth C&D Landfill primary serves residences and businesses in Collin, Dallas, Denton, Johnson, Parker, and Tarrant Counties. Texas Regional Landfill



Company, LP estimates that the waste inflow will increase to 516,507 tons per year (1,806 tons per day based on a 286-day operating schedule) in 2022. After 2022, the waste inflow rate is assumed to increase consistent with the projected growth rate for the facility's general service area.

The projections are based on current market conditions and may vary as market conditions change. Using the average annual waste inflow, it is projected that this service area generates approximate 667,238 tons per year (2,333 tons per day based on a 286-day operating schedule).

The population equivalent, as defined in Title 30 TAC §330.3, is "the hypothetical population that would generate an amount of solid waste equivalent to that actually being managed based on a generation rate of five pounds per capita per day and applied to situations involving solid waste not necessarily generated by individuals." Based on this definition, the population equivalent for the average waste stream over the active life of the site (15.6 years – refer to Appendix IIIN) was calculated as follows:

$$\frac{(559,130 \text{ tons/year}) \times (2,000 \text{ pounds/ton})}{(5 \text{ pounds/person/day}) \times (365 \text{ days/year})} = 612,745 \text{ persons}$$

<sup>1</sup> Average yearly waste inflow (based on a 286-day operating year) was calculated using the average daily waste inflow rate over the life of the site (1,955 tons/day x 286 days/year = 559,130 tons/year). Refer to Appendix IIIN for more information.

The major classifications of solid waste to be accepted by this facility for disposal are residential and commercial MSW, specifically household wastes, construction-demolition waste, and various non-hazardous industrial and special wastes as authorized by the TCEQ.

#### **4.5 Typical Unit Cross-Sections (§§330.63(d)(4)(E) and (F))**

Typical unit cross-sections are included in Appendix IIIA-B. The cross-sections are developed consistent with the requirements of Title 30 TAC §330.63(d)(4)(E) and (F).

#### **4.6 Soil Liner Quality Control Plan (§330.63(d)(4)(G))**

Information regarding liner materials and construction quality assurance are included in Part III, Appendix IIID – Soil Liner Quality Control Plan.

## 5 COMPLIANCE WITH §330.63(e) THROUGH §330.63(j)

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The following table provides references to each SDP appendix that was developed to meet the specified rule.

Rule	SDP Appendix
§330.63(e)	Appendix IIIG – Geology Report and Appendix IIIM – Geotechnical Report
§330.63(f)	Appendix IIH – Groundwater and Sampling Analysis
§330.63(g)	Appendix III – Landfill Gas Management Plan
§330.63(h)	Appendix IIIJ – Closure Plan
§330.63(i)	Appendix IIK – Postclosure Care Plan
§330.63(j)	Appendix IIIL – Closure and Postclosure Care Cost Estimates

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

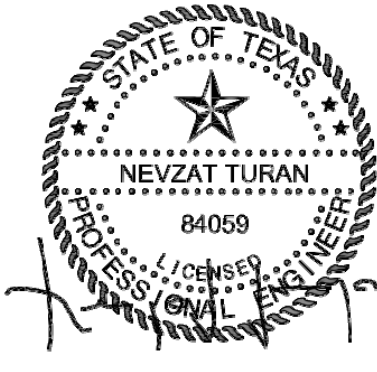
**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
APPENDIX IIIA  
LANDFILL UNIT DESIGN INFORMATION**

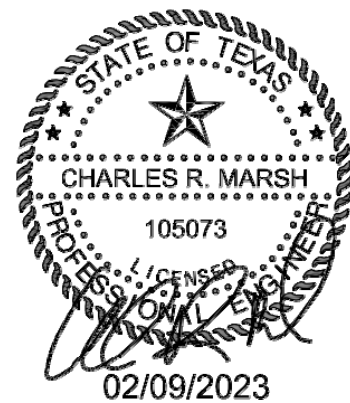
Prepared for

Texas Regional Landfill Company, LP

February 2023



Prepared by



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817-735-9770

WCG Project No. 0771-356-11-35

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<b>1 INTRODUCTION</b>	<b>IIIA-1</b>
<b>2 PROPOSED LINER SYSTEMS FOR THE SUBTITLE D AREAS</b>	<b>IIIA-2</b>
<b>3 EXISTING LINER SYSTEMS</b>	<b>IIIA-4</b>
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### APPENDIX IIIA-A

Liner, Overliner, and Final Cover System Details

DRAWING A.1 – Overall Base Grading Plan

DRAWING A.2 – Landfill Completion Plan

DRAWING A.3 – Liner Details

DRAWING A.4 – Liner Details

DRAWING A.5 – Dewatering System Details

### APPENDIX IIIA-B

Landfill Unit Cross Sections

DRAWING B.1 – Typical Section Locations

DRAWING B.2 – Base Grading Plan

DRAWING B.3 – Landfill Completion Plan

DRAWING B.4 – Typical Section A

DRAWING B.5 – Typical Section B

DRAWING B.6 – Typical Section C

DRAWING B.7 – Typical Section D

DRAWING B.8 – Typical Section E

DRAWING B.9 – Typical Section F



## TABLES

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III A-2	Existing Liner System Components	III A-4
III A-3	Final Cover System Components	III A-5



## 1 INTRODUCTION

---

The purpose of this appendix is to present the details of the liner and final cover systems consistent with Title 30 Texas Administrative Code (TAC) §330.331 and §330.457. The following subsections have been developed to provide detailed information for the proposed liner systems, existing liner systems, and final cover systems.



*This appendix  
addresses  
§330.331 and  
§330.457.*

## 2 PROPOSED LINER SYSTEMS FOR THE SUBTITLE D AREAS

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The proposed composite liner systems are designed to meet the requirements of Title 30 TAC §330.331(d)(1), and §330.331(a)(2). The composite liner system that will be constructed within the undeveloped sectors, Sectors 4, 5, and 6, is described below.

**Table IIIA-1  
Liner System Components**

Liner System
4-foot-thick minimum intact in-situ shale layer or
3-foot-thick recompacted (i.e., constructed) clay liner having a coefficient of permeability no greater than $1 \times 10^{-7}$ cm/sec (i.e., $k \leq 1 \times 10^{-7}$ cm/sec) with 1-foot-thick overlying protective cover layer

Drawing A.1 (Appendix IIIA-A) details the base grading plan for the Fort Worth C&D Landfill.

Details of the liner system are shown on Drawings A.3 and A.4 in Appendix IIIA-A. Construction and testing requirements are provided in Appendix IIID – LQCP.

A geotechnical report including a stability demonstration for the liner system is provided in Appendix IIIM – Geotechnical Report. A summary of the liner design information that is included in the Geotechnical Report is provided below.

- **Excavation Stability.** The stability of the proposed excavation slopes was evaluated at the most critical sections (i.e., where the 3H:1V sideslopes are the longest). The excavation slopes were analyzed using undrained strength parameters (total stress) as well as drained strength parameters (effective stress). The slope stability analysis resulted in an acceptable factor of safety for each analyzed condition. All factors of safety generated were greater than the minimum recommended factor of safety of 1.3 for short-term and 1.5 for long-term conditions. Residual strength analyses achieved a minimum factor of safety of 1.0.
- **Liner System Stability.** In addition to the generalized slope stability summarized above, the interfaces of the components of the liner systems

were evaluated using infinite slope stability analysis. All the calculated factor of safety values for interface slope stability are acceptable.

- **Liner System Settlement and Strain Analysis.** The liner system was evaluated for settlement and strain due to loading of liner soil, waste, and cover soils. The maximum strain on the liner system caused by the estimated differential settlement is within the acceptable range for each liner system component.



### 3 EXISTING LINER SYSTEMS

---

As of November 2017, the site has approximately 77.7 acres of developed waste footprint. The existing composite liner systems for the developed Subtitle D sectors are described below.

**Table IIIA-2  
Existing Liner System Components**

Liner System
4-foot-thick minimum intact in-situ shale layer or
3-foot-thick recompacted (i.e., constructed) clay liner having a coefficient of permeability no greater than $1 \times 10^{-7}$ cm/sec (i.e., $k \leq 1 \times 10^{-7}$ cm/sec) with 1-foot-thick overlying protective cover layer

Sectors 1, 2A, 2B, 2C, 2D, 2E, 3A, 3B, 3C, and 3D were constructed with a 4-foot-thick intact in-situ unweathered shale on the floor and lower portions of the sidewalls and a 3-foot-thick recompacted clay liner overlain by a 1-foot-thick protective cover soil on the sidewalls. In addition to the above, note that the existing Subtitle D sectors that have been constructed have also been analyzed to ensure that the existing liner system will continue to meet regulatory requirements as the expansion areas are developed.

## 4 FINAL COVER SYSTEM

---

Once the site reaches the permitted waste fill grades, a composite final cover system will be installed to prevent the infiltration of stormwater into the deposited waste. Two composite final cover systems have been designed for use at the site and they are discussed in Section 4.1.

### 4.1 Final Cover System Options

The final cover system options are shown in Table IIIA-3 below.

**Table IIIA-3**  
**Final Cover System Components**

<b>Final Cover System</b>
1.5-foot-thick compacted soil layer composed of clayey soil, classified by the Unified Soils Classification System (USCS) as "SC" (clayey sand), "CL" (lean clay), or "CH" (fat clay) and having a coefficient of permeability (i.e., a hydraulic conductivity) no greater than $1 \times 10^{-5}$ cm/sec (i.e., $k \leq 1 \times 10^{-5}$ cm/sec); and
A 6-inch or 12-inch-thick topsoil layer <sup>1</sup> capable of sustaining native plant growth and seeded immediately following the application of final cover.

<sup>1</sup> If the underlying compacted soil layer is classified as SC or CL, the minimum topsoil thickness is 6 inches. If the underlying compacted soil layer is classified as CH, the minimum topsoil thickness is 12 inches.

The landfill completion plan is shown on Drawing A.2. Details of the final cover system are presented on Drawings A.3 through A.4. Construction and testing procedures for the final cover system are provided in Appendix III E – Final Cover System Quality Control Plan (FCSQCP).

The drainage system is detailed in Appendix III F – Surface Water Drainage Plan. Drainage from the landfill is directed through a system of swales, chutes, and perimeter channels to the stormwater detention ponds. The detention ponds and pond outlet structures are detailed in Appendix III F – Surface Water Drainage Plan.

Permanent final cover erosion control structures include swales and chutes that will be constructed upon installation of the final cover. The design of the final cover system erosion control structures is provided in Appendix III F-B. As part of the final cover construction, an erosion layer capable of sustaining native vegetation will be constructed. Areas that receive final cover will be seeded upon completion of final

cover placement. A soil loss and sheet flow velocity demonstration for the erosion layer is included in Appendix IIIF-D. The erosion layer will include a vegetation layer that provides for an 90 percent ground coverage. If there are areas that do not maintain at least 90 percent coverage they will be re-seeded until at least 90 percent coverage is maintained.

The stormwater controls for the landfill have been designed consistent with the TCEQ regulations for Type IV MSW landfills. The stormwater runoff/runoff controls have been designed for a 25-year frequency storm event. These include drainage controls for the final cover, perimeter drainage channels, culverts, and detention ponds, including pond outfalls. Details for the perimeter drainage system and associated calculations are included in Appendix IIIF – Surface Water Drainage Plan.

## 4.2 Final Cover Stability Analysis

A stability analysis for the existing and proposed final cover systems is provided in Appendix IIIM – Geotechnical Report and is summarized below.

- **Final Cover Stability.** The stability of the proposed final cover slopes was evaluated at the most critical sections. The final cover slopes were analyzed using drained and undrained strength parameters (effective and total stress, respectively). The minimum factors of safety generated were all greater than the minimum recommended factor of safety of 1.3 (total stress analysis) and 1.5 (effective stress analysis).
- **Final Cover System Stability.** The interfaces of the components of each final cover system were evaluated using infinite slope stability analysis. The minimum factor of safety calculated for the final cover system is greater than the acceptable factor of safety of 1.5 for long-term stability.
- **Final Cover System and MSW Settlement and Strain Analysis.** Each final cover system was also evaluated for settlement and strain due to consolidation of the waste material within the landfill. The maximum strain calculated is negative, which indicates that all components are in compression and not subject to strain.

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TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

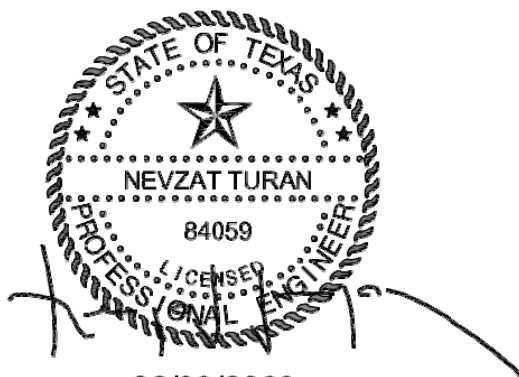
**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
APPENDIX IIIA-A  
LINER AND FINAL COVER  
SYSTEM DETAILS**

Prepared for

Texas Regional Landfill Company, LP

February 2023



Prepared by



**Weaver Consultants Group, LLC**  
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WCG Project No. 0771-356-11-35

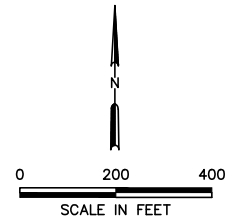
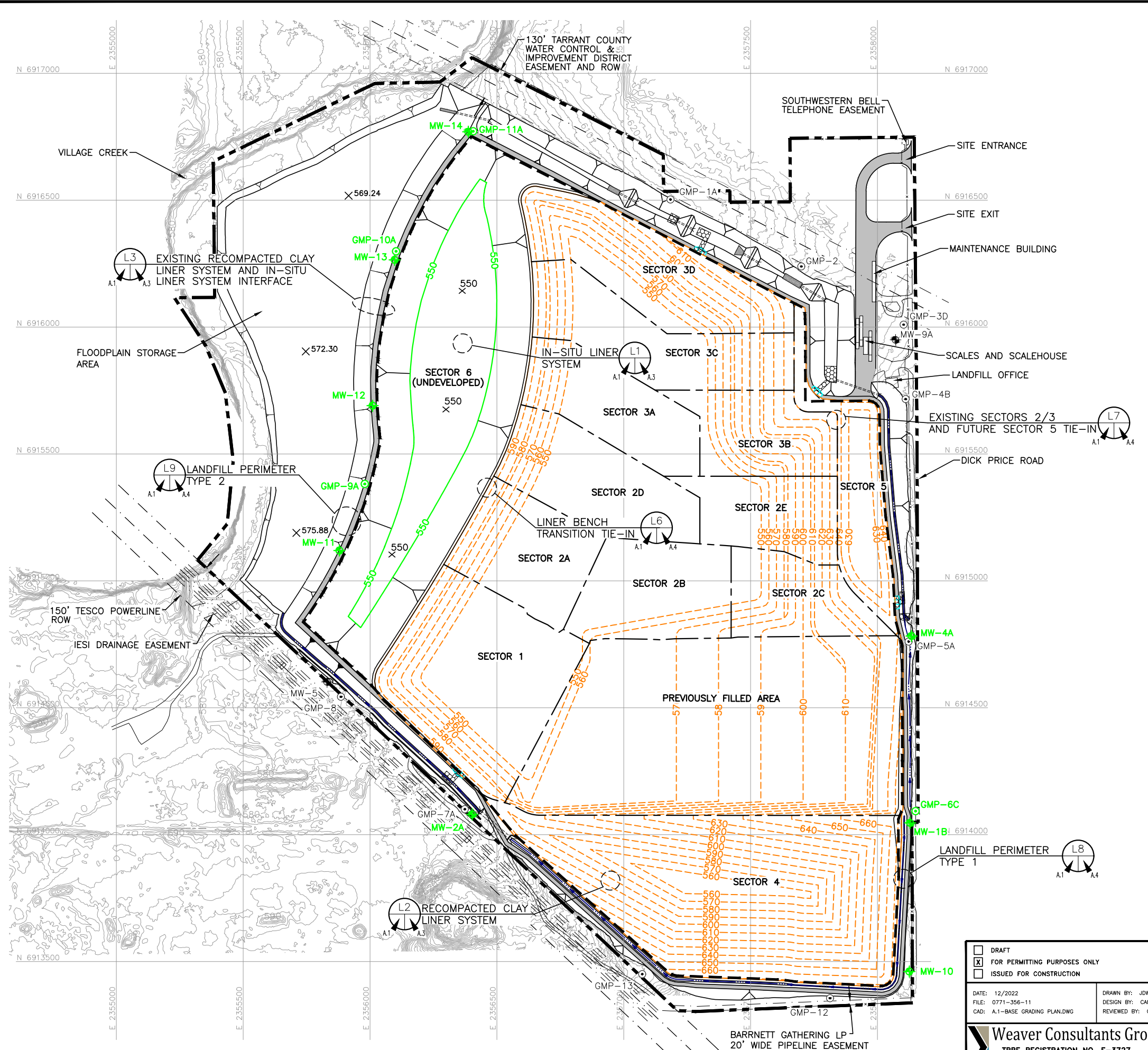
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## CONTENTS

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DRAWING A.1 – Overall Base Grading Plan  
DRAWING A.2 – Landfill Completion Plan  
DRAWING A.3 – Liner and Final Cover Details  
DRAWING A.4 – Liner Details

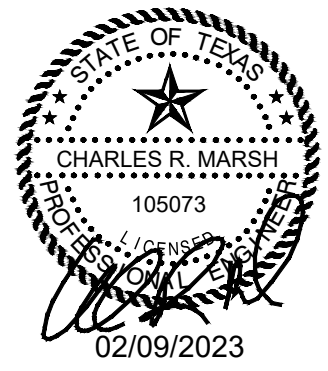




**LEGEND**

- PERMIT BOUNDARY
- LIMIT OF WASTE
- EXISTING CONTOUR
- STATE PLANE COORDINATE
- PERMITTED/EXISTING BASE GRADE CONTOUR (SEE NOTE 6)
- PROPOSED/UNDEVELOPED BASE GRADE CONTOUR (SEE NOTE 6)
- PERIMETER CHANNEL
- EASEMENT
- PERMITTED GROUNDWATER MONITORING WELL
- PERMITTED GAS MONITORING PROBE
- PROPOSED GROUNDWATER MONITORING WELL
- PROPOSED GAS MONITORING PROBE

