

**Permit Amendment TCEQ Permit No. MSW- 1693B  
City of Laredo Landfill**

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Permit Amendment**

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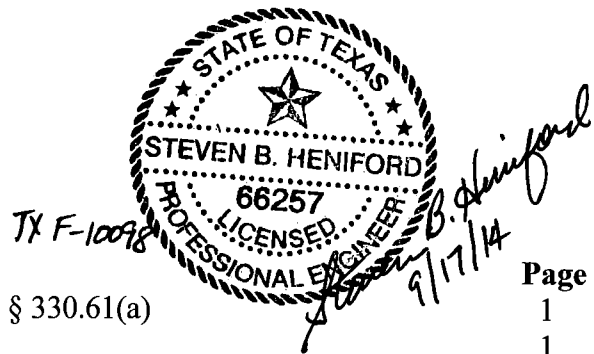
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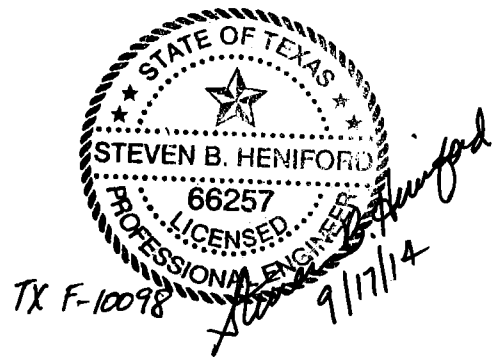


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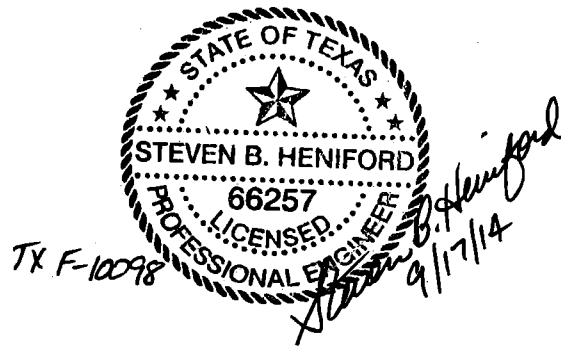


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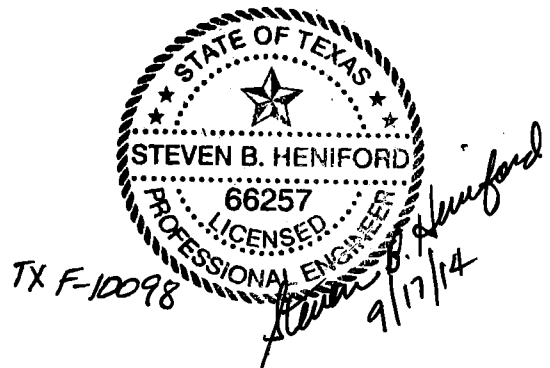
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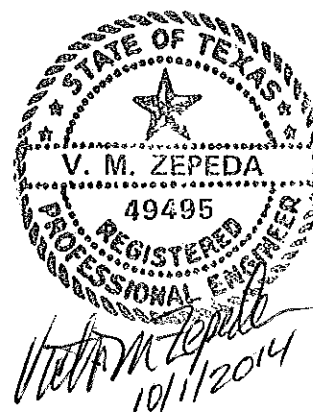
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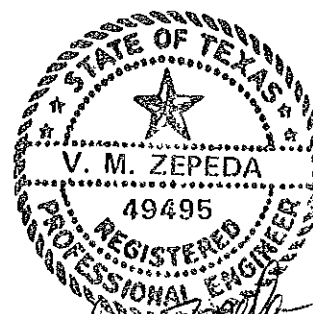
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*V. M. Zepeda*  
10/11/2014  
TBPE FIRM N° F10098

Facility Name: City of Laredo Landfill  
Permittee/Registrant Name: City of Laredo  
MSW Authorization #:1693B  
Initial Submittal Date: 9/29/2014  
Revision Date:



## Texas Commission on Environmental Quality

### Part I Form

New Permit/Registration and Amendment Applications for an MSW Facility

#### 1. Reason for Submittal

- ☒ Initial Submittal ☐ Notice of Deficiency (NOD) Response

#### 2. Authorization Type

- ☒ Permit ☐ Registration

#### 3. Application Type

- ☐ New ☒ Major Amendment  
☐ Major Amendment (Limited Scope)

#### 4. Application Fees

- ☒ Pay by Check ☐ Online Payment

If paid online, e-Pay Confirmation Number:

#### 5. Application URL

Is the application submitted for Type I Arid Exempt (AE) and/or Type IV AE facility?

- ☐ Yes ☒ No

If the answer is "No", provide the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted.

[http://http://www.laredosolidwaste.com/files/Permit\\_Amendment.pdf](http://http://www.laredosolidwaste.com/files/Permit_Amendment.pdf)

#### 6. Application Publishing

Party Responsible for Publishing Notice:

- ☒ Applicant ☐ Agent in Service ☐ Consultant

### 7. Alternative Language Notice

Is an alternative language notice required for this application? (For determination refer to Alternative Language Checklist on the Public Notice Verification Form TCEQ-20244-Waste)

☒ Yes ☐ No

### 8. Public Place Location of Application

Name of the Public Place: **City of Laredo Landfill**

Physical Address: **6912 Hwy 359**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area code) Telephone Number: **956.795.2510**

### 9. Consolidated Permit Processing

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

☐ Yes ☒ No ☐ Not Applicable

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

### 10. Confidential Documents

Does the application contain confidential documents?

☐ Yes ☒ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

### 11. Permits and/or Construction Approvals

Select all that apply	Received	Pending	Not Applicable
Hazardous Waste Management Program under the Texas Solid Waste Disposal Act	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Underground Injection Control Program under the Texas Injection Well Act	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
National Pollutant Discharge Elimination System Program under the Clean Water Act and Waste Discharge Program under Texas Water Code, Chapter 26	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Prevention of Significant Deterioration Program under the Federal Clean Air Act (FCAA). Nonattainment Program under the FCAA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
National Emission Standards for Hazardous Air Pollutants Preconstruction Approval under the FCAA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Facility Name: City of Laredo Landfill  
MSW Authorization #: 1693B

Initial Submittal Date: 9/1/2014  
Revision Date:

Select all that apply	Received	Pending	Not Applicable
Ocean Dumping Permits under the Marine Protection Research and Sanctuaries Act	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dredge or Fill Permits under the CWA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Licenses under the Texas Radiation Control Act	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Other Environmental Permits</b>			
Air New Source Permits (#41607)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air Operating Permits (#2371)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm Water (TXR05AZ35)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tires (#6200048)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 12. General Facility Information

Facility Name: **City of Laredo Landfill**

MSW Authorization No. (if available): **1693B**

Regulated Entity Reference No. (if issued)\*: **RN102327582**

Physical or Street Address (if available): **6912 Hwy 359**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.795.2510**

Latitude (Degrees, Minutes Seconds): **27, 29', 55.90"**

Longitude (Degrees, Minutes Seconds): **99, 24', 17.57"**

Benchmark Elevation (above mean sea level): **468.99ft.**

Provide a description of the location of the facility with respect to known or easily identifiable landmarks: **2 mi east of intersection of Loop 20 and SH 359 on SH 359**

Detail access routes from the nearest United States or state highway to the facility: **All access to the site will be via Hwy 359**

\*If this number has not been issued for the facility, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Facility as the Regulated Entity.

## 13. Facility Type(s)

☒ Type I

☐ Type IV

☐ Type V

☐ Type I AE

☐ Type IV AE

☐ Type VI

## 14. Activities Conducted at the Facility

☐ Storage

☐ Processing

☒ Disposal



### 15. Facility Waste Management Unit(s)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Landfill Unit(s) | <input type="checkbox"/> Incinerator(s)                   |
| <input type="checkbox"/> Class 1 Landfill Unit(s)    | <input type="checkbox"/> Autoclave(s)                     |
| <input type="checkbox"/> Process Tank(s)             | <input type="checkbox"/> Refrigeration Unit(s)            |
| <input type="checkbox"/> Storage Tank(s)             | <input type="checkbox"/> Mobile Processing Unit(s)        |
| <input type="checkbox"/> Tipping Floor               | <input type="checkbox"/> Type VI Demonstration Unit       |
| <input type="checkbox"/> Storage Area                | <input type="checkbox"/> Compost Pile(s) and/or Vessel(s) |
| <input type="checkbox"/> Container(s)                | <input type="checkbox"/> Other (Specify)                  |
| <input type="checkbox"/> Roll-off Boxes              | <input type="checkbox"/> Other (Specify)                  |
| <input type="checkbox"/> Surface Impoundment         | <input type="checkbox"/> Other (Specify)                  |

### 16. Description of the Revisions to the Facility

Skip this box, if "New" is selected under "Application Type".

Provide a brief description of all revisions to the permit conditions and supporting documents referenced by the permit. Also, provide an explanation of why the amendment is requested.

**The Landfill Permit Amendment is designed to increase the capacity of the Landfill by recovering and expanding into an area previously dedicated to a gas pipeline that traversed through and divided the Landfill and by increasing the height of the Landfill. The amendment will also seek to convert the current Type IV area to a Type I area. Changes to the Leachate Collection System, Groundwater Monitoring Plan, Final Cover Plan, and Site Operating Plan are proposed in the amendment. The amendment will increase the acreage of the Landfill by 3.1 acres. This 3.1 acres will be utilized for the leachate storage tank, tire chipping, and other miscellaneous equipment storage.**

### 17. Facility Contact Information

**Site Operator (Permittee/Registrant) Name: City of Laredo**

Customer Reference No. (if issued)\*: **CN600131908**

Mailing Address: **6912 Hwy 359**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.795.2510**

Email Address: **sgeiss@ci.laredo.tx.us**

TX Secretary of State (SOS) Filing Number: **N/A**

\*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

**Operator Name<sup>1</sup>: City of Laredo**

Customer Reference No. (if issued)\*: **600131908**

Mailing Address: **6912 Hwy 359**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.795.2510**

Email Address: **sgeiss@ci.laredo.tx.us**

TX SOS Filing Number: **NA**

<sup>1</sup>If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".

\*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

**Consultant Name (if applicable): Arredondo, Zepeda & Brunz, LLC**

Texas Board of Professional Engineers Firm Registration Number: **F-10098**

Mailing Address: **11355 McCree Road**

City: **Dallas** County: **Dallas** State: **TX** Zip Code: **75238**

(Area Code) Telephone Number: **214.341.9900**

E-Mail Address: **sheniford@azb-engrs.com**

**Agent in Service Name (required only for out-of-state):**

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

**18. Facility Supervisor's License**

Select the Type of License that the Solid Waste Facility Supervisor, as defined in 30 TAC Chapter 30, Occupational Licenses and Registrations, will obtain prior to commencing facility operations.

☒ Class A ☐ Class B

**19. Ownership Status of the Facility**

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

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

☒ Yes ☐ No

If "No", provide the information requested below for any additional ownership.

**Owner Name:**

Street or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

**20. Other Governmental Entities Information**

**Texas Department of Transportation District: Laredo District (22/LRD)**

District Engineer's Name: **Melissa D. Montemayor, District Admin**

Street Address or P.O. Box: **1817 Bob Bullock Loop**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.712.7456**

E-Mail Address (optional):

**The Local Governmental Authority Responsible for Road Maintenance (if applicable): TxDOT Laredo District (22/LRD)**

Contact Person's Name: **Anestacio J. Cantu**

Street Address or P.O. Box: **1817 Bob Bullock Loop**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.712.7714**

E-Mail Address (optional):

**City Mayor Information**

City Mayor's Name: **Raul G. Salinas**

Office Address: **1110 Houston Street**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78040**

(Area Code) Telephone Number: **956.791.7389**

E-Mail Address (optional): **rgsalinas@ci.laredo.tx.us**

**City Health Authority: City of Laredo Health Department**

Contact Person's Name: **Hector F Gonzales, MD, MPH**

Street Address or P.O. Box: **2600 Cedar Ave**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78040**

(Area Code) Telephone Number: **956.795.4901**

E-Mail Address (optional):

**County Judge Information**

County Judge's Name: **Danny Valdez**

Street Address or P.O. Box: **1000 Houston St, 3<sup>rd</sup> Floor**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78040**

(Area Code) Telephone Number: **956.523.4600**

E-Mail Address (optional):

**County Health Authority: Webb County Indigent Health Care Services**

Contact Person's Name: **Nancy Cadena**

Street Address or P.O. Box: **1620 Santa Ursula**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78040**

(Area Code) Telephone Number: **956.523.4747**

E-Mail Address (optional):

**State Representative Information**

District Number: **42**

State Representative's Name: **Richard Peña Raymond**

District Office Address: **d1110 Houston St**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78040**

(Area Code) Telephone Number: **956.753.7722**

E-Mail Address (optional):

**State Senator Information**

District Number: **21**

State Senator's Name: **Judith Zaffirini**

District Office Address: **P.O. Box 627**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78042**

(Area Code) Telephone Number: **956.722.2293**

E-Mail Address (optional):

**Council of Government (COG) Name: South Texas Development Council**

COG Representative's Name: **Amando Garza, Jr.**

COG Representative's Title: **Executive Director**

Street Address or P.O. Box: **1002 Dicky Lane**

City: **Laredo** County: **Webb** State: **TX** Zip Code: **78043**

(Area Code) Telephone Number: **956.722.3995**

E-Mail Address (optional):

**River Basin Authority Name: Rio Grande Regional Water Authority**

Contact Person's Name: **Joe Barrera III**

Watershed Sub-Basin Name: **Rio Grande Basin**

Street Address or P.O. Box: **301 W Railroad**

City: **Weslaco** County: **Hidalgo** State: **TX** Zip Code: **78596**

(Area Code) Telephone Number: **956.682.3481**

E-Mail Address (optional):

**Coastal Management Program**

Is the facility within the Coastal Management Program boundary?

☐ Yes ☒ No

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

The facility is located in the following District of the U.S. Army Corps of Engineers:

☐ Albuquerque, NM ☐ Galveston, TX  
☒ Ft. Worth, TX ☐ Tulsa, OK

**Local Government Jurisdiction**

Within City Limits of: **Laredo**

Within Extraterritorial Jurisdiction of: **Laredo**

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?

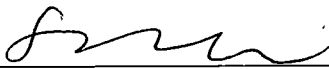
☐ Yes ☒ No

(If "Yes", provide a copy of the ordinance or order as an attachment):

## Signature Page

I, STEPHEN R. GEISS, MANAGER OF SOLID WASTE SERVICES  
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

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.

Signature:  Date: 9/10/14

-----  
TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, \_\_\_\_\_, hereby designate \_\_\_\_\_  
(Print or Type Operator Name) (Print or Type Representative Name)

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.

\_\_\_\_\_  
Printed or Typed Name of Operator or Principal Executive Officer

\_\_\_\_\_  
Signature  
-----

SUBSCRIBED AND SWORN to before me by the said \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

My commission expires on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_  
Notary Public in and for

\_\_\_\_\_ County, Texas  
(Note: Application Must Bear Signature & Seal of Notary Public)

## Part I Attachments

(See Instructions for P.E. seal requirements.)

### Required Attachments

### Attachment No.

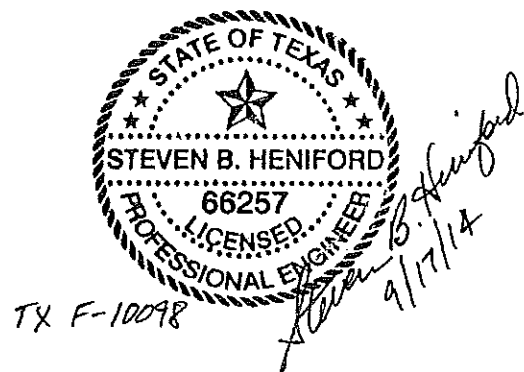
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Facility Metes and Bounds Description	2
Metes and Bounds Drawings	2
On-Site Easements Drawing	2
Land Ownership Map	3
Land Ownership List	3
Electronic List or Mailing Labels	3
Texas Department of Transportation (TxDOT) County Map	4
General Location Map	4
General Topographic Map	4
Verification of Legal Status	5
Property Owner Affidavit	6
Evidence of Competency	7

### Additional Attachments as Applicable- Select all those apply and add as necessary

<input checked="" type="checkbox"/> TCEQ Core Data Form(s)	8
<input checked="" type="checkbox"/> Signatory Authority Delegation	9
<input type="checkbox"/> Fee Payment Receipt	
<input type="checkbox"/> Confidential Documents	
<input type="checkbox"/> Waste Storage, Processing and Disposal Ordinances	
<input type="checkbox"/> Final Plat Record of Property	
<input type="checkbox"/> Certificate of Fact (Certificate of Incorporation)	
<input type="checkbox"/> Assumed Name Certificate	

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART I**



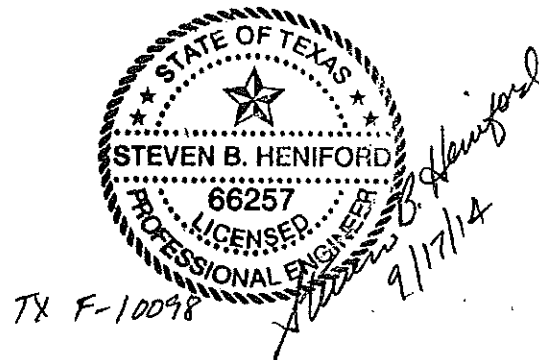


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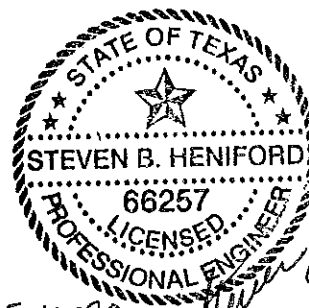
**List of Attachments**

- I-1 Supplementary Technical Report
- I-2 Legal Description, Easements and Metes & Bounds
- I-3 Land Owners List & Map
- I-4 Maps
- I-5 Legal Status
- I-6 Property Owner Affidavit
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**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**Part I  
Attachment 1  
Supplementary Technical Report**



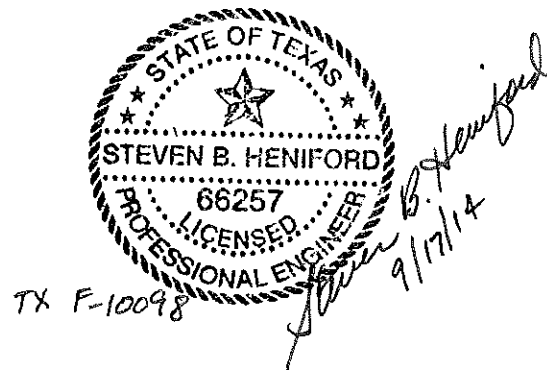
TX F-10098

*Steven B. Heniford*  
9/17/14

**LAREDO LANDFILL  
PART I  
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Supplementary Technical Report**

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## **Supplementary Technical Report**

The City of Laredo provides a range of municipal solid waste (MSW) services to residents and businesses of the City and surrounding communities, including the disposal of waste at the City owned Landfill. In order to provide long-term disposal services to the community, the City has determined it is necessary to expand the capacity of the facility through a permit amendment to the Texas Commission on Environmental Quality (TCEQ).

The Landfill permit was last amended in 1999. The 1999 amendment increased the height of the landfill, while maintaining the original four distinct phases. The phases are separated by an electrical utility easement that intersects the landfill in a north/south direction and a now abandoned natural gas pipeline which intersects the property in an east/west direction. The easement for the natural gas pipeline is terminated if after a one year period the pipeline is not used. The pipeline has not been in use for over 12 months, and portions of the pipeline have been recovered for scrap metal. The abandonment of the natural gas pipeline allows the City to incorporate the easement property and increase capacity by filling the area that was previously used for the pipeline and also increasing the height of the landfill. This will create two phases, an "East Phase" and a "West Phase."

### **1.0 Permit Background**

#### **1.1 Facility Name, Address and Phone Number 30 TAC § 305.45(a)(3)**

Applicant:	City of Laredo c/o - Solid Waste Manager
Name of Facility:	The City of Laredo Landfill
MSW Permit No.:	1693B (after approval of the amendment)
Physical Address:	6912 Texas Highway 359 Laredo, Texas 78043
Phone	956-795-2510

#### **1.1.1 Nature of the Business 30 TAC § 305.45(a)(4)**

The facility is a Type I and Type IV municipal solid waste management (MSW) landfill. The landfill accepts waste primarily from the City of Laredo and surrounding communities. The landfill currently is divided into four phases. Phases 1, 2 and 3 are permitted as Type I MSW areas. Phase 4 is permitted as a Type IV area for construction/demolition wastes. The permit amendment will convert Phase 4 from a Type IV area to a Type I area. The amendment will allow for the City to place MSW where a previous natural gas pipeline was located, creating two fill areas instead of four. In addition to MSW disposal, the City also maintains a tire chipping operation on site and a used oil collection service. The site is also permitted to have a crushing pad for containerized liquids.

In 2013, the City accepted 365,155 tons per year (tpy) MSW. It is projected that in 2014 the Landfill will accept 354,000 tpy or a daily average of 1140 tons per day (tpd) with a maximum projection of 1700 tpd. In 2019, the annual disposal rate is projected to be 445,200 tpy with an average rate of 1430 tpd and a maximum rate of 2140 tpd. The City is authorized to operate

normal hours on Saturdays, but typically operates a shortened schedule, when approximately 300-400 tpd are typically accepted. This is the projected minimum for 2014 to 2019.

### **1.1.2 Activities Requiring a Permit 30 TAC § 305.45 (a)(5)**

The primary activity requiring a permit at the Landfill is the disposal of municipal solid waste. Other activities at the site requiring either a permit or a registration include the tire chipping and storage operation and the used oil collection program at the site. The City is authorized under a permit modification to maintain and operate a crushing pad for containerized liquids.

## **2.0 Facility Location 30 TAC § 330.49(b)(1) § 305.45(a)(1)**

The facility is located on the north side of Texas State Highway 359 (SH 359) approximately 2.5 miles east of downtown Laredo. The site is a total of 203.1 acres. The permitted area is located approximately 800' north of SH 359. The City owns the land that is between SH 359 and the permitted area and uses this space for administrative facilities, fleet parking, and other non-regulated purposes.

The mailing address for the Landfill is:

City of Laredo  
Solid Waste Manager  
6912 Texas Highway 359  
Laredo, Texas 78043

### **2.1 Access Route 30 TAC § 330.59 (b)(2)**

All traffic using the facility must use SH 359 to access the Landfill. The Landfill currently has a sign at the entrance to the facility identifying the nature of business and hours of operation and other signage requirements per the Site Operating Plan.

### **2.2 Longitude & Latitude 30 TAC § 330.59 (b)(3)**

The longitude and latitude for the Landfill are:

Longitude: 99°24'17.57"  
Latitude: 27°29'55.90"  
Elevation: 469.59

## **3.0 Land Use**

The Landfill is located within the city limits of the City of Laredo. Current land use for the Landfill within a one-mile radius of the permitted limits is shown on Figure I-A4.2. Land use around the site was evaluated based on visual reconnaissance, evaluation of aerial photographs, land ownership research and easement research. A more detailed discussion of Land Use and Growth Patterns is presented in Part II.

In general, the areas surrounding the Landfill are primarily commercial or undeveloped in nature. To the north of the Landfill, there is a railroad yard owned by Tex-Mex Railroad. Property uses east, west and south are primarily commercial. The nearest observed residential structure is located approximately 1,000' west of the permit boundary.

No hospitals, day care facilities or churches were identified within one mile of the Landfill permit boundary. The Larga Vista Head Start facility is located 0.9 miles to the northwest of the Landfill. A middle school and an elementary school are planned for construction in the near-term. Both of these schools will be located approximately one mile southeast of the Landfill. No other schools were identified within one mile of the Landfill (refer to Part II).

There are no water wells or oil and gas wells located on the Landfill.

SH 359 is a four lane highway that has a dedicated left hand turn lane for vehicles entering the Landfill from the west. The City has coordinated Landfill access traffic with TxDOT.

## **4.0 Facility Design & Operations**

### **4.1 Capacity**

Based on preliminary design evaluations, a total of 4.1 million cubic yards can be gained by increasing the landfill height and filling in where the abandoned pipeline was located. This additional capacity is equivalent to approximately seven to eight years additional site life at projected disposal rates. The height of the landfill is proposed to be increased from 640.5' msl to 664' msl on the West Phase and from 637' msl to 652' msl on the East Phase. The Permit Amendment is intended to increase capacity by filling in areas that were previously used as a pipeline easement and by increasing the maximum height of the landfill by approximately 24' on the west phase and 15' on the east phase. The permit amendment will also modify the current permit boundary by adding approximately 3.1 acres to accommodate the City's tire chipping operation and leachate storage tank.

### **4.2 Location Restrictions**

A review of the site was performed to determine if there are any existing wetlands or waters of the US within the permit boundary and none have been identified.

The site has also been evaluated for location restrictions related to unstable areas, seismic impact zones and faults. The site has been determined to comply with TCEQ standards related to these location restrictions.

Since the 1999 amendment, there have been no major changes in land use or traffic patterns surrounding the landfill. However, since the 1999 Amendment, the City's floodplain map has been updated. The revised Federal Emergency Management Administration (FEMA) flood map showed portions of the permitted area located in an area identified as Zone A Floodplain. Zone A is defined as: "No Base Flood Elevations Determined." AZ&B undertook a detailed evaluation of the area, including use of current (October 2012) aerial survey data. This analysis

demonstrates that fill areas of the Landfill are not located in the 100 year floodplain. In 2013, a letter of map revision (LOMR) was filed by a third party for areas that include the Landfill. A review of this LOMR was conducted, and the City filed an appeal to the findings of this flood study and resulting flood elevations in July 2013. FEMA has reviewed this appeal, and requested that the City submit a new LOMR to revise the third party LOMR, which it did. The revised LOMR demonstrates that fill areas of the Landfill are located outside the 100- year floodplain. A more detailed discussion of this LOMR and the City's compliance with the floodplain location restriction is discussed in Part II.

The Landfill is located approximately 18,000' from the Laredo International Airport (LIA). It is located outside the 10,000' requirement. The City has corresponded with the Federal Aviation Administration (FAA). The FAA approved the landfill expansion as it relates to airport and aircraft safety, on the condition that the permit includes a wildlife control plan. The Site Operating Plan (SOP) includes management plans to control wildlife and other vectors, including birds. An obstruction analysis is not required for the Landfill per 14 CFR Part 77.9 as the Landfill does not exceed 200' above existing grade.

New rules related to buffer zones have been adopted by the TCEQ since the 1999 amendment. These rules require a 125' buffer zone be maintained between the property boundary and "new" waste. The City owns the land to the south of the Landfill. The City also has drainage easements that border the boundaries to the east, west and north of the site. The easements are held "in perpetuity" and the combined buffer zones for the landfill and the easements and City controlled property, provides the City with greater than the required 125' buffer area. A description of the easements is provided in Attachment I-2. A more detailed discussion of the buffer zone is presented in Part II.

#### **4.3 Facility Design**

The Landfill will incorporate the required liners, leachate collection systems, and operational requirements to protect groundwater and surface water resources. The permit allows for the liner to utilize either a standard Subtitle D clay liner system or geosynthetic clay liner in place of clay. Leachate collected from the system will be treated at the City's waste water treatment facility or recirculated over areas where there is a standard Subtitle D liner. The Permit Amendment includes a Leachate and Contaminated Water Plan.

The height of the landfill will be increased as previously mentioned. In areas where the vertical expansion occurs over non-Subtitle D lined areas, the City will install a liner at or below the existing permitted elevation to direct leachate generated from waste that is placed above the 1999 permitted elevations to a leachate collection system in a standard subtitle-D lined area.

The City will be converting a previously permitted Type IV area of the Landfill to a Type I area. Liners will be constructed over the area previously filled with construction/demolition waste and areas that have not been filled. A leachate collection system will also be constructed in this area to collect leachate for future treatment or recirculation over Subtitle D lined areas. All liners and leachate collection systems will be constructed in accordance with the Soil Liner Quality Control Plan (Part III, Attachment 10).

The Landfill design also includes an active gas collection system. Gas collected through a series of wells, is directed to a flare facility and combusted. A number of landfill gas monitoring vents are located around the Landfill perimeter and these monitors are evaluated on a quarterly basis. The Permit Amendment includes a Landfill Gas Management Plan (Part III, Attachment 14).

The Landfill has an approved groundwater monitoring program. Monitoring wells are located around the perimeter of the Landfill. The Permit Amendment includes a Ground Water Sampling and Analysis Plan (Part III, Attachment 15).

Once areas have been filled, a final cover system will be constructed. The final cover options available to the City will include: (i) a Standard Subtitle D final cover system; (ii) the use of GCL as an alternative to clay; and (iii) a “water balance” cover that provides sufficient cover with soil versus the use of plastic material, to enhance long-term slope stability. The City will maintain vegetation to the extent practical given Laredo’s lack of rainfall and poor soils. A four-inch rock armor, similar to other landfills in arid climates is also proposed as an alternative final cover. The City will continuously monitor the site’s slopes through closure and post-closure care for erosion, and make necessary improvements to maintain the integrity of the final cover. The permit amendment includes a Final Cover Plan (Part III, Attachment 12) and a Post-Closure Care Plan (Part III, Attachment 13).

#### **4.4 Site Operations**

The City has been operating the Landfill since 1986. Since its initial opening, the City has continuously upgraded its operations to meet state and federal rule changes in the construction of liners, leachate collection systems, intermediate and final cover and landfill gas management plans. In 1999, the Landfill Permit was amended to increase the height of the landfill. The design and the operation of the Landfill meet existing TCEQ and federal standards. Personnel operating the Landfill meet the necessary TCEQ training and certification requirements. The Site Operating Plan (SOP) (Part IV) identifies the responsibilities of all personnel at the Landfill and their required training, education and certifications.