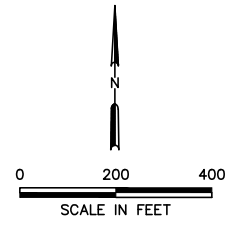
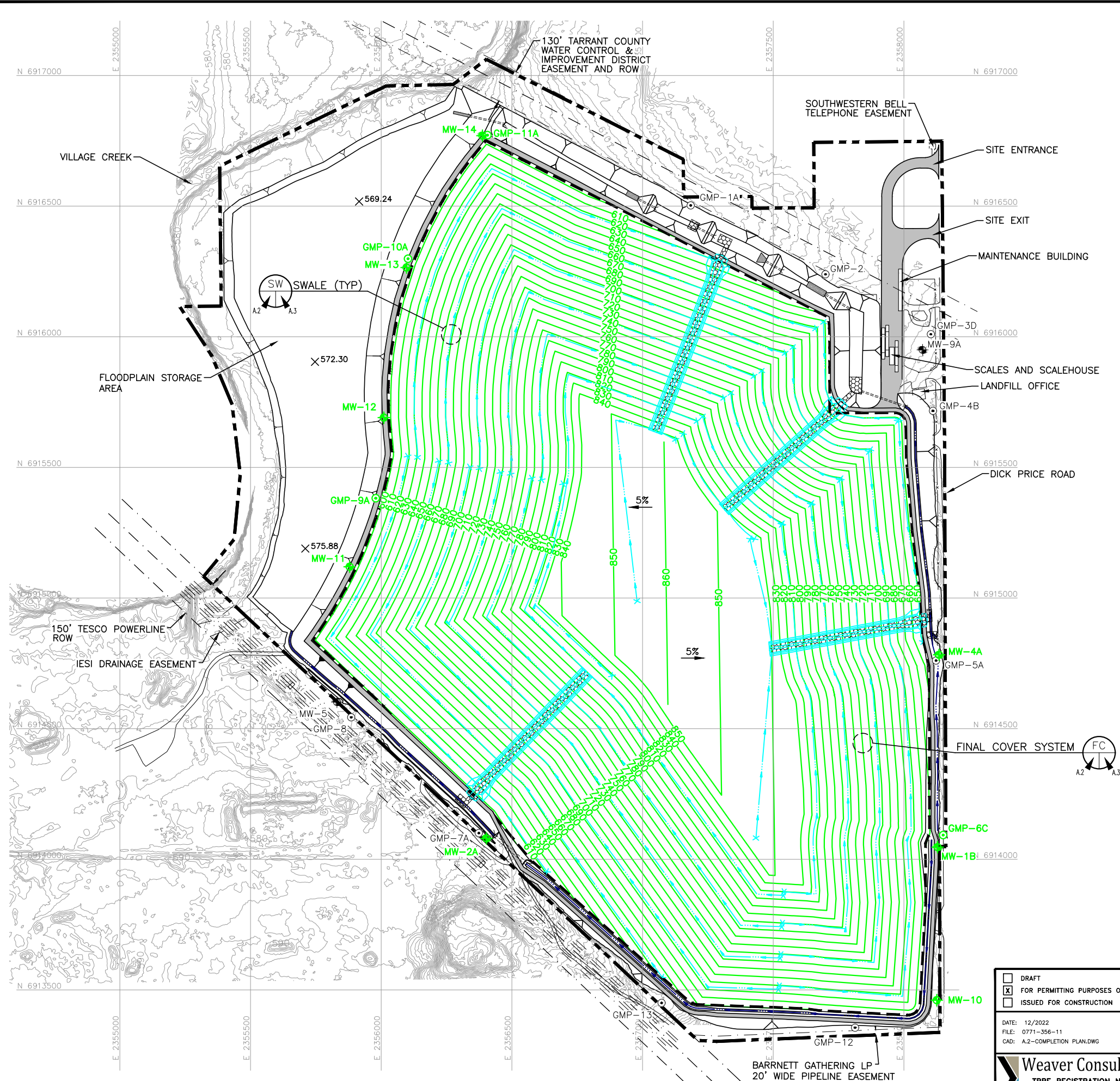
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- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - EXCAVATION SLOPES AND SLOPES OUTSIDE THE LIMIT OF WASTE (e.g., CHANNELS) ARE TYPICALLY 3H:1V.
  - ELEVATION OF DEEPEST EXCAVATION (EDE) IS 550 FT-MSL BASED ON USE OF IN-SITU LINER. IF CONSTRUCTED LINER IS USED THE EDE WILL BE 546 FT-MSL.
  - SEQUENCE OF SITE DEVELOPMENT IS PROVIDED IN PARTS 1/II, APPENDIX 1/IIA DRAWINGS 1/IIA.4 THROUGH 1/IIA.6.
  - BASE GRADES SHOWN REPRESENT THE TOP OF PROTECTIVE COVER (IF A CONSTRUCTED LINER SYSTEM IS USED) OR THE TOP OF IN-SITU LINER.



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<b>Weaver Consultants Group</b>		
TBPE REGISTRATION NO. F-3727		

MAJOR PERMIT AMENDMENT OVERALL BASE GRADING PLAN		
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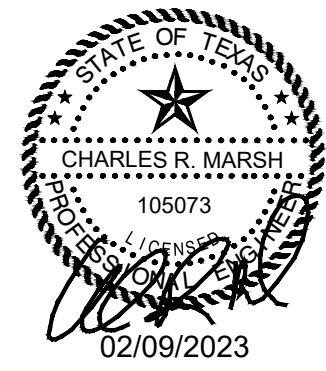
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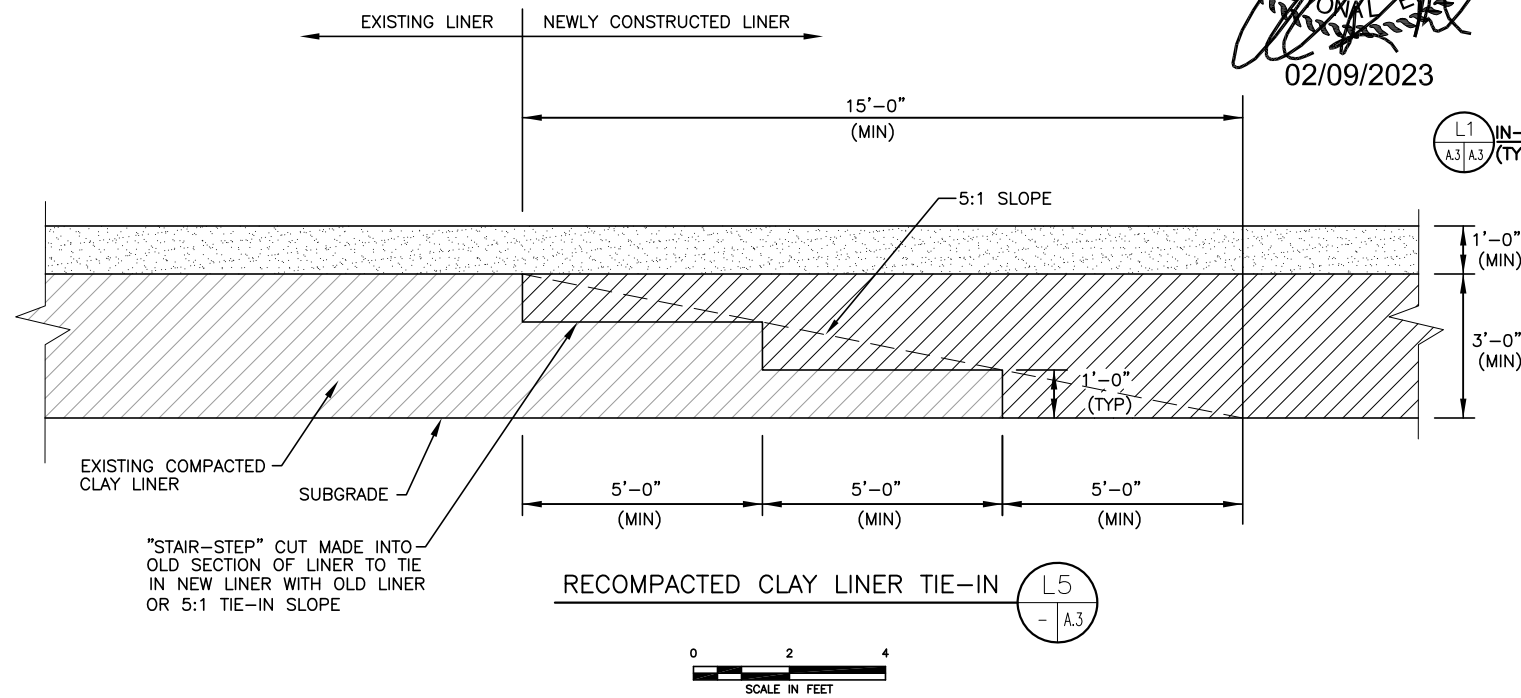
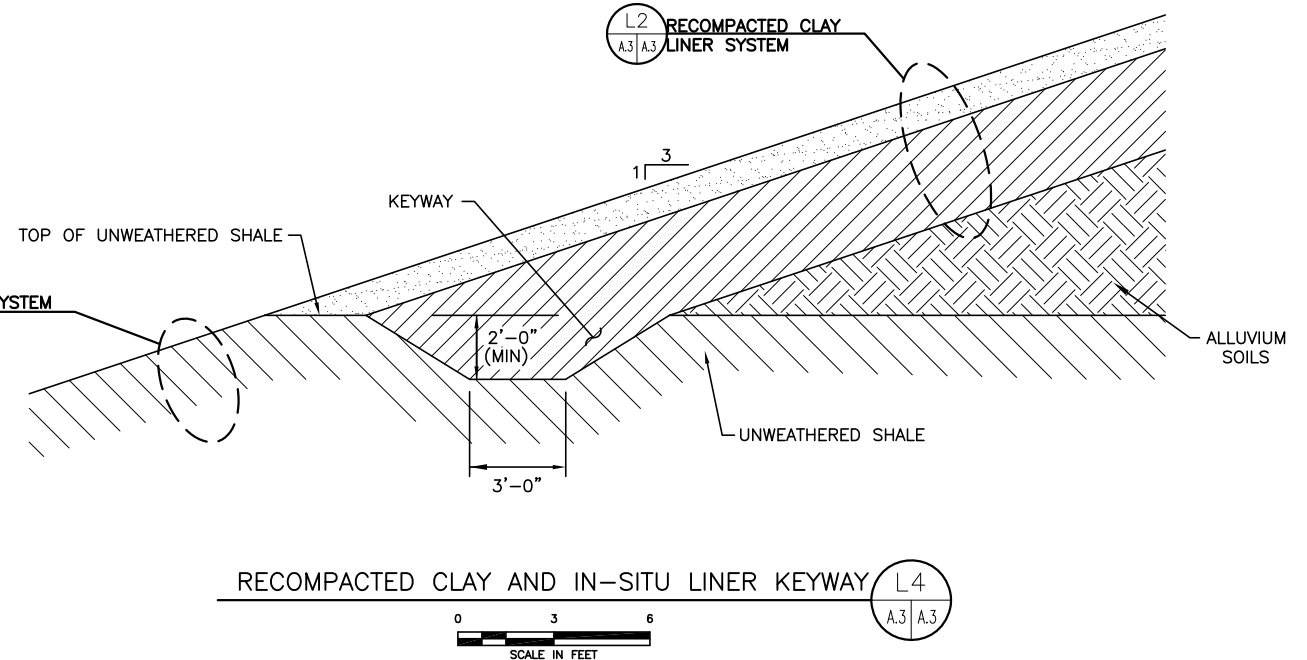
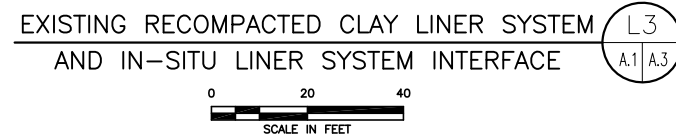
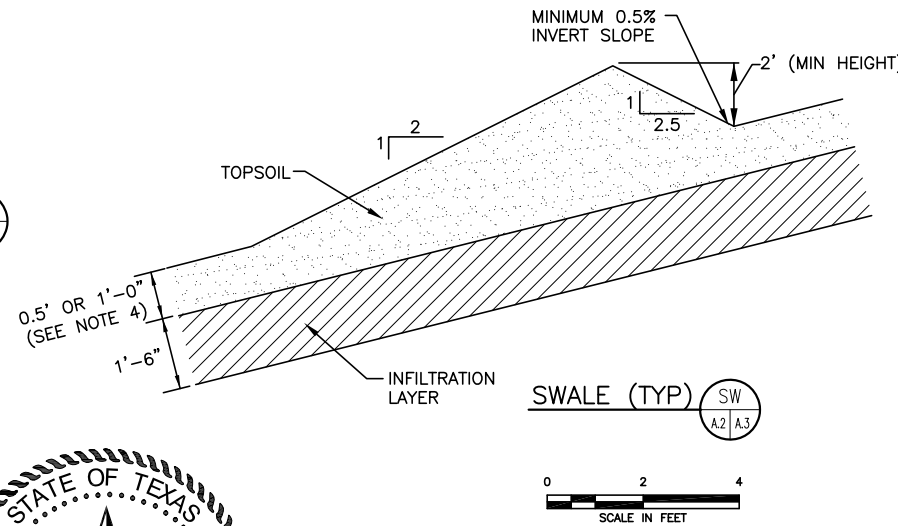
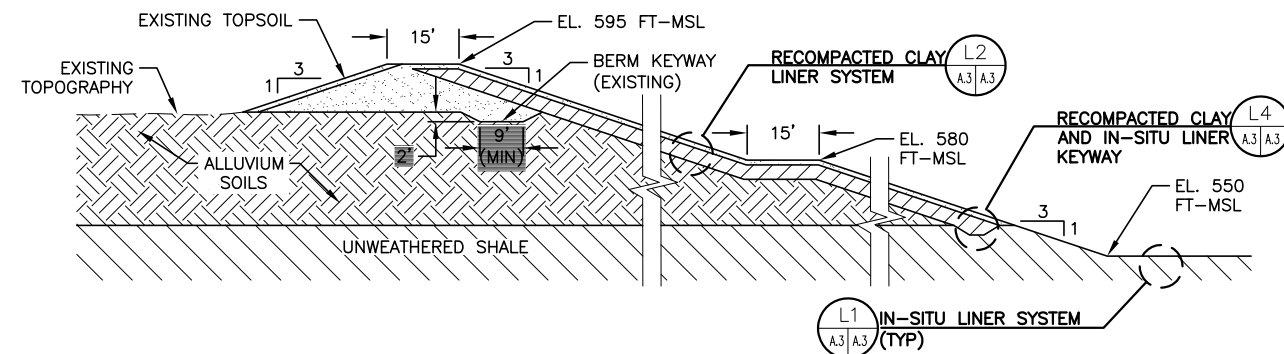
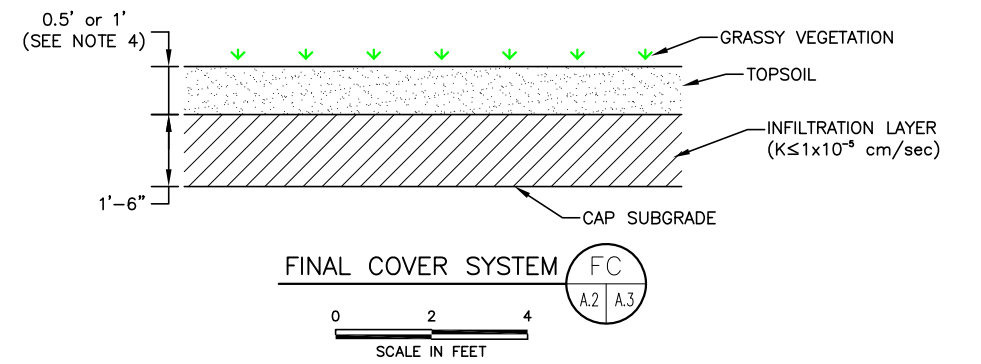
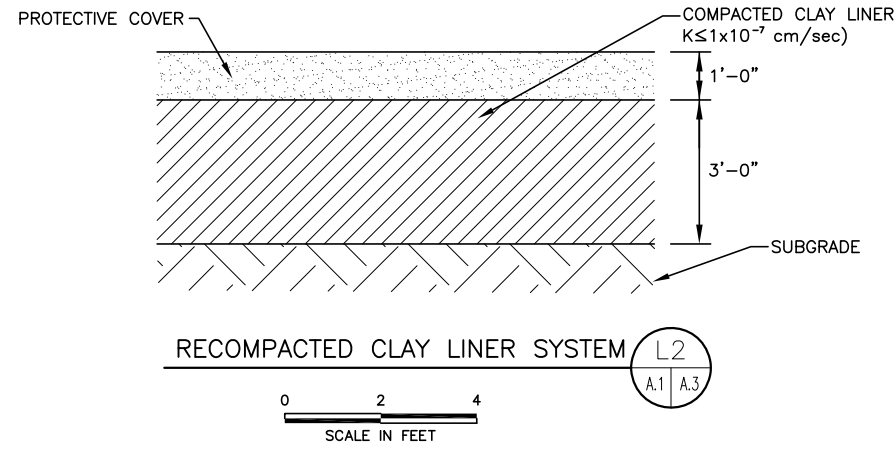
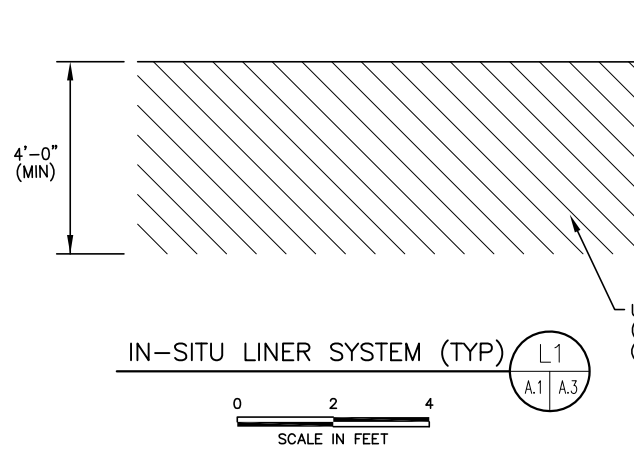
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	PERMIT BOUNDARY
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	EXISTING CONTOUR
	STATE PLANE COORDINATE
	FINAL COVER CONTOUR
	DRAINAGE LETDOWN
	DRAINAGE SWALE
	PERIMETER CHANNEL
	EASEMENT
	GABIONS
	DRAINAGE CHANNEL
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
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  - REFER TO APPENDIX III-F-SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
  - THE FINAL COVER CONTOURS SHOWN REPRESENT A 2-FT-THICK FINAL COVER SYSTEM. AN ADDITIONAL 6-INCHES ADDED TO THE TOPSOIL LAYER MAY BE REQUIRED DEPENDING ON THE SOIL CLASSIFICATION OF THE COMPACTED SOIL (INFILTRATION LAYER) AT THE TIME OF FINAL COVER CONSTRUCTION FOR A GIVEN AREA, RESULTING IN A 2.5-FT-THICK FINAL COVER SYSTEM. IF THIS OCCURS, THE MAXIMUM FINAL COVER ELEVATION WOULD BE 860.5 FT-MSL, INSTEAD OF THE 860.0 FT-MSL SHOWN.