The City maintains the necessary equipment for managing the facility.

Waste accepted at the Landfill is screened prior to being disposed in the active area of the Landfill. Screening occurs during solid waste collection at the point of generation, at the Landfill scale house and during disposal at the working face of the Landfill. The SOP identifies steps that must be taken if unacceptable wastes are identified.

The SOP identifies the methods and frequency of monitoring tests for groundwater and landfill gas. Specific plans are prepared for Leachate Collection and Management as well as Landfill Gas Management.

The SOP also describes the methods of managing waste accepted including compaction of waste, application of daily cover and means of managing special wastes approved for disposal at the Landfill.



The SOP includes plans for nuisance control including litter management and odor control. Provisions are identified in the SOP and the Surface Water Protection / Drainage section of the permit amendment to manage storm water, prevention of ponding and storm water detention.

#### **4.5 Financial Assurance**

The City will maintain financial resources to provide for the closure of the Landfill and for future post-closure care activities. This financial assurance is provided in the form of the “local government financial test.”

#### **5.0 Contents of the Application 30TAC § 330.51(a)(b)(3)**

Contents of the amendment application are submitted in four parts as required under the Texas Commission on Environmental Quality (TCEQ) regulations. The format of the application follows the TCEQ’s Administrative/Technical Review Checklist – Municipal Solid Waste Permit Registration, & Amendment Applications document dated June 3, 2011 (reformatted September 2011).

Part I of the application consists of the information required in 30 TAC § 305.45, 30 TAC § 305.52 and 30 TAC § 330.62, including the name of the facility, ownership, site location, nature of business of the facility, volume rate and type of waste received, maps of the area, surrounding land owners list, property owners affidavit, legal authority, evidence of competency, appointments and evidence of financial assurance.

Part II of the application describes the existing conditions and character of the Landfill as well as the surrounding area. It includes a discussion of area land use, the transportation infrastructure available and a general discussion of site soils. In addition, there is a discussion of floodplains, wetlands, and endangered species as required under 30 TAC § 330.53.

Part III of the application contains the Site Development Plan (SDP) and the necessary attachments to the SDP in accordance with the requirements of 30 TAC § 330.56. The SDP contains information related to access control, all-weather operations, solid waste disposal, run-on and run-off control, drainage structures, contaminated water management, flood protection, and endangered species protection. Attachments to the SDP include:

---

Permit Amendment Part III – Facility Design
Attachment 1 – Site Layout Plan
Attachment 2 – Fill Cross Sections
Attachment 3 – Existing Contour Map
Attachment 4 – Geology & Geotechnical Report
Attachment 5 – Groundwater Characterization Report
Attachment 6 – Groundwater & Surface Water Protection Plan & Drainage Plan
Attachment 7 – Final Contour Map
Attachment 8 – Closure & Post-Closure Cost Estimate
Attachment 9 – Applicant’s Statement

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Attachment 10 – Soil Liner Quality Control Plan
Attachment 11 – Groundwater Sampling and Analysis Plan
Attachment 12 – Closure Plan
Attachment 13 – Post-Closure Plan
Attachment 14 – Landfill Gas Management Plan
Attachment 15 – Leachate & Contaminated Water Plan

Part IV of the application is the Site Operating Plan (SOP) and conforms to the requirements of 30 TAC § 330.150. The SOP includes information identifying personnel and responsibilities, equipment, operating procedures, detection and prevention of disposal of regulated hazardous waste, fire prevention plan and the sequence of development.

### **5.1 Application On-Line Access**

The application in its entirety is available on-line at the City's website. This can be accessed at [http://www.laredosolidwaste.com/files/Permit\\_Amendment.pdf](http://www.laredosolidwaste.com/files/Permit_Amendment.pdf). Notice of Deficiency and responses will also be available at this site.

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**Part I  
Attachment 2  
Legal Description, Easements and Metes & Bounds**

**LAREDO LANDFILL**  
**PART I**  
**Attachment 2**  
**Legal Description, Easements and Metes & Bounds**

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Figure I.2.1: Metes and Bounds Map

### **I.2.1 Property Legal Description and Utility Easement**

The City of Laredo owns a tract of land containing 251.2262 acres, situated in Porcion 31, Jose Trevino, Original Grantee, Abstract 3116 and Porcion 32, Antonio Trevino, Original Grantee, Abstract 296, Webb County, Texas, said 251.2262 acre tract partially being out of a 2,855.039 acre tract of land conveyed to Hurd Enterprises, Ltd. as per deeds recorded in Vol. 684, Page 449, Deed Records of Webb County, Texas, Vol. 1219, Page 769, Real Property Records of Webb County, Texas.

The City is permitting 203.12 of the 251.2262 acres. The initial permitted area was 200 acres. Within the 251.2262, the City is adding approximately 3.12 acres of property to the permitted area.

**Abandoned Pipeline Easement:** This section also includes the Right-of-Way Easement for the abandoned pipeline easement. This easement states that “so long as the rights and easements herein granted, or any one of them, shall be used by Grantee for the purposes herein granted for twelve months and as long thereafter as the pipeline is used without cessation of more than twelve months, the purposes of the construction, inspecting, repairing, maintaining, replacing and removing the property of the Grantee herein described; and the undersigned binds himself...” It further states, “In the event that Grantee, its successors and assigns, fail to use said pipeline for the transportation of oil, gas and/or petroleum products for a consecutive twelve (12) month period, then all of Grantee’s rights hereunder shall terminate upon the expiration of the twelve (12) month period, and the right-of-way shall terminate and all rights herein granted to the grantee shall revert to Grantor.

The pipeline has not been used for than 12 months and according to the easement is abandoned.

Easements include:

- CPL Easement as recorded in Vol. 203, Page 513-516
- Drainage Easements along West, North and East of Landfill Boundary (outside permitted area)

LEGAL DESCRIPTION  
203.12 ACRE (8,847,922.20 SF) LAREDO LANDFILL TRACT

A TRACT OF LAND CONTAINING 203.12 ACRES (8,847,922.20 SF), OUT OF PORCION 31, ABSTRACT 3116, JOSE TREVINO ORIGINAL GRANTEE AND PORCION 32, ABSTRACT 298, ANTONIO TREVINO ORIGINAL GRANTEE, WEBB COUNTY TEXAS.  
BEING OUT OF A 251.2262 ACRE TRACT AS PER DEED RECORDED IN VOLUME 227, PAGE 195, WEBB COUNTY DEED RECORDS KNOWN AS "THE LAREDO LANDFILL" THIS 203.12 ACRE TRACT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING at a found concrete monument in the Northeast corner of this 203.12 acre tract (8,847,922.20 sf);

THENCE S07°04'40"W along the easterly line of the Laredo Landfill Tract, a distance of 3046.97' to a ½" iron rod set for an exterior corner hereof;

THENCE N71°58'32"W along a fence line, a distance of 205.04' to a ½" iron rod set for an interior corner hereof;

THENCE S18°03'14"W, a distance of 143.51' to a ½" iron rod set for an exterior corner hereof;

THENCE N75°34'40"W, a distance of 811.20' to a ½" iron rod set for an exterior corner hereof;

THENCE N18°01'28"E, a distance of 194.48' to a ½" iron rod set for an interior corner hereof;

THENCE N71°58'32"W along the southwesterly line of this tract, a distance of 2058.30' to a ½" iron rod set for an exterior corner hereof;

THENCE N00°14'24"W along the west line of this tract, a distance of 2645.21' to a ½" iron rod set for an exterior corner hereof;

THENCE S63°02'13"E, a distance of 479.25' to a ½" iron rod set for an interior corner hereof;

THENCE S82°55'20"E along the northerly line of this tract, a distance of 2881.51' to the POINT OF BEGINNING of this 203.12 acre tract (8,847,922.20 sf).

NOTES:

SET IRON RODS SHOWN HEREON ARE CAPPED WITH YELLOW PLASTIC SURVEY CAPS MARKED "HOWLAND SURVEYING".

MONUMENTS HELD:

A ½" IRON ROD FOUND ON CONCRETE AT THE NORTHEAST CORNER OF THIS 203.12 ACRE TRACT TO A FOUND ½" IRON ROD AT THE SOUTHEAST CORNER OF THIS 203.12 ACRE TRACT, LAREDO LANDFILL SURVEY.

CALLED: S07°04'40"W~3,800.68'

MEASURED: S07°04'40"W~3,800.86'

BASIS OF BEARING: LAREDO LANDFILL SURVEY

CERTIFICATE OF SURVEYOR

STATE OF TEXAS:  
COUNTY OF WEBB:

I, THE UNDERSIGNED, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS SURVEY IS TRUE AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION, ON THE GROUND, THAT THE CORNER MONUMENTS SHOWN THEREON WERE FOUND OR WILL BE PROPERLY PLACED UNDER MY SUPERVISION.

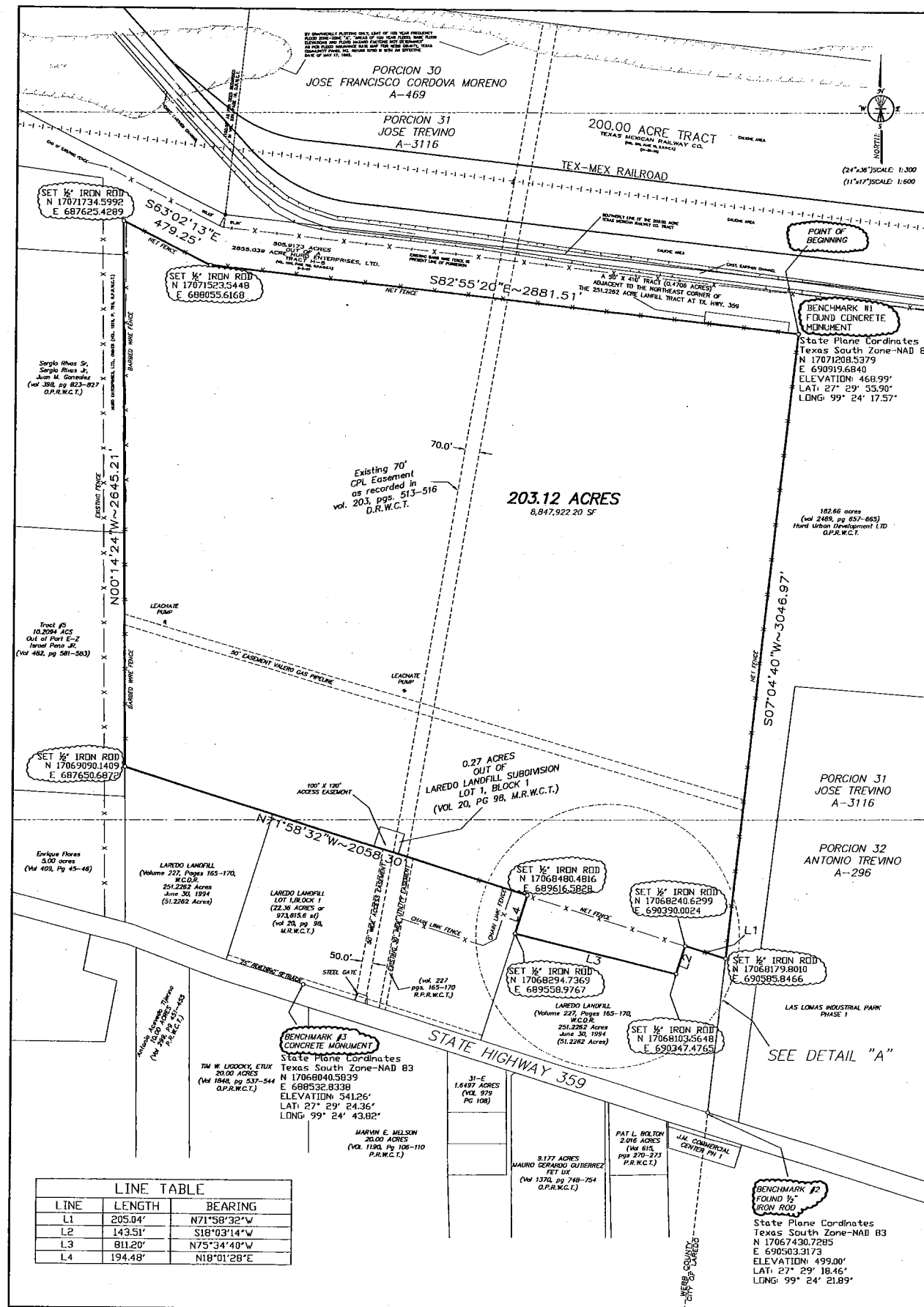
*Ricardo M. Villarreal*

RICARDO M. VILLARREAL, R.P.L.S. No. 6242

8/26/13

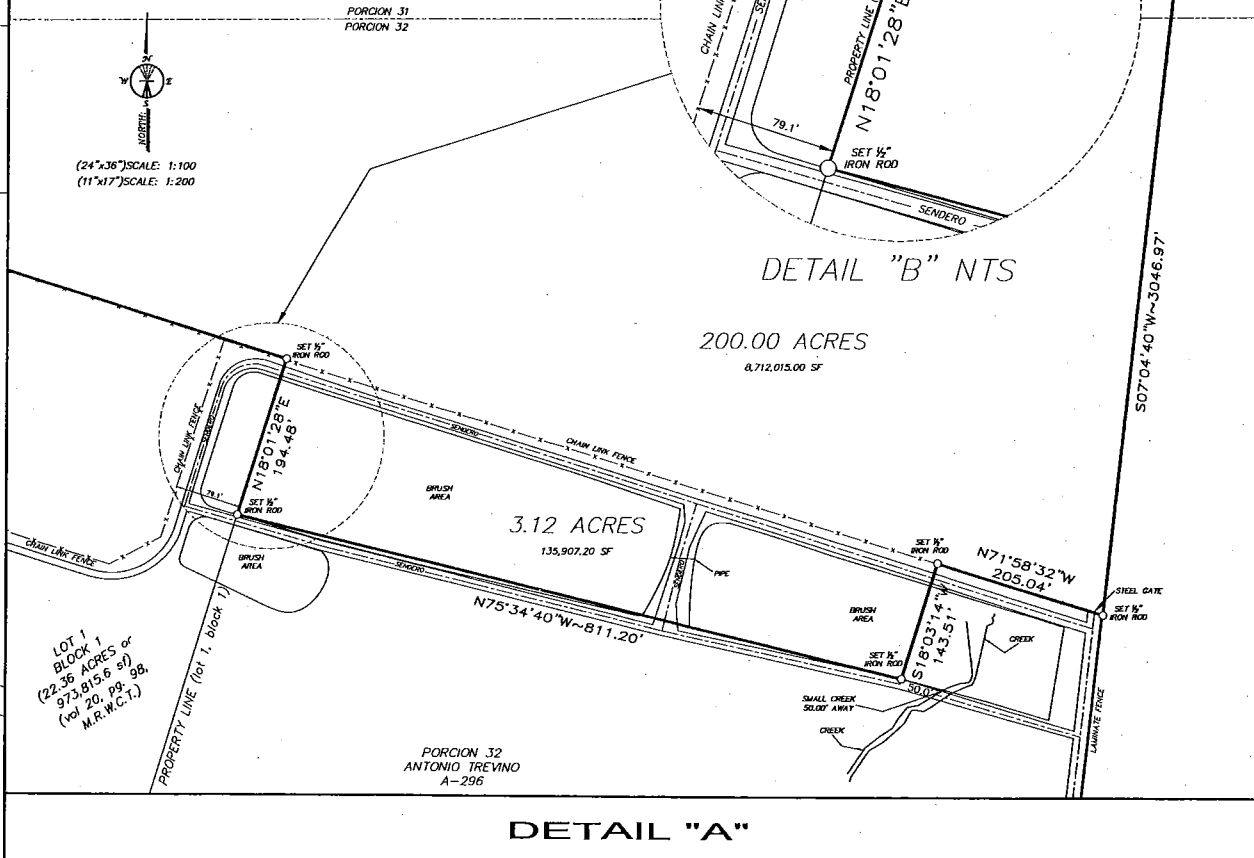
DATE





**LEGAL DESCRIPTION**  
 203.12 ACRE (8,847,922.20 SF) LAREDO LANDFILL TRACT  
 A TRACT OF LAND CONTAINING 203.12 ACRES (8,847,922.20 SF), OUT OF PORCION 31, ABSTRACT 3116, JOSE TREVINO ORIGINAL GRANTEE AND PORCION 32, ABSTRACT 298, ANTONIO TREVINO ORIGINAL GRANTEE, WEBB COUNTY TEXAS, BEING OUT OF A 251,282 ACRE TRACT AS PER DEED RECORDED IN VOLUME 227, PAGE 195, WEBB COUNTY DEED RECORDS KNOWN AS "THE LAREDO LANDFILL" THIS 203.12 ACRE TRACT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
 BEGINNING at a found concrete monument in the Northeast corner of this 203.12 acre tract (8,847,922.20 sf);  
 THENCE S07°04'40"W along the easterly line of the Laredo Landfill Tract, a distance of 3046.97' to a 1/2" iron rod set for an exterior corner hereof;  
 THENCE N71°58'32"W along a fence line, a distance of 205.04' to a 1/2" iron rod set for an interior corner hereof;  
 THENCE S18°03'14"W, a distance of 143.51' to a 1/2" iron rod set for an exterior corner hereof;  
 THENCE N75°34'40"W, a distance of 811.20' to a 1/2" iron rod set for an exterior corner hereof;  
 THENCE N18°01'28"E, a distance of 194.48' to a 1/2" iron rod set for an interior corner hereof;  
 THENCE N71°58'32"W along the southwesterly line of this tract, a distance of 2058.30' to a 1/2" iron rod set for an exterior corner hereof;  
 THENCE N00°14'24"W along the west line of this tract, a distance of 2645.21' to a 1/2" iron rod set for an exterior corner hereof;  
 THENCE S63°02'13"E, a distance of 479.25' to a 1/2" iron rod set for an interior corner hereof;  
 THENCE S82°55'20"E along the northerly line of this tract, a distance of 2881.51' to the POINT OF BEGINNING of this 203.12 acre tract (8,847,922.20 sf).  
 NOTES:  
 SET IRON RODS SHOWN HEREON ARE CAPPED WITH YELLOW PLASTIC SURVEY CAPS MARKED "HOWLAND SURVEYING".  
 MONUMENTS HELD:  
 A 1/2" IRON ROD FOUND ON CONCRETE AT THE NORTHEAST CORNER OF THIS 203.12 ACRE TRACT TO A FOUND 1/2" IRON ROD AT THE SOUTHEAST CORNER OF THIS 203.12 ACRE TRACT, LAREDO LANDFILL SURVEY, CALLED: S07°04'40"W~3,800.69' MEASURED: S07°04'40"W~3,800.86' BASIS OF BEARING: LAREDO LANDFILL SURVEY

**CERTIFICATE OF SURVEYOR**  
 STATE OF TEXAS,  
 COUNTY OF WEBB:  
 I, THE UNDERSIGNED, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS SURVEY IS TRUE AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION, ON THE GROUND, THAT THE CORNER MONUMENTS SHOWN THEREON WERE FOUND OR WILL BE PROPERLY PLACED UNDER MY SUPERVISION.  
Ricardo M. Villarreal 8/26/13  
 RICARDO M. VILLARREAL, R.P.L.S. No. 6242



**HOWLAND**  
 ENGINEERING AND SURVEYING CO.  
 TBPE Firm Registration No. F-4097 / TBPLS Firm Registration No. 100464-00  
 7615 N. Bartlett Avenue / P.O. Box 45128 (76045) Laredo, TX 78041  
 P. 956.722.4411 / F. 956.722.5414  
 www.howlandcompanies.com

**CITY OF LAREDO**

**LAREDO LANDFILL SURVEY**  
 SHOWING A  
 200.00 ACRE TRACT + 3.12 ACRE TRACT  
 FOR THE CITY OF LAREDO SANITARY LANDFILL SITE.  
 A TRACT OF LAND CONTAINING 203.12 ACRES (8,847,922.20 SF), OUT OF PORCION 31, ABSTRACT 3116, JOSE TREVINO ORIGINAL GRANTEE AND PORCION 32, ABSTRACT 298, ANTONIO TREVINO ORIGINAL GRANTEE, WEBB COUNTY TEXAS.

DRAWN BY: J.V.  
 CHECKED BY: R.M.V.  
 DRAWN DATE: 06/28/13  
 PLOTTED DATE: 06/26/13  
 JOB No. F4806-13  
 TITLE NAME: AZ&B, LCC  
 STATUS:  
 AS-BUILT:  
 REVISED DATE:  
 SCALE: ( 24"x36" ) SHEET  
 HOR: N/A VER: N/A  
 SCALE: ( 11"x17" ) SHEET  
 HOR: N/A VER: N/A  
 SHEET TOTAL:  
 01 of 01

JPL ENTEY/BRUNZ LAREDO  
AFE: 40817  
L.L. # 18420  
#300-0116 r 18

515912

Tract No. \_\_\_\_\_

RIGHT-OF-WAY EASEMENT

THE STATE OF TEXAS §  
COUNTY OF WEBB § KNOW ALL MEN BY THESE PRESENTS:

THAT for and in consideration of TEN AND NO/100 (10.00) DOLLARS, and other good and valuable consideration, to the undersigned, Hurd Ranch Company, whose address is 112 E. Pecan, Suite 2626, San Antonio, Texas 78205 (hereinafter styled GRANTOR, whether one or more), paid the receipt of which is hereby acknowledged, the said Grantor, does hereby Grant and Convey unto Valero Transmission Company, L.P. whose address is P.O. Box 500, San Antonio, Texas 78292-0500 (hereinafter styled Grantee), its successors and assigns, a right-of-way and easement to construct, maintain, operate, repair, replace, change the size of and remove one (1) pipeline only with valves, blowdowns and appurtenances thereto, over and through the following described land situated in Webb County, Texas, to-wit:

SEE EXHIBIT "A", "B" & "C" ATTACHED HERETO.

Upon completion of construction an as-built plat will become part of this agreement and identified as Exhibit "C".

The right-of-way herein granted shall be sixty feet (60') in width during construction, except at location such as roads, streams, ditches or specific areas requiring additional space, and thereafter shall be thirty feet (30') in width.

Grantee shall have the right to install cathodic protection devices on the right-of-way and protect same with signs and markers.

Grantee shall have all other rights and benefits necessary or convenient for the full enjoyment of use of the rights herein granted.

Grantee shall have the right from time to time to cut all trees, undergrowth and other obstructions that may injure, endanger or interfere with the use of said pipeline.

TO HAVE AND TO HOLD unto Grantee, its successors and assigns, so long as the rights and easements herein granted, or any one of them, shall be used by Grantee for the purposes herein granted for twelve months and as long thereafter as the pipeline is used without cessation of more than twelve months, the purposes of construction, inspecting, repairing, maintaining, replacing and removing the property of Grantee herein described; and the undersigned binds himself; his heirs, executors and administrators (and successors and assigns) to WARRANT AND FOREVER DEFEND all and singular said premises unto the Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof.

This conveyance is made subject to and conditioned upon the following:

1. The Grantee agrees to bury all pipe so that it will not be less than thirty-six inches (36") from surface of the land, and also to pay for any damage to fences, growing crops and timber, which may arise from laying, constructing, altering, repairing, removing, changing the size of, and replacing such pipeline.

2. Grantee shall notify Grantor prior to cutting any fences. Prior to cutting any fence of Grantor, Grantee shall brace each existing fence to be cut adequately on both sides of the proposed

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HENRY FLORES AT 11:31 A.M.  
COUNTY CLERK, WEBB COUNTY, TEXAS  
BY \_\_\_\_\_ DEPUTY



cut by placing four posts (with not less than 5 inch tops) unless otherwise agreed to between Grantor and Grantee, each buried five feet into the ground, with two posts on each side of the proposed cut, the posts to be properly braced with horizontal braces and wired so that when the fence is cut there will be no slackening of, nor damage to, the wires. Grantee is authorized, subject to the foregoing, during the construction of its pipeline, to cut fences of Grantor where necessary, placing in each place where it is cut (after first taking the foregoing precautions) to protect each such fence, a wire gap with 5 wires. Each such wire gap is to be reinforced so as to be strong enough to prevent livestock from passing through same. Upon the completion of the construction of such pipeline each of such wire gaps will be removed and the fence wires will be replaced with 5 wires, leaving above precautionary posts, braces and wires, with Grantee thereafter inspecting and patrolling such pipeline either by air or by using Grantor's gates, roads and senderos. All such fences shall be repaired or reconstructed to the satisfaction of Grantor. However, in connection with using Grantor's gates and roads, Grantee agrees to limit use of such roads (including culverts, bridges, gates and cattle guards) only along the right-of-way.

3. In digging the ditch for the pipeline, and in other operations on such right-of-way, Grantee agrees to protect and preserve as far as possible, the turf of the grasses of such right-of-way for grazing purposes. This obligation shall include the reseedling of Buffel grass when required by Grantor.

4. Grantee further agrees to conduct all of its said operations so as to cause as little erosion, and as little other damage as possible in connection with its use of such right-of-way. Without in any way limiting what is provided in this first sentence hereof, it is agreed that each hill and slope on the land in such right-of-way shall be terraced in such manner as to prevent erosion as a result of the excavating done by Grantee.

5. It is distinctly understood and agreed that neither Grantee nor any of its officers, agents, representatives or employees nor anyone else shall have the right or privilege to fish or hunt on any of the lands of Grantor traversed by the above right-of-way or on the right-of-way itself nor to carry firearms thereon; all of such hunting and fishing rights being expressly excepted by Grantor. Grantee is to forbid its officers, agents, employees and representatives from carrying firearms on any of the lands of Grantor traversed by this pipeline, except with the express written consent of Grantor.

6. Right-of-way will be located so as not to damage any existing improvements. The Grantee represents that the course of said pipeline does not come within two hundred feet (200') of any residence situated on the Grantor's land.

7. If at any time during the existence of this easement the soil should settle, wash, or erode causing a depression over the ditch, the Grantee agrees that, if requested to do so by Grantor, Grantee will level such depression and smooth the surface to substantially the prior level.

8. If during construction, or as the result of any of its operations, Grantee by its negligence and/or omission causes the death or escape of cattle, or other livestock from Grantor's land, Grantee shall be responsible and pay to Grantor for such loss.

9. Any gate used in connection with the right-of-way herein granted shall at all times be kept secured and locked. No new gates shall be constructed by Grantee and no new gates shall be authorized on the right-of-way.

10. Any damage caused by a fire by Grantee, its employees or agents shall be Grantee's responsibility.

11. Grantor herein agrees not to change the grade over such

201 201

pipelines or permit any party other than Grantee to change such grade. Before Grantor allows any party other than Grantee to excavate or dig in any manner in the vicinity of the pipeline, Grantor shall (1) point out the exact location of said pipeline to such party, and (2) tell such party about this requirement that the grade over the pipeline is not to be changed.

12. Grantee shall indemnify and hold Grantor harmless from all costs, damages, or claims arising out of any injury to persons or property occasioned by, arising out of, or resulting from the operations of Grantee, his agents, employees or independent contractors. Grantee shall have the right, no later than six (6) months after the termination of this Easement, to remove all property placed by Grantee on said right-of-way and shall leave the premises in as near its original condition as practicable, or may abandon all or part of its pipeline and appurtenances in place.

13. In the event that Grantee, its successors and assigns, fail to use said pipeline for the transportation of oil, gas and/or petroleum products for a consecutive twelve (12) month period, then all of Grantee's rights hereunder shall terminate upon the expiration of the twelve (12) month period, and the right-of-way shall terminate and all rights herein granted to Grantee shall revert to Grantor.

14. Grantee will stack brush cleared from the right-of-way area in low piles and agrees to burn same if requested to do so by Grantor.

15. Grantee agrees to restore road surfaces damaged during construction to original condition on lands owned by Grantor.

16. Grantee agrees to construct pipe barriers around any valves or gauges that stand above the surface of the ground and to paint said pipe barriers, valves or gauges a bright color so as to be visible to anyone in the area.

17. Grantee, or the agents, servants, employees, contractors and/or subcontractors of Grantee will, while upon the lands of Grantor, pursuant to the terms of this agreement, display their company name upon their vehicles and, upon request, will stop and identify themselves, their destination and the purpose of their presence upon the lands of Grantor.

18. It is further agreed that Grantee by exercise of the rights and privileges granted hereby will not interfere with Grantor's usage or Grantor's lands described herein or adjacent hereto.

19. This Right-of-Way shall not be assigned without the written consent of Grantor.

20. Should Grantee fail to perform any covenant, undertaking or obligation arising hereunder, or should Grantee breach or fail to perform any of the agreements contained herein, then and in that event, and at the option of the Grantor, the Grantee may give the Grantor written notice of such failure to perform as aforesaid, via certified mail at P.O. Box 500, San Antonio, Texas 78292-0500, or such address designated in writing by Grantee. After receipt of said notice as provided, the Grantee will have thirty (30) days to perform in the agreed manner as stated herein. In the event that the Grantee fails to do so, then, and in that event, all rights and privileges granted to the Grantee shall hereby terminate.

21. It is agreed that this instrument includes all of the agreements between the parties and no representations or statements, verbal or written, have been made modifying, adding to, or changing the terms of this agreement. The terms and provisions hereof shall inure to the benefit of and be binding upon Grantor and Grantee and their respective heirs, representatives, successors and assigns.

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22. The use of the singular of right-of-way or "easement" herein shall be deemed not to include all other rights-of-way or easements.

Grantor herein has executed this Right-of-Way Easement on the 27th day of July, 1992.

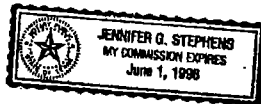
HURD RANCH COMPANY

By: John G. Hurd  
John G. Hurd

STATE OF TEXAS

COUNTY OF BEXAR

This instrument was acknowledged before me on July 27th, 1992 by JOHN G. HURD.



Jennifer G. Stephens  
Notary Public in and for the State of Texas.