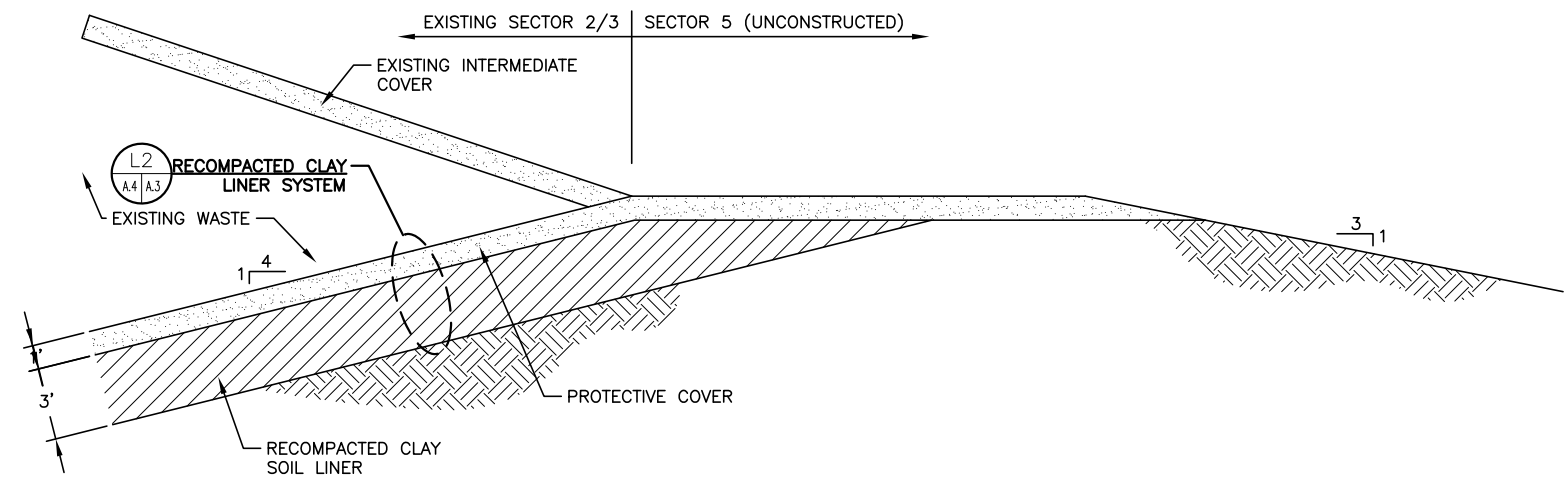
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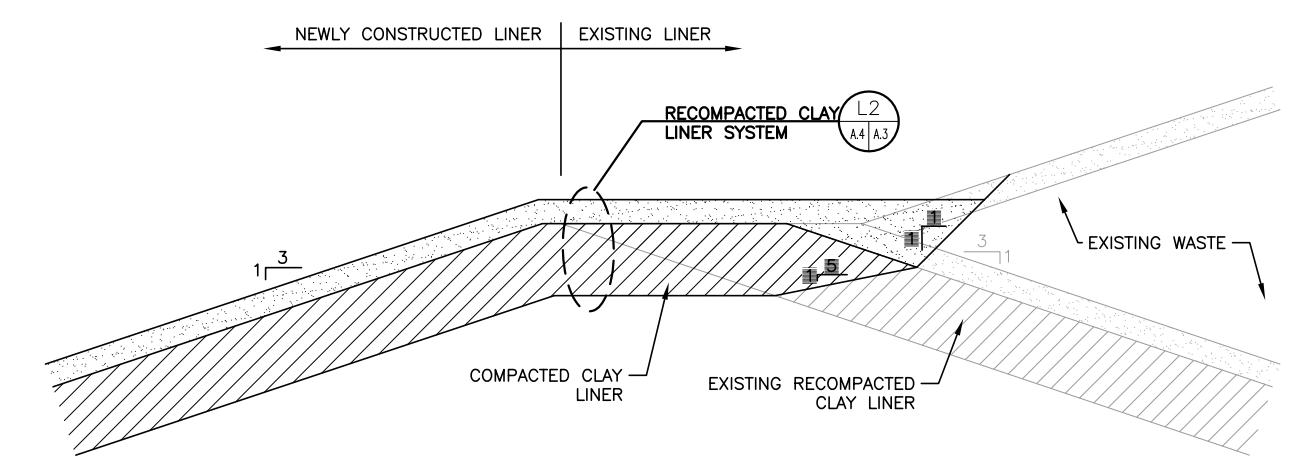
- NOTES:
- SUBGRADE PREPARATION, CONSTRUCTION OF THE COMPACTED CLAY LINER, PLACEMENT OF PROTECTIVE COVER, AND TESTING REQUIREMENTS OF IN-SITU LINER WILL BE IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN (LQCP).
  - FINAL COVER MATERIAL PROPERTIES AND SPECIFICATIONS WILL BE IN ACCORDANCE WITH THE FINAL COVER SYSTEM QUALITY CONTROL PLAN (FCSQCP).
  - THE COMPACTED SOIL LAYER OF THE FINAL COVER SHALL BE CLAYEY SOIL CLASSIFIED BY THE UNIFIED SOILS CLASSIFICATION SYSTEM (USCS) AS "SC" (CLAYEY SAND), "CL" (LEAN CLAY), OR "CH" (FAT CLAY).
  - IF THE COMPACTED SOIL (e.g., INFILTRATION LAYER) OF THE FINAL COVER IS CLASSIFIED AS "SC" OR "CL" MATERIAL, THE TOP SOIL SHALL BE 0.5' (MIN.) THICK. IF THE COMPACTED SOIL IS CLASSIFIED AS "CH", THE TOPSOIL SHALL BE 1.0' (MIN.) THICK.

<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION		PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>MAJOR PERMIT AMENDMENT LINER AND FINAL COVER DETAILS</b>										
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NO.	DATE	DESCRIPTION												
<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727				FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS WWW.WCGRP.COM										
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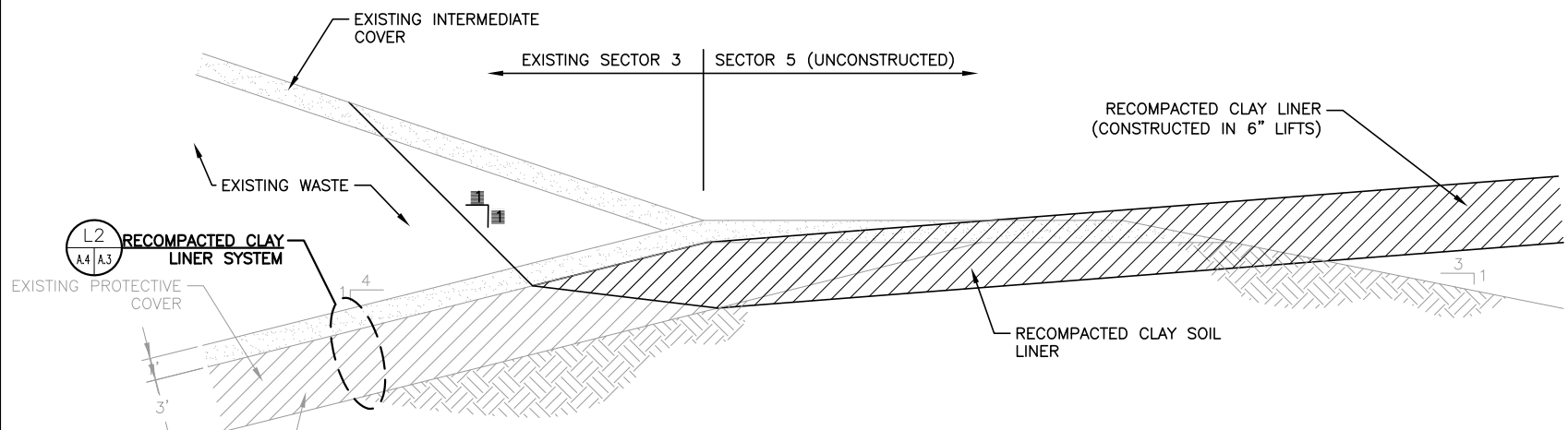




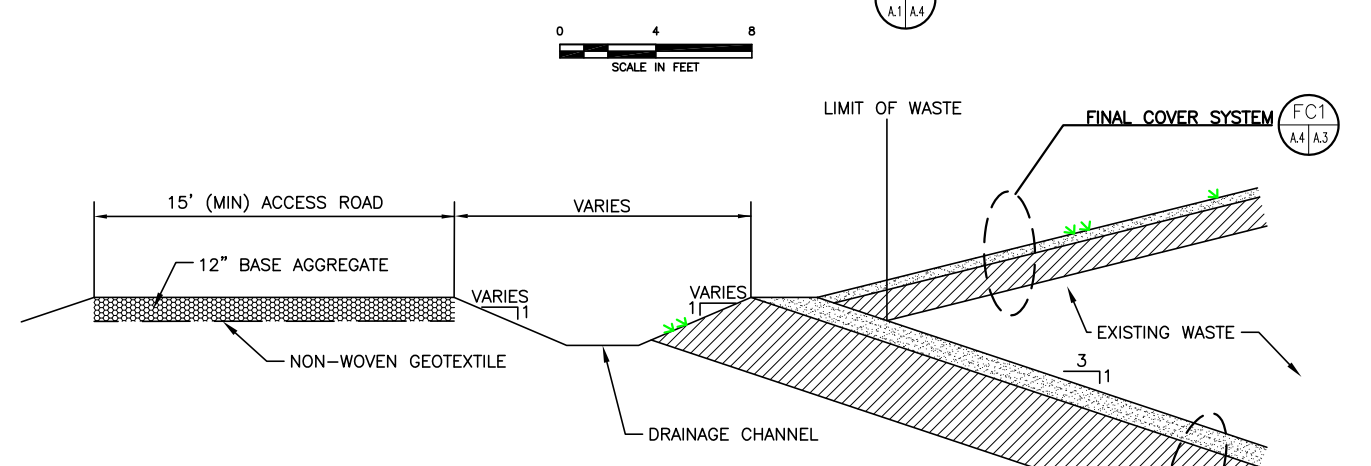
SECTOR 3 PERIMETER BEFORE TIE-IN



LINER BENCH TRANSITION TIE-IN

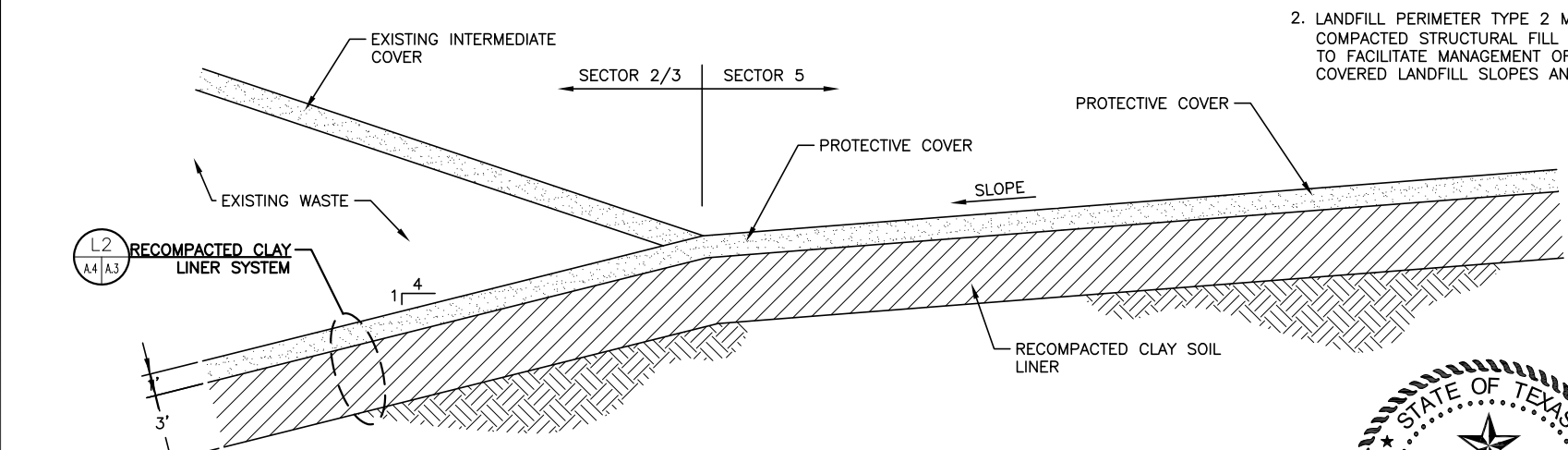


SECTOR 2/3 PERIMETER DURING TIE-IN

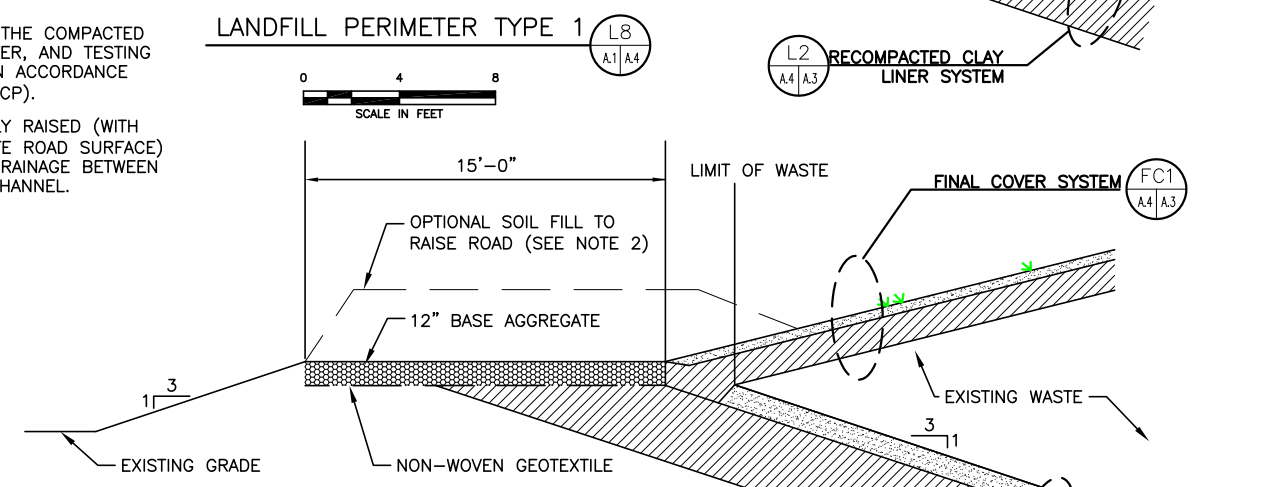


LANDFILL PERIMETER TYPE 1

- NOTES:
1. SUBGRADE PREPARATION, CONSTRUCTION OF THE COMPACTED CLAY LINER, PLACEMENT OF PROTECTIVE COVER, AND TESTING REQUIREMENTS OF IN-SITU LINER WILL BE IN ACCORDANCE WITH THE LINER QUALITY CONTROL PLAN (LQCP).
  2. LANDFILL PERIMETER TYPE 2 MAY BE LOCALLY RAISED (WITH COMPACTED STRUCTURAL FILL AND AGGREGATE ROAD SURFACE) TO FACILITATE MANAGEMENT OF PERIMETER DRAINAGE BETWEEN COVERED LANDFILL SLOPES AND DRAINAGE CHANNEL.

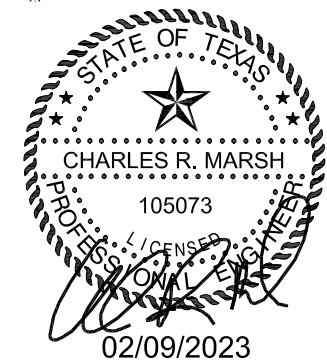


SECTOR 3D PERIMETER AFTER TIE-IN



LANDFILL PERIMETER TYPE 2

EXISTING SECTORS 2/3 AND FUTURE SECTOR 5 TIE-IN



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          LINER DETAILS</b>  FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS									
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NO.	DATE	DESCRIPTION									
WWW.WCGRP.COM		DRAWING A.4									

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**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

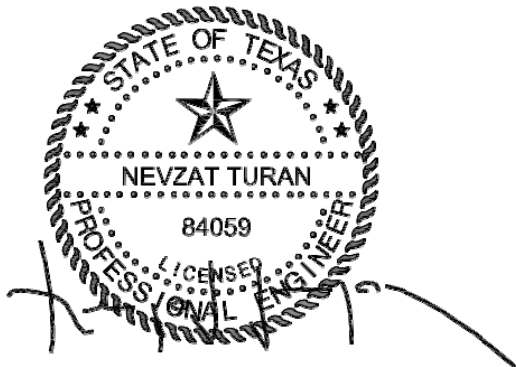
**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
APPENDIX IIIA-B  
LANDFILL UNIT CROSS SECTIONS**

Prepared for

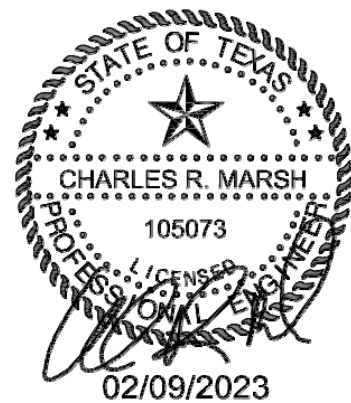
Texas Regional Landfill Company, LP

February 2023



02/09/2023

Prepared by



02/09/2023

**Weaver Consultants Group, LLC**  
TBPE Registration No. F-3727  
6420 Southwest Boulevard, Suite 206  
Fort Worth, Texas 76109  
817-735-9770

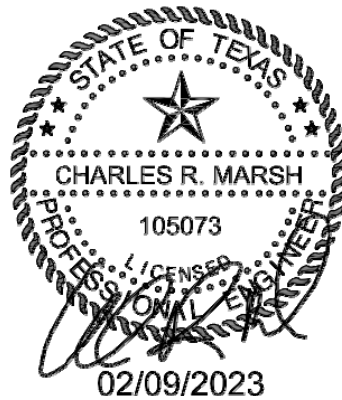
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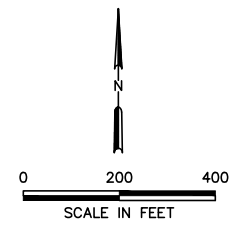
This document is intended for permitting purposes only.