GRANTEE'S ADDRESS:  
VALERO TRANSMISSION COMPANY  
P.O. BOX 501  
SAN ANTONIO, TEXAS 78292  
PHONE: A/C 512/246-2000

ATTN: RIGHT OF WAY DEPARTMENT  
RECORDS CLERK

201 203

94 APR -1 AM 11:31  
FILED  
HENRY FLORES  
COUNTY CLERK  
BEXAR COUNTY TEXAS

C.P.L. - Entex/Bruni-Laredo  
12" Pipeline; AFE: 40817  
LL/18 - Hurd Enterprises,  
LTD

EXHIBIT "A"

ATTACHED TO AND MADE A PART OF THAT CERTAIN RIGHT-OF-WAY  
AGREEMENT DATED JULY 27, 1992 BETWEEN HURD RANCH COMPANY,  
GRANTOR, AND VALERO TRANSMISSION COMPANY, GRANTEE

Being out of the Grantor's property in the B.F. George Survey 1200,  
Abstract 3062, Manuel Villarreal Survey 1504, Abstract 2497, C. &  
M. R.R. Survey 1503, Abstract 977, G.C. & S.F. R.R. Survey 2005,  
Abstract 1365, Dona Maria G. Sanchez Survey, Porcion 27, Abstract  
284, Eugenio Martinez Heirs Survey, Porcion 28, Abstract 241, Webb  
County, Texas. The easement herein granted shall be 75 feet in  
width during the initial construction period.

BEGINNING at a point in the Northwesterly fence line of said  
property, same being the Southeasterly right of way fence of U.S.  
Hwy 59, said point being 379 feet, Northeasterly along said right  
of way fence line from an angle point in said right of way at Hwy.  
Sta. 391+00.

THENCE: South 31° 39' 30" East a distance of 4977.6 feet to a  
point of angle to the left.

THENCE: South 41° 56' 05" East a distance of 7938.1 feet to a  
point of angle to the right.

THENCE: South 41° 31' 30" East a distance of 927.5 feet to a  
point in the most Westerly South fence line of said  
property, said point being 459.84 feet, Westerly along  
said fence line from the most Southeasterly fence corner  
of a 337.8 ac. tract of said property also being an  
interior corner of adjacent Gonzalez property, said point  
being point of termination for this description.

Upon completion of construction this easement shall revert to 50  
feet being 25 feet on each side of the pipeline as constructed.  
Also included in this grant is the right to install cathodic  
protection test leads and aerial markers as necessary.

TOTAL RODS: 838.98

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C.P.L. - Entex/Bruni-Laredo  
12" Pipeline; AFE: 40817  
LL#20 - Hurd Enterprises,  
LTD

EXHIBIT "B"

ATTACHED TO AND MADE A PART OF THAT CERTAIN RIGHT-OF-WAY  
AGREEMENT DATED JULY 27, 1992 BETWEEN HURD RANCH COMPANY,  
GRANTOR, AND VALERO TRANSMISSION COMPANY, GRANTEE.

Being out of the Grantor's property in the Juan B. Villarreal  
Survey, Porcion 29, Abstract 3086, Jose Francisco Cordova Moreno  
Survey, Porcion 30, Abstract 469, Webb County, Texas. The easement  
herein granted shall be 75 feet in width during the initial  
construction period.

BEGINNING at a point in the most Southerly West fence line of said  
property, said point being 336.51 feet, Northerly along said fence  
line from the most Northerly Northeast corner of adjacent Vintaria  
Ranch Co. Ltd, et al property;

THENCE: South 41° 31' 30" East a distance of 45.4 feet to a point  
of angle to the right.

THENCE: South 41° 22' 50" East a distance of 1459.2 feet to a  
point of angle to the left.

THENCE: South 41° 37' 30" East a distance of 3361.7 feet to a  
point of angle to the left.

THENCE: South 47° 07' East a distance of 177.7 feet to a point in  
the most Southerly fence line of said property, said  
point being 3563.54 feet, Easterly along said fence line  
from the most Southerly Southwest corner of said property  
said point being point of termination for this  
description.

Upon completion of construction this easement shall revert to 50  
feet being 25 feet on each side of the pipeline as constructed.  
Also included in this grant is the right to install cathodic  
protection test leads and aerial markers as necessary.

TOTAL RODS: 305.70

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EXHIBIT "C"

Page 1 of 2

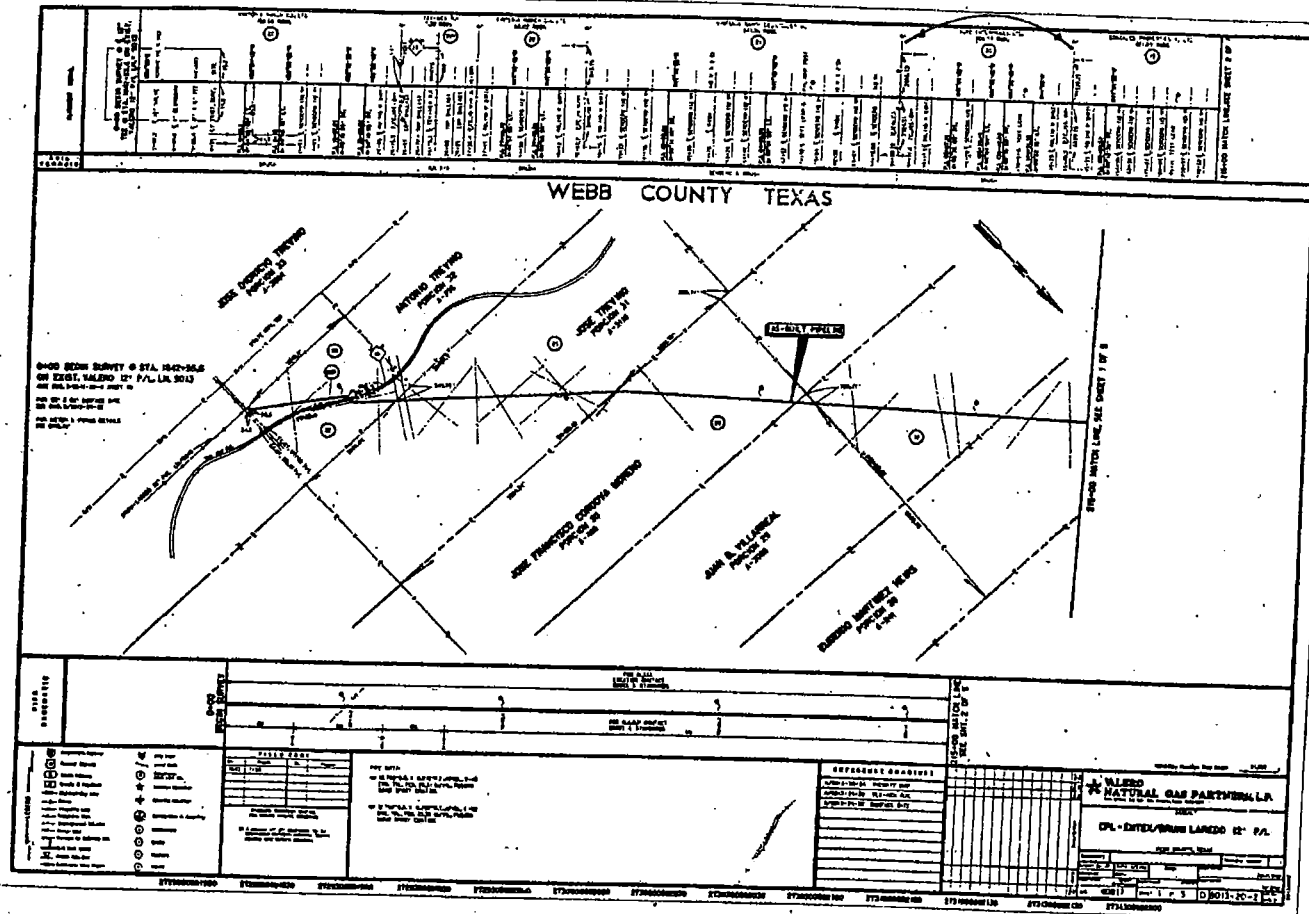
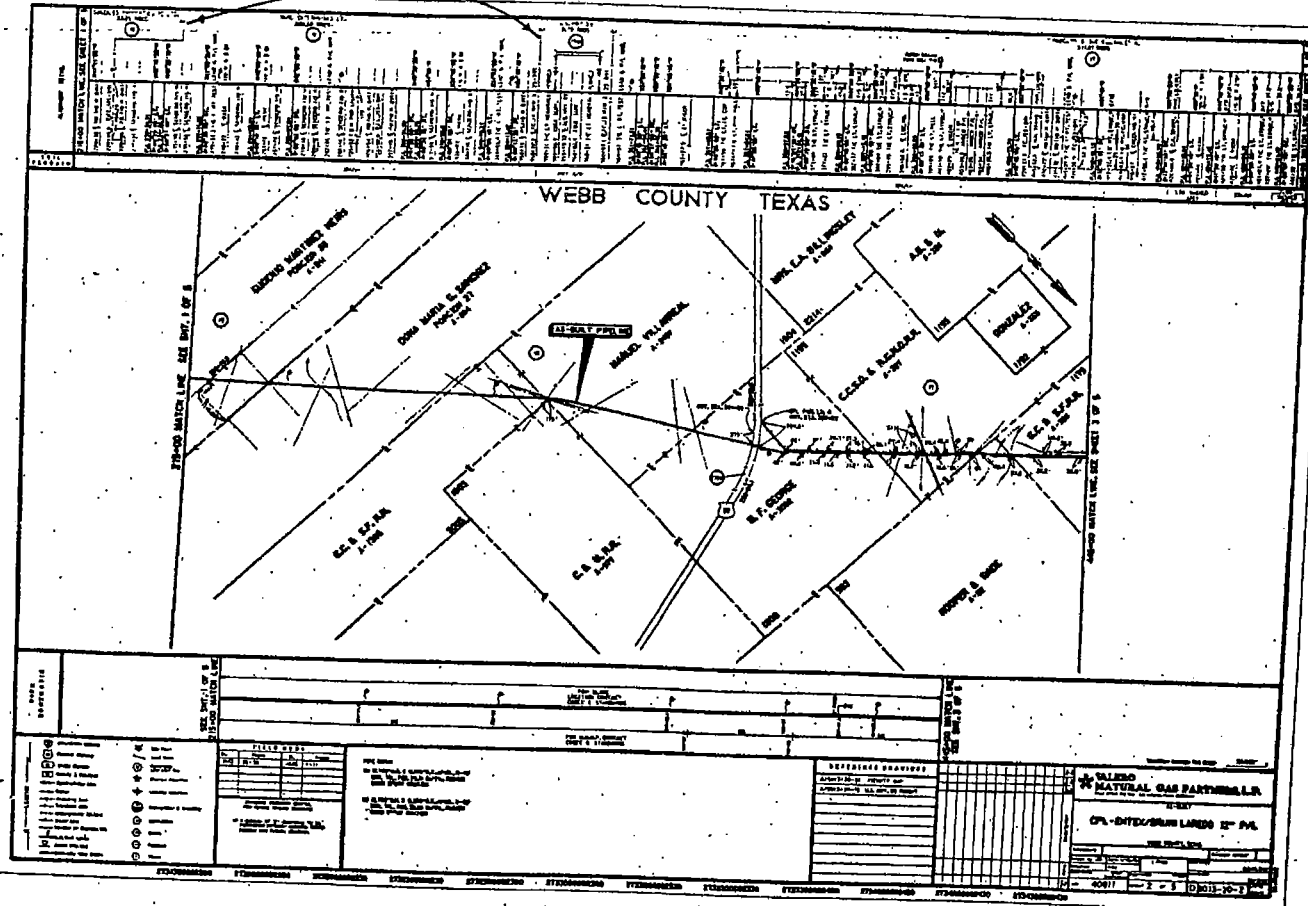


EXHIBIT "C"

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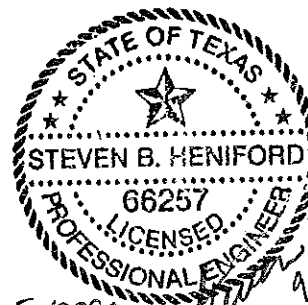
Page 2 of 2



RECORDED MEMORANDUM  
All or parts of this text on this page  
was not clearly legible for satisfactory  
recording.  
Permit 19883, part 1.

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**Part I**  
**Attachment 3**  
**Land Owners List & Map**



TX F-10098

*Steven B. Heniford*  
9/17/14



**LAREDO LANDFILL  
PART I  
Attachment 3  
Land Owners List & Map**

**TABLE OF CONTENTS**

1.0 Introduction

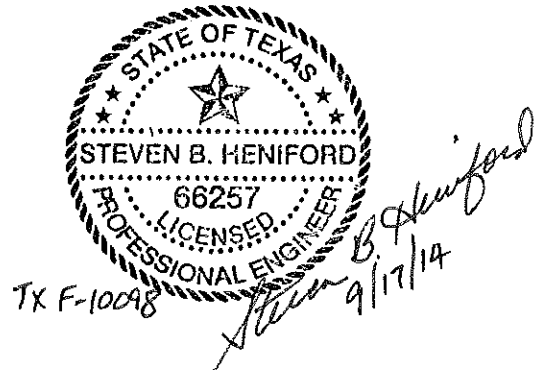
**Page  
1**

**List of Figures**

Figure I. 3.1: Land Ownership Map

**List of Tables**

Table I.3.1: Land Owners List



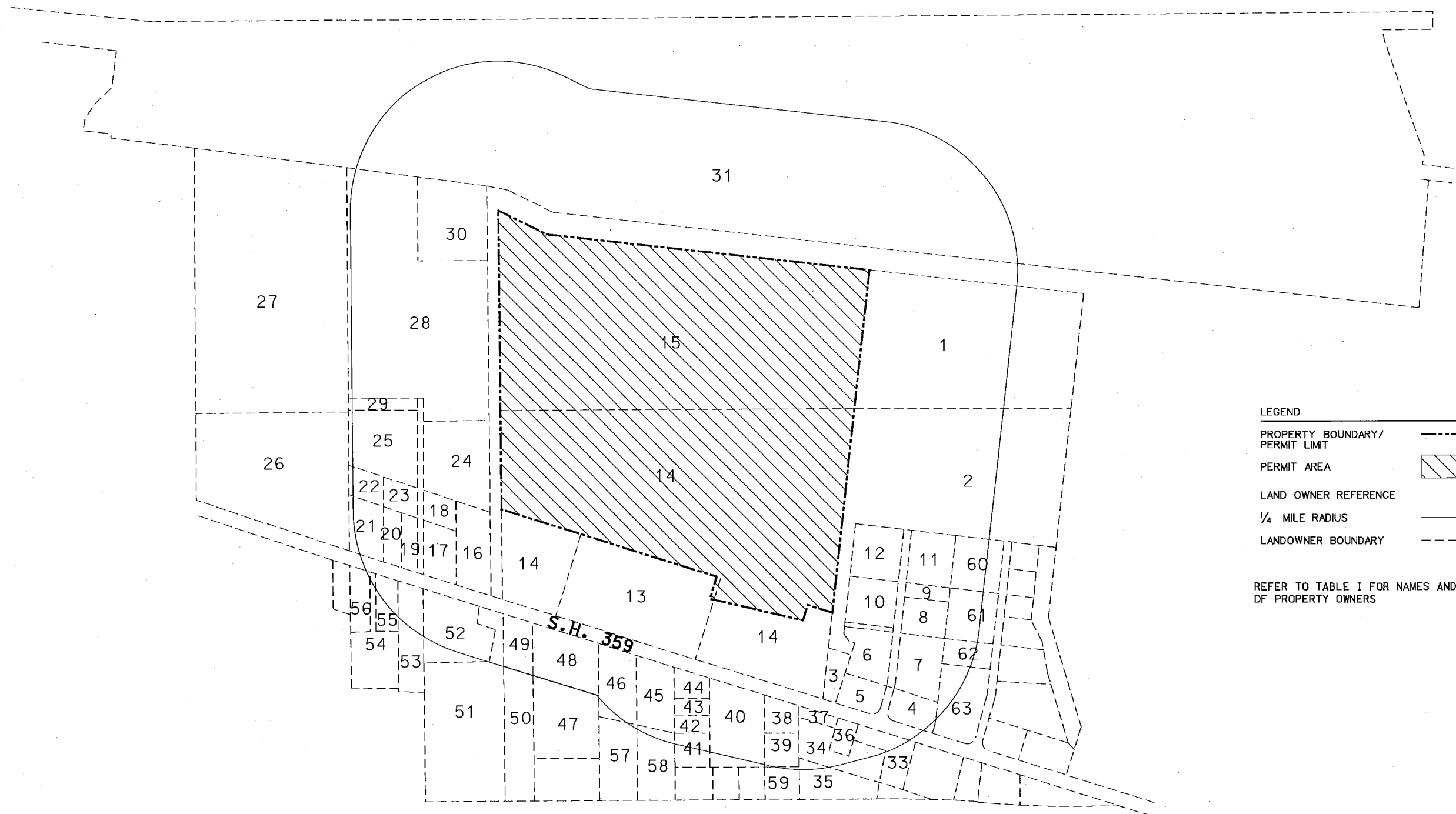
## **1.0 Introduction**

Figure I. 3.1 presents the Land Ownership Map. The map shows the location of the Landfill and property ownership within  $\frac{1}{4}$  mile of the permit boundary.

There was an attempt to identify mineral right owners for the property. However, correspondence with Webb County Appraisal District indicates that information on mineral rights is not obtainable from County or City sources (refer to correspondence included in this section with the Webb County Appraisal District).

Table I.3.1 presents the land ownership list for the area  $\frac{1}{4}$  mile from the permit boundary. Mailing labels have been included with this permit amendment application.

An electronic copy of Table I.3.1 is enclosed with the permit application.



LEGEND

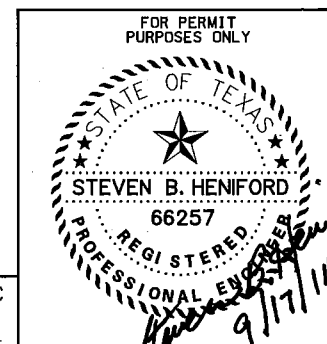
PROPERTY BOUNDARY/ PERMIT LIMIT	-----
PERMIT AREA	
LAND OWNER REFERENCE	31
1/4 MILE RADIUS	-----
LANDOWNER BOUNDARY	-----

REFER TO TABLE 1 FOR NAMES AND ADDRESSES  
OF PROPERTY OWNERS



500 250 0 500 1000  
SCALE HORIZONTAL FEET

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TYPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL



REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY		LAND OWNERSHIP MAP FIGURE I-3.1		
CHK BY				
APP BY				
CITY OF LAREDO		SHEET OF		
		FILE: ATTACHMENT: I-3		

**Table I. 3.1**

<b>Land Owners List</b>				
<b>Landowner Name</b>	<b>Mailing Address</b>	<b>ID No.</b>	<b>Legal Description</b>	<b>Map No.</b>
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	366103	ABST 3116 POR 31 J TREVINO 49.138 ACS	1
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	366104	ABST 296 POR 32 A TREVINO 51.642 ACS	2
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	366101	ABST 296 POR 32 A TREVINO 13.58 ACS	3
HOLT TEXAS LTD	3302 S WW WHITE RD SAN ANTONIO, TX 78222-4830	459413	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 1, PHASE I	4
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	459408	LAS LOMAS INDUSTRIAL PARK, BLOCK 1, LOT 1, PHASE I	5
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	459409	LAS LOMAS INDUSTRIAL PARK, BLOCK 1, LOT 2, PHASE I	6
HOLT TEXAS LTD	3302 S WW WHITE RD SAN ANTONIO, TX 78222-4830	459414	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 2, PHASE I	7
GREENES ENERGY GROUP LLC	11757 KATY FWY, STE 300 HOUSTON, TX 77079-1718	459415	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 3, PHASE I	8
BLUE BELL CREAMERIES LP	PO BOX 1807 BRENHAM, TX 77834- 1807	459416	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 4, PHASE I	9

Landowner Name	Mailing Address	ID No.	Legal Description	Map No.
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	459411	LAS LOMAS INDUSTRIAL PARK, BLOCK 1, LOT 4, PHASE I	10
CORNELL HOLDINGS LLC	C/O CARLOS I GARZA PO BOX 6105 MCALLEN, TX 78502- 6105	459417	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 5, PHASE I	11
HURD URBAN DEVELOPMENT LTD	7373 BROADWAY ST, STE 201 SAN ANTONIO, TX 78209-3265	459412	LAS LOMAS INDUSTRIAL PARK, BLOCK 1, LOT 5, PHASE I	12
CITY OF LAREDO	1110 HOUSTON ST LAREDO, TX 78040- 8019	256928	LAREDO LANDFILL, BLOCK 1, LOT 1	13
CITY OF LAREDO	1110 HOUSTON ST LAREDO, TX 78040- 8019	207561	ABST 296 POR 32 A TREVINO 106.8704 ACS	14
CITY OF LAREDO	1110 HOUSTON ST LAREDO, TX 78040- 8019	207361	ABST 3116 POR 31 J TREVINO 121.9958 ACS	15
FLORES, ENRIQUE	PO BOX 2746 LAREDO, TX 78044- 2746	207577	ABST 296 POR 32 A TREVINO 3.27 ACS	16
PLASENCIA, JORGE & WF RAMSTIN III LTD PARTNERSHIP	10010 SAN PEDRO AVE, STE 310 SAN ANTONIO, TX 78216-3899	275273	WESTERN HIDE SUBD PH I, BLOCK 1, LOT 1, 3.227 ACS & 1 1975 (E) M/H 12X48	17
PLASENCIA, JORGE & WF RAMSTIN III LTD PARTNERSHIP	10010 SAN PEDRO AVE, STE 310 SAN ANTONIO, TX 78216-3899	245460	ABST 296 POR 32 A TREVINO 1.8052 ACS @ HWY 359 EAST	18
CANTU, ARTURO JR & WF IRMA	8623 PUERTO VIEJO LAREDO, TX 78045- 6228	207509	ABST 296 POR 32 A TREVINO 1.6835 ACS	19
CANTU, ARTURO JR & WF IRMA	8623 PUERTO VIEJO LAREDO, TX 78045- 6228	293409	SALINAS CANTU UNIT 1, BLOCK 1, LOT 3	20

Landowner Name	Mailing Address	ID No.	Legal Description	Map No.
SALINAS, MARIO & WF	1401 WINGFOOT LOOP LAREDO, TX 78045-1910	293408	SALINAS CANTU UNIT 1, BLOCK 1, LOT 1 & 2	21
SALINAS, MARIO & WF	1401 WINGFOOT LOOP LAREDO, TX 78045-1910	245462	ABST 296 POR 32 A TREVINO 1.5577 ACS	22
CANTU, ARTURO JR & WF IRMA	8623 PUERTO VIEJO LAREDO, TX 78045-6228	245457	ABST 296 POR 32 A TREVINO 1.564 ACS	23
PENA, ISRAEL JR	RR 3 BOX 3P LAREDO, TX 78043-9447	207414	ABST 296 POR 32 A TREVINO 5.00 ACS	24
GONZALEZ, MANUEL	PO BOX 2772 LAREDO, TX 78044-2772	207578	ABST 296 POR 32 A TREVINO 7.4960 ACS	25
RRTAIT PROPERTIES	14511 CONTOUR PL HELOTES, TX 78023-4599	207433	ABST 296 P 32 A TREVINO 15.57 ACRES	26
RRTAIT PROPERTIES	14511 CONTOUR PL HELOTES, TX 78023-4599	207304	ABST 3116 P 31 J TREVINO 59.4241 ACRES	27
GONZALEZ, JUAN M, RIVAS, SERGIO E SR. & RIVAS, SERGIO E JR	608 E SAUNDERS ST LAREDO, TX 78041-5820	458609	ABST 3116 POR 31 J TREVINO 49.3693 ACS, UNDIVIDED INTEREST PROPERTY	28
GONZALEZ, MANUEL	PO BOX 2772 LAREDO, TX 78044-2772	207294	ABST 3116-P 31 J TREVINO 1.458 ACRES	29
BARRERA, GLORIA R	2002 GUERRERO ST LAREDO, TX 78043-2639	207317	ABST 3116 POR 31 J TREVINO 9.8730 ACS	30
KANSAS CITY SOUTHERN	TEXAS MEXICAN RAILWAY CO. C/O PROPERTY TAX DEPARTMENT PO BOX 219335 KANSAS CITY, MO 64121-9335	320636	HACHAR BILLBOARD PLAT BLOCK 1 LOT 1-A	31
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	394886	ABST 296 POR 32 A TREVINO 4.6876 ACS	32

Landowner Name	Mailing Address	ID No.	Legal Description	Map No.
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	394884	ABST 296 POR 32 A TREVINO 3.6093 ACS	33
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	394881	ABST 296 POR 32 A TREVINO 4.9072 ACS	34
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	394882	ABST 296 POR 32 A TREVINO 4.2078 ACS	35
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	394883	ABST 296 POR 32 A TREVINO 1.3539 ACS	36
J & H RENTALS LLC	PO BOX 1405 LAREDO, TX 78042	349799	JM COMMERCIAL CENTER, BLOCK 1, LOT 1, PHASE I	37
MOLINA, ARTURO & WF PATRICIA	RR 3, BOX 20M LAREDO, TX 78043- 9572	207467	ABST 296 POR 32 A TREVINO PT-TR 29A 39E 2.01 ACRES & 3 MOBILE HOMES	38
CANTU, FRANCISCO RENE JR & WF RAMONA DE LOURDES	8917 JENNIFER LOOP LAREDO, TX 78045- 8313	207466	ABST 296 POR 32 A TREVINO 2.0 ACS TR 29A (38-E)	39
GUTIERREZ, MAURO GERARDO & WF	110 LAKE GENEVA DR LAREDO, TX 78041- 1918	207399	ABST 296 POR 32 A TREVINO 7.6896 ACS PT TR 29-A (40-E)	40
YZAGUIRRE, JOSE RICARDO	2205 SANTA CLARA ST LAREDO, TX 78046- 5724	207461	ABST 296 POR 32 A TREVINO PT-TR 29A (33E) 2.00 ACRES	41
MUNOZ, JESUS C	222 LARGA VISTA DR LAREDO, TX 78043- 4717	207460	ABST 296 POR 32 A TREVINO S 1/2 OF TR 32-E 1.00 ACRE	42
MUNOZ, JESUS	222 LARGA VISTA DR LAREDO, TX 78043- 4717	265316	ABST 296 POR 32 A TREVINO N 1/2 OF TR 32-E 1.00 ACRE	43
ANAYA, JOSE DE JESUS	103 E SAUNDERS ST LAREDO, TX 78041- 4931	207459	ABST 296 POR 32 A TREVINO PT-TR 29-A (31E) 1.65 ACS	44
E G RANCH LTD	PO BOX 450452 LAREDO, TX 78045- 0010	207413	ABST 296 POR 32 A TREVINO N1/2 OF TR 28 5.00 ACS	45
E G RANCH LTD	PO BOX 450452 LAREDO, TX 78045- 0010	207403	ABST 296 POR 32 A TREVINO N1/2 OF TR 27 5.00 ACS	46

Landowner Name	Mailing Address	ID No.	Legal Description	Map No.
LIGOCKY, TIM W & WF SANDRA E	PO BOX 1555 UVALDE, TX 78802- 1555	207418	ABST 0296 POR 32 A TREVINO 20 ACS (TR 25 & 26)	47
LIGOCKY, TIM W & WF SANDRA E	PO BOX 1555 UVALDE, TX 78802- 1555	207418	ABST 0296 POR 32 A TREVINO 20 ACS (TR 25 & 26)	48
ACEVEDO, ANTONIO T MD	113 FLORIDA ST LAREDO, TX 78041- 3124	207435	ABST 0296 POR 32 A TREVINO PT E-1 TR 24 10.00 ACRES	49
ACEVEDO, ANTONIO T MD	113 FLORIDA ST LAREDO, TX 78041- 3124	207435	ABST 0296 POR 32 A TREVINO PT E-1 TR 24 10.00 ACRES	50
J & P OIL FIELD TRANSPORT INC	PO BOX 440663 LAREDO, TX 78044- 0663	207396	ABST 296 POR 32 A TREVINO 22.3393 ACS	51
CAMINO AGAVE INC	PO BOX 1067 ZAPATA, TX 78076- 1067	207583	ABST 296 POR 32 A TREVINO 7.66 ACS	52
PENA & PENA PROPERTIES LC	PO BOX 430491 LAREDO, TX 78043- 0491	207489	ABST 296 POR 32 A TREVINO 5 ACRES TRACT 20-A	53
CARRASCO, ADOLFO & SARA FAM LP	PO BOX 3095 LAREDO, TX 78044- 3095	474131	CARRASCO ANNEX, BLOCK 1, LOT 3, PHASE 1	54
CARRASCO, ADOLFO & SARA FAM LP	PO BOX 3095 LAREDO, TX 78044- 3095	474130	CARRASCO ANNEX, BLOCK 1, LOT 2, PHASE 1	55
CARRASCO, ADOLFO & SARA FAM LP	PO BOX 3095 LAREDO, TX 78044- 3095	474129	CARRASCO ANNEX, BLOCK 1, LOT 1, PHASE 1	56
E G RANCH LTD	PO BOX 450452 LAREDO, TX 78045	207538	ABST 296 POR 32 A TREVINO S1/2 OF TR 27 5.0 ACS	57
EG RANCH LTD	PO BOX 450452 LAREDO, TX 78045	207539	ABST 296 POR 32 A TREVINO S1/2 OF TR 27 5.0 ACS	58
LERMA ANTONIO T JR	RR3 BOX 20 LAREDO, TX 78045	207445	ABST 0296 POR 32A TREVINO PT TR 9 10 (S1/2 7E) 1.0 ACRE	59
JR 2 MANAGEMENT LLC	120 GUANAJUATO DR LAREDO, TX 78045	489357	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 6, PHASE II	60



Landowner Name	Mailing Address	ID No.	Legal Description	Map No.
TRE VENTI LTD	10410 MEDICAL LOOP, BLDG A LAREDO, TX 78045-6672	489358	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 7, PHASE II	61
HOLT TEXAS, LTD	3302 S WW WHITE RD SAN ANTONIO, TX 78222-4830	489359	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 8, PHASE II	62
PROFFUTT LIMITED PARTNERSHIP	700 7 <sup>TH</sup> STREET S FARGO, ND 58103- 2704	489360	LAS LOMAS INDUSTRIAL PARK, BLOCK 2, LOT 9 & 10, PHASE II	63

RE City of Laredo Landfill Project

From:  
[sjuanita@webbcad.org]  
Sent:  
PM  
To:  
Subject:

San Juanita Mendoza

Friday, January 04, 2013 12:24

Michael Carleton  
RE: City of Laredo Landfill Project

Good afternoon Mr. Carleton,  
Please be advised that all income producing properties in Webb County due to minerals are listed in our Tax Rolls. However, the only way to research these properties is by the name of the interest owners; whether they are working, overriding, or royalty interest owners. Unfortunately, we are not able to research for a particular Abstract or Survey number and determine if there is currently production going on. If I may be of any further assistance, please feel free to contact our office.