## CONTENTS

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DRAWING B.1 – Typical Section Locations  
DRAWING B.2 – Base Grading Plan  
DRAWING B.3 – Landfill Completion Plan  
DRAWING B.4 – Typical Section A  
DRAWING B.5 – Typical Section B  
DRAWING B.6 – Typical Section C  
DRAWING B.7 – Typical Section D  
DRAWING B.8 – Typical Section E  
DRAWING B.9 – Typical Section F

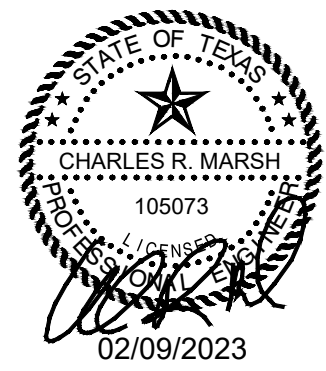




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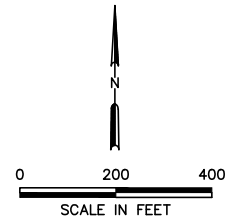
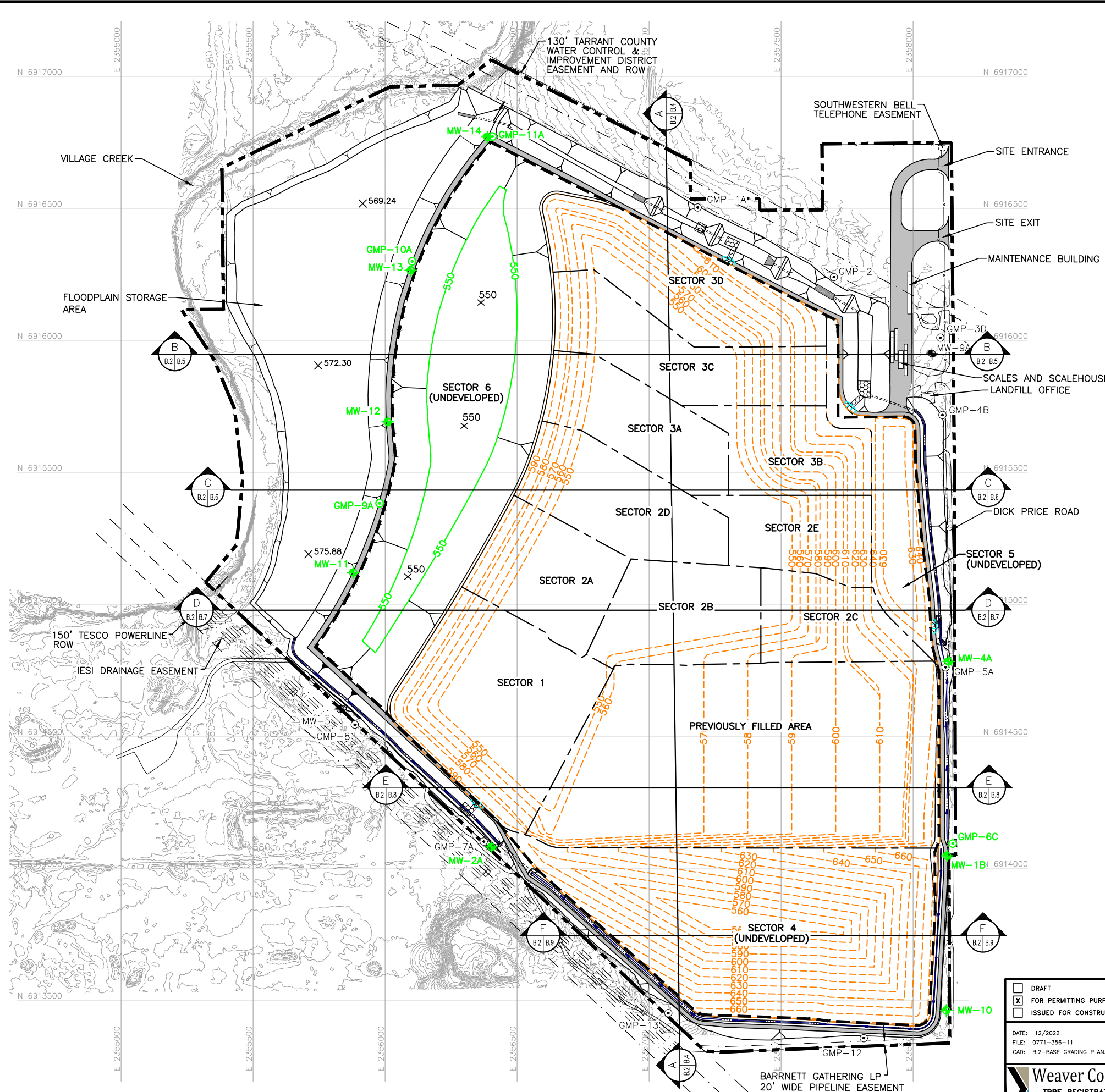
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	PERMITTED LIMIT OF WASTE
	NEWLY PERMITTED AIRSPACE LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	SECTOR BOUNDARY
	EASEMENT
	EXISTING GROUNDWATER MONITORING WELL
	EXISTING GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - BOREHOLE LOCATION COORDINATES AND SURFACE ELEVATIONS OBTAINED FROM PREVIOUS SUBSURFACE EXPLORATION LITHOLOGIC LOGS AND REPORTS. REFER TO APPENDIX III G-GEOLOGY AND GEOTECHNICAL REPORT FOR MORE INFORMATION.
  - GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING POSTED AT EACH BOREHOLE LOCATION IN FT-MSL.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>  <b>MAJOR PERMIT AMENDMENT</b> <b>TYPICAL SECTION LOCATIONS</b>  <b>FORT WORTH C&amp;D LANDFILL</b> <b>TARRANT COUNTY, TEXAS</b>								
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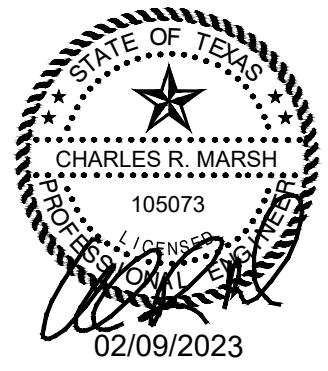


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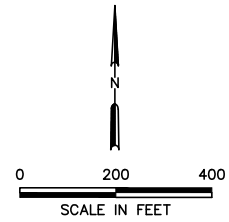
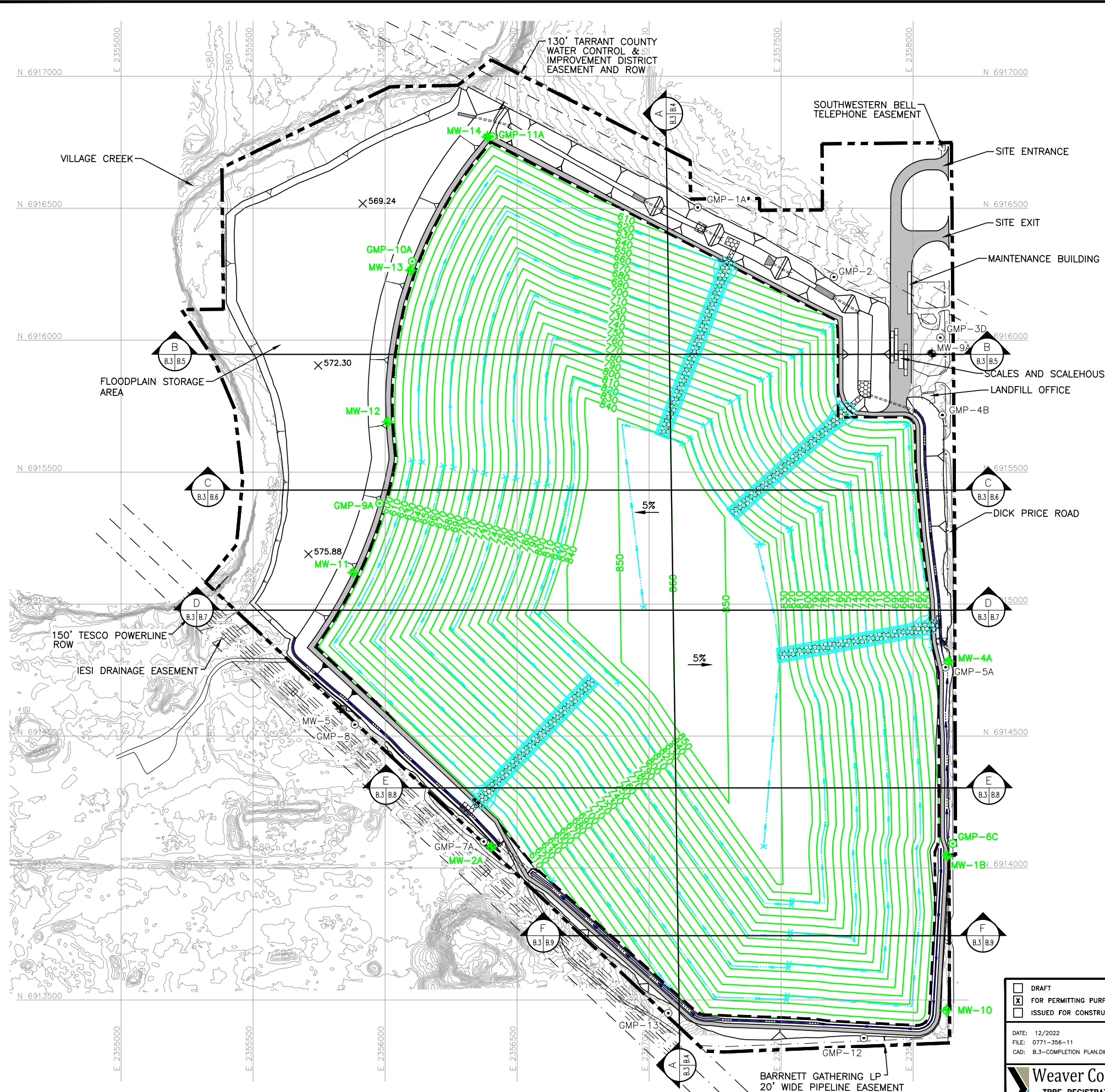
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	LIMIT OF WASTE
	EXISTING CONTOUR
	STATE PLANE COORDINATE
	PERMITTED/EXISTING BASE GRADE CONTOUR (SEE NOTE 6)
	PROPOSED/UNDEVELOPED BASE GRADE CONTOUR (SEE NOTE 6)
	PROPOSED PERIMETER CHANNEL
	EASEMENT
	SECTOR BOUNDARY
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

**NOTES:**

- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
- EXCAVATION SLOPES AND SLOPES OUTSIDE THE LIMIT OF WASTE (e.g., CHANNELS) ARE TYPICALLY 3H:1V.
- ELEVATION OF DEEPEST EXCAVATION (EDE) IS 550 FT-MSL BASED ON USE OF IN-SITU LINER. IF CONSTRUCTED LINER IS USED THE EDE WILL BE 546 FT-MSL.
- BASE GRADES SHOWN REPRESENT THE TOP OF PROTECTIVE COVER (IF A CONSTRUCTED LINER SYSTEM IS USED) OR THE TOP OF IN-SITU LINER.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>  <b>MAJOR PERMIT AMENDMENT          BASE GRADING PLAN</b>						
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.		DATE	DESCRIPTION			
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**LEGEND**

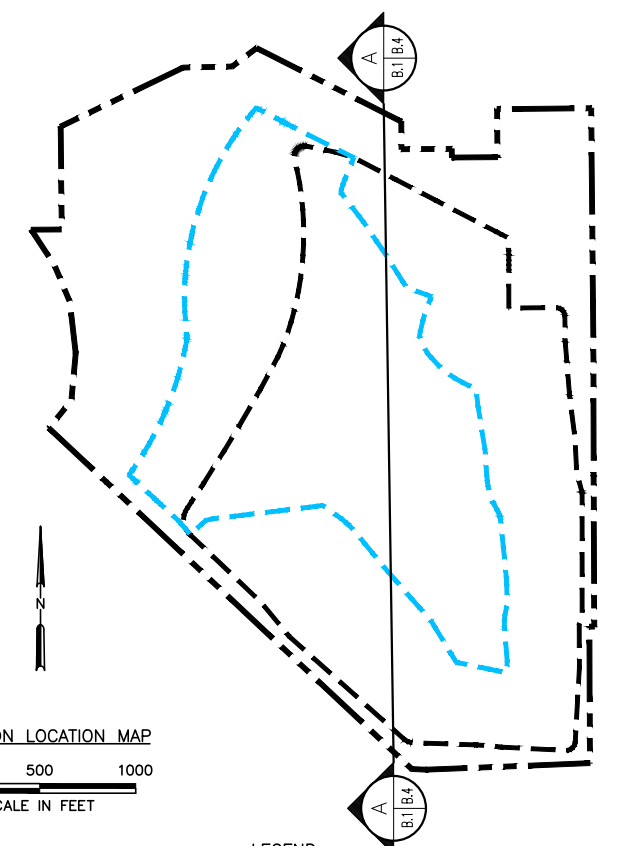
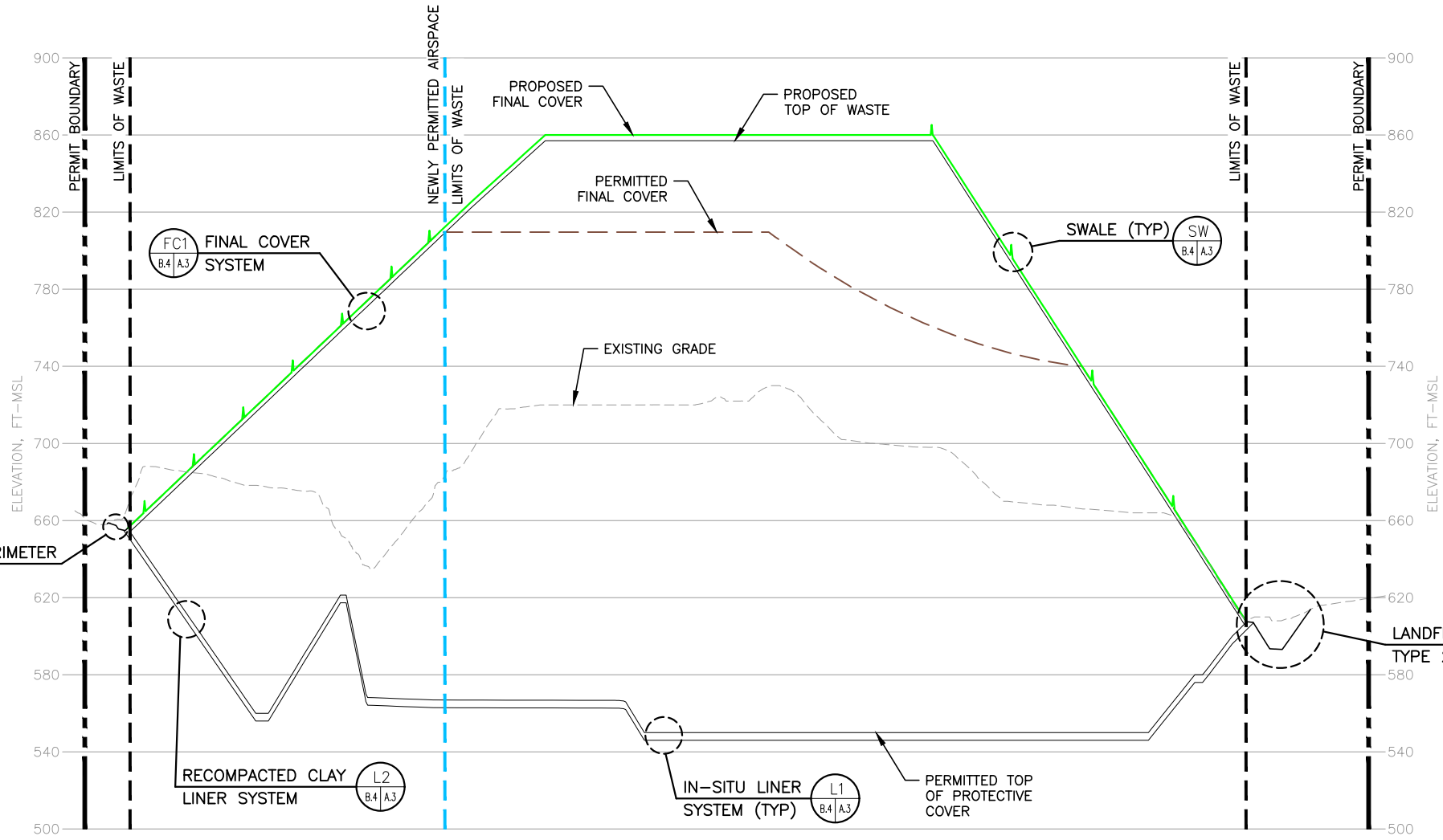
	PERMIT BOUNDARY
	LIMIT OF WASTE
	EXISTING CONTOUR
	FINAL COVER CONTOUR
	DRAINAGE LETDOWN
	DRAINAGE SWALE
	PROPOSED PERIMETER CHANNEL
	EASEMENT
	GABIONS
	PERMITTED GROUNDWATER MONITORING WELL
	PERMITTED GAS MONITORING PROBE
	PROPOSED GROUNDWATER MONITORING WELL
	PROPOSED GAS MONITORING PROBE

- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022. THE GRID SYSTEM IS TIED TO THE TEXAS STATE PLANE COORDINATE SYSTEM NORTH CENTRAL ZONE, NAD 1983.
  - REFER TO APPENDIX III-F SURFACE WATER DRAINAGE PLAN FOR DRAINAGE DESIGN INFORMATION.
  - THE FINAL COVER CONTOURS SHOWN REPRESENT A 2-FT-THICK FINAL COVER SYSTEM. AN ADDITIONAL 6-INCHES ADDED TO THE TOPSOIL LAYER MAY BE REQUIRED DEPENDING ON THE SOIL CLASSIFICATION OF THE COMPACTED SOIL (INFILTRATION LAYER) AT THE TIME OF FINAL COVER CONSTRUCTION FOR A GIVEN AREA, RESULTING IN A 2.5-FT-THICK FINAL COVER SYSTEM. IF THIS OCCURS, THE MAXIMUM FINAL COVER ELEVATION WOULD BE 860.5 FT-MSL, INSTEAD OF THE 860.0 FT-MSL SHOWN.
  - TYPICAL SIDESLOPES ARE 3H:1V AND THE TYPICAL TOPSLOPE IS 5%.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>	<b>MAJOR PERMIT AMENDMENT          LANDFILL COMPLETION PLAN</b>										
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NO.	DATE	DESCRIPTION										
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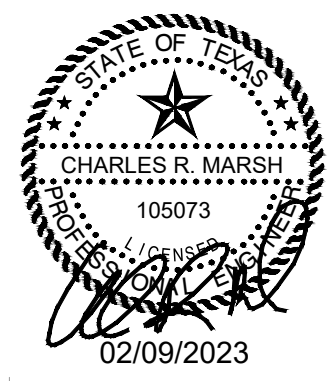
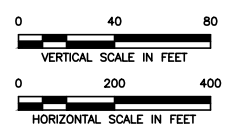
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SECTION LOCATION MAP  
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SCALE IN FEET

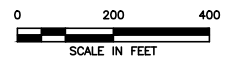
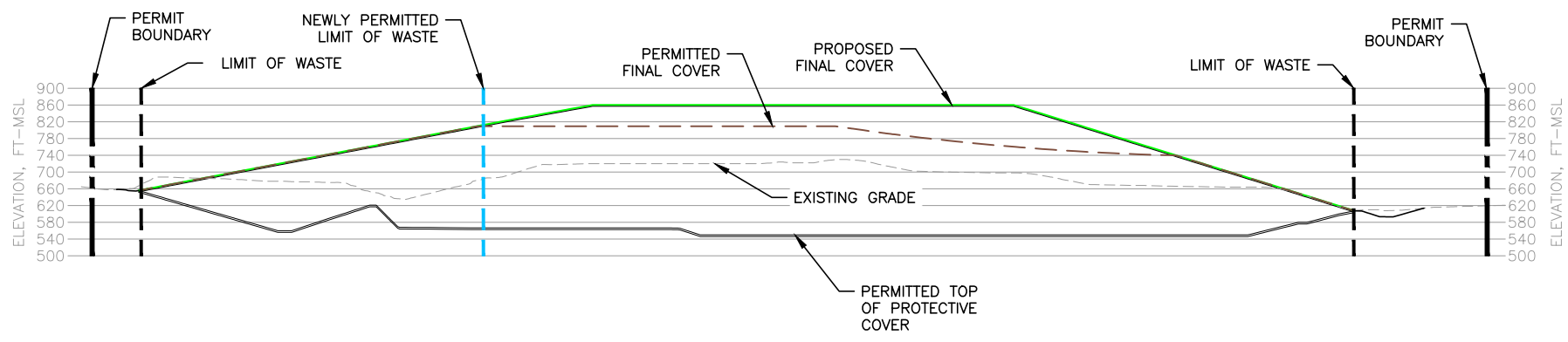
**LEGEND**

	PERMIT BOUNDARY
	PERMITTED LIMIT OF WASTE
	NEWLY PERMITTED LIMIT OF WASTE
	EXISTING GRADE
	TOP OF FINAL COVER
	TOP OF WASTE
	PERMITTED FINAL COVER
	DETAIL CALLOUT (SEE NOTE 2)

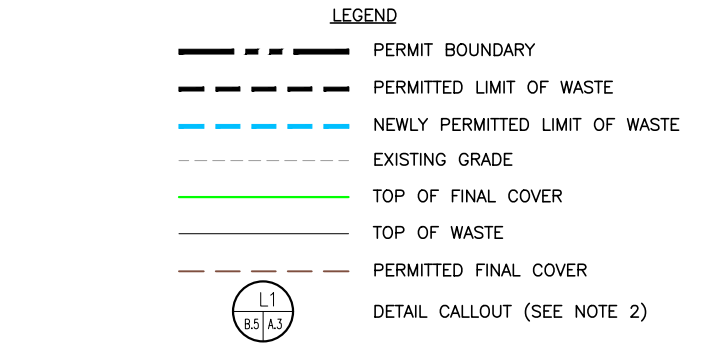
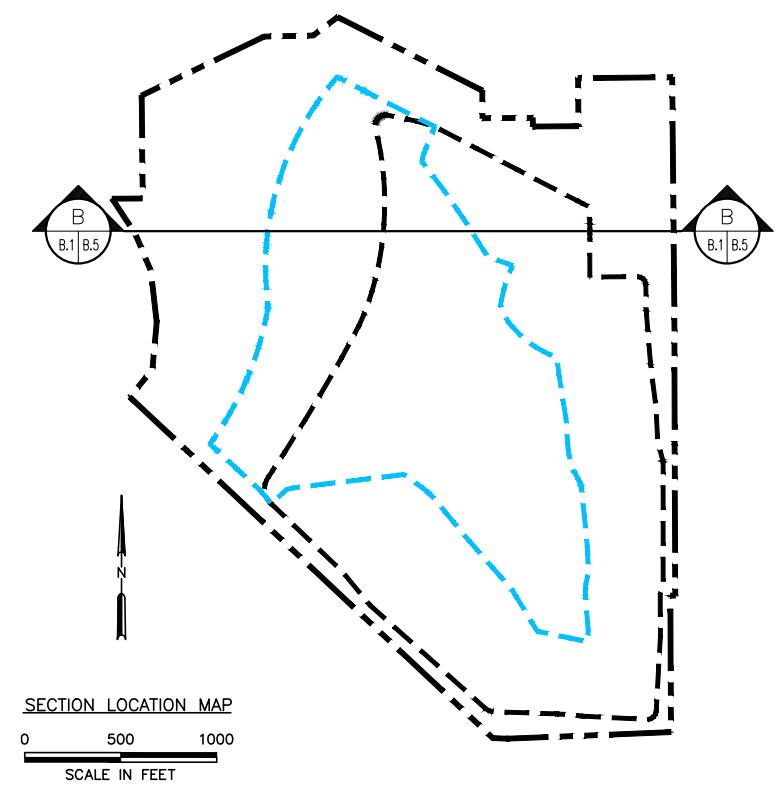
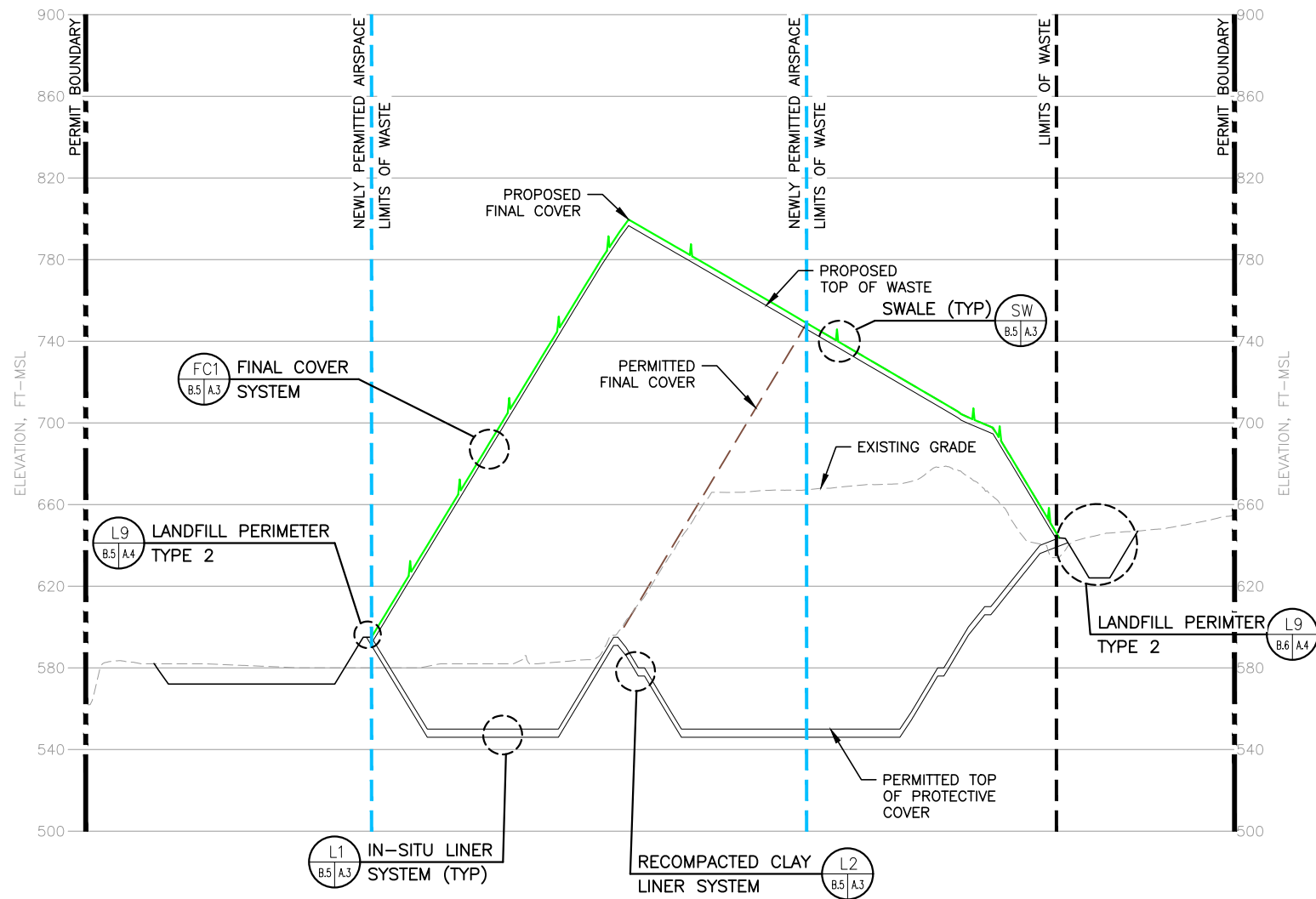


**NOTES:**

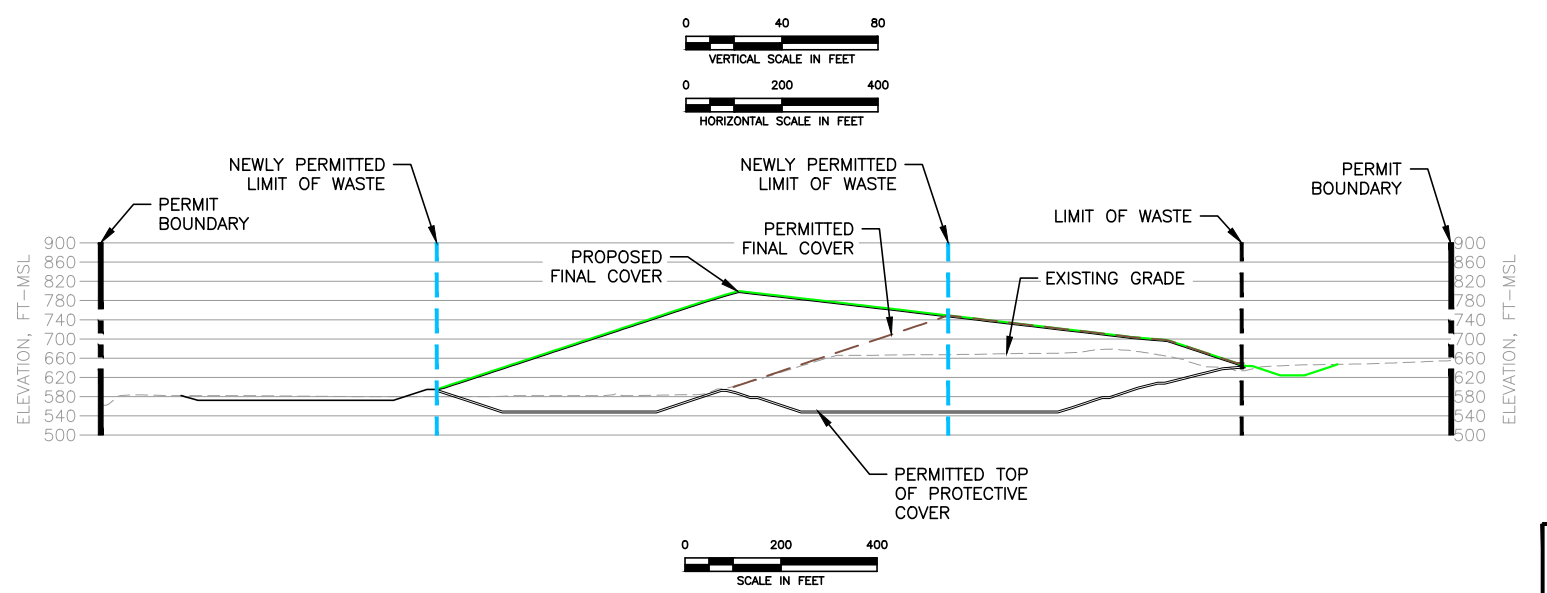
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
- REFER TO APPENDIX IIIA-A FOR LINER AND FINAL COVER SYSTEM DETAILS. DETAIL LOCATIONS REFER TO DRAWING NUMBERS IN APPENDIX IIIA-A THAT INCLUDE THE CALLED OUT DETAIL.
- SEE APPENDIX IIIG FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF THE SECTION. SEE DRAWING B.1 FOR LOCATION.
- AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50- FEET FOR EXISTING WASTE. THE BUFFER ZONE BETWEEN THE PERMIT BOUNDARY AND NEWLY PERMITTED (PERMIT NO. MSW-1983E) WASTE DISPOSAL AIRSPACE IS AT LEAST 125 FEET.
- DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN.
- MINIMUM EXCAVATION ELEVATION IS 550 FT-MSL BASED ON USE OF IN-SITU LINER SYSTEM (OR 446 FT-MSL IF CONSTRUCTED LINER IS USED). MAXIMUM TOP OF FINAL COVER ELEVATION IS 860.5 FT-MSL.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR		<b>MAJOR PERMIT AMENDMENT CROSS-SECTION A</b>  <b>FORT WORTH C&amp;D LANDFILL TARRANT COUNTY, TEXAS</b>												
	<b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>														
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<b>Weaver Consultants Group</b> TBPE REGISTRATION NO. F-3727		WWW.WCGRP.COM	<b>DRAWING B.4</b>												



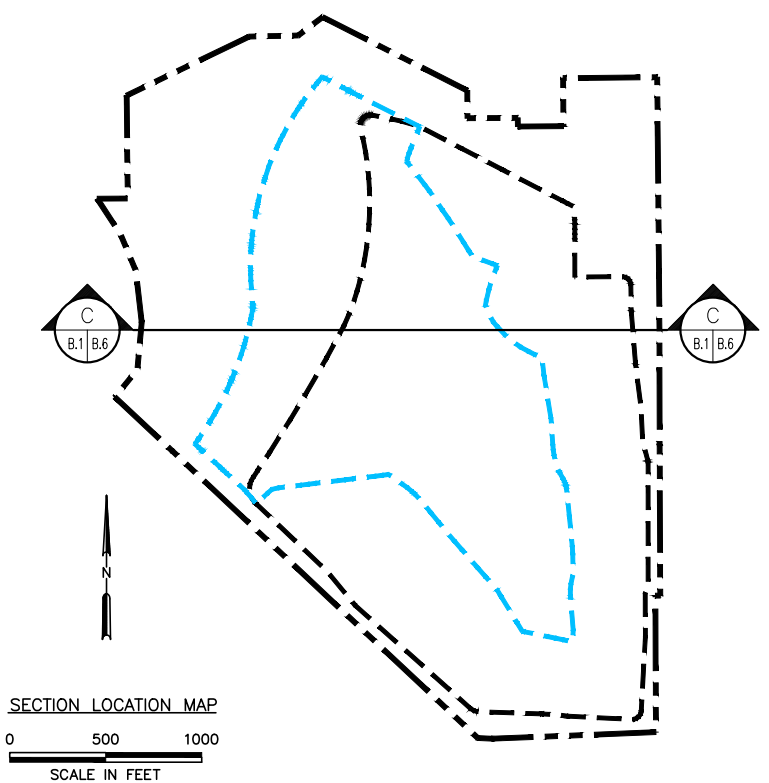
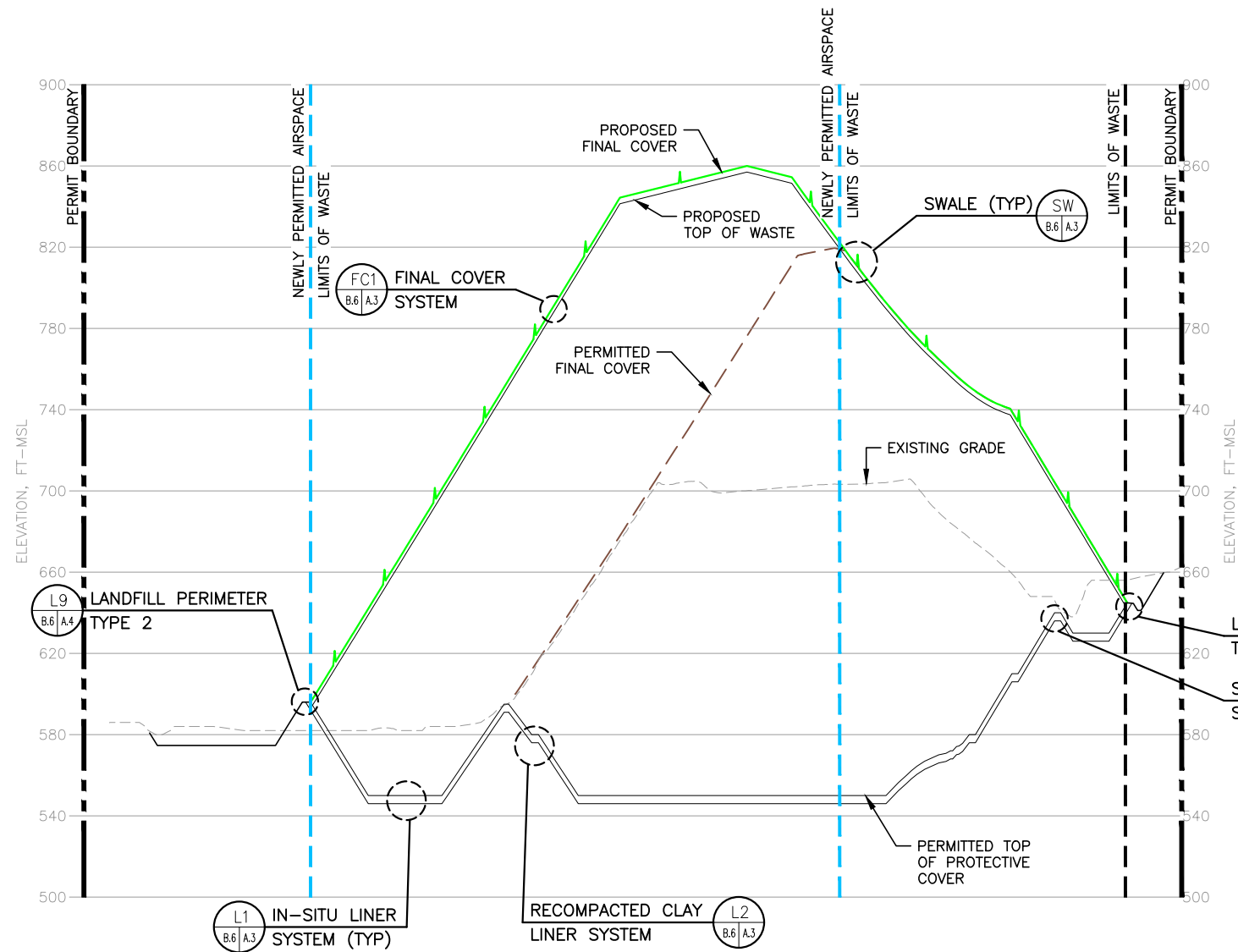
- NOTES:**
- EXISTING CONTOURS AND ELEVATIONS PROVIDED BY FIRMATEK FROM AERIAL PHOTOGRAPHY FLOWN 02-17-2022.
  - REFER TO APPENDIX IIIA-A FOR LINER AND FINAL COVER SYSTEM DETAILS. DETAIL LOCATIONS REFER TO DRAWING NUMBERS IN APPENDIX IIIA-A THAT INCLUDE THE CALLED OUT DETAIL.
  - SEE APPENDIX IIIG FOR BORING DATA. BORINGS PROJECTED INTO THE LINE OF THE SECTION. SEE DRAWING B.1 FOR LOCATION.
  - AS SHOWN IN APPENDIX I/IIC, THE BUFFER ZONES VARY AROUND THE PERIMETER OF THE SITE, BUT IN NO CASE ARE THEY LESS THAN 50- FEET FOR EXISTING WASTE. THE BUFFER ZONE BETWEEN THE PERMIT BOUNDARY AND NEWLY PERMITTED (PERMIT NO. MSW-1983E) WASTE DISPOSAL AIRSPACE IS AT LEAST 125 FEET.
  - DRAINAGE DESIGN INFORMATION IS PROVIDED IN APPENDIX IIIF-SURFACE WATER DRAINAGE PLAN.
  - MINIMUM EXCAVATION ELEVATION IS 550 FT-MSL BASED ON USE OF IN-SITU LINER SYSTEM (OR 446 FT-MSL IF CONSTRUCTED LINER IS USED). MAXIMUM TOP OF FINAL COVER ELEVATION IS 860.5 FT-MSL.