Sincerely,

San Juanita Mendoza  
Customer Service Supervisor  
Contact Number: (956) 718-3701  
Fax Number: (956) 718-3601  
E mail: sjuanita@webbcad.org  
Website: www.webbcad.org

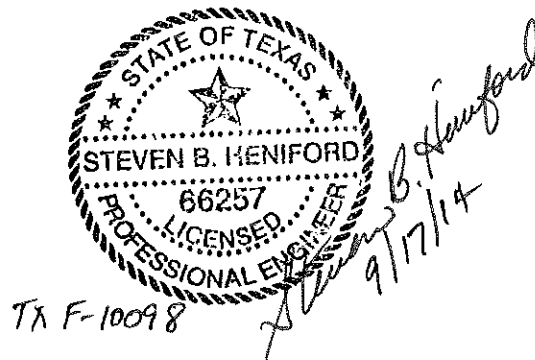
From: Michael Carleton [mailto:mcarlton@azb-engrs.com]  
Sent: Thursday, January 03, 2013 2:22 PM  
To: sjuanita@webbcad.org  
Subject: City of Laredo Landfill Project

AZ&B is working with the City of Laredo on a landfill permit amendment. Your office was very helpful in identifying property ownership near the facility that is required for the TCEQ application. Does your office maintain information on mineral rights on properties in the County. Thanks for your assistance. Mike Carleton

Michael E. Carleton  
Project Manager  
Office 214.341.9900  
Cell 214.797.6450  
Fax 214.341.9925  
Arredondo, Zepeda & Brunz, LLC  
Providing Solutions-Improving Community  
Serving Texas Since 1981  
11355 McCree Rd. Dallas, Texas 75238  
Certifications: DBE, MBE and HUB  
Engineering, Surveying, Environmental,  
Construction Management, Federal, Design/Build

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**Part I**  
**Attachment 4**  
**Maps**



**LAREDO LANDFILL  
PART I  
Attachment 4  
Maps**

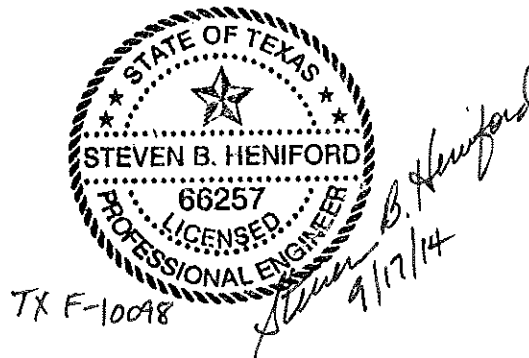
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Figure I.4.1: General Location Map  
Figure I.4.2: Aerial View of Land Use  
Figure I.4.3: Topographic Map and Water, Oil & Natural Gas Locations  
Figure I.4.4: Landfill Layout  
Figure I.4.5: Drainage and Outfall Structures



## **1.0 Introduction**

The following maps provide information as required for Part I.

The General Location Map (Figure I.4.1) utilizes the latest available TxDOT map of the area. The map illustrates the location of the site and the Landfill's longitude and latitude. Also illustrated on the map is the location of the nearest airport (Laredo International Airport – LIA), major roadways and surrounding communities. The map also has a wind rose which shows that winds are predominantly from the southeast.

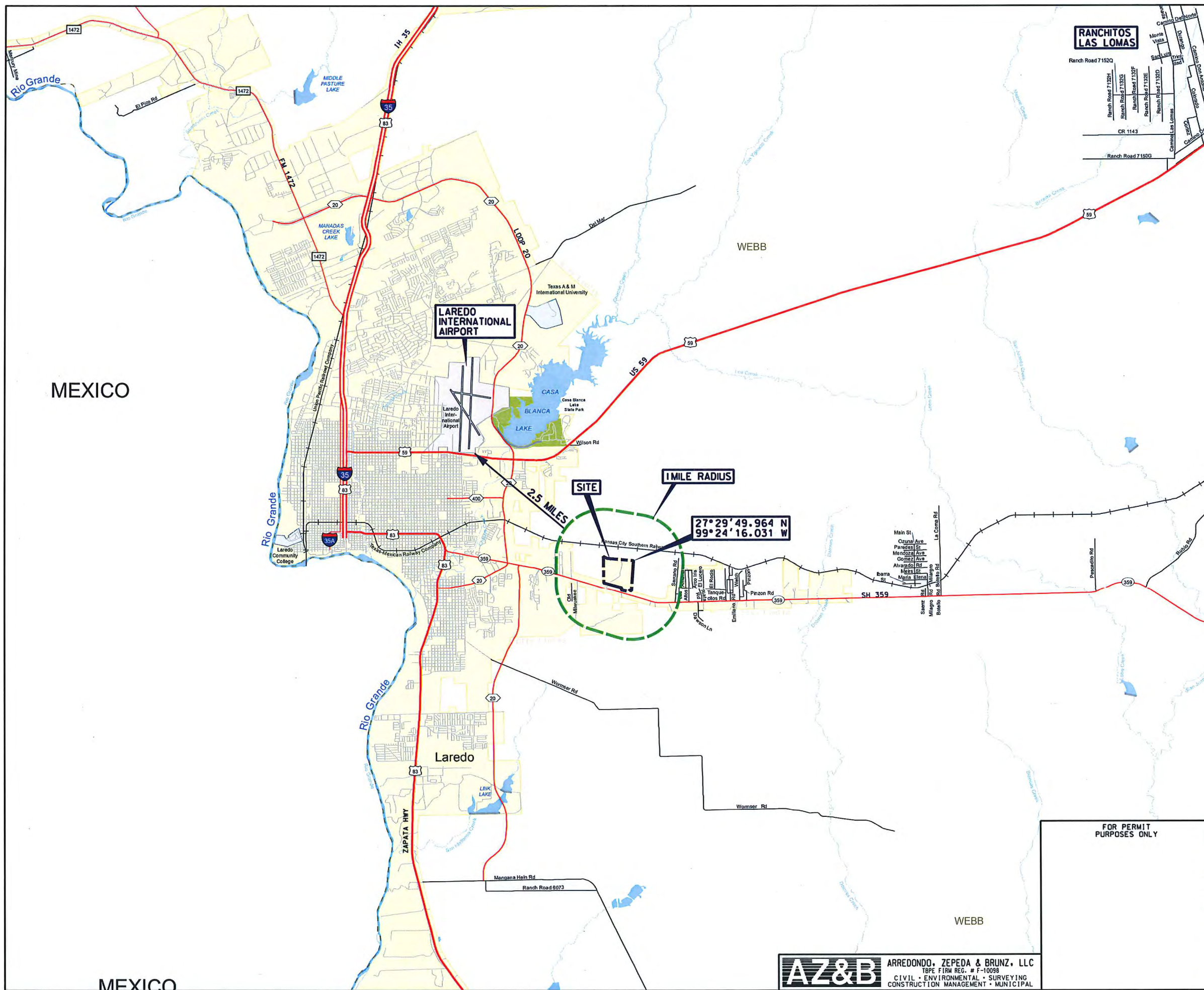
The Aerial View of Land Use (Figure I.4.2) shows the area in a one mile radius from the amended Landfill boundary which includes the additional 3.1 acres added as part of this permit amendment. Major land uses around the site include commercial, some residential developments to the southwest and the Tex Mex Rail Yard to the north of the site. Within one mile to the west there is residential and commercial land use. Two schools are planned to be constructed approximately one-third of a mile south of the Landfill. North of the rail yard is undeveloped land. Immediately to the south of the permitted area, the City owns the property between the permitted boundary and SH 359. This land is used for administrative offices and collection fleet storage and maintenance. Land use is discussed in greater detail in Part II.

The Topographic Map (Figure I.4.3) presents the pre-Landfill topography within one mile of the amended Landfill location. The topographic map also shows the location of water wells, oil and gas wells and buildings located within 500 feet of the permitted boundary. No active water, oil or gas wells are located within the amended permit boundary. No springs are identified in the one mile area around the Landfill.

The Landfill Layout Map (Figure I.4.4) shows the site configuration, with the area to be added to the permit boundary, on-site facilities, access roads, monitoring wells and the perimeters of the completed east and west phases of the Landfill. Parts II and III present additional information describing site conditions, access and sequence of development.

The Drainage and Outfall Structures Map (Figure I.4.5) presents the planned drainage for final development conditions. The outfalls for drainage are presented in this figure as required by 305.45(a)(6). Other structures that are located on the site include a scale facility and a landfill gas flare.





**RANCHITOS LAS LOMAS**

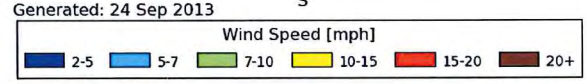
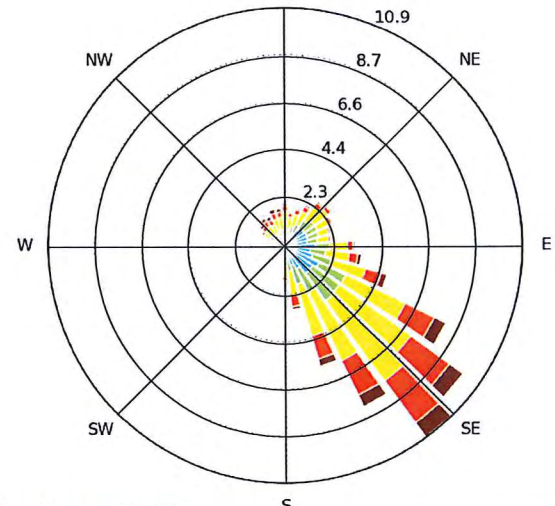


**LEGEND**

- City Limits
- Permit Boundary



[LRD] LAREDO INTL AIRPORT  
Windrose Plot [All Year]  
Period of Record: 01 Jan 1970 - 23 Sep 2013  
Obs Count: 321402 Calm: 8.0% Avg Speed: 10.5 mph



SOURCE: IOWA STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

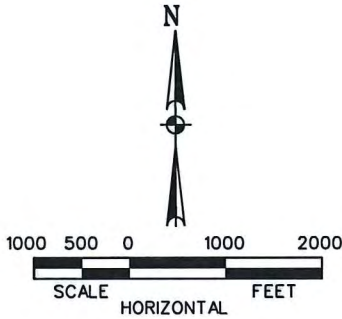
MAPPING IMAGES ARE FROM TEXAS DEPARTMENT OF TRANSPORTATION, COUNTY GRID MAPS, 2012

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
1	08/20/2014	LAREDO LANDFILL VERTICAL EXPANSION	SH	MC
2	08/20/2014	PERMIT AMENDMENT APPLICATION No. MSW-1693B	SH	MC
3	08/20/2014	WEBB COUNTY, TEXAS	SH	MC
GENERAL LOCATION MAP				
FIGURE I-4.1				
CITY OF LAREDO				SHEET OF
				FILE:
				ATTACHMENT:
				I-4

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL





**LEGEND**

--- AMENDED PERMIT BOUNDARY

SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)-NIAP AERIAL IMAGERY, 2012

FOR PERMIT PURPOSES ONLY

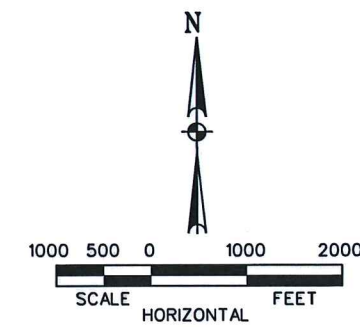
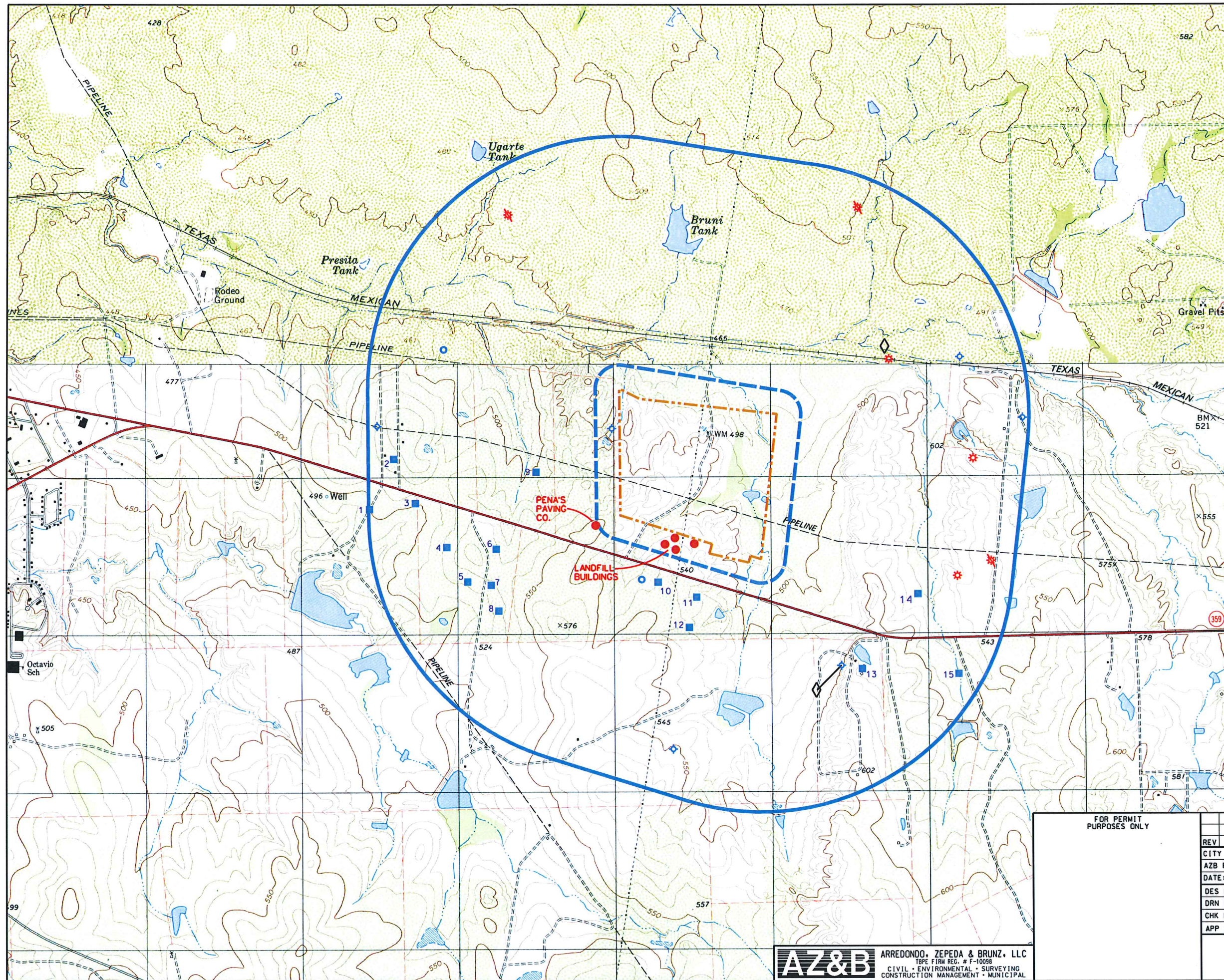
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CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		AERIAL VIEW OF LAND USE FIGURE I-4.2		
DRN BY AZB				
CHK BY SH				
APP BY MC				

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSP FIRM REG. # F-10098  
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CONSTRUCTION MANAGEMENT • MUNICIPAL

CITY OF LAREDO

SHEET OF  
FILE:  
ATTACHMENT:  
I-4





### LEGEND

- AMENDED PERMIT BOUNDARY
- 500' RADIUS FROM PERMIT BOUNDARY
- 1 MILE RADIUS FROM PERMIT BOUNDARY
- ◆ OIL/GAS DRY HOLE
- ★ GAS WELL
- ★ PLUGGED GAS WELL
- OIL/GAS PERMITTED LOCATION
- ◆ DIRECTIONAL WELL SURFACE LOCATION
- WATER WELL LOCATION
- STRUCTURE OUTSIDE OF PERMIT BOUNDARY AND WITHIN 500 FEET OF BOUNDARY

FOR BASE MAP LEGEND REFER TO THE TOPOGRAPHICAL MAP SYMBOLS, DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION.

NOTES:  
THE TWO STREAMS WITHIN THE PERMIT BOUNDARY FLOW INTO AN UNNAMED TRIBUTARY OF CHACON CREEK, WHICH LIES APPROXIMATELY 2.5 MILES WEST OF THE LANDFILL'S NORTHWEST CORNER.  
THE PIPELINE INTERSECTING THE LANDFILL, WHICH RUNS EAST/WEST, HAS BEEN ABANDONED.

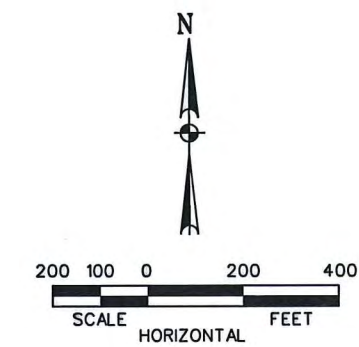
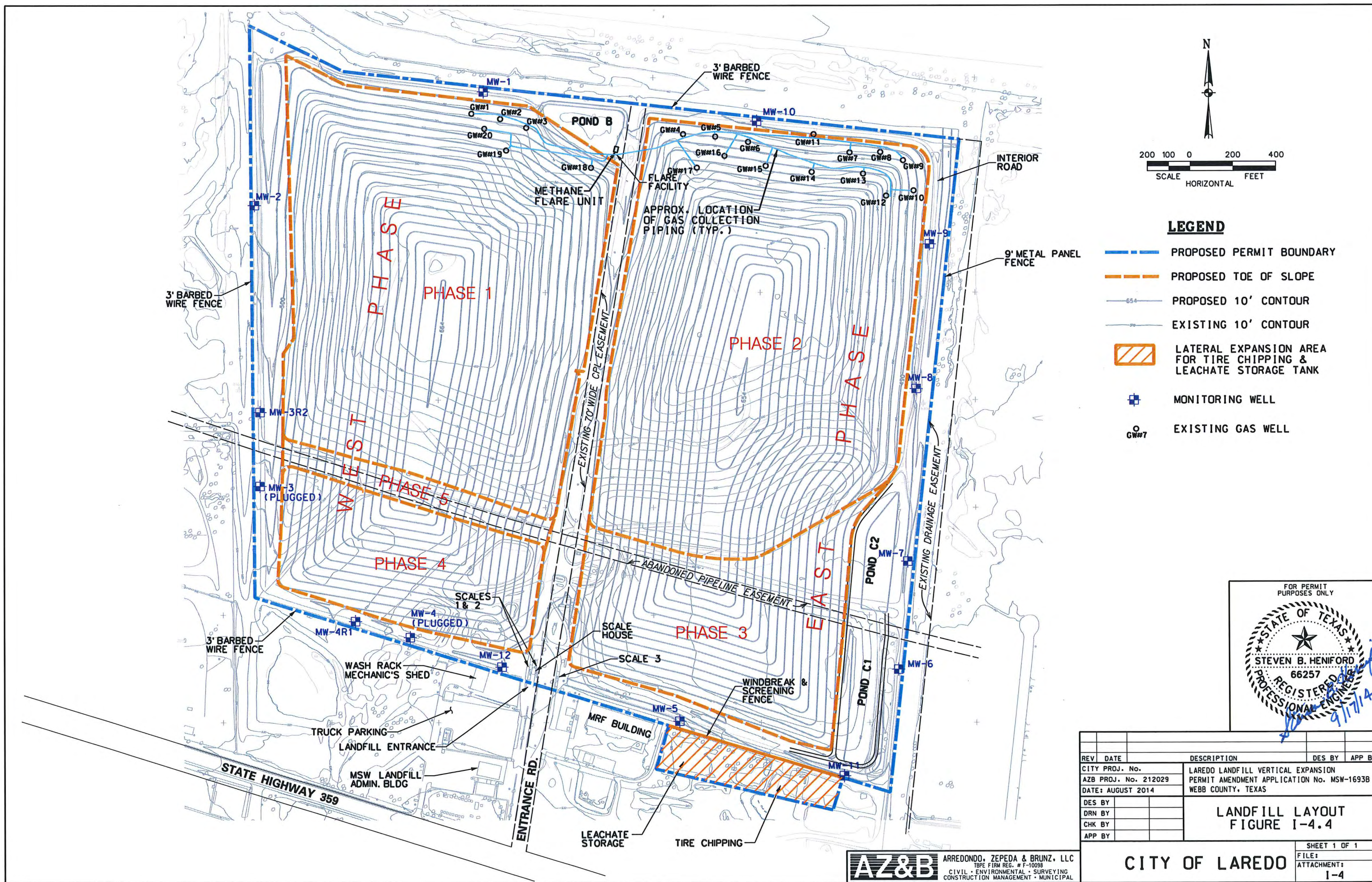
SOURCES:  
BASE MAP SOURCE IS LAREDO EAST, 1980 AND LAREDO SOUTH, 1979. USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS.  
TEXAS WATER DEVELOPMENT BOARD, WATER WELL REPORTS 2012.  
RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No.	212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE:	AUGUST 2014	WEBB COUNTY, TEXAS		
DES BY	SH	TOPOGRAPHIC MAP AND WATER, OIL & NATURAL GAS WELL LOCATIONS FIGURE I-4.3		
DRN BY	AZB			
CHK BY	SH			
APP BY	MC			
CITY OF LAREDO		SHEET OF		
		FILE:		
		ATTACHMENT:		
		I-4		

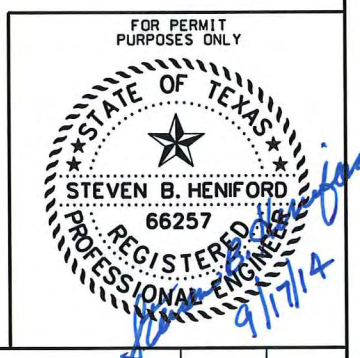
**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TYPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL





**LEGEND**

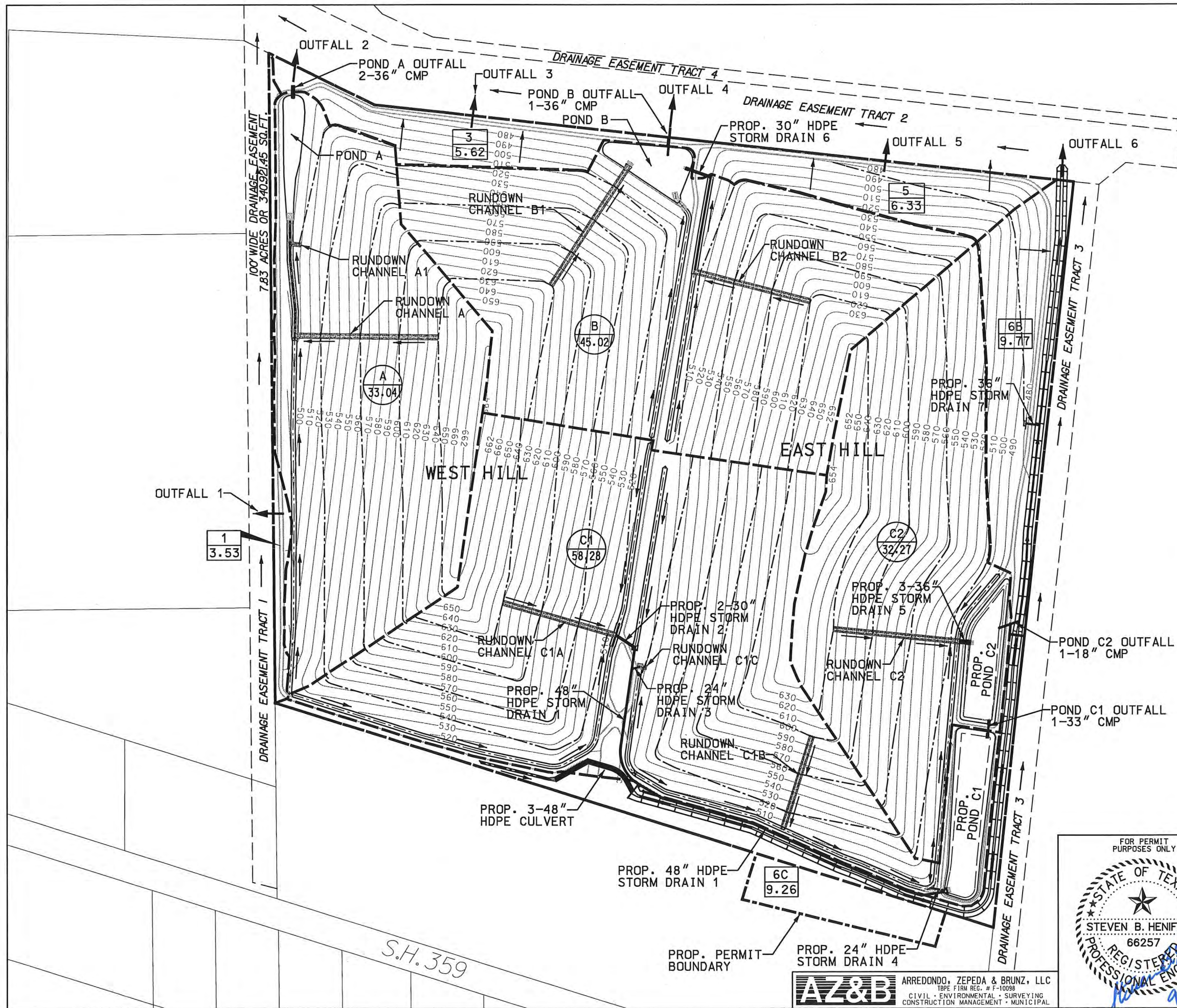
- PROPOSED PERMIT BOUNDARY
- PROPOSED TOE OF SLOPE
- PROPOSED 10' CONTOUR
- EXISTING 10' CONTOUR
- LATERAL EXPANSION AREA FOR TIRE CHIPPING & LEACHATE STORAGE TANK
- MONITORING WELL
- EXISTING GAS WELL



REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY		<b>LANDFILL LAYOUT</b> <b>FIGURE I-4.4</b>		
DRN BY				
CHK BY				
APP BY				
CITY OF LAREDO		SHEET 1 OF 1		
		FILE: ATTACHMENT: I-4		

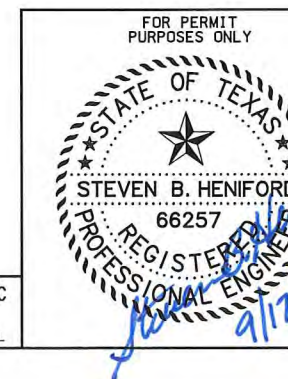
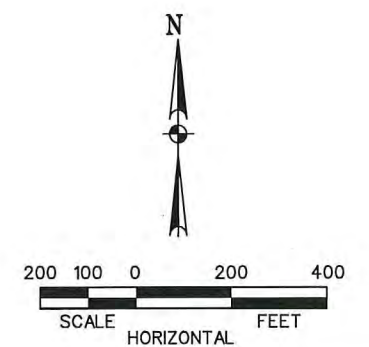
**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
 TPE FIRM REG. # F-10098  
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# LEGEND

- PROPOSED MAJOR DRAINAGE DIVIDE
- === PROPOSED DRAINAGE DITCH
- - - - - PROPOSED INTERCEPTOR BERMS
- PROPOSED DRAINAGE PIPE
- 490— PROPOSED FINAL ELEVATION
- ← FLOW DIRECTION
- C2**  
32.27  
— DETAINED DRAINAGE AREA I.D.  
— AREA (AC.)
- 2**  
3.25  
— UNDETAINED DRAINAGE AREA I.D.  
— AREA (AC.)
- ← OUTFALL POINT



REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		<b>DRAINAGE AND OUTFALL STRUCTURES</b> <b>FIGURE I-4.5</b>		
DRN BY AZB				
CHK BY SH				
APP BY MC				

CITY OF LAREDO

SHEET OF  
FILE:  
ATTACHMENT:  
I-4.5



**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**Part I  
Attachment 5  
Legal Status**

**LAREDO LANDFILL  
PART I  
Attachment 5  
Legal Status**

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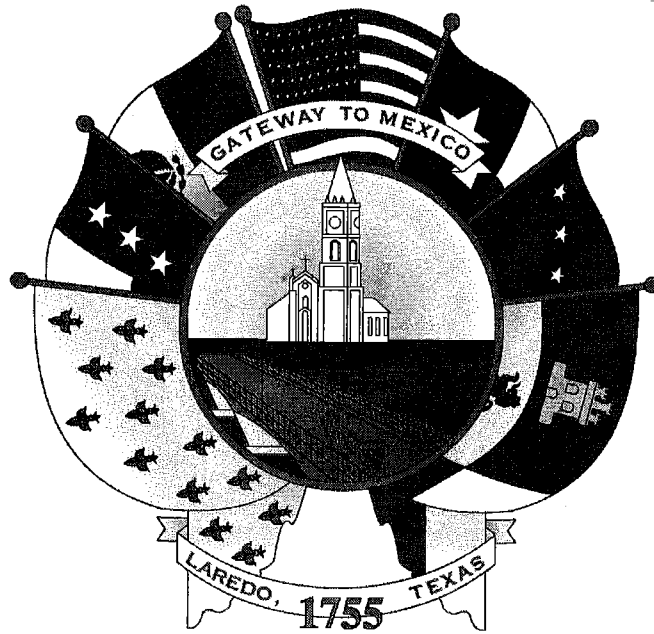
1.0	Introduction	<b>Page</b> 1
<b><u>List of Attachments</u></b>		
City Charter of the City of Laredo		

## 1.0 Introduction

The Landfill is owned and operated by the City of Laredo, Texas. No other persons or entities have greater than 20 percent ownership in the Landfill. As per the requirements of 30 TAC §330.59(e), the legal authority of the City has been verified and a copy of the charter filed with the State of Texas is included in this Attachment to Part I.