<input type="checkbox"/> DRAFT <input checked="" type="checkbox"/> FOR PERMITTING PURPOSES ONLY <input type="checkbox"/> ISSUED FOR CONSTRUCTION	PREPARED FOR <b>TEXAS REGIONAL LANDFILL COMPANY, LP</b>		<b>MAJOR PERMIT AMENDMENT CROSS-SECTION B</b>											
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NO.	DATE	DESCRIPTION												
WWW.WCGRP.COM		<b>DRAWING B.5</b>												

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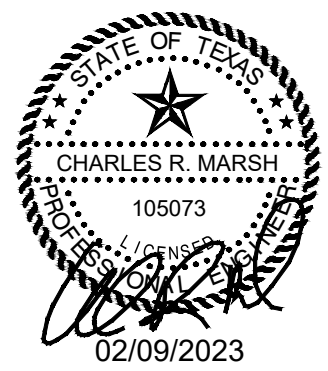
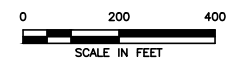
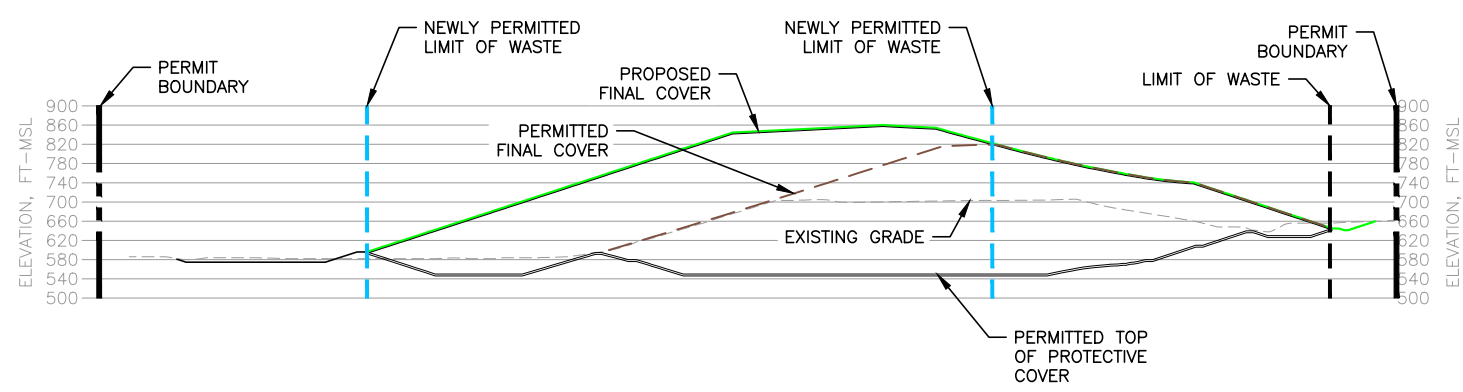
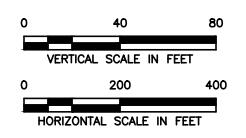




LANDFILL PERIMETER (L9 B.6/A.4)  
 TYPE 2  
 SECTOR 2/3 AND FUTURE  
 SECTOR 5 TIE-IN (L9 B.6/A.4)

SECTION LOCATION MAP  
 0 500 1000  
 SCALE IN FEET

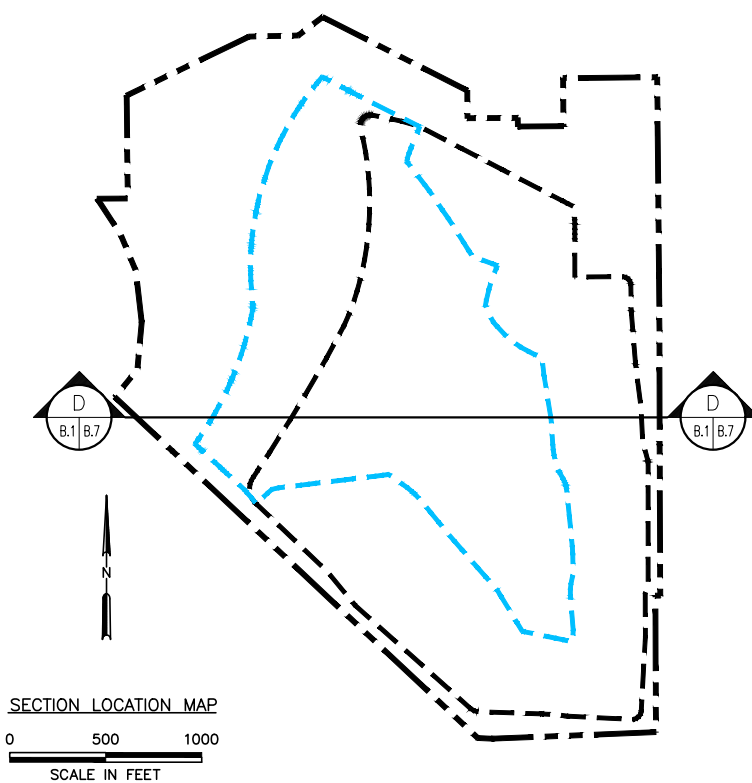
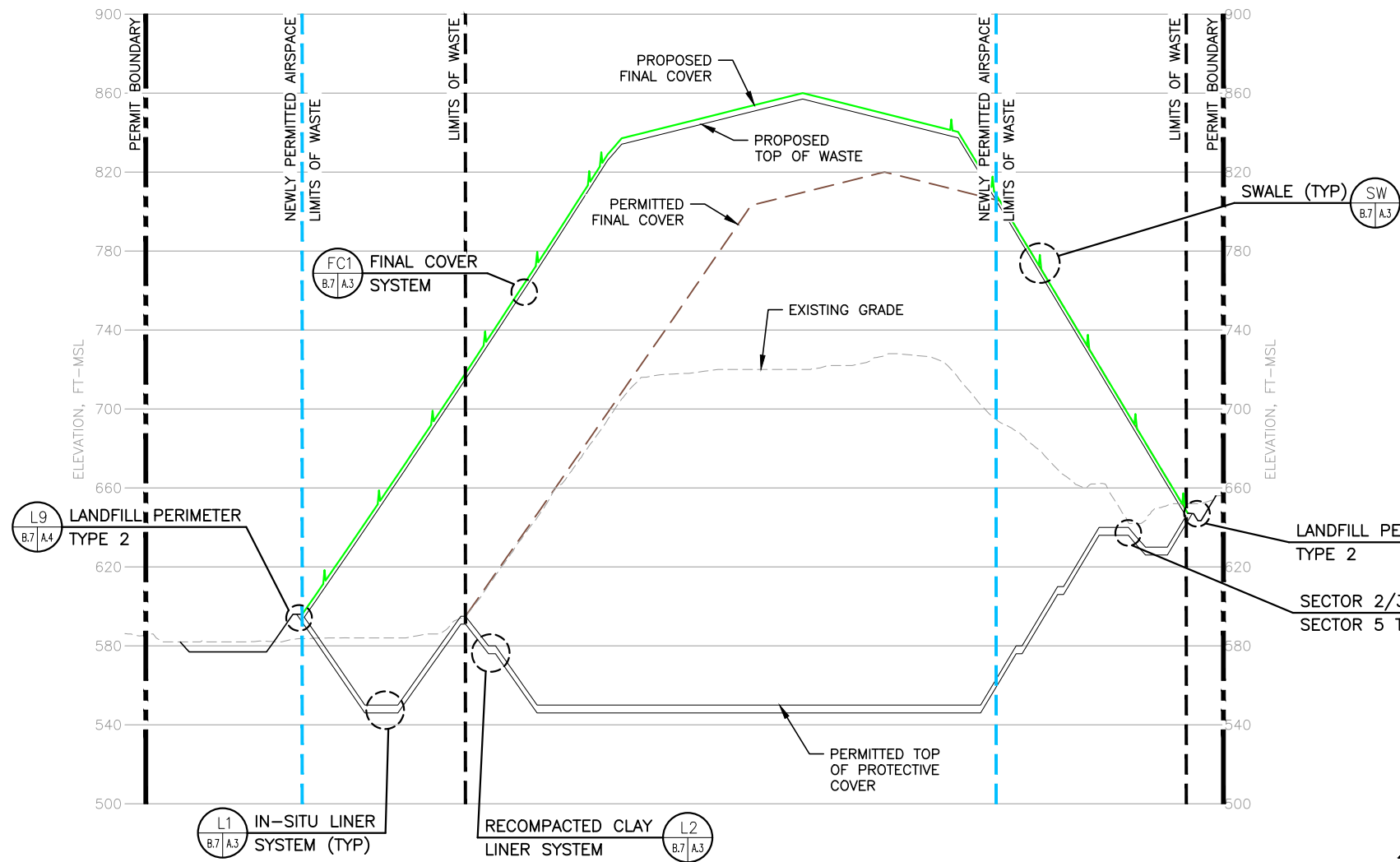
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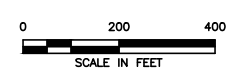
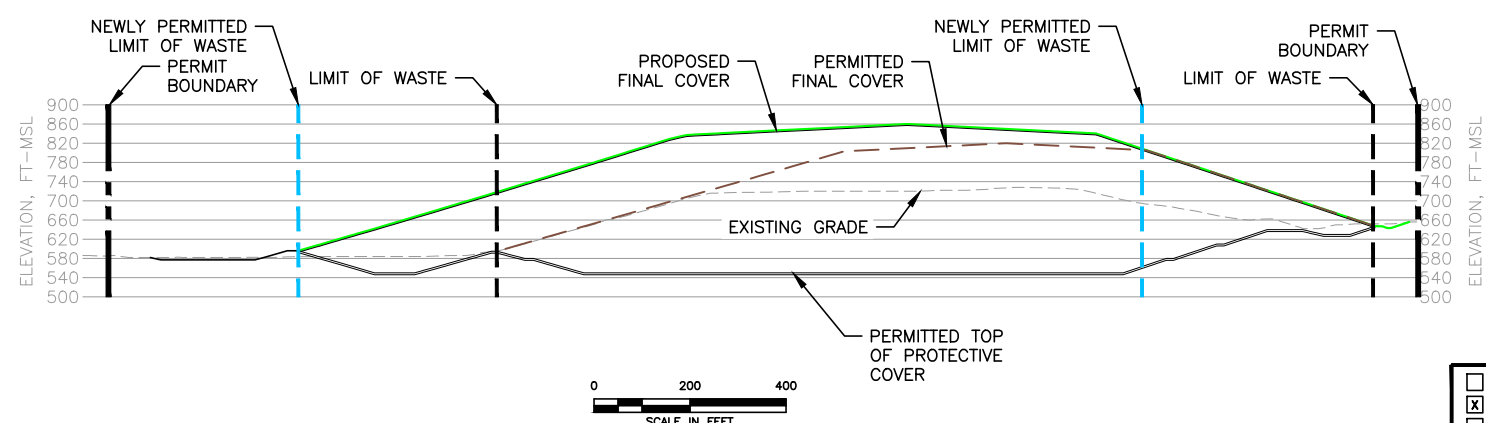
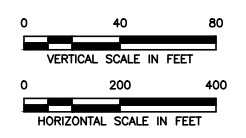
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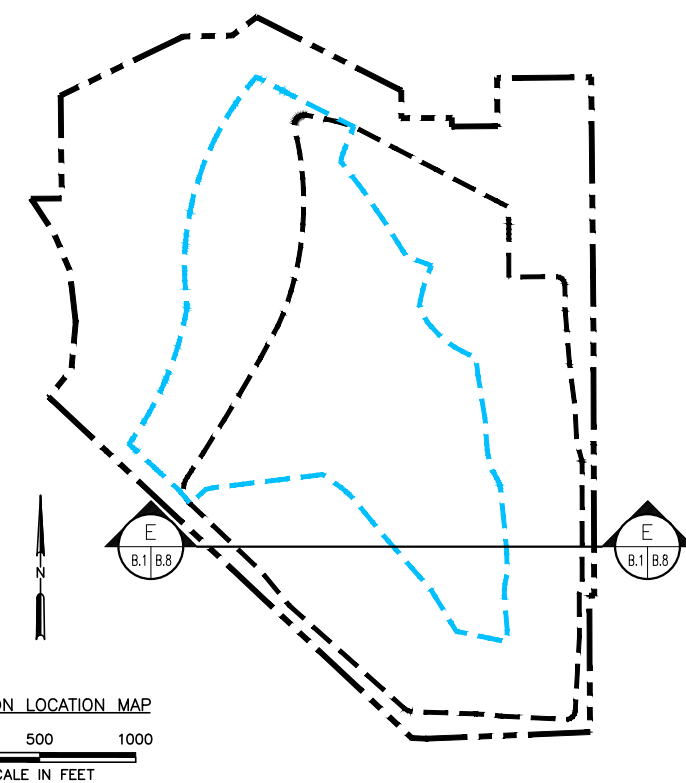
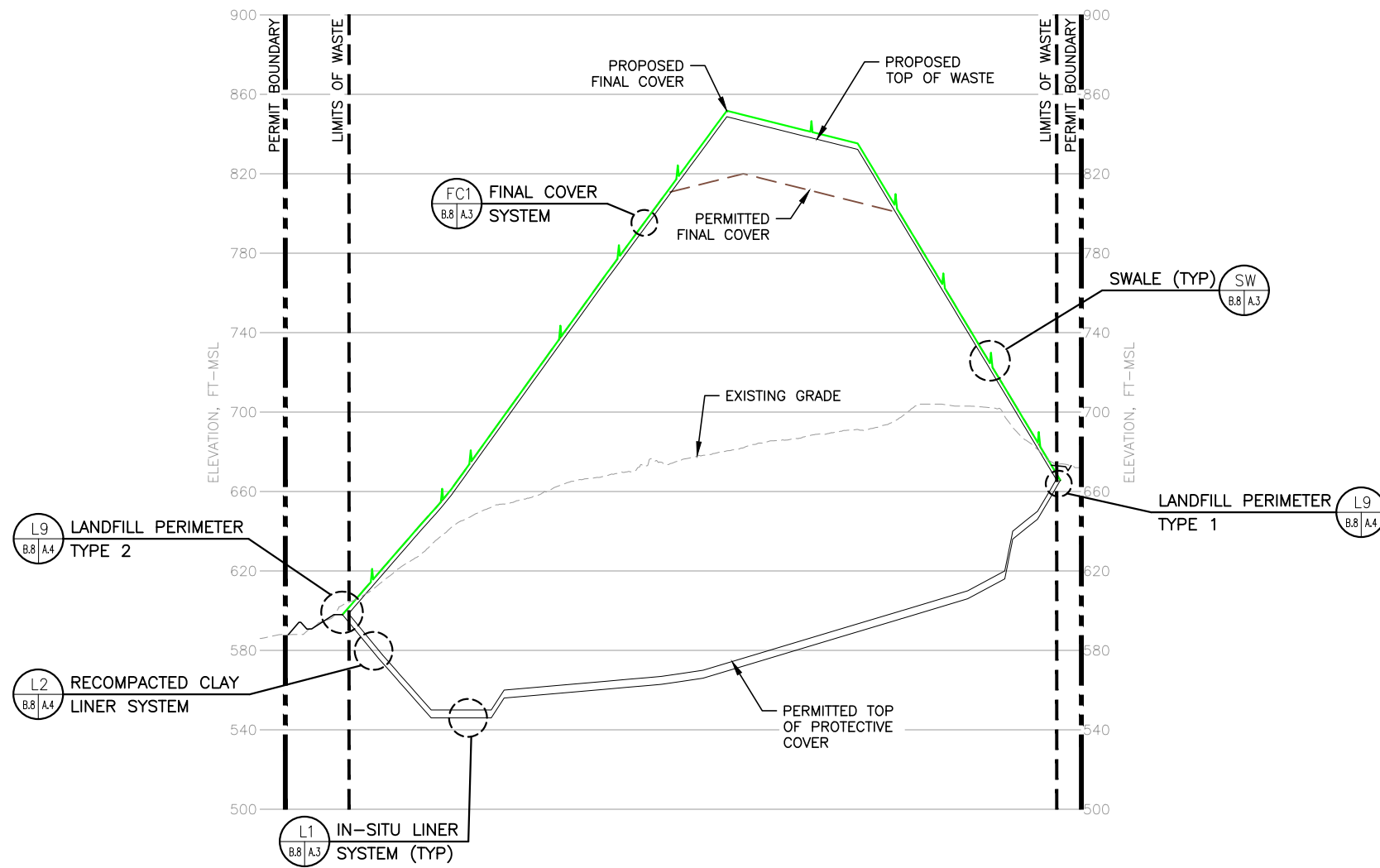
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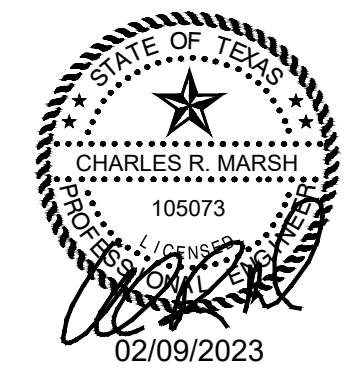
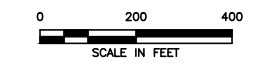
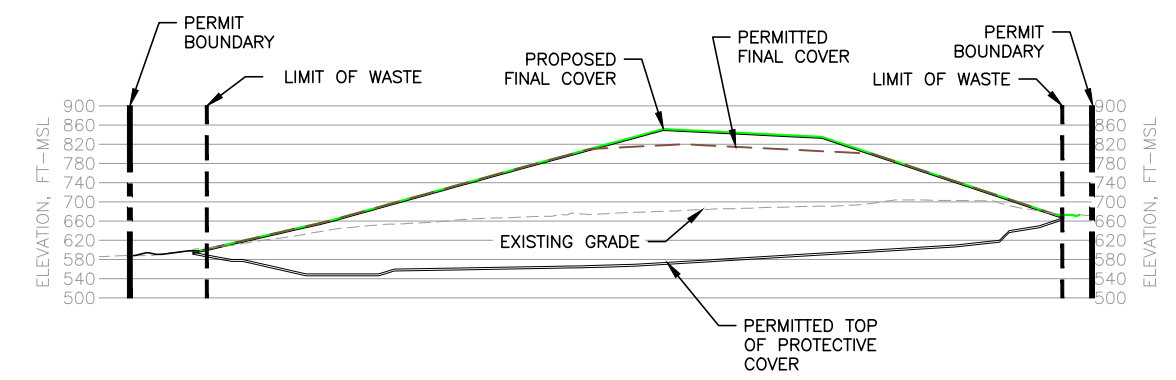
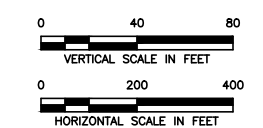
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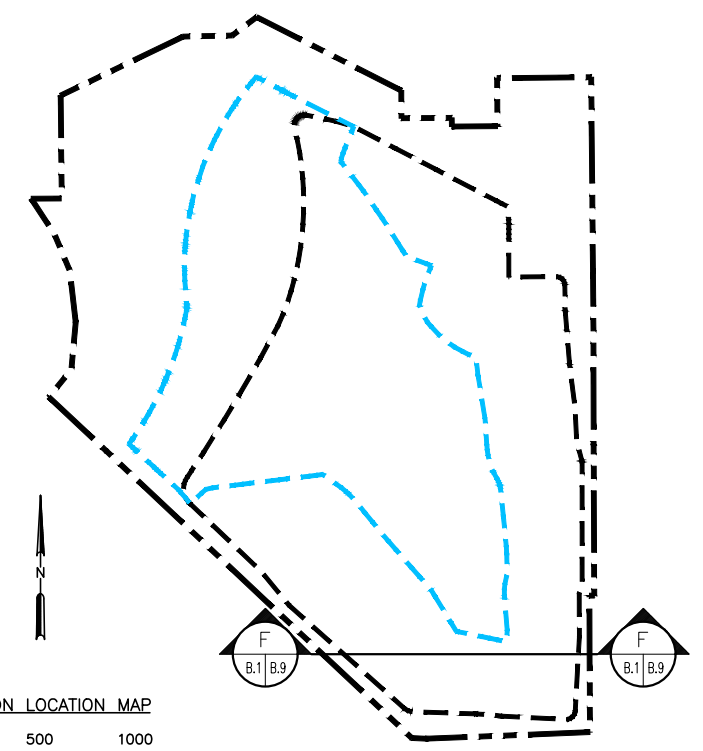
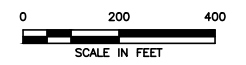
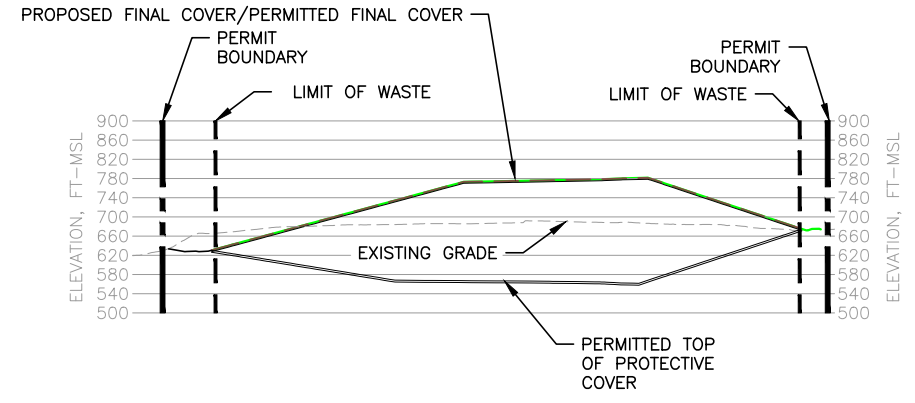
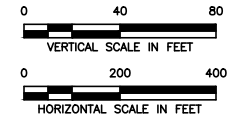
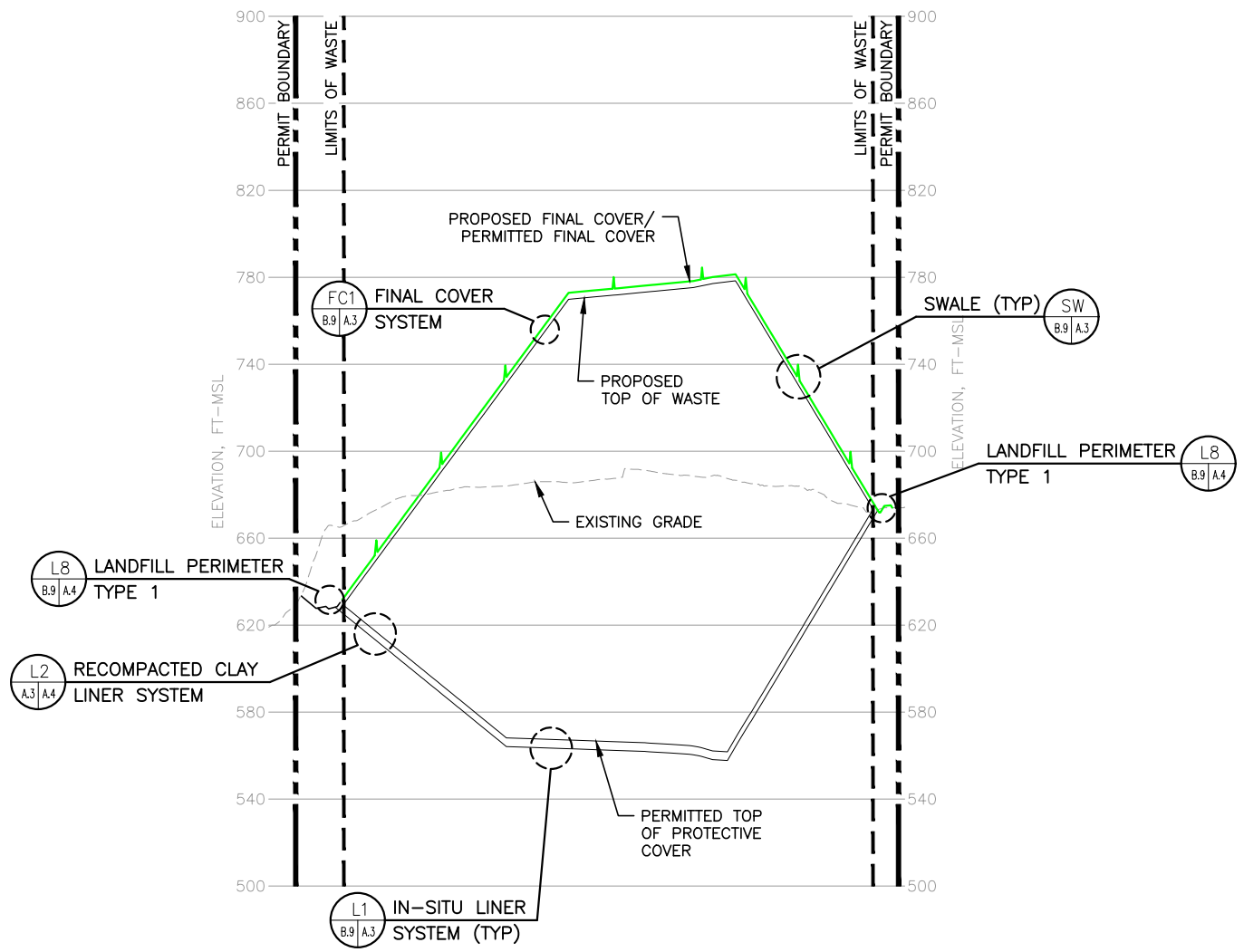
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SECTION LOCATION MAP  
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SCALE IN FEET