The Charter establishes that the City Manager is the “chief administrative and executive officer of the City.” As the City’s executive officer, the City Manager is designated to sign the application, and has the authority to delegate signatory responsibility related to the permit application.

# City Charter



## of the City of Laredo

As Amended (2010)

## Historical Sketch of the Founding of Laredo and Its City Charter

The City of Laredo was founded in August of 1755 by the Spanish Government by a public act of foundation known as the "Vicita-General", which laid off and established the City of Laredo in the months of May and June of that year.

The "Vicita-General" is a document containing the written proceedings of the Royal Commission that founded the City. By this document the Spanish Government granted to the inhabitants of the City "ejidos" or commons of four square leagues of land having the principal plaza of the town for a center. (City of Laredo vs. Macdonnell, 52 Texas, 511)

On January 28, 1848 the Legislature of the State of Texas, by special act, granted the City of Laredo its first charter under the government of Texas, by which charter the city limits were fixed at one square mile, of which the Rio Grande river constituted the line on the south and the upper and lower lines were equi-distant from the public plaza and ran back from the river parallel to each other to intersect the back line at right angles, all the lines being one mile in length and forming, as near as the meanders of the river would allow a perfect square. (Gammel's Law, Volume 3, page 343)

In 1850 the citizens of Laredo became dissatisfied with the narrow boundaries fixed by the act of 1848, and upon their request the boundaries of the City were changed by special act of the Legislature so as to make them the same as the original boundaries granted by the "Vicita-General", which was four square leagues. (Gammel's Laws, Volume 3, pages 760 and 798)

In 1860 the Legislature passed a special act authorizing the mayor and aldermen of the City of Laredo to sell all of the vacant porciones granted to said city by the "Vicita-General" or Royal Charter of 1767 and to convey to the purchasers thereof titles in fee simple. (Gammel's Law, Volume 5, page 195)

In 1871 the Legislature passed an act providing for the obtaining, transcribing and translating of all the acts, charters and grants affecting land on the east side of the Rio Grande river and for the archiving of the same in the General land Office at Austin. This act embraced the "Vicita-General" and the lands originally granted by it to the City of Laredo. (Gammel's Law, Volume 6, page 958)

On April 21, 1883, the City Council of Laredo, acting under provisions of the then Title 17 of the Revised Civil Statutes of Texas providing for the incorporation of cities and towns, passed a resolution surrendering the old special charter granted in 1848 and accepted the provisions of the general incorporation act of this State for cities and towns. (City Council Minute Book, Volume 3, page 120)

From this latter date to February 23, 1911, the City of Laredo operated under the general Texas incorporation act for cities and towns, when it procured its present charter

by a special act of the Legislature. (Special Acts, Regular Session 32nd Legislature, 1911, pages 58 to 89.) This latter charter is now in full force and effect as originally granted with the exception of Sections 19, 54 and 55 which were amended by a vote of the people on January 29, 1921, acting under the "Home Rule" amendment to the Texas Constitution.

The writer hereof was employed by the City of Laredo in 1911 to secure a special charter for it and he wrote and attended to the passage through the Legislature of the present charter, with the exception of the three amendments above noted, and he has made careful examination of all legislative acts affecting or changing former charters of the City, and has carefully compared this printed edition with the original special act and can vouch for its accuracy. (Marshall Hicks, February 25, 1922)

The 1911 Charter to which Mr. Hicks refers was printed in a series of four editions. The First Edition was prepared by Marshall Hicks dated February 25, 1922. The Second Edition of the Charter was prepared by Edward H. Lange, City Attorney, under the date of October 1, 1938.

The Third Edition printed was by Charter amendment elections held on July 8, 1941, January 8, 1946 and October 9, 1951.

The Fourth Edition printed included the amendments adopted at Charter amendment elections held on April 3, 1962 and November 30, 1965 and was replaced by the 1981 Charter.

The 1981 Charter was framed by members of the Laredo Charter Commission and voted upon by the citizens of the City of Laredo on January 14, 1981, and became fully effective on April 6, 1982.

On January 16, 1988 the citizens of the City of Laredo in an election on proposed charter amendments, voted favorably on certain amendments to the 1981 Charter, which amendments are incorporated in this edition. On an election held on November 7, 1995 the citizens approved several charter amendments proposed by the City Charter Commission.

On November 7, 2006 the Charter was amended with proposed revisions by members of the Laredo City Charter Revision Commission which were approved by the citizens of the City of Laredo.

A Charter Revision Commission was named on November 3, 2008 to review the charter and on July 26, 2010 the City Council approved the proposed amendments that went to the citizens of the City of Laredo who approved the present City Charter on November 2, 2010.

Gustavo Guevara, Jr. - City Secretary



# CHARTER OF THE CITY OF LAREDO

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Section 1.03 Powers of the City	5
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Section 1.05 Construction	5
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**ARTICLE I**  
**INCORPORATION, FORM OF GOVERNMENT**  
**AND POWERS OF THE CITY**

**Section 1.01 Incorporation**

The inhabitants of the City of Laredo, in Webb County, Texas residing within the corporate limits as now established and as hereafter extended, shall continue to be and are hereby constituted a municipal body politic and corporate, in perpetuity, under the name of "City of Laredo," hereinafter referred to as the "City," and having such powers, privileges, rights, duties, and immunities as are herein provided.

**Section 1.02 Form of Government**

The municipal government provided by this Charter shall be known as the "council-manager government." Pursuant to its provisions and subject only to the limitations imposed by the state constitution and by this Charter, all powers of the city shall be vested in an elective council, hereinafter referred to as "the City Council," which shall enact local legislation, adopt budgets, determine policies and appoint the city manager, who shall execute the laws and administer the government of the city. All power of the city shall be exercised in the manner prescribed by this Charter, or if the manner be not prescribed, then in such manner as may be prescribed by ordinance.

**Section 1.03 Powers of the City**

The City is and shall continue to be a Home Rule City, with full power of local self-government, including the right to amend this Charter as provided by the constitution and laws of this State. It shall have all the powers possible for a Home-Rule City under the constitution and laws of the State of Texas, as fully and completely as though they were specifically enumerated in this Charter.

**Section 1.04 Annexation**

The City Council shall have the power by ordinance to fix the boundary limits of the City of Laredo, and to provide for the alteration and the extension of said boundary limits, and the annexation of additional territory in accordance with applicable provisions of the constitution and laws of the State of Texas. The City Council shall have the power by ordinance to contract with owners of land for its voluntary annexation.

**Section 1.05 Construction**

The powers of the City under this Charter shall be construed liberally in favor of the City, as a Home-Rule City, and the specific mention of particular powers in the Charter shall not be construed as limiting in any way the general powers stated in this article.

### **Section 1.06 Intergovernmental Relations**

The City may exercise any of its powers or perform any of its functions by contract or otherwise, jointly or in cooperation with any state and civil authority, including the United States and foreign states.

As a general principle, the City of Laredo shall endeavor to create an environment of governmental co-operation with the County of Webb, the public school districts, and any other governmental entity or political subdivision of the State of Texas that abuts or is located within the City of Laredo. Such cooperation shall promote a seamless, efficient, effective, equitable, and accountable delivery of services to all citizens and residents of the City of Laredo and, to the extent allowable by law, to those citizens that fall under the extraterritorial jurisdiction of the City of Laredo. These endeavors shall be memorialized in the form of inter-governmental contracts, joint services agreements or memorandums of understanding, which will call for cooperation and sharing of services and resources among the governmental bodies herein mentioned.

**ARTICLE II**  
**CITY COUNCIL**

**Section 2.01 Composition, Qualifications and Terms**

**(A) Composition**

There is hereby created as the governing body of the City, a City Council composed of a Mayor and eight Council Members. The City shall be divided into eight districts which shall be drawn by ordinance. A City Council Member shall be elected from each of these eight districts. Whenever the term "City Council Member" is used in this Charter it refers to a member of the City Council other than the Mayor; however, the term, "City Council" shall mean the eight Council Members and the Mayor.

**(B) Qualifications**

The Mayor and all City Council Members shall be registered voters of the City, and shall have resided within the City for twelve months immediately preceding the last day for filing an application for candidacy. Additionally, City Council members shall have resided within the district for which they file for candidacy for ninety (90) days preceding the last day for filing of an application for candidacy and must maintain their residence in the district from which elected throughout their term of office.

**(C) Terms and Limits**

The term of a City Council Member is four years. No person shall be elected as a City Council Member for more than two terms. The vacating of office by a City Council member, whether by resignation or otherwise, shall constitute a full term irrespective of the length of time served. A person who has been elected as a City Council Member through a special election to finish an unexpired term longer than two years shall be deemed to have served a full term. No person shall be elected as a City Council Member through a special election if they have been elected to two terms. The terms of City Council Members shall be staggered with half of the City Council Members being elected every two years. Subject to the prohibitions and limitations of Section 2.03(A), service as a City Council Member does not limit service in another elected position.

**Section 2.02 Compensation; Expenses**

Unless otherwise provided by law, each member of the City Council shall receive compensation for his or her service in office. The City Council may determine the annual salary of the Mayor and City Council members by ordinance, but no ordinance increasing such salary shall become effective for Mayor or City Council members until the date of commencement of their respective new term, provided that such respective new term follows the adoption of the ordinance by at least three (3) months. The Mayor and City Council Members shall get a salary deduction to be assessed for each unexcused absence

from any regular City Council meeting. The Mayor and City Council Members shall receive reimbursement for their actual and necessary expenses incurred in the performance of their duties of office.

### **Section 2.03 Prohibitions**

#### **(A) Holding Other Office**

Except where authorized by law, neither the Mayor nor a Council Member shall hold any other City office or City employment during the term for which he or she was elected, and no former Mayor or Council Member shall hold any compensated appointive City office or City employment until one year after the expiration of the term for which he or she was elected.

#### **(B) Appointments and Approvals**

Unless it is otherwise specifically provided in this Charter, City Council shall not in any manner dictate the appointment or removal of any City administrative officer or employee whom the City Manager or any of his subordinates are empowered to appoint or remove, but the City Council may express its views and fully and freely discuss with the City Manager anything pertaining to appointment and removal of such officers and employees.

#### **(C) Interference with Administration**

Except for the purpose of inquiries for obtaining information or reporting problems with services and of investigations under Section 2.06, the City Council shall deal with City officers and employees who are subject to the direction and supervision of the City Manager solely through the City Manager and they shall not give orders to any such officer or employee either publicly or privately.

### **Section 2.04 Vacancies: Forfeiture of Office, Filling of Vacancies**

#### **(A) Vacancies**

The office of the Mayor or of a Council Member shall become vacant upon death, resignation, removal from office in any manner authorized by law, or by forfeiture of office.

#### **(B) Forfeiture of Office**

The Mayor or a Council Member shall forfeit office if he or she:

- (1) lacks at any time during the term of office any qualification for holding the office prescribed by this Charter or by law;
- (2) fails to meet the residency requirements for election to office;
- (3) is convicted of a crime involving moral turpitude or felony;



- (4) fails to attend three consecutive regular Council meetings without being excused by the Council; or
- (5) violates the prohibited personal financial interest provision set forth in Section 12.01 or any other provisions of this Charter that prescribe forfeiture.

**(C) Filling of Vacancies**

Any vacancy or vacancies occurring within the City Council and the office of the Mayor shall not be filled by appointment but shall be filled by majority vote of the qualified voters at a special election called for such purpose within 120 days after such vacancy or vacancies occur.

**Section 2.05 Judge of Qualifications**

The City Council shall be the judge of the election and qualifications of its members and of the grounds for forfeiture of office. The City Council shall have the power to subpoena witnesses, administer oaths and require the production of evidence. A member charged with conduct constituting ground for forfeiture of office shall be entitled to a public hearing. Notice of such hearing shall be published in one or more newspapers of general circulation in the City at least one week in advance of the hearing. Decisions made by City Council under this section are subject to judicial review.

**Section 2.06 Investigation**

The City Council shall have the power to inquire into the official conduct of any department, agency, office, or employee of the City. For this purpose the City Council shall have the power to administer oaths, subpoena, witnesses, and to compel the production of books, papers, and other evidence material to the inquiry. The City Council shall provide by ordinance penalties for contempt in failing or refusing to obey any such subpoena or to produce any such books, papers or other evidence, and shall have the power to punish any such contempt in the manner provided by the ordinance.

**Section 2.07 Procedure**

**(A) Meetings**

The City Council shall meet regularly at least once each month at such time and place as the City Council may prescribe by ordinance. Special meetings may be called upon the written request of the Mayor or at least four Council Members. All meetings shall be posted by the City Secretary and conducted in accordance with the Texas Open Meetings Act.

**(B) Rules and Minutes**

The City Council shall determine its own rules and orders of business, and shall provide for keeping minutes of its proceedings. These minutes shall be a public record.

### (C) Voting

Voting, except on procedural matters, shall be by roll call and the ayes and the nays shall be recorded in the minutes. The Mayor and any four (4) Council Members or any five (5) Council Members shall constitute a quorum, but a smaller number may adjourn from time to time and may compel the attendance of absent members in the manner and subject to the penalties prescribed by the rules of the Council. No action of the Council shall be valid or binding unless adopted by the affirmative vote of four or more Council Members. However, the affirmative vote of five (5) Council Members is required for levying of taxes, entering into contracts by the city, appropriating money from the City funds, granting any franchise or privilege for the use of the City streets or other public areas, conveying City lands, or passage of an emergency ordinance. For the purpose of the previous sentence, whenever there shall be an affirmative vote of four members of the Council, this shall be deemed a tie and thus the Mayor votes in accordance with Section 2.15(3).

### **Section 2.08 Action Requiring an Ordinance**

In addition to other acts required by law or by specific provisions of this Charter to be done by ordinance any and all of the following acts must also be done by ordinance:

- (1) Adopt or amend an administrative code or establish, alter or abolish any City department, office or agency;
- (2) Provide for a fine or other penalty or establish a rule or regulation for violation of which a fine or other penalty is imposed;
- (3) Levy taxes;
- (4) Grant, renew or extend a franchise;
- (5) Regulate the rate charged for services by a public utility;
- (6) Authorize the borrowing of money;
- (7) Convey or lease or authorize the conveyance or lease of any lands of the City;
- (8) Create certain boards and commissions provided by state law;
- (9) Amend or repeal any ordinance previously adopted; and
- (10) Prescribe standards for issuance of business or other licenses; and
- (11) Determine the salary of all elected and appointed City officials and employees.

Acts other than those referred to in the preceding sentence may be done either by ordinance or by resolution as prescribed by law.

### **Section 2.09 Ordinance in General**

#### (A) Form

Every proposed ordinance shall be introduced in writing and in the form required for final adoption. No ordinance shall contain more than one subject and such subject

shall be clearly expressed in its title. The enacting clause shall read: "Be it ordained by the City Council of the City of Laredo..." Any ordinance amending an ordinance or a part of the city code shall set out in full the ordinance, section or subsection to be amended, and shall indicate the matter to be omitted by enclosing it in brackets and by using strikeout type and shall indicate new matters by underscoring and by using italics.

(B) Procedure

An ordinance may be introduced by any member of the Council at any regular or special meeting of the Council. Upon introduction of any ordinance, the City Secretary shall distribute a copy to each member of the City Council, and shall file a reasonable number of copies in the office of the City Secretary and such other public places as the Council may designate, including the Internet. Except as provided in Section 2.11, no ordinance shall be submitted for a vote of the Council at the same meeting at which it was introduced. Except as provided in Section 8.03, it shall not be necessary that an ordinance be read more than one time before submission for a vote of the Council. The City Council must have a public hearing or inquiry sixty (60) days before it increases any type of taxes or service charges, or passes any bond issue, or utility rate increase. A public hearing shall also be required where State or Federal statutes or regulations provide.

(C) Effective Date

Except as otherwise provided in this Charter, or by ordinance or by law, all ordinances and resolutions passed by the Council shall take effect at the date indicated therein.

(D) Publication of Ordinances

Any ordinance imposing any penalty, fine, or forfeiture shall after the passage thereof, be published one (1) time in the official newspaper before the same shall go into effect. In lieu of publication of the full text of the ordinance, it shall be sufficient to publish the descriptive caption or title of the ordinance, stating in summary the purpose of the ordinance and the penalty for violation thereof. The ordinance shall take effect and be in force from and after the publication thereof, unless otherwise expressly provided.

**Section 2.10 Authentication and Recording; Publication and Codification**

(A) Authentication and Recording

The City Secretary shall authenticate by his/her signature and record in full, in a properly indexed book kept for the purpose all ordinances and resolutions adopted by the Council.

(B) Publication and Codification

The Council shall cause each ordinance and each amendment to this Charter to be made available to the public promptly upon its adoption. The Council shall provide for the preparation of a general codification of all City ordinances having the force of law.

The general codification shall be adopted by the Council by ordinance and shall be published promptly in loose-leaf form together with this Charter and any amendments thereto. The official copy of the Code of Ordinances in the office of the City Secretary shall be kept up to date and properly indexed. It shall not be necessary to repeat in the Code of Ordinances technical codes adopted by reference. One copy of the Code shall be furnished to City officials and officers. It shall also be placed in libraries and public offices for public reference and made available electronically and for purchase by the public at production cost. Amendments to the Code of Ordinances may also be purchased by the public as they become available.

#### (C) Printing

The council shall cause each ordinance and each amendment to this Charter to be printed promptly following its adoption, and the printed ordinances, and Charter amendments shall be distributed or sold to the public at reasonable prices to be fixed by the Council. Following publication of the first Laredo City Code and at all times thereafter, the ordinances and Charter amendments shall be printed in substantially the same style as the code currently in effect and shall be suitable in form for integration therein.

#### **Section 2.11 Emergency Ordinances**

To meet a public emergency affecting life, health, property or the public peace, the Council may adopt one or more emergency ordinances but such ordinances may not levy taxes, grant, renew or extend a franchise, regulate the rate charged by any public utility for its services or authorize the borrowing of money. An emergency ordinance shall be introduced in the form and manner prescribed for ordinances generally, except that it shall be plainly designated as an emergency ordinance and shall contain, after the enacting clause, a declaration stating that an emergency exists and describing it in clear and specific terms. An emergency ordinance may be adopted with or without amendment or rejected at the meeting at which it is introduced, but the affirmative vote of five (5) Council members shall be required for adoption. After its adoption the ordinance shall be published and printed as prescribed for other adopted ordinances. It shall become effective upon adoption or at such later time as it may specify. Every emergency ordinance shall automatically stand repealed as of the sixty-first (61st) day following the date on which it was adopted, but shall not prevent re-enactment of the ordinance in the manner specified in this section if the emergency still exists. An emergency ordinance may also be repealed by adoption of a repealing ordinance in the same manner specified in this section for adoption of emergency ordinances.

## **Section 2.12 Ordinances Still in Force**

All ordinances of said City now in force not contrary to the provisions of this Charter and the laws of this State shall continue in force until repealed.

## **Section 2.13 Codes of Technical Regulations**

The Council may adopt any standard code of technical regulations by reference thereto in an adopting ordinance. The procedure and requirements governing such an adopting ordinance shall be prescribed for ordinances generally except that:

- (1) The requirements in Section 2.09 for distribution and filing of copies of the ordinance shall be construed to include copies of the code of technical regulations as well as the adopting ordinances, and
- (2) A copy of each adopted code of the technical regulations as well as of the adopting ordinance shall be authenticated and recorded by the City Secretary pursuant to Section 2.10.

Copies of any adopted code of technical regulations shall be made available by the City Secretary for distribution or for purchase at a reasonable price.

## **Section 2.14 Mayor: Election and Term**

There shall be a Mayor elected by the qualified voters of the City at large. The Mayor shall serve a four (4) year term with a limit of two (2) elected four year terms excluding time served through appointment or election to an unexpired term.

## **Section 2.15 Powers and Duties of the Mayor**

- (1) Shall preside at Council meetings;
- (2) Shall be recognized as the head of the City Government and as the official representative of the City but shall have no administrative duties;
- (3) Shall only vote in case of a tie of Council Members;
- (4) Shall have the veto power and his/her veto may be overridden by a vote of five (5) Council Members.

## **Section 2.16 City Secretary**

The City Manager shall recommend a City Secretary whose appointment shall be confirmed by the affirmative vote of no less than five Council members. The City Secretary shall report to and be evaluated by the City Manager. It shall be the duty of the City Secretary to attend every meeting of the City Council and keep accurate minutes of the proceedings thereof in a book to be provided for that purpose and to engross and enroll all laws, resolutions and ordinances of the City Council; to keep the corporate seal;

to take charge of and preserve and keep in order all the books, records, papers, documents, and files of said Council; to countersign all commissions issued to the City officers and licenses issued; and any other duties and responsibilities as may be assigned by the City Council or state statute. The City Secretary may be removed from office by the affirmative vote of no less than five Council Members.

#### **Section 2.17 Internal Auditor**

The City Council shall appoint and evaluate an officer of the City who shall have the title of Internal Auditor and whose functions and duties shall be determined by ordinance. The Internal Auditor may be replaced or terminated by the affirmative vote of no less than five Council Members.

**ARTICLE III**  
**CITY MANAGER**

**Section 3.01 Appointment; Compensation**

The City Council, by the affirmative vote of no less than five Council Members, shall appoint a City Manager for an indefinite term and fix the manager's compensation. His/her compensation shall be reviewed on a yearly basis upon the anniversary of his/or employment date.

**Section 3.02 Qualifications**

The City Manager shall be appointed on the basis of executive and administrative qualifications. He/she shall have a Bachelor's Degree and no less than seven years experience in municipal government, five of which must be supervisory managerial experience. A Master's Degree in Public Administration is preferred. The City Manager need not be a resident of the City or State at the time of appointment, but must reside inside the City while in office.

**Section 3.03 Removal**

The City Manager shall not be appointed for a definite term, but may be removed at the will and pleasure of the City Council by the affirmative vote of no less than five Council Members. The action of the City Council in removing the City Manager shall be final, it being the intention of the Charter to vest all authority and fix all responsibility for such removal on the City Council.

**Section 3.04 Acting City Manager**

By letter filed with the City Secretary, the City Manager shall designate, subject to approval of the City Council, a qualified City administrative officer to exercise the powers and perform the duties of City Manager during his/her temporary absence or disability. During such absence or disability, the Council may revoke such designation at any time and appoint another officer of the City to serve until the City Manager shall return or his/her disability shall cease. In the event the City Manager is incapacitated and cannot or will not designate an Acting City Manager, then the City Council shall appoint an Acting City Manager by the affirmative vote of no less than five Council Members.

**Section 3.05 Powers and Duties of the City Manager**

The City Manager shall be the chief administrative and executive officer of the City. He/she shall be responsible to the City Council for the administration of all City affairs placed in his/her charge by or under this Charter. He/she shall have the following powers and duties:

(1) Shall appoint and, when he/she deems it in the best interest of the City, suspend, reassign, or terminate any City department directors provided for by or under this Charter, except as otherwise provided by law, this Charter or personnel rules adopted pursuant to this Charter. Department directors shall have the power to appoint, remove, or suspend all employees in their respective departments pursuant to policy as stated in Section 4.01(B), Directors of Departments;

(2) Shall direct and supervise the administration of all departments, offices, and agencies of the City, except as otherwise provided by this Charter or by law;

(3) Shall attend all City Council meetings and shall have the right to take part in discussion but may not vote;

(4) Shall see that all laws, provisions of this Charter and acts of this Council, subject to enforcement by the City Manager or by officers subject to City Manager's direction and supervision, are faithfully executed;

(5) Shall prepare and submit the annual budget and capital program to the City Council;

(6) Shall submit to the City Council and make available to the public a complete report on the finances and administrative activities of the City as of the end of each fiscal year;

(7) Shall make such other reports as the City Council may require concerning the operations of City departments, offices and agencies subject to his/her direction and supervision;

(8) Shall keep the City Council fully advised as to the financial condition and future needs of the City and make such recommendations to the City Council concerning the affairs of the City as he/she deems desirable, and

(9) Shall perform such other duties as are specified in this Charter or may be required by the City Council.



## **ARTICLE IV**

### **ADMINISTRATIVE DEPARTMENTS**

#### **Section 4.01 General Provisions**

##### **(A) Creation of Departments**

The Council may by ordinance establish City departments, offices or agencies in addition to those created by this Charter and may prescribe the functions of all departments, offices and agencies. No function assigned by this Charter to a particular department, office or agency may be discontinued or assigned to any other, except as otherwise provided by law or this Charter.

##### **(B) Director of Departments**

Department directors shall have supervisory responsibility over their respective departments and be subject to Section 3.05(1) and (2) and any other applicable provisions contained in this Charter.

#### **Section 4.02 City Attorney**

The chief legal counsel for the City of Laredo shall be the City Attorney. In representation of the City, the City Attorney shall advise the Council, the City Manager and all city departments in matters legal. The City Attorney shall also represent the City in legal proceedings and shall perform such other duties as may be prescribed by this charter or by ordinance.

The City Manager appoints the City Attorney subject to the confirmation by the affirmative vote of no less than five Council Members. The City Attorney shall serve until removed upon the recommendation of the City Manager and the affirmative vote of no less than five Council Members.

**ARTICLE V**  
**MUNICIPAL COURT**

**Section 5.01 Municipal Court**

There shall be a court known as The Municipal Court of the City of Laredo with such jurisdiction, powers, and duties as are given and/or prescribed by the laws of the State of Texas.

**Section 5.02 Judge of the Municipal Court**

The Judge of the Municipal Court shall preside over and administer the operation of the Municipal Court. The Judge shall be an attorney, licensed to practice in the courts in the State of Texas and shall reside within the city limits. The Judge shall be elected in the City at large. No person shall be elected as a Judge for more than two terms. The vacating of office by the Municipal Court judge, by resignation or otherwise, shall constitute a full term irrespective of the length of time served for a four year term with a limit of two elected four year terms in addition to any time served through appointment or election to an unexpired term. A judge shall not engage in the private practice of law. Notwithstanding this prohibition, a judge may act pro se and may, without compensation, give legal advice to and draft or review documents for a member of the judge's immediate family. The Judge of the Municipal Court shall receive such salary as shall be fixed by ordinance.

The Associate Municipal Judges shall be licensed to practice in the courts of the State of Texas. The Municipal Court Judge shall recommend one Associate Municipal Court Judge and the City Manager shall recommend one Associate Municipal Court Judge, and both must be confirmed by the affirmative vote of no less than five Council Members.

**Section 5.03 Clerk of the Municipal Court**

There shall be a Clerk of the Municipal Court who shall be nominated by the City Manager and then confirmed by the affirmative vote of no less than five Council Members, and who shall serve at the pleasure of the Council. The status of the Clerk of the Municipal Court shall be that of a department director. The clerk shall have the power to administer oaths and affidavits, make certificates, affix the seal of the court thereto, and otherwise perform any and all acts necessary in issuing process of such court and conducting the business thereof.

There shall be such Deputy Clerks of the Municipal Court as may be authorized by the Council, who shall have authority to act for and on behalf of the Clerk of the Municipal Court and who shall be appointed by the Clerk of the Municipal Court.

**ARTICLE VI**  
**FINANCIAL PROCEDURES**

**Section 6.01 Fiscal Year**

The City shall operate on a fiscal year commencing on the first of October and ending on the last day of September.

**Section 6.02 Submission of Budget**

At least sixty (60) days before the end of the fiscal year, the City Manager shall present to the Council a budget for the ensuing fiscal year with an accompanying budget message.

**Section 6.03 Budget Message**

The City Manager's message shall explain the budget in fiscal terms and in terms of work programs and capital programs. It shall outline the proposed financial policies embodied in the budget of the City for the ensuing fiscal year. The message shall describe the important features of the budget and indicate any major changes from the current year in financial policies, expenditures, and revenues together with the reasons for such changes. It shall include a summary of the City's debt position and major policies and changes in this area. The City Manager may include any other items deemed necessary.

**Section 6.04 Budget**

The budget shall provide a complete financial plan of all city funds and activities for the ensuing fiscal year and, except as required by law or this charter, shall be in such form as the City Manager deems desirable or the Council may require. The budget shall begin with a clear general summary of its contents; shall show in detail all estimated income indicating the proposed property tax levy, with estimated collectible and uncollectible amounts, and all proposed expenditures, including debt service, for the ensuing fiscal year; and shall be so arranged as to show comparative figures for actual and estimated income and expenditures of the current fiscal year and actual income and expenditures of the preceding fiscal year.