**LEGEND**

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**FORT WORTH C&D LANDFILL  
TARRANT COUNTY, TEXAS  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
APPENDIX IIIB  
SITE LIFE CALCULATIONS**

Prepared for

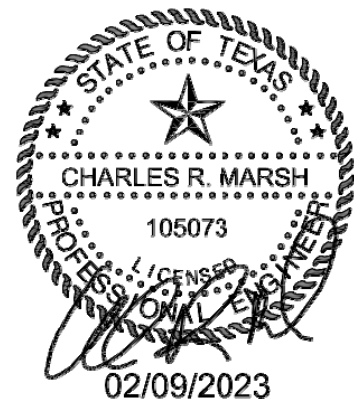
Texas Regional Landfill Company, LP

February 2023

Prepared by:

**Weaver Consultants Group, LLC**  
TPBE Registration No. F-3727  
6420 Southwest Blvd., Suite 206  
Fort Worth, TX 76109  
817-735-9770

WCG Project No. 0771-356-11-35



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1.2	Population Equivalent	IIIB-2
1.3	Landfill Capacity	IIIB-2
1.4	Site Life Calculations	IIIB-2



# 1 SITE LIFE

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## 1.1 Solid Waste Generation

The following estimate has been developed to provide an assessment of the solid waste generation rate for the Fort Worth C&D Landfill. It is important to note that the estimates included in both sections are based on numerous assumptions and may vary as market conditions change.

Over the last few years, the waste inflow rate at Fort Worth C&D Landfill has varied from 633 tons per day to 1,646 tons per day as listed below.

<b>Fiscal Year</b>	<b>Actual Waste Inflow<sup>1</sup></b>	<b>Typical Daily Waste Inflow Rate Based on a 286-Day Operating Schedule</b>
2014	180,942	633
2015	364,344	1,274
2016	366,805	1,283
2017	369,266	1,291
2018	371,726	1,300
2019	374,187	1,308
2020	376,648	1,317
2021	470,756	1,646

<sup>1</sup> Information obtained from the TCEQ MSW Annual Reports filed by the Fort Worth C&D Landfill.

Fort Worth C&D Landfill estimates that the waste inflow will increase to 516,507 tons per year (1,806 tons per day based on a 286-day operating schedule) in 2021. After 2022, the waste inflow rate is assumed to increase consistent with the projected growth rate for the facility's general service area which for this analysis is assumed to be Collin, Dallas, Denton, Johnson, Parker, and Tarrant counties, through 2035.

Using this methodology, the expected maximum annual waste acceptance rate is 667,238 tons per year (2,333 tons per day based on a 286-day operating schedule). The above projections are based on current market conditions and may vary as market conditions change. Over the life of the facility, the expected average daily volume of incoming waste is projected to be approximately 1,955 tons per day (559,130 tons per year based on a 286-day operating schedule).

Site life calculations based on the Fort Worth C&D Landfill projections are shown on pages IIIB-3 and IIIB-4.

## 1.2 Population Equivalent

Using the average waste inflow rate of 559,130 tons per year discussed in Section 1.1 (an average daily volume of 1,955 tons per day based on a 286-day operating schedule) and assuming 5 pounds of waste is generated per capita per day, the population equivalent is:

$$\frac{(559,130 \text{ tons per year}) \times (2,000 \text{ pounds/ton})}{(5 \text{ pounds/person/day}) \times (365 \text{ days/year})} = 612,745 \text{ persons}$$

## 1.3 Landfill Capacity

The estimated total capacity of waste (defined as waste and daily cover) ever on site over the active life of the facility is approximately 31.3 million cubic yards. The total volume available for solid waste and daily cover after February 17, 2022 (date of topographic information) is estimated to be 18.3 million cubic yards. This airspace estimate includes the remaining available volume in the existing permitted area. The current volume of waste (defined as waste and daily cover) in-place as of February 17, 2022, is approximately 13 million cubic yards.

## 1.4 Site Life Calculations

The site life calculations are presented on pages IIIB-3 and IIIB-4. In summary, the site life is projected to be approximately 15.6 years, which would result in the site's closure during the year 2035.



FORT WORTH C&D LANDFILL  
0771-356-11-31  
SITE LIFE CALCULATIONS

**Required:** Determine approximate site life (years) for the site based on Fort Worth C&D Landfill's waste inflow projections. The site will typically operate 286 days per year.

**Solution:** Determine available landfill tonnage and initial annual waste inflow rate:

Remaining airspace (includes existing permitted site and expansion)<sup>1</sup> = 18,287,975 cy (as of February 17, 2022)  
Percent daily cover = 15 %  
In-place density of waste/cover soils<sup>2</sup> = 1,317 lb/cy

<sup>1</sup> Volume calculations were performed using the currently permitted/proposed bottom of waste (developed by WCG) and the proposed top of waste.

<sup>2</sup> The in-place density of waste was developed using data from internal budgeting documents. These budgeting documents compare year-over-year topography with the tonnage placed in the active area to determine density of waste placed.

Estimate the total remaining airspace (tons).

-Estimate density of waste only

$$(\gamma_{\text{soil}})(15\% \text{ of } 18,287,975 \text{ cy}) + (\gamma_{\text{waste}})(85\% \text{ of } 18,287,975 \text{ cy}) = (\gamma_{\text{soil/waste}})(18,287,975 \text{ cy})$$

$$(2,430 \text{ lb/cy})(2,743,196 \text{ cy}) + (\gamma_{\text{waste}})(15,544,779 \text{ cy}) = (1,317 \text{ lb/cy})(18,287,975 \text{ cy})$$

$$\gamma_{\text{waste}} = 1,121 \text{ lb/cy}$$

$$\text{Remaining available airspace} = (85\% \text{ of } 18,287,975 \text{ cy}) * (1,121 \text{ lb/cy} * 1/2000 \text{ tons/lb})$$

$$\text{Remaining available airspace} = 8,709,648 \text{ tons}$$

Total remaining capacity (includes existing permitted site and expansion) = 8,709,648 tons
--

Initial waste stream estimate = 1,646 tons/day  
Days of operation per year = 286 days

Initial waste inflow rate = 470,756 tons/year
---

Assumed growth rates (based on population growth rates):

Growth rate (years 2021-2030)= 15.17%	or annualized growth rate of: 1.52%
Growth rate (years 2031-2040)= 13.03%	or annualized growth rate of: 1.30%
Growth rate (years 2041-2050)= 11.63%	or annualized growth rate of: 1.16%
Growth rate (years 2051-2060)= 10.49%	or annualized growth rate of: 1.05%
Growth rate (years 2061-2070)= 9.54%	or annualized growth rate of: 0.95%

The growth rate estimates were obtained from the Texas Water Development Board (County Population Projections for 2020-2070 from the 2021 Regional Water Plan). The initial waste stream estimate is based on site projections.

FORT WORTH C&D LANDFILL  
0771-356-11-31  
SITE LIFE CALCULATIONS

The following table calculates the waste stream growth (assuming the growth rates described above) and the projected cumulative airspace consumed.

Year	Waste Inflow (tons/year)	Tonnage Consumed (tons)
2021	470,756	460,438
2022	516,507	976,945
2023	562,952	1,539,897
2024	571,492	2,111,389
2025	580,161	2,691,551
2026	588,962	3,280,512
2027	597,896	3,878,409
2028	606,966	4,485,374
2029	616,173	5,101,548
2030	625,520	5,727,068
2031	633,670	6,360,738
2032	641,925	7,002,663
2033	650,288	7,652,951
2034	658,760	8,311,711
2035	397,938	8,709,648

17-Feb

357 days

218 days

Available tonnage is consumed during year	2035
Site life is projected to be approximately	15.6 years

Initial inflow =	1,646	tons/day
------------------	-------	----------

Summary of waste tonnage information:

$$\text{Maximum inflow} = \frac{\text{Tonnage accepted during final year of operation (667,342 tons/year)}^1}{286 \text{ days of operation per year}}$$

<sup>1</sup> 696,692 tons/year represents the calculated total waste inflow rate for the final year of 2035, the year in which the maximum waste inflow occurs.

Projected maximum waste inflow rate:

Maximum inflow =	2,333	tons/day
------------------	-------	----------

$$\text{Average inflow} = \frac{\text{Maximum waste accepted}}{\text{Site life}}$$

Projected average waste inflow rate:

$$\frac{8,709,648 \text{ tons}}{15.6 \text{ years} * 286 \text{ days/year}}$$

Average inflow =	1,955	tons/day
------------------	-------	----------

The above listed site life calculations are based on current market conditions and may vary based on waste stream, soil cover, actual tonnage received, or changing market conditions.

**FORT WORTH C&D LANDFILL  
TARRANT COUNTY  
TCEQ PERMIT NO. MSW-1983E**

**MAJOR PERMIT AMENDMENT APPLICATION**

**PART III – SITE DEVELOPMENT PLAN  
APPENDIX IIIC  
CONTAMINATED WATER MANAGEMENT PLAN**

Prepared for

Texas Regional Landfill Company, LP

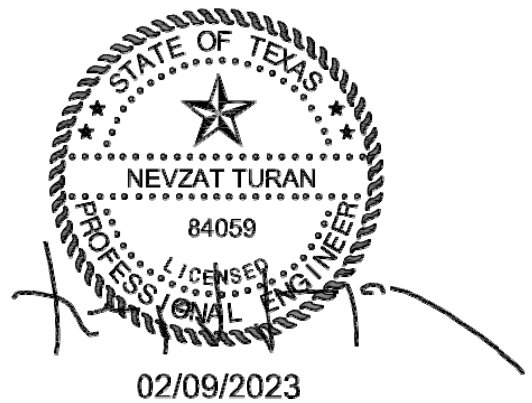
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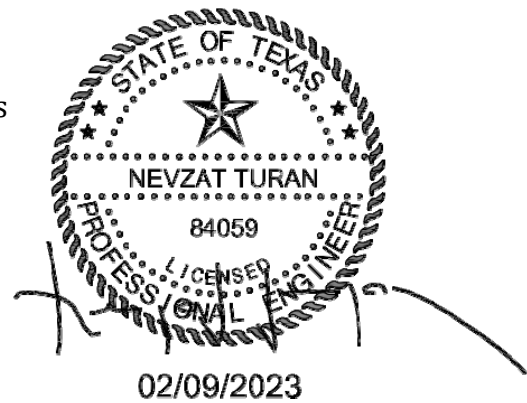
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<b>1</b>	<b>INTRODUCTION</b>	<b>IIIC-1</b>
<b>2</b>	<b>WORKING FACE WATER MANAGEMENT</b>	<b>IIIC-2</b>
2.1	Uncontaminated Water	IIIC-2
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3.2	Contaminated Water Disposal	IIIC-4

### APPENDIX IIIC-A

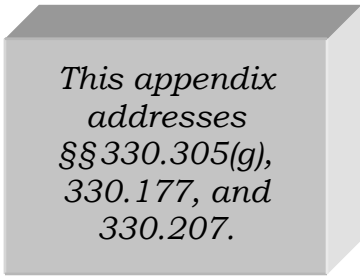
Containment Berm and Diversion Berm Calculations



# 1 INTRODUCTION

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This Contaminated Water Management Plan for the Fort Worth C&D Landfill was prepared consistent with Title 30 Texas Administrative Code (TAC) §§330.305(g), 330.177, and 330.207. This plan provides the details of the collection, storage, treatment and disposal of contaminated water, generated at the facility. The design details for the liner and final cover systems are included in Part III, Appendix IIIA-A – Liner and Final Cover System Details. The excavation plan and final contour plan are also included in Part III, Appendix IIIA-A.



*This appendix addresses §§330.305(g), 330.177, and 330.207.*

The facility is operated as a Type IV landfill and consistent with 30 TAC Chapter 330, Subchapter H, will not have a leachate collection system. Also, the facility manages landfill gas as described in the Landfill Gas Management Plan (Part III, Appendix III-I).

Contaminated water is defined by 30 TAC §330.3(36) as leachate, gas condensate, or water that has come into contact with waste. Examples of contaminated water are storm-water runoff that has come in contact with waste at the working face, or storm-water runoff on weekly cover soil that is not intact and has exposed waste. As stated by 30 TAC §330.165(b), storm-water runoff from areas that have intact weekly cover is not considered as having come into contact with the working face or leachate (i.e., not contaminated water).