It shall indicate in separate sections:

(1) The proposed goals and objectives and expenditures for current operations during the ensuing fiscal year, detailed for each fund by organization unit, and program, purpose or activity, and the method of financing such expenditures;

(2) Proposed capital expenditures during the ensuing fiscal year, detailed for each fund by organization unit when practicable and the proposed method of financing each such capital expenditure;

(3) The anticipated income and expense and profit and loss for the ensuing year for each utility or other enterprise fund operated by the City;

(4) The bonded debt and other indebtedness of the city showing the debt redemption and interest requirements, the debt authorized and unissued, the condition of the sinking funds and the borrowing capacity of the City. If at any time the General Fund balance falls below 15% of appropriated funds, staff will develop a plan, approved by the City Council, to be implemented during the ensuing fiscal year to restore the fund balance to 15%.

(5) No funds, tax proceeds, or appropriations will be set aside specifically for any non-city government function, activity, department, agency or firm unless such entities have entered into a contract, agreement, engagement or study with the City, and such contract, agreement, engagement or study is included in the budget as finally approved and adopted by the Council.

Excess carry over funds from a prior fiscal year may be appropriated in the ensuing fiscal year for one time appropriations only. Such funds shall not be used for recurring annual operating costs. For any fund, the total of proposed expenditures shall not exceed the total of estimated income plus carried forward fund balance, exclusive of reserves.

#### **Section 6.05 Capital Program**

##### **(A) Submission to Council**

The City Manager shall prepare and submit a five year capital program at least 60 days before the end of the fiscal year.

##### **(B) Contents:**

The capital program shall include:

(1) A clear general summary of its contents;

(2) A list of all capital improvements which are proposed to be undertaken during the five fiscal years next ensuing with appropriate supporting information as to the necessity for such improvements;

(3) Cost estimates, method of financing and recommended time schedules for each such improvement; and

(4) The estimated annual cost of operating and maintaining the facilities to be constructed or acquired.

The above information may be revised and extended each year with regard to capital improvements still pending or in process of construction or acquisition.

(C) Exception to Capital Program

The cost of utility expansion must be made by those requesting expansion and the City Council will not obligate any citizen by adjusting the utility rate to defray cost.

**Section 6.06 Council Action on Budget and Capital Improvement Projects**

(A) Notice of Hearing

The Council shall publish on five separate days in a newspaper of general circulation in the City, a notice of the general summary of the budget and capital improvements projects. The notice must state:

(1) The times and places where copies of the budget and capital improvements projects are available for inspection by the public; and

(2) The time and place, not less than fourteen (14) calendar days after such publication, for a public hearing on the budget. The Council shall hold at least one public hearing during the period of its consideration.

(B) Amendment Before Adoption

After the public hearing the Council may adopt the budget with or without amendment. In amending the budget, it may add or increase programs or amounts and may delete or decrease any programs or amounts, except expenditures required by law or for debt service or for estimated cash deficit, provided that no amendment to the budget shall increase the authorized expenditures to an amount greater than the total of estimated income, nor appropriations be made in the budget to pay expenditures of a previous fiscal year.

(C) Adoption

The Council shall adopt the budget on or before the last day of the month of the fiscal year currently ending. If the City Council fails to adopt a budget by this date, the budget of the previous year shall be deemed to be adopted. Adoption of the budget shall constitute appropriations of the amounts specified therein as expenditures from the funds indicated and shall constitute a levy of the property tax therein proposed.

In accepting the budget, the Council shall complete drafts of the proposed budget ordinance, including an appropriation ordinance and such other ordinances as may be required to finance the budget. The City Council, by resolution, shall adopt the capital improvements projects with or without amendment after the public hearing and on or before the last day of the current fiscal year.

## **Section 6.07 Amendments After Adoption**

### **(1) Supplemental Appropriations**

If during the fiscal year the City Manager certifies that there are available for appropriation revenues in excess of those estimated in the budget, the Council by ordinance may make supplemental appropriations for the year, up to the amount of such excess. The appropriations shall only be made after a public hearing establishes a need for such supplemental appropriations.

### **(2) Emergency Appropriations**

To meet a public emergency affecting life, health, property or the public peace, the Council may make emergency appropriations. To the extent that there are no available unappropriated revenues to meet such appropriations, the Council may by such emergency ordinance authorize the issuance of emergency notes which may be renewed from time to time but the emergency notes and renewals thereof of any such year shall mature and be payable not later than the last day of the fiscal year.

### **(3) Reduction of Appropriations**

If at any time during the fiscal year it appears that the revenues available will be insufficient to meet the amount appropriated, the City Manager shall report to the Council without delay, indicating the estimated amount of the deficit, any remedial action taken and recommendations as to any other steps to be taken. The Council shall then take such further action as it deems necessary to prevent or minimize any deficit and for that purpose it may by ordinance reduce one or more appropriations.

### **(4) Transfer of Appropriations**

At any time during the fiscal year the City Manager may transfer part or all of the unencumbered appropriation balance among programs within a department, office, or agency and, upon written request by the City Manager, the Council may, by ordinance, transfer part or all of any unencumbered appropriation balance from one department, office or agency to another.

## **Section 6.08 Lapse of Appropriations**

Every appropriation, except an appropriation for a capital expenditure, shall lapse at the close of the fiscal year to the extent that it has not been expended or encumbered. An appropriation for a capital project shall continue in force until the purpose for which it was made has been accomplished or abandoned; the purpose of any such appropriations shall be deemed abandoned if five (5) years pass without disbursement from or encumbrance of the appropriation.

## **Section 6.09 Administration of Budget**

### **(A) Work Programs and Allocations**

At such time as the City Manager shall specify, each department, office or agency shall submit work programs for the ensuing fiscal year showing the requested funds, categorized by line items, for the fiscal year. The City Manager shall review and authorize such funds with or without revision as early as possible in the fiscal year. The City Manager may revise such funds during the year and if deemed desirable shall revise them to accord with any supplemental, emergency, reduced or transferred appropriations made pursuant to Section 6.07.

## **Section 6.10 Financial Reports**

The Manager shall, within thirty (30) days, after the close of each quarter of the City's fiscal year, present to the Council, and make available to the public, unaudited financial statements indicating the financial condition of the City. These statements shall include a Combined Balance Sheet of all funds, an Analysis of Change in Fund Balance, a Statement of Revenue (Actual and Estimated), a Statement of Expenditures and Encumbrances compared with the authorizations. An analysis of the Debt Service Funds and the General Long Term Debt Group Accounts shall also be provided quarterly, showing the debt authorized, issued and unissued, the condition of the sinking funds and the borrowing capacity of the City.

## **Section 6.11 Independent Audit**

Within thirty (30) days after the close of the fiscal year, the Council shall obtain an independent audit, by a certified public accountant firm, of all City Funds, Block Grants, and any other accounts associated with the City Funds for the preceding fiscal year. As an integral part of the audit, a compliance audit of all major grants shall be provided. Upon completion of the audit, the results thereof shall be reported in writing to the Council as soon as reasonably possible following the close of the fiscal year, and said report shall be public record. The results of this audit shall be published within thirty (30) days after completion. The Council shall, by request for qualifications, designate such accountant or firm annually or for a period of two (2) years, with an option to renew annually for a period not to exceed four years. The auditing firm selected shall have no personal interest, either direct or indirect with the City government, its management or personnel. The firm must be recognized as independent and void of any circumstances which reasonable people might believe to likely influence independence. To protect the integrity of the audit, the Council is prohibited to engage the same firm to perform any other kind of service whatsoever during the period of their audit engagement.

## **Section 6.12 Borrowing**

The Council shall have the power, except as prohibited by law, to borrow money by whatever method it may deem to be in the public interest.

The total overall outstanding debt shall be limited to 10% of the total assessed valuation of the City.

### **Section 6.13 Bonds**

#### **(A) General Obligation Bonds**

The City shall have the power to borrow money on the credit of the City and to issue general obligation bonds for the acquisition of property for permanent public improvements or for any other public purpose not now or hereafter prohibited by the Constitution and laws of the State of Texas. Except for the refunding of bonds previously issued, any proposition to borrow money and to issue such bonds shall first be approved by a majority of the voters at an election called for the purpose of authorizing the issuance of such indebtedness. The ordinance calling such election and the manner of conducting the election shall conform in all respects to the general laws of the State of Texas.

It shall be the duty of the Council to levy an annual tax sufficient to pay the interest on and provide the necessary sinking fund required by law on all outstanding general obligation bonds of the City. The interest and sinking fund shall be deposited in a separate account and shall not be diverted to or used for any other purpose than to pay the interest and principal on such bonds or for investment in such securities as may be provided by law. The sinking fund maintained for the redemption of any debt may be invested in any interest bearing bonds of the United States government and State of Texas or in any other securities not prohibited by the laws of the State of Texas. These funds may not be pledged as security or collateral for borrowing by the City.

#### **(B) Revenue Bonds**

The City shall have the power to borrow money for the purpose constructing, purchasing, improving, extending or repairing of public utilities, recreational facilities or facilities for any other self liquidating municipal function not now or hereafter prohibited by any general law of the State and to issue revenue bonds to evidence the obligation created thereby. Such bonds shall be a charge upon and payable solely from the properties, or interest therein, acquired and to the income therefrom, and shall never be a debt of the City. The Council shall have authority to provide for the terms and form of the purchase agreement, contract, mortgage, bond or document desired or necessary for the issuance of revenue bonds and the acquisition and operation of any such property or interest.

#### **(C) Certificates of Obligation**

The City Council is hereby authorized to issue Certificates of Obligation in accordance with the laws of the State of Texas.



(D) Sale of Bonds

Before bonds are sold they shall be submitted to and approved by the Attorney General of Texas in the manner and with the effect provided by the laws of the State of Texas.

(E) Bonds Incontestable

All bonds of the City having been issued and sold and having been delivered to the purchaser thereof, shall thereafter be incontestable and all bonds issued to refund in exchange for outstanding bonds previously issued shall and after said exchange be incontestable.

**Section 6.14 City Depository**

The City shall designate a primary bank to provide depository and specified banking services. The designation of such bank shall be made through a depository contract. A Request for Proposal for such contract shall clearly state the services that the City is requesting and the award of the contract shall be based on the lowest proposed cost for those services, or lowest compensating balance, or combination of both as is determined to be in the best interest of the City. The depository contract shall not exceed a period of five years.

The City Manager shall deposit all public funds in excess of the amount provided as a compensating balance on deposit. If a compensating balance is a term of the depository contract, funds in excess of that amount shall be available for investments authorized under the investment laws of the State of Texas.

The designation of a primary depository bank shall not restrict the City from entering into depository contracts with other financial institutions for the purposes of investing and/or receiving services not provided by the depository bank.

The City Manager shall comply with the terms of the depository agreement and such official shall not be liable for the loss of any money of said City so deposited by reason of any failure or suspension of such bank.

## **ARTICLE VII**

### **TAXATION**

#### **Section 7.01 Department of Taxation**

There shall be a Department of Taxation, the head of which shall be the City Tax Assessor and Collector, who shall be appointed by the City Manager, and shall be responsible for the assessment and collection of all taxes levied by the City of Laredo.

#### **Section 7.02 Powers of Taxation**

The City shall have the power to levy, assess and collect taxes in an amount and of every character and type not prohibited by the Constitution and laws of the State of Texas for any municipal purposes. The power and authority thus conferred upon the City Council shall not be restricted or limited by any other provisions of this Charter.

#### **Section 7.03 Tax Payments**

All taxes due the City of Laredo shall be payable at the office of the City Tax Assessor and Collector and may be paid any time after assessments have been made final by the Council.

Taxes shall become due on October 1st of the year of levy and shall be paid by the following January 31st. Taxes for the current year not paid by April 30th of the year following the year of levy and all taxes for each year thereafter not paid by January 31st following the year of levy shall be subject to penalty in accordance with State Law. There shall be no extension of time for payment of taxes, nor remission, discount, or compromise of any tax, penalty and interest legally due to the City. The City Council, however, may provide a discount for early payment.

#### **Section 7.04 Tax Liens and Liability**

All property, real, personal and mixed, situated in the City of Laredo in the first day of January of each year shall be charged with a lien in favor of the City for the taxes due thereon. All issues of liability, priority of liens, foreclosure and collection of same shall be in accordance with the Texas Tax Code.

#### **Section 7.05 No Separate Assessments**

The City Tax Assessor and Collector shall not be required to make separate assessments of joint or conflicting interest in any real estate.

#### **Section 7.06 Arrears of Taxes; Offset to Debt Against City**

No money shall be paid by the City upon any claim, debt, demand or account whatsoever, to any person, firm or corporation who is in arrears to the City of Laredo for taxes; and the City shall be entitled to counter-claim and offset against any such debt, claim, demand or account in the amount of taxes so in arrears, and no assignment or transfer of such debt, claim, demand or account after the said taxes are due, shall affect the right of the City to so offset the said taxes against the same.

## **ARTICLE VIII**

### **FRANCHISES, PUBLIC UTILITIES, & MUNICIPAL OWNED ENTERPRISES**

#### **Section 8.01 Inalienability of Public Property**

The right of use of the public streets, highways, byways, sidewalks, alleys, parks, public squares, public places, and other public facilities of the City is hereby declared to be inalienable by the City, except by ordinances not in conflict with the provisions of this Charter. No act or omission by the Council or any officer or agent of the City shall be construed to grant, renew, extend, or amend by estoppel or indirection any right, franchises or easement affecting said public streets, highways, byways, sidewalks, alleys, parks, public squares, public places, other public facilities and other real property.

#### **Section 8.02 Power to Grant Franchise**

The Council shall have the power by ordinance to grant, renew, and extend all franchises of all public utilities of every character operating within the City, and, with consent of the franchise holder to amend the same. No franchise shall be granted for an indeterminate term, and no franchise shall be granted for a term of more than twenty-five (25) years.

#### **Section 8.03 Ordinance Granting Franchise**

Every ordinance granting, renewing, extending, or amending a public utility franchise shall be read at three (3) regular meetings of the Council, and shall not be finally acted upon until thirty (30) days after the first readings thereof.

Within five (5) days following each of the three (3) readings of the ordinance, the full text thereof shall be published one time in some newspaper of general circulation of the City, and the expense of such publication shall be borne by the prospective franchise holder. No such ordinance shall become effective until the expiration of sixty (60) days following the date of its final adoption.

#### **Section 8.04 Transfer of Franchise**

No franchise shall be transferred by the holder thereof by ordinance.

#### **Section 8.05 Regulation of Franchise**

Every grant, renewal, extension, or amendment of a franchise, or not provided in the granting ordinance is subject to the right of the Council to:

(1) forfeit the franchise at any time for failure of the franchisee to comply with the terms of the franchise, after a due process hearing;

(2) impose reasonable regulations to insure safe, efficient and continuous service to the public;

(3) require such expansion and extension of plants and facilities as are necessary to provide adequate service to the public;

(4) require every franchisee to furnish to the City, without cost to the City, full information regarding the location, character, extent and condition of all facilities of such franchisee in, over and under the streets, alleys, and other public property of the City; and to regulate and control the location, relocation, and removal of such facilities;

(5) collect from every franchisee operating in the City its fair and just proportion of the expense of excavating, grading, paving, repaving, constructing draining, repairing, maintaining, lighting, sweeping, and sprinkling such portions of the alleys, bridges, culverts, viaducts, and other public places and ways of the City as may be occupied or used in whole or in part by such franchisee; or to compel such franchisee to perform, at its own expense, its just share of such excavating grading, paving, repaving, constructing, draining, repairing, maintaining, lighting, sweeping and sprinkling;

(6) require every franchisee to allow other franchisees to the use of its tracks, poles, wires, pipes or other facilities, including bridges and viaducts, whenever the Council, after notice and hearing, finds such use to be in the public interest; provided Council shall fix reasonable rental to be paid to the owner of the franchise of the facility for such use.

- (7) (a) prescribe the form of accounts kept by every franchisee;  
(b) examine and audit at any time the accounts and records of any franchisee;  
(c) require reports in such form and frequency as prescribed by Council.

(8) require and collect any compensation; as allowed by law; and

(9) require such franchisees who request an increase in rates, charges or fares, to reimburse the City for reasonable expenses incurred in employing rate consultants to conduct investigations, present evidence and advise the Council on such requested increase.

#### **Section 8.06 Water, Gas, Electricity, and Other Essential Services**

The City may provide its inhabitants with water, gas, electricity and other essential services as may be determined by the Council. The Council shall have the power to construct or purchase facilities to provide these services and to regulate and prescribe the rates and terms for such services. The City may contract with public or private companies to provide the city and its inhabitants with water, gas, electricity, and other essential services. The Council shall have the power to regulate and prescribe the rates and terms for these services.

#### **Section 8.07 Accounts of Municipally Owned Utilities and Enterprises**

Accounts shall be kept for each utility owned or operated by the City in such manner as to show the true and complete financial results of such City ownership and operation, including all assets appropriately subdivided into different classes, all

liabilities subdivided by class, depreciation reserve, other reserves and surplus; also revenues, operating expense including depreciation, interest payments, rental and other distribution of annual income. The accounts shall show the actual capital cost to the City of each public utility owned, also the cost of all extensions, additions and improvements and the source of the funds expended for such capital purposes. Accounting records shall show the cost of any service furnished to or rendered by any such utility or enterprise to any other City or governmental department. The City Council shall annually cause to be made and published a report showing the financial results of such City ownership and operation giving the information specified in this section and such additional data as the City Council shall deem expedient.

## **ARTICLE IX**

### **PLANNING AND ZONING**

#### **Section 9.01 Planning and Zoning Director**

There shall be a Planning and Zoning Department headed by a director who shall be appointed and removed by the City Manager with approval of the City Council. The responsibilities of the planning director include:

- (1) advising the City Manager on any matter affecting the physical development of the City;
- (2) formulating and making recommendations to the City Manager for a comprehensive plan;
- (3) reviewing and making recommendations regarding proposed Council action implementing the comprehensive plan pursuant to established planning procedure;
- (4) participating in the preparation and revision of the capital improvement program;
- (5) advising the City Planning and Zoning Commission in the exercise of its responsibilities and to provide necessary staff assistance.

#### **Section 9.02 City Planning and Zoning Commission**

There shall be a City Planning and Zoning Commission consisting of nine members nominated by the Mayor and Council who shall serve at the pleasure of the City Council and appointed by a majority of a quorum of the City Council, but in no event by less than the affirmative vote of four Council Members. The Mayor and Council Members shall nominate one member each from among the qualified voters of the City for the term of the officeholder who made the nomination. Upon vacancy, subsequent nomination shall be by the Mayor or Council Members of the respective district corresponding to the original appointment. Members of the Commission shall hold no other City office, employment, or appointment. The Commission shall make recommendations to the City Manager and the City Council on all matters affecting the physical development of the City, shall be consulted on the creation and implementation of the comprehensive plan, and shall exercise all other responsibilities as may be provided by law. Reasons for forfeiture of office by a commissioner shall include failure to attend three consecutive meetings without being excused by the Commission.

#### **Section 9.03 Comprehensive Plan**

##### **(A) Content**

The Council shall adopt, and shall review or modify each year before the adoption of the budget, a comprehensive plan to govern the future physical development of the City. The requirements and contents of the comprehensive plan shall be specified by ordinance.

(B) Adoption

The City Manager shall submit the proposed comprehensive plan or proposed modification of the existing plan. The Council shall refer such proposal to the City Planning and Zoning Commission which shall within a time specified by the Council, report its recommendations thereon. After receipt of the recommendations of the Commission, the Council shall hold a public hearing on the proposed comprehensive plan or modification thereof and shall thereafter adopt it by resolution with or without amendment.

(C) Effects

The comprehensive plan shall serve as a guide to all future Council action concerning land use and development regulations, urban renewal programs and expenditures for capital improvements.

**Section 9.04 Implementation of the Comprehensive Plan**

(A) Land Use and Development Regulations

By ordinance, the Council may adopt land use and development regulations, including but not limited to an official land use map and zoning and subdivision regulations.

(B) Urban Renewal

The Council may, by ordinance, provide for redevelopment, rehabilitation, conservation and renewal programs for:

- (1) the alleviation or prevention of slums, obsolescence, blight, or other deleterious conditions, and
- (2) the achievement of the most appropriate use of land and environmental protection.

(C) Council Action

Before acting on any proposed ordinance concerning land use and development, where such ordinance refers to a matter covered by the comprehensive plan, the Council shall refer the proposal to the Planning and Zoning Commission, which shall within a time specified by the Council and prior to the public hearing on the proposed ordinance report its recommendations thereon. Prior to adopting any such ordinance, the Council shall report on the relationship between the ordinance and the comprehensive plan. In the event that the ordinance is adopted and does not accord with the comprehensive plan, the plan shall be deemed to be amended in accordance with the ordinance.

**Section 9.05 Board of Adjustment**



By ordinance, the Council shall establish a board of adjustment and shall provide standards and procedures for such board to hear and determine those matters specified in accordance with Texas Local Government Code, Section 211.008 et. seq. There shall be nine members who shall be appointed for terms of two years. The Mayor and each member of the City Council shall nominate one member of the Board who will be appointed by a majority of the City Council for service during the term of the officeholder who made the nomination, and further, that upon vacancy, subsequent nomination shall be by the Mayor or Council Member from the respective district corresponding to the original appointment.

## **ARTICLE X**

### **NOMINATIONS AND ELECTIONS**

#### **Section 10.01 City Elections**

##### **(A) Regular Elections**

The regular City election shall be held on a date determined by City Ordinance in compliance with the Texas Election Code and the Texas Constitution.

##### **(B) Qualified Voters**

All citizens qualified under the Constitution and Laws of the State of Texas to vote in a City election and who satisfy the requirements for voter registration prescribed by law shall be qualified voters of the City within the meaning of this Charter.

##### **(C) Conduct of Elections**

Except as otherwise provided by this Charter, the provisions of the general election laws of the State of Texas shall apply to elections held under this Charter. All elections provided for by the Charter shall be conducted by the election authorities established by law.

#### **Section 10.02 Nominations**

Any person filing for office shall file an application with the City Secretary in accordance with the Texas Election Code.

#### **Section 10.03 Ballots**

The ballot shall be prepared in accordance with the Texas Election Code. Candidates shall draw for position on the ballot in accordance with the Texas Election Code.

#### **Section 10.4 Determination of Election Results**

##### **(A) Majority**

A majority vote for any office is that number of votes which is a majority of the total number of valid ballots cast for the office concerned. Any candidate who receives a majority vote shall be declared elected. If none of the candidates for any particular office receives a majority vote none of such candidates shall be declared elected.

##### **(B) Runoff Election**

If under the foregoing provisions of this section one or more offices remain unfilled after the election, a runoff election shall be held according to the current Texas Election Code to fill them. The names (in each case) shall be those of the two candidates polling the greatest numbers of votes in the initial election.

#### **Section 10.05 Ballots for Ordinances and Charter Amendments**

An ordinance or Charter amendment to be voted on by the voters of the City shall be presented for voting by ballot title. The ballot title of a measure may differ from its legal title and shall be a clear, concise statement describing the substance of the measure without argument or prejudice. Below the ballot title shall appear the following question: "Shall the above described (ordinance) (amendment) be adopted?" Immediately below such question shall appear in the following order, the words "yes" and "no" and to the left of each a square in which by making a cross (X) the voter casts his vote.

#### **Section 10.06 Council Districts; Adjustment of Districts**

##### **(A) Number of Districts**

There shall be eight (8) City Council districts.

##### **(B) Redistricting Commission**

The Council shall appoint sixteen (16) registered City voters who shall comprise the Redistricting Commission. The Commissioners shall not be employed by the City in any capacity. Each Council member will appoint two (2) commissioners.

##### **(C) Report; Specifications**

By the first day of January after every Federal census, or as soon as feasible, after release of certifiable population figures by the federal census the Redistricting Commission shall file a report with the City Secretary containing a recommended plan for adjustment of the Council district boundaries to comply with these specifications: (1) each district shall be formed of compact, contiguous territory, as nearly rectangular as possible, and its boundary lines shall follow the center lines of streets; (2) each district shall contain as nearly as possible the same number of people but districts shall not differ in population by more than ten (10) percent of the population in the smallest districts created.

The report shall include a map and description of the districts recommended and shall be drafted as a proposed ordinance. Once filed with the City Secretary the report shall be introduced as an ordinance by a Council member.

##### **(D) Procedure**

The procedure for the Council's consideration of the report shall be the same as for other ordinances, provided that if a summary of the ordinances is published pursuant to Section 2.09, it must include both the map and the description of the recommended districts.

(E) Failure to Enact Redistricting Ordinances

The Council shall adopt the ordinance no more than 90 days from the date of its introduction. If not adopted by the City Council by the 91<sup>st</sup> day, the report of the Redistricting Commission shall be deemed to have been adopted.

(F) Enactment

The new Council districts and boundaries, as of the 181<sup>st</sup> day after adoption of the redistricting ordinance, shall supersede previous Council district boundaries for all purposes of the next regular City election. The new districts and boundaries shall supersede previous districts and boundaries for all other purposes as of the date on which all Council members elected at that regular City election take office.

(G) Incumbent Options on Redistricting Changes

The redistricting changes affect the boundaries of the district that a particular Council member represents, as follows:

- (1) A council member serving a first term of office who is eligible for re-election may:
  - (a) choose to finish out the term the Council member was elected to; or
  - (b) choose to run for election in the new district that the Council member resides in.

The end result would mean that the Council member will have served the City for two terms and a total of six years. The original council district will now have a two-year unexpired term open for another candidate to seek election to.

- (2) A council member completing a final (second) term of office may:
  - (a) choose to finish out the term the Council member was elected to represent in the original district; or
  - (b) choose not to represent the district and thus a two-year unexpired term is left vacant for election.

## ARTICLE XI

### INITIATIVE, REFERENDUM, AND RECALL

#### Section 11.01 Recall Provisions

Any elected official may be removed from office by recall. A petition stating the specific grounds on which removal is sought shall be signed by the registered voters equal in number to ten (10%) percent of the votes cast in the City or District election to which the elected official was elected to office and shall be filed with the City Secretary by any registered voter who is eligible to vote in the proposed recall election. The recall petition shall have a time limit of six (6) months from the earliest date of any signature on the petition to the date of its filing with the City Secretary. Furthermore, no recall petition shall be filed against an elected official within six months after taking office nor within six months of the end of the elected term. A person subjected to recall election and not removed may not be the subject of another recall election for six months.

#### Section 11.02 Signatures to Petition

The signatures to recall petitions need not all be appended to one petition and may be duplicated and assembled, but to each separate paper there shall be attached an affidavit of the person circulating the petition and such paper shall be invalid without such affidavit. Each signer of any petition paper shall, after his/her signature, show the place of residence by street and number, voter registration certificate number, and the date that the signature was affixed on the petition. The affidavit attached to each petition or duplicate shall be as follows:

State of Texas  
County of Webb

\_\_\_\_\_, being duly sworn, deposes and says that he/she personally circulated the foregoing paper, that all the signatures affixed thereto were made in his/her presence, and that he/she believes them to be the genuine signatures of the persons whose names they purport to be.

Signed \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

\_\_\_\_\_  
Notary Public  
State of Texas

#### Section 11.03 Filing, Examination, and Certification of Recall Petition

All petition papers comprising a recall petition shall be assembled and filed with the City Secretary as one instrument. Within twenty (20) days after filing, the City Secretary shall determine whether each paper of the recall petition is properly attested and whether the petition is signed by the requisite number of registered voters. Upon

completing the examination, the City Secretary shall certify the results to the Council. If the recall petition is deemed to lack the required number of verified registered voters, the City Secretary shall set forth in detail the particulars in which it is defective; provided, however that except as to the particulars certified to be defective, the petition shall be deemed to be valid in all other respects.

#### **Section 11.04 Amendment of Petitions**

Exclusive of the six (6) month time limit stated in Section 11.01, a recall petition may be amended only once within twenty (20) days after certification of insufficiency by the City Secretary, by filing a supplementary petition upon additional papers signed and filed as provided in case of an original petition. The City Secretary shall, within ten (10) days after the supplement is filed, examine the supplementary petition and, if the amended petition is then found to be insufficient, the City Secretary shall file his certificate to that effect and notify the person filing the same and no further action shall be taken on such insufficient petition. The findings of the insufficiency of a petition shall not prevent the filing of a new petition for this same purpose.

#### **Section 11.05 Recall Election Ordered**

If a recall petition, is certified by the City Secretary to be sufficient, he shall at once submit it to the Council and notify the person whose removal is sought of such action. The Council shall order a recall election which shall be held at the next allowable election date under the Texas Election Code but, in no event, less than thirty (30) days after the petition has been certified. Resignation prior to the recall election shall cancel the election.

#### **Section 11.06 Ballots in Recall Elections**

Ballots used in recall elections shall read as follows:

“Shall (name of person) be removed from the office of \_\_\_\_\_ by recall?”  
Below such question there shall be printed the following as to each person.

“For the removal of (name of person).”  
“Against the removal of name of person).”

#### **Section 11.07 Result of Recall Election**

If a majority of the votes cast are against the recall of a person he/she shall continue in office for the remainder of his/her term, but shall remain subject to the recall provisions. If a majority of such votes are for the recall of a person he/she shall, regardless of any defect in the recall petition be deemed removed from office.

#### **Section 11.08 Limitation on Recall Petitions**

No recall petition shall be filed against a person within six months after taking office nor within six months of the end of the individual's term. A person subjected to recall election and not removed may not be the subject of another recall election for six months.

#### **Section 11.09 Power of Initiative**

The electors shall have the power to initiate any ordinance not in conflict with the Constitution or laws of the State of Texas or this Charter, and to adopt or reject the same at the polls.

#### **Section 11.10 Power of Referendum**

The electors shall have the power to approve or reject at the polls any ordinance passed by the Council. Ordinances submitted to the Council by initiative petition and passed by the Council shall be subject to the referendum in the same manner as other ordinances.

#### **Section 11.11 Form of Petition**

Any initiated ordinance or any ordinance subject to a referendum shall be submitted to the Council in a petition signed by qualified electors of the City equal in number to ten (10) percent of the electors qualified to vote at the time of the last regular municipal election. The petition shall be filed with the City Secretary and in the case of referendum, the petition must be filed within sixty (60) days after the enactment by the Council of any ordinance which is subject to a referendum.

The petition papers of an initiative or referendum shall be uniform in size and style. The initiative petition shall contain the full text of the proposed ordinance. The signatures need not all be attached to one page, but each separate page shall contain a statement that the signatory personally circulated the foregoing page (or paper), that all the signatures appended thereto were made in the signatory's presence and that the signatory believes them to be the signatures of the persons whose names they purport to be. Each signer to any petition shall sign in ink or indelible marker and shall indicate after their name their place of residence by street and number, and include the person's voter registration certificate number, and date of signature.

#### **Section 11.12 Filing, Examination and Certification of Petition**

All petition papers of an initiative or referendum shall be assembled and filed with the City Secretary as one document. Within twenty (20) days after a petition is filed, the City Secretary shall determine whether the petition contains the proper statement as per Section 11.11 above, and whether the petition has been signed by a sufficient number of qualified electors. The City Secretary shall reject as invalid or

insufficient any petition which does not comply with the provisions of this Charter. The City Secretary shall certify the result of the examination to the Council at its next regular meeting. If the City Secretary certifies that the petition is insufficient or invalid, the particulars shall be set forth in the certificate. The person filing the petition shall be notified promptly of the City Secretary's findings.

#### **Section 11.13 Amendment of Petition**

A petition for an initiative or a referendum may be amended at any time within twenty (20) days after the notification of rejection or insufficiency has been sent by the City Secretary. Amendments are to be made by filing supplements and additional pages signed and filed as provided in the case of an original petition. The City Secretary shall, within ten (10) days after such amendment is filed, examine the amended petition and, if the petition is still insufficient, the City Secretary shall file a certificate to that effect and notify the person filing the amendment of the findings. No further action shall be taken on such petition. The findings of the insufficiency of a petition shall not prevent the filing of a new petition for the same purpose.

#### **Section 11.14 Ordinance Not Suspended by Referendum**

An initiative shall not go into effect until it is approved by the City Council. The certification of a referendum petition shall not suspend the ordinance to which it is addressed.

#### **Section 11.15 Consideration by Council**

##### **(A) Initiative Petition**

The Council shall immediately consider an initiative petition upon its receipt from the City Secretary. A proposed initiative ordinance shall be read and provision shall be made for a public hearing. The Council shall take final action on the ordinance no later than sixty (60) days after the date on which such ordinance was submitted to the Council by the City Secretary.

##### **(B) Referred Ordinance**

The Council shall reconsider a referred ordinance and shall, within thirty (30) days from the receipt of the petition for referendum from the City Secretary vote upon the question, "Shall the ordinance be repealed?"

#### **Section 11.16 Submission to the Electors**

If the Council does not pass an ordinance proposed by an initiative petition, or passes it in a form different from that set forth in the initiative petition, or if the Council does not repeal a referred ordinance, the proposed or referred ordinance shall be submitted to the electors at the next special or regular municipal election.



#### **Section 11.17 Form of Ballot for Initiated and Referred Ordinances**

Ordinances submitted to a vote of the electors in accordance with the initiative and referendum provisions of this Charter shall be submitted under a ballot title which shall contain a clear, concise statement, without argument, of the substance of such ordinance. The ballot used shall have below the ballot title the following proposition, one above the other, in the order indicated "FOR THE ORDINANCE" and "AGAINST THE ORDINANCE." Any number of ordinances may be voted on at the same election and may be submitted on the same ballot.

#### **Section 11.18 Results of Election**

If a majority of the electors voting on a proposed initiative ordinance shall vote in favor thereof, it shall thereupon be an ordinance of the City. A referred ordinance which is not approved by a majority of the electors voting thereon shall thereupon be deemed repealed. If conflicting ordinances are approved by the electors at the same election, the one receiving the greatest number of affirmative votes shall prevail to the extent of such conflict.

#### **Section 11.19 Repealing Ordinances; Publication**

Initiative and referendum ordinances adopted or approved by the electors shall be published and may be amended or repealed by the Council, as in the case of other ordinances. No ordinance adopted by the Council in response to an initiative petition shall be amended or repealed by the Council within six (6) months of the adoption; and no ordinance repealed by the Council in response to a referendum petition shall be reenacted by the Council within six (6) months of the repeal.

## ARTICLE XII

### GENERAL PROVISIONS

#### Section 12.01 Personal Financial Interest

(A) Every officer and employee of the City shall be held to the highest standards of conduct and ethics in the performance of their duties and responsibilities to the City; and they shall not engage in any conduct or activity that is in conflict with or that has the appearance of a conflict with their duties to City or its best interest. Conflicts with the interests of the City include, but are not limited to financial conflicts of interest, the misuse of confidential information, and the use of City property for other than City purposes.

(B) Any violation of this standard of conduct shall cause a forfeiture of office and/or employment with the City. Any contract entered into as a result of the violation of this standard of conduct or that violates this standard of conduct, is voidable.

#### Section 12.02 Ethics Commission

The City Council shall, by ordinance, adopt a Code of Ethics, and establish an Ethics Commission to review and recommend standards of conduct not inconsistent with this Charter and with the Code of Ethics and to investigate all allegations of violations of the Code. The Ethics Commission shall consist of nine (9) members. The Mayor and each member of the City Council shall nominate one member of the Commission. Each nominee must be appointed by a majority of a quorum of the City Council, but in no event by less than the affirmative vote of four Council Members. The term of the commission member shall be for the term of the officeholder who made the nomination. Upon vacancy, subsequent nominations shall be by the mayor for mayoral appointments or the Council Member of the respective district corresponding to the original appointment.

#### Section 12.03 Civil Service Commission

The City Council shall establish a Civil Service Commission, for employees of City other than its fire fighters and police officers, whose decision on matters brought before it shall be final. Furthermore, the functions, composition and power shall be determined by ordinance. The Commission shall consist of nine (9) members. The Mayor and each member of the City Council shall nominate one member of the Commission. Each nominee must be appointed by a majority of a quorum of the City Council, but in no event by less than the affirmative vote of four Council Members. The term of the commission member shall be for the term of the officeholder who made the nomination. Upon vacancy, subsequent nomination shall be by the Mayor for mayoral appointments or the Council Member of the respective district corresponding to the original appointment.

#### **Section 12.04 Nepotism**

No person related within the second degree by affinity or within the third degree by consanguinity to the Mayor, any Council Member, any elected City official, City Manager, or any member of any City board or commission shall be appointed to any office, position, clerkship, or other position with the City. This prohibition shall not apply, however to any person who shall have been continuously employed by the City for a period of two (2) years or more prior to the election of the Mayor, Council member, or elected official or to the appointment of the City Manager or member of a board or commission related to such appointee in the prohibited degree.

#### **Section 12.05 Oath of Office**

Every person elected or appointed to any office in the City shall, before entering upon the duties of the office, take and subscribe to the oath of office in prescribed by Article XVI, Section I of the State Constitution.

#### **Section 12.06 Prohibitions**

##### **(A) Activities Prohibited**

(1) No person shall be appointed to or removed from, or in any way favored or discriminated against with respect to any City position or appointive City administrative office because of race, gender, age, disability, political or religious opinions or affiliations.

(2) No person shall willfully make any false statement, certificate, mark, rating or report in regard to any test, certification or appointment under the personnel provisions of this Charter or the rules and regulations made thereunder, or in any manner commit or attempt to commit any fraud preventing the impartial execution of such provisions, rules and regulations.

(3) No person who seeks appointment or promotion with respect to any City position or appointive City administrative office shall directly or indirectly give, render or pay any money, service or other valuable thing to any person in connection with his/her test, appointment, proposed appointment, promotion or proposed promotion.

(4) No person, including city employees, shall knowingly or willfully solicit or assist in soliciting any assessment, subscription or contribution for any political party or political purpose to be used in conjunction with any city election from any city employee.

(5) No city employee shall knowingly or willfully make, solicit or receive any contribution to the campaign funds of any political party or committee to be used in a city election or to campaign funds to be used in support of or opposition to any candidate for election to city office or city ballot issue. With the exception of members of council, no employee or officer of the city shall, in any way, participate in political activity of any nature while on duty, in uniform or using city resources except for that required by the employee election procedure for appointments of members of the Civil Service Commission. With the exception only of the City Manager, any Deputy City Manager,

any Assistant City Manager, the City Secretary, all of the staff of the City Secretary, all other officers and employees of the City of Laredo may participate in political activity, provided that no coercion or retaliation concerning political activity shall be allowed. None of the following: the City Manager, any Deputy City Manager, any Assistant City Manager, the City Secretary, and all of the staff of the City Secretary, shall, at any time, take part in any political activity on city related issues except to provide factual information at the direction of the City Manager, to express their own opinions privately, and to cast their votes.

(6) Any elected or appointed official or City employee who negligently or intentionally loses, damages, or injures records, documents or property of the City must reimburse the City for such losses.

(7) No payments shall be made or obligation incurred against any allotment or appropriation except in accordance with appropriations duly made and unless the City Manager or his designee first certifies that there is a sufficient unencumbered balance in such allotment or appropriation and that sufficient funds there from are or will be available to cover the claim or meet the obligation when it becomes due and payable.

#### **(B) Penalties**

The City Council shall enact such ordinance or ordinances as it deems necessary to enforce this section and prescribing a fine for any violation. Any person finally convicted of a violation of any such ordinance shall be ineligible for a period of five (5) years thereafter to hold any City office or position. If such person is an officer or employee of the City, they shall immediately forfeit the office or position.

#### **Section 12.07 Charter Amendment**

Amendments to this Charter may be framed and submitted to the voters of the City in the manner provided by Chapter 9 of the Local Government Code of Texas, as now or hereafter amended.

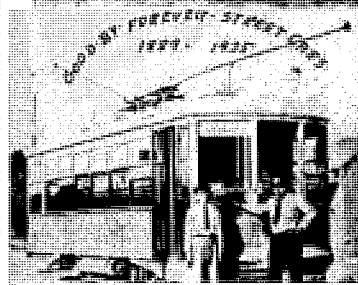
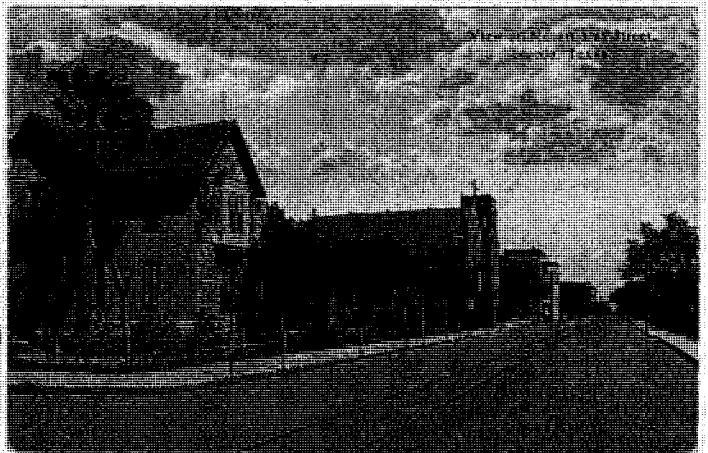
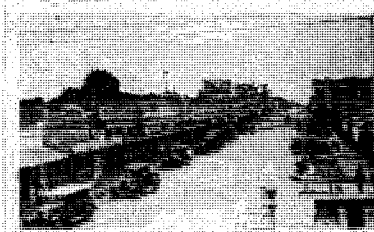
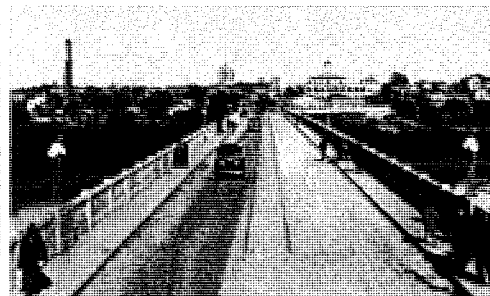
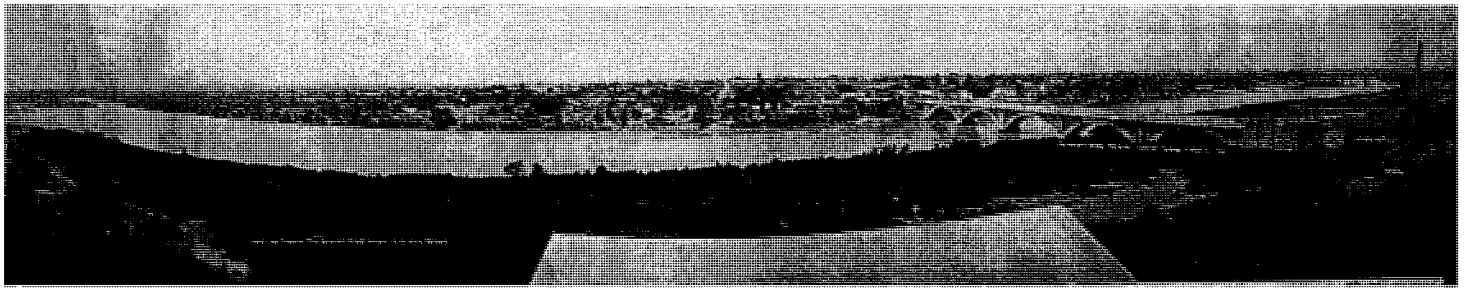
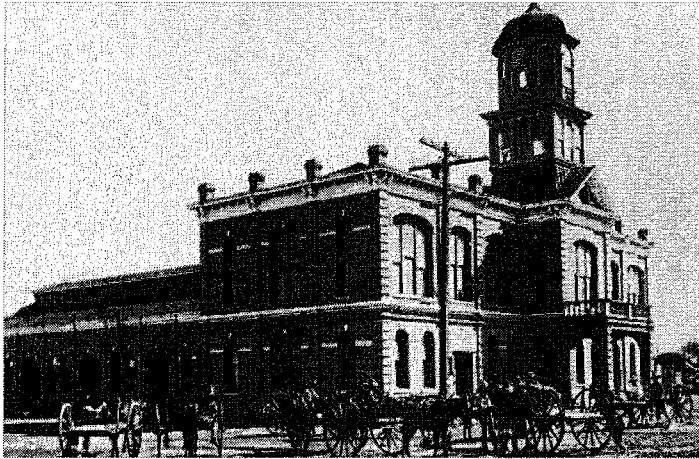
#### **Section 12.08 Separability**

If any provision of this Charter is held invalid, the other provisions of the Charter shall not be affected hereby. If the application of the Charter or any of its provisions to any person or circumstances is held invalid, the application of the Charter and its provisions to other persons or circumstances shall not be affected thereby.

#### **Section 12.09 Charter Commission; Charter Amendment**

The City Council shall each appoint a representative to a City Charter Commission to make recommendations to the City Council for amendment or amendments to said charter. The Commission shall consist of nine (9) members. The Mayor and each member of the City Council shall nominate one member of the Commission. Each nominee must be appointed by a majority of a quorum of the City Council, but in no event by less than the affirmative vote of four Council Members. The

term of the commission member shall be until revisions to the City Charter are presented to City Council. The foregoing sentence is cumulative of the provision of the Texas Election Code, which provides that (1) the city council, on its own motion, may submit a proposed charter amendment to the city's qualified voters for their approval at an election; and (2) the city council shall submit a proposed charter amendment to the voters for their approval at an election if the submission is supported by a petition signed by a number of qualified voters of the city equal to at least 5% of the number of qualified voters of the city, or 20,000, whichever number is smaller.



**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**Part I**  
**Attachment 6**  
**Property Owner Affidavit**

**LAREDO LANDFILL  
PART I  
Attachment 6  
Property Owner Affidavit**

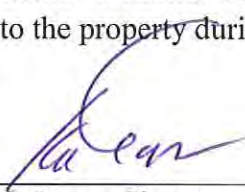
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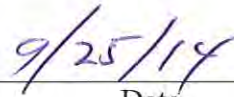
### Property Owner Affidavit

I, Carlos R. Villarreal, as City Manager, as authorized signatory for the City of Laredo, Texas acknowledge that the State of Texas may hold me either jointly or severally responsible for the operation, maintenance, and closure or post-closure care of the facility. For a facility where waste will remain after closure, I acknowledge that I have a responsibility to file with the county deed records an affidavit to the public advertising that the land 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, and to file a final recording upon completion of disposal operations and closure of the landfill units in accordance with Title 30 Texas Administrative Code 330.19, Deed Restrictions. I further acknowledge that I or the operator and the State of Texas shall have access to the property during the active life and post-closure care period.



Property Owner Signature

**Carlos Villarreal, City Manager**



Date

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**Part I**  
**Attachment 7**  
**Evidence of Competency**

**LAREDO LANDFILL  
PART I  
Attachment 7  
Evidence of Competency**

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**List of Tables**

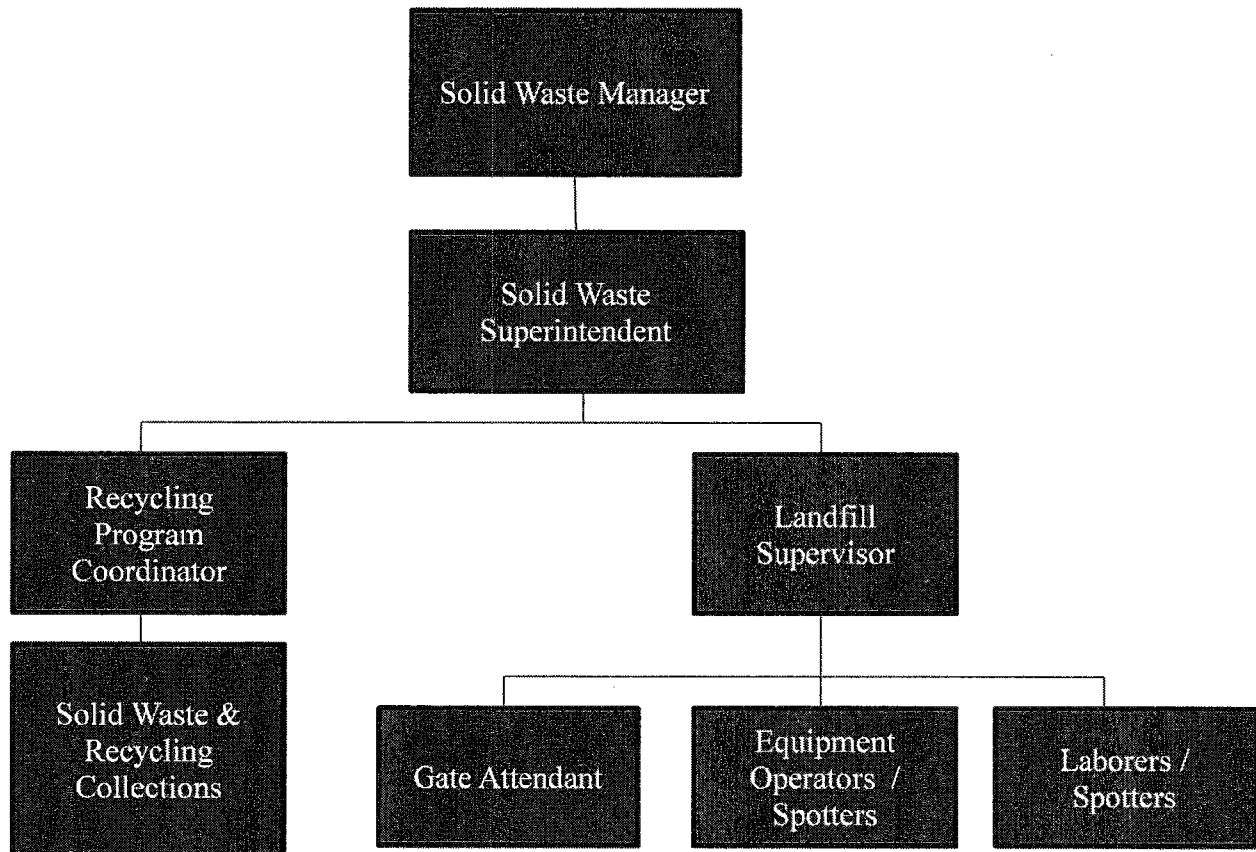
Table I.7.1:	Staff Certification
Table I.7.2:	Training Requirements
Table I.7.3:	Laredo Landfill Equipment List

## 1.0 Evidence of Competency 30 TAC § 330.59(f)

The City of Laredo has owned and operated the City's landfill since it was permitted in 1986. The initial permit 1693 was amended in 1999 to increase the height of the facility and is now permitted as 1693A. During this period, the City has maintained a good record of maintaining the facility and compliance with TCEQ requirements. The City has been the only owner and operator of the Landfill since it was permitted. The City has a 100% controlling interest in the Landfill. The City has not operated any other landfills.

The City's Solid Waste Department is organized as shown below.

Laredo Solid Waste Management  
Organization Chart



## 1.1 City of Laredo Solid Waste Manager

Mr. Stephen Geiss is the City of Laredo Solid Waste Manager. Mr. Geiss is responsible for general operations, personnel management, planning, scheduling, reporting and collection of user fees. It is his responsibility to ensure that operating procedures at the site are performed in accordance with those incorporated into the Permit, including the Site Operating Plan. He has the authority and the responsibility to: reject unauthorized loads; have unauthorized materials removed by the transporter; and assess appropriate surcharges for having unauthorized material removed by site personnel or a contractor. Mr. Geiss meets the requirements of the Laredo Landfill Site Operating Plan by having a Class A MSW License. Mr. Geiss was the Landfill Superintendent in 2004 and the Landfill Manager in 2009.

Table I.7.1 presents a summary of current key solid waste management staff and the TCEQ certifications held by these individuals.

**Table I.7.1  
Staff Certification**

Staff	Position	Class A Certificate/ License Number	Class B Certificate/ License Number	Other
Stephen Geiss	Solid Waste Manager	SW0004650		Completed 20 hours of MSW Renewal Course 0352
Alejandro Benavides	Solid Waste Superintendent	SW0004282		
Manuel B Vidaurri III	Solid Waste Supervisor	SW0005634		
Jesus A Rodriguez Jr	Solid Waste Supervisor	SW0005633		
Ernesto Elizondo Jr	Solid Waste Supervisor	SW0004272	SW0003067	
Randy Wise	Solid Waste Supervisor			Completed 12 hours of Renewal Course 0358

In addition to managing the landfill, the City also has the responsibility for collecting municipal solid waste from both residential and commercial sectors. The City also maintains a recycling program for the residential sector and promotes source reduction and recycling.

## 2.0 Personnel Responsibilities and Training

### 2.1 Personnel Responsibilities

Under normal operating conditions, the City accepts considerably more waste on weekdays versus weekends. Therefore, staffing levels during weekends is less than during weekday operations. The City will provide on-site management of the facility operations with the following minimal personnel:

- 1 – Solid Waste Manager
- 1- Solid Waste Superintendent
- 1 – Solid Waste Supervisor
- 4 – Equipment Operators (weekday)
- 2 – Equipment Operators (weekend)
- 2 – Gatehouse Attendants
- 2 – Laborers (weekday)
- 1 – Laborer (weekend)

**Table I.7.2  
Training Requirements**

Personnel Description	On-the-job training	Safety	Site Operating Plan	Emergency/Monitoring Equipment	Emergency Communications Procedures	Fire Protection Plan	Groundwater & Surface Water Contamination	Load Inspection Procedures	Prohibited Waste Identification	Waste Handling Procedures	Odor Management Plan	Prevention of Ponding Water	Record Keeping Procedures
Solid Waste Manager	X	X	X	X	X	X	X	X	X	X	X	X	X
Landfill Superintendent	X	X	X	X	X	X	X	X	X	X	X	X	X
Landfill Supervisor	X	X	X	X	X	X	X	X	X	X	X	X	X
Gate Attendant	X	X	X		X	X		X	X		X		X
Equipment Operator	X	X	X		X	X	X	X	X	X	X	X	X
Spotter/Load Inspector	X	X	X	X	X	X	X	X	X	X			X
General Laborer	X	X	X		X				X				

Either the Solid Waste Manager, Solid Waste Superintendent or the Solid Waste Supervisor will be present at the site during operating hours. Table I.7.2- Training Requirements lists the required training for staff responsible for operating and maintaining the Landfill.

Solid Waste Manager and Solid Waste Superintendent/Solid Waste Supervisor: The Solid Waste Manager, Solid Waste Superintendent and/or Solid Waste will be responsible for the general operation, personnel management, planning, scheduling, reporting and maintaining record keeping. It is their responsibility to ensure that the operating procedures at the site are performed in accordance with those incorporated into the SOP, Landfill permit, TCEQ MSWMR, Storm Water Pollution Prevention Plan, Spill Prevention Control Plan and other appropriate state or

federal regulations. They will also have the authority and the reasonability to reject unauthorized loads, have unauthorized materials removed by the transporter and assess appropriate surcharges for having unauthorized material removed by site personnel or a contractor.

The Solid Waste Superintendent is also responsible for implementation of the staff training program.

The Solid Waste Superintendent/Supervisor will serve as the emergency coordinator for the Landfill.

**Qualifications:** The Solid Waste Superintendent/Solid Waste Supervisor will be required to have adequate landfill operations experience; high school diploma; be familiar with TCEQ regulations; and the various uses and capabilities of landfill equipment. The Solid Waste Superintendent / Solid Waste Supervisor will maintain a current TCEQ Class A MSW license.

**Equipment Operators:** The Equipment Operators will be responsible for the operations of site equipment. As the personnel most closely involved with the actual disposal operations, these employees are responsible for being alert to any potentially dangerous conditions, or careless or improper actions on the part of non-employees or other persons while on the premises and reporting such observations to the Landfill Superintendent or Landfill Supervisor. The Equipment Operators may act as Spotters to direct unloading in an orderly and safe fashion at the active operations area.

**Qualifications:** Equipment Operators will be required to have six month (minimum) experience in equipment operations or on-the-job training by Landfill Supervisor and to know the limitations and use of landfill equipment. Additional training requirements for Equipment Operators are further described in Table I.7.2.

**Gate Attendants:** The entrance Gate Attendants are primarily responsible for maintaining records of vehicles entering the facility and waste tonnages disposed at the Landfill. The Gate Attendant will be trained to visually check for unauthorized wastes and to carry out these duties as outlined in the section "Detection and Prevention of Disposal of Prohibited Waste). Other duties will include collecting waste disposal fees and directing incoming traffic at the gate.

**Qualifications:** The Gate Attendants will be required to have experience and education commensurate with the job requirements, as described above, and computer literacy skills. If the new employee does not have previous landfill experience, he/she will be required to complete a training program or supervised on-the-job training specific to their job responsibilities, prior to working in an unsupervised position.

**Spotter/Load Inspectors:** An Equipment Operator or Gate Attendant will be designated as a Spotter/Load Inspector during Landfill Operations. There will be a Load Inspector at the working face at all times. Load Inspectors will inspect and observe each load that is disposed at the working face and perform random load inspections. Spotters/Load Inspectors will report the delivery of any prohibited waste to the Landfill Superintendent or Landfill Supervisor. Spotters/Load Inspectors will be trained in the following:

- Recognition of prohibited waste
- Procedures for managing prohibited wastes (if detected)
- Fire procedures
- Specific training as described in Section 2.2 – Personnel Training

Qualifications: The Spotter/Load Inspectors will be required to have experience and education commensurate with job requirements. If the new employee does not have previous landfill experience, he/she will be required to complete a training program or supervised on-the-job training specific to their job responsibilities prior to working in an unsupervised position. Training requirements for Spotters/Load Inspectors are described in Table I.7.2.

General Laborers: The General Laborers duties will include the following:

- Assisting Equipment Operators
- Serving as a spotter/load inspector
- Picking up litter and windblown waste
- General facility maintenance as needed

Additionally, other personnel may be employed as needed in categories such as equipment maintenance, mechanics and construction contractors.

Qualifications: Other personnel will be required to have six months (minimum) experience if employed for maintenance, construction or other skilled labor positions. If employed for general site cleanup, litter abatement, or other non-skilled labor, the employee will not be required to have previous experience. All General Laborers will complete on the job training specific to their job responsibilities, prior to working in an unsupervised position, as described in Section 2.2. Training requirements for General Laborers are described in Table I.7.2.

Additional personnel will be added as they are needed. An adequate level of staffing will be maintained at the Landfill at all times so that all operations will be conducted in compliance with the TCEQ's regulations and the Landfill's permit provisions and the annual waste acceptance rate.

## **2.2 Personnel Training**

Landfill personnel will be trained in the contents of the SOP and will complete a program or on-the-job training specific to their job responsibilities and title. Training will be designed to provide landfill personnel with the knowledge to respond effectively to emergencies by familiarizing the landfill personnel with emergency procedures, emergency equipment and emergency systems. Training will also be designed to educate landfill personnel in waste handling procedures, inspection procedures, and record keeping requirements. The training program or on-the-job training will address the following topics, where applicable:

- Procedures for using, inspecting, repairing and replacing landfill emergency and monitoring equipment.
- Emergency communications procedures and alarm systems



- Response procedures for fire and explosions
- Response procedures to surface water contamination incidents
- Procedures for shutdown of operations
- Applicable rules, safety procedures, contingency plans and permit requirements
- Customer notifications and load inspection procedures
- Identification of prohibited wastes, as described in the SOP
- Waste handling procedures (acceptable and prohibited wastes)
- Health and safety
- Record Keeping

Personnel training will be directed by a person trained in waste management procedures and will include instruction in waste management procedures relevant to their position. Landfill personnel will complete training within a reasonable timeframe after employment at the Landfill. Employees will not work in unsupervised positions until they complete a training program or on-the-job training. In addition, landfill personnel will receive annual reviews of their initial training. Specific training requirements for landfill personnel are provided in Table I.7.2. The Landfill Superintendent will maintain the following documents and records related to personnel training.

- Job title for each position at the Landfill, and the name of the employee with that position
- A written job description each position, including requisite skills, education, and other qualifications and responsibilities.
- A written description of the type and amount of introductory training and continuing training that will be required for each employee
- Records that document that the landfill personnel have completed the training and job experience required above.