The management of both uncontaminated (i.e., clean) surface water and contaminated water (i.e., water that has come into contact with waste) is described in the remainder of this plan.

## 2 WORKING FACE WATER MANAGEMENT

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### 2.1 Uncontaminated Water

Throughout the active life of the facility, best management practices will be used to manage surface water and minimize contaminated water generation at the facility. The facility will be graded with temporary and permanent drainage features to provide run-on/off controls for storm-water. Weekly, intermediate, and final cover will be graded and maintained to promote runoff, minimize the area of exposed waste, and prevent ponding of surface water. Should ponding of surface water occur in areas having intact weekly cover, intermediate cover, or final cover, the water shall be considered clean and discharged into the facility's surface water management system.

At the working face, a system of temporary diversion berms will be constructed around the active face as needed to minimize the possibility of clean storm-water run-on from becoming contaminated water. These temporary diversion berms will be constructed, as needed, with clean earthen material and will route clean storm-water into the surface water management system and away from the active face. Appendix IIIC-A provides the required size of the berms (which varies depending on their slope configuration and the contributing up-gradient drainage area) and illustrates the diversion berms.

### 2.2 Contaminated Water

A system of temporary containment berms will be constructed around the down-gradient portions of the active face to collect and contain surface water that has come into contact with waste. Also, similar containment berms will be constructed elsewhere at the facility wherever they are needed to collect and contain contaminated water. Appendix IIIC-A provides the required size of the berms (which varies depending on the size of the working face and the containment area) and illustrates the containment berms.

Contaminated water that collects at the active working face is allowed to remain within the active face for evaporation or to be absorbed into the waste; however, contaminated water shall not be allowed to remain ponded and become stagnant, nor shall contaminated water be allowed to cause nuisance conditions, including

odors or the attraction of vectors. Contaminated water causing such problems shall be removed and disposed of at an authorized facility, as discussed in Section 3 of this plan. Contaminated water is also allowed to be applied to on-site haul roads located over existing lined areas for dust control (but only if the quantity is minimized to the extent that it does not run off when applied). If contaminated water generation occurs in areas adjacent to the active face or in other facility operations areas (e.g., storage/processing areas), contaminated water management measures will be implemented in a similar manner as those for the active face.

## **3 CONTAMINATED WATER DISCHARGE AND DISPOSAL**

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### **3.1 Contaminated Water Discharge**

No discharge of contaminated water off-site or into waters of the United States shall occur without obtaining specific written authorization from the TCEQ prior to the discharge. The landfill will be operated consistent with 30 TAC §330.15(h) regarding discharge of solid wastes or pollutants into waters of the United States.

### **3.2 Contaminated Water Disposal**

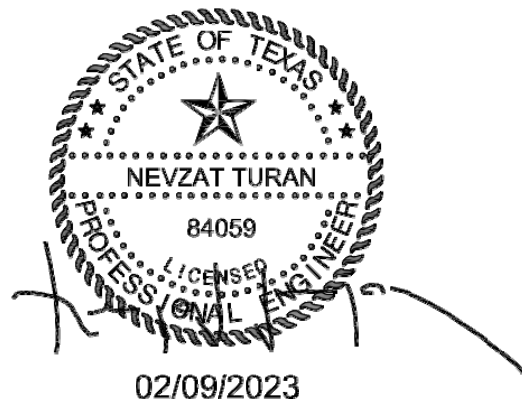
If necessary to address potential nuisance conditions, attraction of vectors, or interference with facility operations, contaminated water will be collected and transported off-site to a Publicly Owned Treatment Works (POTW), or similar facility, for treatment and disposal. Transportation will be by tanker truck. Sampling and analysis of the contaminated water will be performed as required by the POTW. The results of any monitoring required by the POTW, a copy of the disposal agreement, and documentation of disposal will be placed in the Site Operating Record.



**APPENDIX IIIC-A**

**CONTAINMENT BERM AND  
DIVERSION BERM CALCULATIONS**

Includes pages IIIC-A-1 through IIIC-A-8



- REQUIRED:**
1. Determine the height of the contaminated water berm required at the working face.
  2. Determine the height of the diversion berm required for run-on control of the working face.

**PROCEDURE:**     **Containment Berm Calculations**

1. Determine the 25-year, 24-hour rainfall.
2. Calculate the volume of water captured behind the containment berm for 25-year, 24-hour rainfall event.
3. Calculate the height of the containment berm required to hold the volume of water calculated in step 2.

**Diversion Berm Calculations**

1. Determine the 25-year frequency runoff flow rates for the diversion berm run-on drainage areas by the Rational Method.
2. Calculate the capacity of the diversion berm swales at various slopes.
3. Calculate the height of the diversion berm required for the flow rate of run-on surface water.

- REFERENCES:**
1. NOAA Atlas 14 - Precipitation-Frequency Atlas of the United States, Volume 11, Version 2.0: Texas (U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and National Weather Service, 2018)
  2. Texas Department of Highways and Public Transportation, Bridge Division Hydraulic Manual, 3rd Ed, December 1985.
  3. Dodson and Associates, Inc., *ProHec-1 Program Documentation*, 1993.

**SOLUTION:**      **Containment Berm Calculations**

1. Based on Reference 1, the 25-year, 24-hour rainfall depth for Tarrant County is:

$$R \approx 7.17 \text{ in}$$

2. Determine the volume of storage required,  $V_R$ .

$$V_R = CAR$$

Where:                      C = Runoff coefficient                      = 0.5  
                                  A = Drainage area                                      = varies      ac  
                                  R = 25-year, 24-hour rainfall depth = 7.17      in

The storage volume required for varying drainage areas are shown on the attached table.

3. Determine the height of the containment berm for a non-sloping water storage area.

$$H = \frac{V_R}{A_{stor}} \qquad \text{Where: } A_{stor} = \text{Storage area (sf)}$$

Values for height of the containment berm (H) are listed on Sheet IIIC-A-8 for several storage areas.

4. Determine the height of the berm for a sloping water storage area.

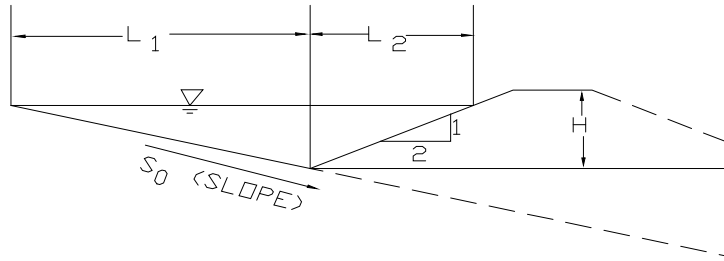
The volume contained by the berm is equal to the cross-sectional storage area multiplied by the width of the berm. The computed volume must be greater than the volume found in step 2.

$$V_C = A_s W$$

Where:                       $A_s$  = Cross-sectional storage area (sf)  
                                  W = Width (ft)

The minimum width of the downstream berm is 100 feet.

Figure 1. Cross Section of Berm and Storage Area



$$A_s = \frac{(L_1 + L_2)H}{2}$$

Where:

$$L_1 = \frac{H}{S_o} \text{ (ft)}$$

$$L_2 = 2H \text{ (ft)}$$

$S_o$  = Slope of active cell (ft/ft)

Example calculations:

1. Non-sloping water storage area:

Variables:	$S_o = 0.00$ %	$R = 7.17$ in
	$A_{stor} = 0.25$ ac	$C = 0.5$ ft
	$A = 0.50$ ac	$W = 100$ ft
Volume:	$V_R = 6,507$ cf	
Height:	$H = 0.60$ ft	

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2. Sloping water storage area:

Variables:  $S_o = 1.00$  %  $R = 7.17$  in  
 $A_{stor} = 0.25$  ac  $C = 0.5$   
 $A = 0.50$  ac  $W = 100$  ft

Height: An iterative process is used to determine the height of the berm required to meet the storage volume requirement for a non-sloping storage area.

$$H = 1.15 \text{ ft}$$

Check to ensure that the above berm height is adequate:

$L_1 = 115.0$  ft  
 $L_2 = 2.3$  ft  
 $A_s = 67.4$  sf  
 $V_C = 6,745$  cf

$V_C$  is larger than  $V_R$ ; berm has adequate height. See Sheet IIIC-A-5 and page IIIC-A-8 for summary.

3. Sloping water storage area:

Variables:  $S_o = 2.00$  %  $R = 7.17$  in  
 $A_{stor} = 0.25$  ac  $C = 0.5$   
 $A = 0.50$  ac  $W = 100$  ft

Height: An iterative process is used to determine the height of the berm required to meet the storage volume requirement for a non-sloping storage area.

$$H = 1.60 \text{ ft}$$

Check to ensure that the above berm height is adequate:

$L_1 = 80.0$  ft  
 $L_2 = 3.2$  ft  
 $A_s = 66.56$  sf  
 $V_C = 6,656$  cf

$V_C$  is larger than  $V_R$ ; berm has adequate height. See Sheet IIIC-A-5 and page IIIC-A-8 for summary.

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CALCULATIONS SUMMARY

Drainage Area (ac)	Storage Area (ac)	Volume Required (cf)	Slope (%)	Berm Height (ft)	Required Berm Height (ft)	Gross Sectional Area (sf)	Width (ft)	Water Surface Area (ac)	Volume Provided (cf)	L <sub>1</sub> <sup>1</sup>		L <sub>2</sub> <sup>1</sup>	
										(ft)	(ft)	(ft)	(ft)
0.5	0.25	6,507	0	0.60	1.60	67.45	100	0.269	6,745	115.0		2.3	
1.0	0.50	13,014	0	0.60	1.60	130.56	100	0.375	13,056	160.0		3.2	
2.0	1.00	26,027	0	0.60	1.60	262.80	100	0.532	26,280	227.0		4.5	
4.0	2.00	52,054	0	0.60	1.60	522.24	100	0.749	52,224	320.0		6.4	
			1	2.27	3.27	261.27	100	0.378	26,127	158.5		6.3	
			2	3.17	4.17								
			2	2.24	3.24								
			2	4.50	5.50								
			2	4.50	5.50								
			2	4.50	5.50								

<sup>1</sup> L<sub>1</sub> and L<sub>2</sub> are shown on Sheet IIIC-A-3.

**Diversion Berm Calculations**

- As shown on Sheet IIIC-A-8, several swales were analyzed to determine the adequacy of the swale configuration.
- Hydraulic calculations are summarized on page IIIC-A-8.

The swales were analyzed by the Rational Method.

From Reference 2 for Tarrant County:

$$Q = C I A$$

C = 0.5 (intermediate cover)  
 I = 7.72 intensity, in/hr (see calculation below)  
 A = varies drainage area, ac

$$I = \frac{b}{(t_c + d)^e}$$

b = 79.1811  
 d = 10.4421 (Ref. 2)  
 e = 0.7715  
 t<sub>c</sub> is assumed to be 10 min. for all cases

I = 7.72 in/hr

Diversion Berm Flow Rate Summary

Area(ac)	Flow Rate (cfs)
0.5	1.9
1	3.9
1.5	5.8
2	7.7
2.5	9.6
3	11.6

For 33H:1V Diversion Berm Area Slope

Drainage Area	Flow Rate (cfs)	Bottom Slope(ft./ft)	Manning's n	Side Slope (left)	Side Slope (right)	Bottom Width(ft)	Normal Depth(ft)	Flow Vel. (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sf)	Flow Top Width(ft)
0.5	1.9	0.01	0.03	2	33.0	0	0.28	1.35	0.632	0.03	0.31	1.41	9.92
1	3.9	0.01	0.03	2	33.0	0	0.37	1.61	0.660	0.04	0.41	2.42	13.00
1.5	5.8	0.01	0.03	2	33.0	0	0.43	1.78	0.676	0.05	0.48	3.26	15.10
2	7.7	0.01	0.03	2	33.0	0	0.48	1.91	0.688	0.06	0.54	4.03	16.79
2.5	9.6	0.01	0.03	2	33.0	0	0.52	2.02	0.697	0.06	0.58	4.75	18.24
3	11.6	0.01	0.03	2	33.0	0	0.56	2.12	0.705	0.07	0.63	5.48	19.59

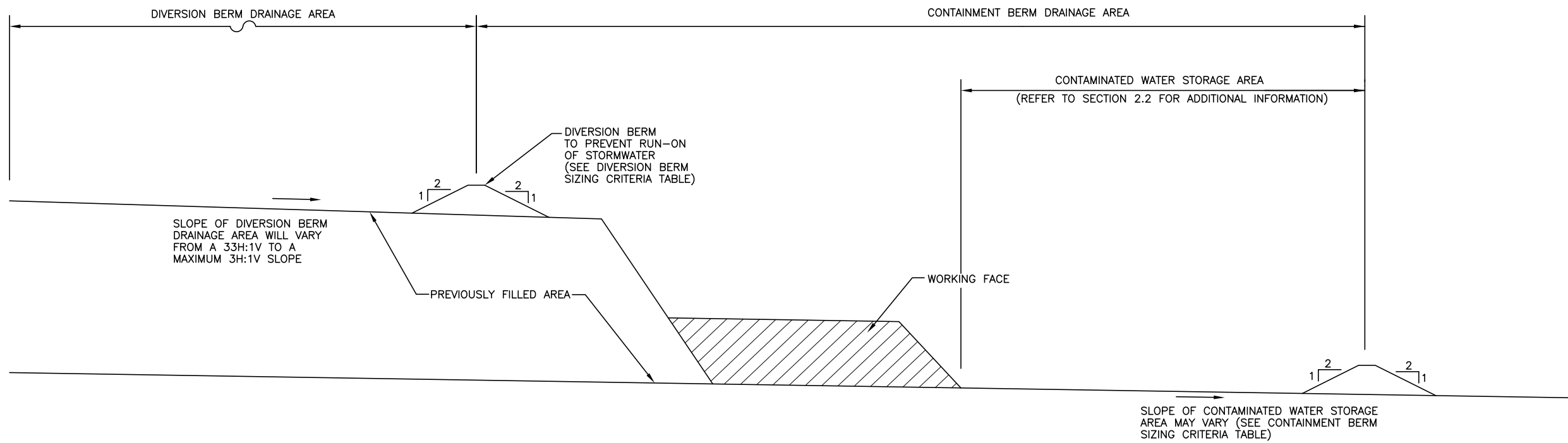
Note: Calculations were performed using the HYDROCALC Hydraulics for Windows developed by Dodson and Associates (Version 1.2a, 1996).

For 3H:1V Diversion Berm Area Slope

Drainage Area	Flow Rate (cfs)	Bottom Slope(ft./ft)	Manning's n	Side Slope (left)	Side Slope (right)	Bottom Width(ft)	Normal Depth(ft)	Flow Vel. (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sf)	Flow Top Width(ft)
0.5	1.9	0.01	0.03	2	3	0	0.60	2.11	0.681	0.07	0.67	0.90	3.00
1	3.9	0.01	0.03	2	3	0	0.79	2.53	0.711	0.10	0.88	1.54	3.93
1.5	5.8	0.01	0.03	2	3	0	0.91	2.78	0.727	0.12	1.03	2.08	4.56
2	7.7	0.01	0.03	2	3	0	1.01	3.00	0.743	0.14	1.15	2.57	5.07
2.5	9.6	0.01	0.03	2	3	0	1.10	3.17	0.752	0.16	1.26	3.03	5.51
3	11.6	0.01	0.03	2	3	0	1.18	3.31	0.759	0.17	1.35	3.50	5.92

Note: Calculations were performed using the HYDROCALC Hydraulics for Windows developed by Dodson and Associates (Version 1.2a, 1996).



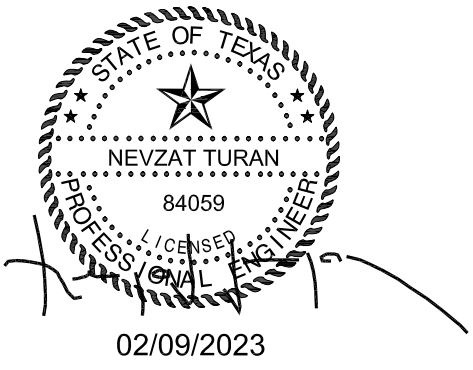


DIVERSION BERM SIZING CRITERIA *						
DIVERSION BERM DRAINAGE AREA (ACRES)	MINIMUM 3%			MAXIMUM 33%		
	FLOW RATE (CFS)	FLOW DEPTH (FT)	REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT)	FLOW RATE (CFS)	FLOW DEPTH (FT)	REQUIRED MINIMUM DIVERSION BERM HEIGHT (FT)
0.5	1.9	0.28	1.28	1.9	0.60	1.69
1	3.9	0.37	1.37	3.9	0.79	1.79
1.5	5.8	0.43	1.43	5.8	0.91	1.91
2	7.7	0.48	1.48	7.7	1.01	1.01
2.5	9.6	0.52	1.52	9.6	1.10	1.10
3	11.6	0.56	1.56	11.6	1.18	1.18

\* DIVERSION BERM WILL BE SIZED USING THE ABOVE TABLE AS A GUIDELINE TO CONTAIN STORMWATER FROM THE 25-YEAR, 24-HOUR STORM EVENT. SUPPORTING CALCULATIONS ARE INCLUDED ON PAGES IIIC-A-6 AND IIIC-A-7.

CONTAINMENT BERM SIZING CRITERIA *				
CONTAINMENT BERM DRAINAGE AREA (ACRES)	CONTAMINATED WATER STORAGE AREA (ACRES)	FLOOR SLOPE OF CONTAMINATED WATER STORAGE AREA	CALCULATED MINIMUM HEIGHT OF CONTAINMENT BERM (FT)	REQUIRED MINIMUM HEIGHT OF CONTAINMENT BERM (FT)
0.5	0.25	0 %	0.60	1.60
		1 %	1.15	2.15
		2 %	1.60	2.60
1.0	0.50	0 %	0.60	1.60
		1 %	1.60	2.60
		2 %	2.24	3.24
2.0	1.00	0 %	0.60	1.60
		1 %	2.27	3.27
		2 %	3.17	4.17
4.0	2.00	0 %	0.60	1.60
		1 %	3.20	4.20
		2 %	4.50	5.50

\* CONTAINMENT BERM WILL BE SIZED USING THE ABOVE TABLE AS A GUIDELINE TO CONTAIN STORMWATER FROM THE 25-YEAR, 24-HOUR STORM EVENT. SUPPORTING CALCULATIONS ARE INCLUDED ON PAGES IIIC-A-2 THROUGH IIIC-A-5. NOTE THAT THE CRITERIA SET FORTH IN THE ABOVE TABLE IS BASED ON A MINIMUM DOWNSLOPE CONTAINMENT BERM LENGTH OF 100 FEET.



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	DATE: 12/2022 FILE: 0771-356-11 CAD: C-8-LEACHATE STORAGE TANK.DWG		DRAWN BY: JDW DESIGN BY: BY REVIEWED BY: CRM								
Weaver Consultants Group TBPE REGISTRATION NO. F-3727		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION				FORT WORTH C&D LANDFILL TARRANT COUNTY, TEXAS	
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