The above documentation for training will be placed in the Site Operating Record (SOR). Training records for on-site personnel will be kept until closure of the Landfill. Training records on former employees will be kept for at least three years from the date of the employee last worked at the Landfill. Training records may accompany personnel transferred within the City of Laredo.

### **3.0 Equipment**

Equipment requirements may vary in accordance with the method and scope of Landfill activities at any given time. Additional or alternate units of equipment will be provided as necessary for operational efficiency. The Landfill will maintain a fleet of heavy equipment based on waste acceptance rates as provided in Table I.7.3.

**Table I.7.3**  
**Laredo Landfill Equipment List**

Equipment (1)	0-1500 tpd	1501-3500 tpd	3501- 5000 tpd
Compactors CAT 826G or equivalent	2	2	3
Dozers CAT D8N or equivalent	2	2	3
Motor Grader – CAT 140H or equivalent	1	1	2
Scrapers – Cat 623G or equivalent	2	2	2
Water Truck – CAT G5000 or equivalent	1	1	2

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
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**Webb County, Texas**  
**August 2014**

**PART I**  
**Attachment 8**  
**Core Data Form**

# **LAREDO LANDFILL**

## **PART I**

### **Attachment 8**

#### **Core Data Form**

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### **List of Attachments**

Attachment I.8.1 TCEQ Core Data Form



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> (If other is checked please describe in space provided)			
<input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application)			
<input type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)		<input checked="" type="checkbox"/> Other	<b>Amendment</b>
<b>2. Attachments</b> Describe Any Attachments: (ex. Title V Application, Waste Transporter Application, etc.)			
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Permit Amendment Parts I-IV			
<b>3. Customer Reference Number (if issued)</b>		<b>4. Regulated Entity Reference Number (if issued)</b>	
CN 600131908		RN 102327582	

## SECTION II: Customer Information

<b>5. Effective Date for Customer Information Updates (mm/dd/yyyy)</b>		9/15/2014	
<b>6. Customer Role</b> (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check only one of the following:			
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator	
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party	
<input checked="" type="checkbox"/> Owner & Operator		<input type="checkbox"/> Voluntary Cleanup Applicant	
<input type="checkbox"/> Other: _____			
<b>7. General Customer Information</b>			
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State)		<input type="checkbox"/> Change in Regulated Entity Ownership	
		<input checked="" type="checkbox"/> No Change**	
<b>**If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.</b>			
<b>8. Type of Customer:</b>			
<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	
<input checked="" type="checkbox"/> City Government		<input type="checkbox"/> Sole Proprietorship- D.B.A.	
<input type="checkbox"/> County Government		<input type="checkbox"/> Federal Government	
<input type="checkbox"/> Other Government		<input type="checkbox"/> State Government	
<input type="checkbox"/> General Partnership		<input type="checkbox"/> Limited Partnership	
<input type="checkbox"/> Other: _____			
<b>9. Customer Legal Name</b> (If an individual, print last name first: ex: Doe, John)		<b>If new Customer, enter previous Customer below</b>	
City of Laredo		<b>End Date:</b>	
6912 Hwy 359			
<b>10. Mailing Address:</b>			
City		Laredo	
State		TX	
ZIP		78043	
ZIP + 4		4787	
<b>11. Country Mailing Information</b> (if outside USA)		<b>12. E-Mail Address</b> (if applicable)	
<b>13. Telephone Number</b>		<b>14. Extension or Code</b>	
( 956 ) 795-2510		( ) -	
<b>15. Fax Number</b> (if applicable)			
( ) -			
<b>16. Federal Tax ID</b> (9 digits)		<b>17. TX State Franchise Tax ID</b> (11 digits)	
<b>18. DUNS Number</b> (if applicable)		<b>19. TX SOS Filing Number</b> (if applicable)	
<b>20. Number of Employees</b>		<b>21. Independently Owned and Operated?</b>	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input checked="" type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

## SECTION III: Regulated Entity Information

<b>22. General Regulated Entity Information</b> (If 'New Regulated Entity' is selected below this form should be accompanied by a permit application)	
<input type="checkbox"/> New Regulated Entity <input type="checkbox"/> Update to Regulated Entity Name <input type="checkbox"/> Update to Regulated Entity Information <input checked="" type="checkbox"/> No Change** (See below)	
<b>**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.</b>	
<b>23. Regulated Entity Name</b> (name of the site where the regulated action is taking place)	
City of Laredo Landfill	



<b>24. Street Address of the Regulated Entity:</b> (No P.O. Boxes)	6912 State Hwy 359							
	City	Laredo	State	TX	ZIP	78043	ZIP + 4	4787
<b>25. Mailing Address:</b>	6912 State Hwy 359							
	City	Laredo	State	TX	ZIP	78043	ZIP + 4	4787
<b>26. E-Mail Address:</b>	sgeiss@ci.laredo.tx.us							
<b>27. Telephone Number</b>	<b>28. Extension or Code</b>		<b>29. Fax Number (if applicable)</b>					
( 956 ) 795-2510			( 956 ) 796-1105					
<b>30. Primary SIC Code (4 digits)</b>	<b>31. Secondary SIC Code (4 digits)</b>		<b>32. Primary NAICS Code (5 or 6 digits)</b>			<b>33. Secondary NAICS Code (5 or 6 digits)</b>		
1629	3524		562212					
<b>34. What is the Primary Business of this entity?</b> (Please do not repeat the SIC or NAICS description.)								
Municipal Solid Waste Disposal								

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

<b>35. Description to Physical Location:</b>	2 miles east of intersection of Loop 20					
<b>36. Nearest City</b>	<b>County</b>		<b>State</b>		<b>Nearest ZIP Code</b>	
Laredo	Webb		TX		78043	
<b>37. Latitude (N) In Decimal:</b>	27, 29', 49.964"		<b>38. Longitude (W) In Decimal:</b>	99, 24', 16.031"		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	
27	29'	49.964"	99	24'	16.031"	

**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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Industrial Hazardous Waste	<input checked="" type="checkbox"/> Municipal Solid Waste
				1693A
<input checked="" type="checkbox"/> New Source Review – Air	<input type="checkbox"/> OSSF	<input checked="" type="checkbox"/> Petroleum Storage Tank	<input type="checkbox"/> PWS	<input type="checkbox"/> Sludge
2371				
<input checked="" type="checkbox"/> Stormwater	<input checked="" type="checkbox"/> Title V – Air	<input checked="" type="checkbox"/> Tires	<input checked="" type="checkbox"/> Used Oil	<input type="checkbox"/> Utilities
TXR05A235	80765	6200048	A85881	
<input type="checkbox"/> Voluntary Cleanup	<input type="checkbox"/> Waste Water	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

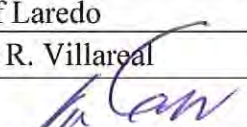
#### SECTION IV: Preparer Information

<b>40. Name:</b>	Steven Heniford		<b>41. Title:</b>	Project Engineer	
<b>42. Telephone Number</b>	<b>43. Ext./Code</b>	<b>44. Fax Number</b>	<b>45. E-Mail Address</b>		
( 214 ) 341-9900		( 214 ) 341-9925	sheniford@azb-engrs.com		

#### SECTION V: Authorized Signature

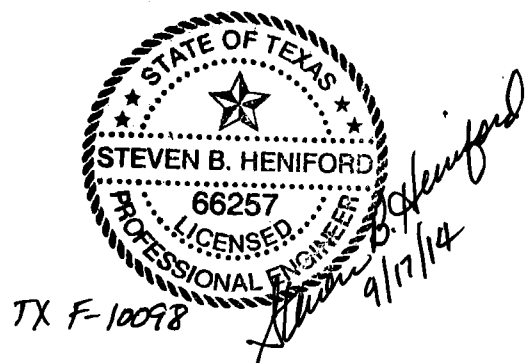
46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

<b>Company:</b>	City of Laredo	<b>Job Title:</b>	City of Manager
<b>Name (In Print):</b>	Carlos R. Villareal	<b>Phone:</b>	( 956 ) 791-7302
<b>Signature:</b>		<b>Date:</b>	9/25/14

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

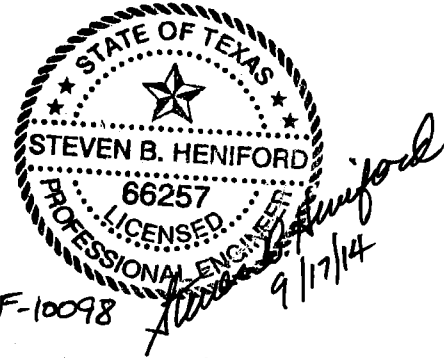
**PART II**





**LAREDO LANDFILL  
PART II  
Permit Amendment**

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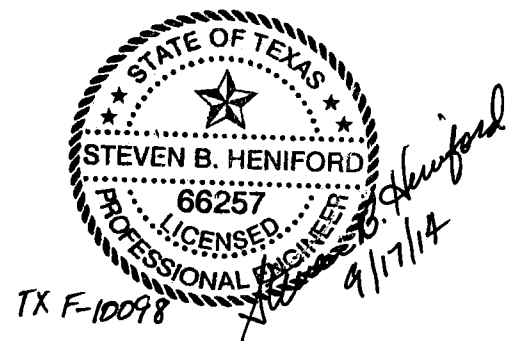
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## 1.0 Introduction and Existing Conditions 30 TAC § 330.61(a)

The following Part II of the Permit Amendment provides information on the City's waste acceptance plan, land use, transportation, geology, and location restrictions.

## 2.0 Waste Acceptance Plan

### 2.1 Sources of Waste - City of Laredo, Laredo SMSA and Surrounding Area

The City of Laredo is located along the Rio Grande River in Webb County, Texas. It is part of the South Texas Development Council (STDC). The STDC includes Webb, Starr, Jim Hogg and Zapata Counties. Combined, these counties have a total 2010 population of 340,320. The City of Laredo had a 2010 population of 250,304, representing 73 percent of the STDC region. Laredo's 2010 population was 33.7 percent greater than its 2000 population of 193,117. This growth rate represented the highest growth rate of all Texas Metropolitan Statistical Areas (MSA) in the last census. The Laredo MSA is projected to increase to a population of 545,292 in 2040 (refer to Table II.1).

**Table II.1**  
**Laredo MSA Historic & Projected Population**

Year	Population
2000	193,117
2005	226,862
2010	263,727
2015	302,631
2020	344,135
2025	388,515
2030	437,726
2035	490,418
2040	545,292

Source: Texas Real Estate Center – Texas A&M University;  
2011 Metro Market Overview – City of Laredo. 2011

**The primary sources of waste are from residents and businesses in the Laredo SMSA, and communities in Webb County in surrounding counties.** Assuming a Laredo SMSA 2012 population of approximately 279,000 people and a reported disposal rate of 334,502 tons for that year, the equivalent per capita generation rate is 1.2 tons per capita per year, or 6.6 pounds per capita per day. According to the TCEQ's annual report "2012 MSW in Texas – A Year in Review", the 2012 state-wide generation rate was 6.37 pounds per capita per day. The City's 6.6 pounds per capita per day may be stated slightly higher as waste outside the Laredo SMSA is also accepted at the City's landfill.

In 2012, there were three landfills in the STDC region reporting waste quantities disposed. Other than the City of Laredo's Type 1 Landfill (334,502 tons per year (tpy)), the landfills include the City of Roma's Type 1AE Landfill in Starr County (4,137 tpy); and the San Ygnacio Landfill in Zapata County, a Type 1AE and 4AE landfill (2,503 tpy). The total waste disposed by the three landfills was 341,242 tons per year. The City of Laredo's landfill accounted for 98

percent of the total waste disposed in the STDC. Another landfill- the Ponderosa (Type 1) Regional Landfill- became operational in 2013. No data on waste acceptance are available for it at this time.

The STDC overall waste generation rate is estimated to be approximately 5.4 pounds per capita per day (total region generation 341,242 tons and a total regional population of 347,000). The range of regional and Laredo SMSA generation rates is approximately the same as the overall state rate.

## 2.2 Types of Waste Accepted 30 TAC § 330.61(b)

The landfill is authorized to accept municipal solid waste (“MSW”) resulting from or incidental to municipal, community, commercial, institutional and recreational activities; MSW resulting from construction or demolition projects; Class 2 nonhazardous industrial solid waste; Class 3 nonhazardous industrial solid waste; and special waste that has been properly identified and approved for disposal by the TCEQ. The acceptance of Class 2 industrial solid waste and/or special waste is contingent upon such waste being handled in accordance with the Landfill’s Site Operating Plan (SOP).

The annual quantities of waste received and reported by the City to TCEQ have ranged between 315,000 tons to 377,000 tons for the period 2003 to 2012 (Table II.2). As is shown in Table II.2, the rate of disposal has remained relatively constant. Factors that may affect future disposal quantities include the success of the City’s recycling program, the amount of housing development planned in the area, and economic development and population growth. In determining future landfill needs, a constant per capita generation rate will be assumed.

**Table II.2**  
**MSW Quantities Disposed 2003-2012**

Year	Tons/Year Disposed	Remaining Cubic Yards (millions)	Remaining Tons (millions)
2003	316,554	11.2	6.41
2004	343,950	10.1	6.06
2005	345,303	9.5	5.72
2006	370,845	8.9	5.35
2007	363,916	8.3	4.98
2008	377,504	7.7	4.60
2009	346,504	6.6	4.26
2010	326,554	6.1	3.94
2011	335,024	6.0*	3.93
2012	334,502	5.6	3.60

Source: TCEQ. *Municipal Solid Waste in Texas: A Year in Review. (2003-2012 Reports)*

\*an updated aerial survey of the landfill showed that the City’s remaining cubic yards were 6.0 million cubic yards.

The City collects brush material separately from the solid waste. The brush material is stored and processed in an area located outside the Landfill permit boundary. Brush is chipped and used for mulch or sold to the public.

Laredo also has a recycling program for residents and businesses. Materials that are collected from this program are processed at a material recovery facility that is located south of the Landfill, outside of the permit boundary. The City contracts with a private contractor who is responsible for (i) processing materials, (ii) properly disposing unacceptable wastes, and (iii) marketing recovered materials.

The City has in the past processed scrap tires at the Landfill. Scrap tires were accepted, stored and shredded. Annually, it is estimated that approximately 2000 tons per year of tires are accepted and diverted from disposal in the Landfill. On average, the City accepts approximately 6 tons of tires per day at the facility. Quantities accepted per day may exceed this average depending on deliveries for waste tire generators. The City will maintain a waste tire storage area that will have the capacity of up to 300 tons of tires. The City may or may not have shredding equipment on-site for processing tires.

The City does accept certain non-hazardous industrial wastes complying with its approved Site Operating Plan. The City requires that generators of these wastes submit a written form prior to delivering the waste to the Landfill. The generator must identify the types of materials, chemical characteristics and a description of the process by which they were generated. The City reserves the right to accept or reject any loads of special wastes. These special waste deliveries also undergo additional screening, as described in the Site Operating Plan when they are delivered to the Landfill. The Landfill Manager also evaluates if any special handling at the working face is required for the special wastes which are described in the Site Operating Plan.

Wastes that are ***prohibited*** at the site include Class 1 Industrial Solid Waste until it complies with the requirements of §30 TAC 330.171. Regulated hazardous waste, except for waste from conditionally exempt small quantity generators, are not accepted at the facility. PCB wastes as defined in §30 TAC 330.2, Class 2 and Class 3 industrial solid waste that interferes with the site operations, radioactive wastes, lead-acid batteries, CFC-containing equipment, whole tires, and used oil and oil filters are not accepted at the facility.

## **2.3 Waste Quantity Projections TAC § 30330.61(b)(1)(C)**

For the purposes of determining waste generation quantities for the near-term, a waste generation rate of 6.6 pounds per capita per day is used and applied to population forecasts developed by the State of Texas Real Estate Center – Texas A&M University. Table II.3 presents the forecasted annual, average daily tons and peak daily tons for the period 2013 – 2020. The average daily tons per day (tpd) is derived by dividing annual tons by 312 days (52 weeks times 6 days per week operation). The Landfill is authorized to operate seven days per week, however, the City typically only operates on a six day per week schedule.

The City provides twice per week solid waste collection. Typically, a significantly larger quantity of waste is collected on Monday and Tuesday, versus Thursday and Friday collections.

Also, there are seasonal variations in the amount of waste generated. A review of historic records of daily waste logs for the year 2011-12, shows that the daily peak was approximately 50% higher than the average accepted, excluding Saturday when there is minimal residential waste taken to the Landfill. To forecast daily peaks, the average daily waste acceptance rate is multiplied times 1.50. Table II.3 presents projected waste generation through the year 2020.

**Table II.3**  
**Projected Waste Generation**

<b>Year</b>	<b>Population Estimate</b>	<b>Gen Rate Lbs./Capita/Day</b>	<b>Tons/Year*</b>	<b>Average Daily tpd*</b>	<b>Daily Peak tpd*</b>
<b>2014</b>	294,416	6.6	354,620	1140	1700
<b>2015</b>	302,631	6.6	364,520	1170	1750
<b>2016</b>	318,136	6.6	383,200	1230	1840
<b>2017</b>	334,435	6.6	402,830	1290	1940
<b>2018</b>	351,569	6.6	423,460	1360	2040
<b>2019</b>	369,580	6.6	445,160	1430	2140
<b>2020</b>	388,515	6.6	467,970	1500	2250

\*Waste quantities rounded to nearest 10<sup>th</sup>

### **3.0 Maps**

Drawings and maps illustrating requirements for Part II are found in Attachment II-1.

#### **3.1 General Location Map 30 TAC § 330.61(c)**

The Landfill is located adjacent to SH 359, 2.5 miles east of downtown Laredo (Figure II-1.1) and 2.0 miles from the intersection of SH 359 and Loop 20. The Landfill is located within the City limits. The site is depicted on the attached TxDOT County Roadway Map (Figure II-1.1).

**Winds:** Winds are predominantly from the Southeast (Source Laredo International Airport).

**Water Wells & Springs:** A review of data from the Texas Water Development Board shows that there are no recorded water wells located within 500' of the permit boundary (330.61(c)(2)). A total of 17 water wells are located within one mile of the site. Water well records are referenced in Attachment II-3. No springs are identified within one mile of the Landfill.

**Oil & Gas Wells:** There are a total of three gas wells within one mile of the site; none is within 500' of the permit boundary. There are also three plugged gas wells within one mile of the permit boundary; none of these plugged wells is within 500'. (Source Texas Railroad Commission – Refer to Attachment II-4).

**Buildings:** Buildings that are located within 500' of the permit boundary include facilities associated with the management of the landfill and municipal solid waste processing. Buildings that are located within the permit boundary include the scale house and a landfill gas flare housing structure. Buildings that are located on City property outside the permit boundary

include the City of Laredo's solid waste administrative building, an open garage for fleet maintenance, and a material recovery facility for processing recyclable materials. There are two commercial establishments with buildings that are located within 500' toward the southeast of the landfill. (Source: December 2012 area visual survey)

**Hospitals, day care & churches:** No hospitals, day care facilities or churches were identified within one mile of the Landfill permit boundary. (Source: area visual survey – December 2012)

**Schools:** The Larga Vista Head Start facility is located 0.9 miles to the northwest of the Landfill. No other schools were identified within one mile of the Landfill. Two future schools that are one-third of a mile south of the Landfill were approved under the 2013 Unified Independent School District Bond Program. One is an elementary school and the other is a middle school. These are located south of the Landfill boundary and the locations are shown on Figure II-1.2. (Source: December 2012 area visual survey and Unified Independent School District)

**Roads used for access:** The entrance road to the Landfill is located on SH 359. This is an asphalt-paved, four-lane road, with an additional left turn lane at the location of the Landfill entrance. TxDOT is responsible for maintenance of this roadway. All vehicles using the facility must use this roadway. The only other roadways that are within one mile of the Landfill that are used for waste management purposes are streets that are used for residential and commercial solid waste collection service.

**Longitude & Latitude:** The longitude and latitude for the Landfill are:

Longitude: 99°24'17.57"

Latitude: 27°29'55.90"

Elevation: 469.59

**Area streams:** There is an unnamed tributary of the Tex-Mex Tributary of Chacon Creek located on the north and east sides of the Landfill. Drainage channels are located along the west, north and east boundaries of the Landfill (refer to Figure II-2.5 Topographic Map).

**Airports:** The Laredo International Airport (LIA) is owned and operated by the City of Laredo. The LIA is located 18,000' to the northwest of the Landfill boundary. The Landfill is located within a six mile radius of the airport; therefore, the City has coordinated permitting efforts with the FAA and the airport. The orientation of the runways at the Laredo International Airport is north and south.

**Property Boundary:** The property boundary for the site is shown in the General Location Map. The site is currently 200 acres with a proposed additional 3.12 acres under this amendment for a total of 203.12 acres. To accommodate space for the leachate collection storage tank, tire shredding/storage operation, and other maintenance facilities, a total of 3.12 acres is being added to the permit boundary from the property south of the landfill as a part of this permit amendment. The City is the owner of the property directly south of the permit boundary which extends to SH 359.



**Easements:** There is a 10-foot wide electric power line easement that is located on-site that runs north and south through the middle of the permitted area. This easement is owned by:

Electric Power Easement:  
AEP Central Power & Light  
PO Box 1258  
Laredo, TX 78042

Information on the electric easement is found in Part I.

The City of Laredo has rights to drainage easements that are located along the west, north and east boundaries of the permitted area. These easements are located outside the permit boundary; however, they are held by the City in perpetuity and these easements are factored into the compliance with buffer zone requirements (refer to Attachment II-5). The City secured the easements from the Hurd Ranch Company (March 21, 2003).

Drainage Easement:  
Carlos R. Villarreal  
City Manager  
City of Laredo  
1110 Houston Street  
Laredo, TX 78040

**Access Control Features:** The Landfill's entrance road is located on the north side of SH 359. Access is limited to the landfill via a lockable gate that is located at the entrance to the facility. There is a sign at the entrance to the facility that indicates the name of the facility, hours of operation and other requirements for the Landfill sign (refer to Site Operating Plan). The entrance road is visible from the City's solid waste offices, where staff can periodically monitor incoming traffic into the Landfill. Within the permit boundary, there is a scale house with scales.

The scale facility is staffed whenever waste is being accepted at the landfill. Scale house personnel are trained to identify acceptable and unacceptable waste streams.

To further control access, there is a barb-wire fence located on the western, northern and southern boundary of the permitted area. There is a nine-foot tall metal panel fence that is located along the eastern boundary of the permitted area.

**Archaeology & Historical:** There are no known archaeological or historic sites on or near the Landfill (refer to correspondence with Texas Historical Commission – Attachment II-2).

### **3.2 Facility Layout Map 30 TAC § 330.61(d)**

The Landfill site is shown in Figure II-1.2, "Landfill Layout" and Figure II-1.3 – "Aerial View of Landfill Layout." These exhibits shows features of the site including the boundary, the various fill phases and structures located on the property.

The Landfill is currently divided into four distinct phases, separated by the electric power lines that intersect the Landfill north and south and the abandoned natural gas pipeline easement that ran east and west. Phases 1, 2 and 3 were permitted as Type 1 landfill operations; Phase 4 was permitted as a Type 4 landfill operation. Phase 4 will be converted from a Type 4 landfill to a Type 1 landfill under this permit amendment.

The proposed site layout will have two phases – East Phase (consisting of Phases 2 and the expanded Phase 3 of the current permitted design) and a West Phase (consisting of Phases 1 and 4 of the current permitted design and a new Phase 5). The Landfill Layout Map (Figure II-1.2) illustrates the location of interior roads, monitoring wells, buildings, fencing, windbreaks and visual screening, and site entrance roads.

**Interior roads:** The interior roads include perimeter access roads located around the entire Landfill. These are unpaved roads and the City maintains the quality of these roads on a periodic basis per the SOP. A site access road also is located between the East Phase and the West Phase.

**Groundwater Monitoring wells:** There are a total of 12 monitoring wells located on-site. The Groundwater Monitoring Plan –March 2008 illustrates the location of the groundwater monitoring wells to be in compliance with Subchapter J Rules. These monitoring wells are shown in Attachment II.1 (Figure II-1.12). A revised GWSAP is included in Part III of this application.

**Location of Buildings:** Within the permitted area of the Landfill, there is a scale house located at the entrance. The scale house is manned whenever waste is being accepted at the Landfill. The only other on-site building is a small structure for the landfill gas flare.

**Sequence of Fill & Construction:** As of 2014, waste is disposed in Phase 2 on the east side of the Landfill. Cell 1 of Phase 3, also on the east side, is being constructed in 2014. Once Cell 1 of Phase 3 is constructed, waste operations will take place in this Cell. (Refer to Attachment II-6- Sequencing Plan.)

After the permit amendment has been approved, the sequence of development will include final development of Phase 3, including the excavation of the area already permitted and newly permitted areas located between Phase 2 and 3. Fill operations will then proceed from the center of the East Phase and proceed south to fill the entire East Phase according to the final contours.

Once the East Phase has reached capacity, fill operations will begin at the southern end of the West Phase. Phase 4 is the previously designed Type IV Landfill. The middle of this phase has received construction and demolition debris in the past. Areas to the east and west of this area have been excavated for borrow soil. Final excavation will take place and a liner will be constructed where no waste has been received. A leachate collection system will be installed in both these areas. An engineered fill and liner will be constructed over the previously filled area and this liner will be designed to drain any leachate into the newly constructed Phase 4 cells. Two previously excavated areas of Phase 4 (West Phase) will require excavation, construction of a liner, and the installation of a leachate collection system in the area previously designated as Cells 2 and 3 of Phase 4.

Following construction of Phase 4, Phase 5 will be constructed as the next area to be filled. This is the area that was located over the previously abandoned natural gas pipeline. Construction will include excavation of any remaining segments of the pipeline, plugging the remaining pipeline ends and subgrade preparation. A liner and leachate collection system will be installed in this area and the liner system will connect to the liners for Phase 4 and Phase 1.

A liner will be placed over areas of the West Phase that were constructed prior to Subtitle D liner requirements. This liner and leachate collection system will be designed in a manner that directs any leachate generated over new waste to flow to a leachate collection system, specifically, over Phase 1 – Cells 17 and 18 which have liners and leachate collection systems or to the new Phase 5 which will also have a liner and leachate collection system. The liner will include a geosynthetic composite liner (gcl) and a geotextile layer with a leachate collection system. Interim and final cover will be placed over the Phases in accordance with the SOP and the Final Closure Plan.

**Facility Fencing:** A perimeter fence is located along the western, northern and southern boundaries of the site. A nine-foot high metal panel fence with barbed wire is located along the eastern side of the landfill (Photo II.1). This fence was installed per an agreement between the City and Hurd Ranch Company as part of an agreement for the adjacent drainage easement.

**Windbreaks:** There is a 25' high wind fence that is located along the southeast boundary and a section of the northern boundary of the Landfill to capture blowing waste that could be blown in the direction of SH 359. A metal fence is also located along SH 359.

Photo II.1  
Eastern Buffer Zone and Fence



To further prevent material from being blown off-site, the City maintains buffer zones along the perimeter of the Landfill. The buffer is maintained by Landfill staff on a daily basis when the Landfill is operating. These buffers include the perimeter drainage easement and the City-owned property between the Landfill and SH 359.

**Dimensions of the Cells:** Table II.4 presents the size of each of the cells and the type of construction used for the liner.

Phase 1 is located on the western portion of the Landfill. Portions of Phase 1 have pre-subtitle D liner. Phase 2 has one cell constructed with a pre-subtitle D liner. The majority of Phase 2 has a subtitle D or equivalent liner. Phase 3 has been modified from the previous design to include additional acreage where the abandoned pipeline was located.

Phase 4 is the area previously permitted as a Type IV Landfill. Portions of this phase (approximately 6.5 acres) have been partially filled with construction/demolition waste. As part of the design for a subtitle D liner and LCS system, stability analysis of this area was performed

and is included in Part III of this application. Prior to placement of waste in Phase 4, engineered fill will be placed over previously filled areas to provide positive leachate flow. A GCL liner and 60 mil HDPE membrane with a leachate collection system will also be installed.

Phase 5 is the area that is located between Phase 4 and Phase 1. This area will be lined with either 2' of clay or GCL with a leachate collection system. Cells 17 and 18 of Phase 1 were constructed with a subtitle D liner. There are areas of Phase 1 that will be vertically expanded over pre-subtitle D areas. A liner will be constructed over existing waste in this area, prior to waste placement above the 1999 permitted elevation that will direct leachate movement to lined Subtitle D areas.

The entire East Phase (Phases 2 and 3) will include 77.60 acres; the entire West Phase (Phases 1, 4 and 5) will include 85.56 acres.

**Table II.4**  
**Cell Dimensions**

<b>Cell Identification</b>	<b>Size (square acres)</b>	<b>Liner Design</b>	<b>Status (2013)</b>
<b>Phase 1</b>			
Cell 1	3.91	In-situ compacted clay	Constructed
Cell 2	3.2	In-situ compacted clay	Constructed
Cell 3	2.96	In-situ compacted clay	Constructed
Cell 4	2.62	In-situ compacted clay	Constructed
Cell 5	2.15	In-situ compacted clay	Constructed
Cell 6	2.15	In-situ compacted clay	Constructed
Cell 7	2.15	In-situ compacted clay	Constructed
Cell 8	2.15	In-situ compacted clay	Constructed
Cell 9	2.15	In-situ compacted clay	Constructed
Cell 10	2.15	In-situ compacted clay	Constructed
Cell 11	2.15	In-situ compacted clay	Constructed
Cell 12	2.15	In-situ compacted clay	Constructed
Cell 13	2.90	In-situ compacted clay	Constructed
Cell 14	2.75	In-situ compacted clay	Constructed
Cell 15	2.69	In-situ compacted clay	Constructed
Cell 16	2.58	In-situ compacted clay	Constructed
Cell 17	7.90	GCL, 60 mil HDPE	Constructed
Cell 18	9.86	GCL, 60 mil HDPE	Constructed
<b>Phase 2</b>			
Cell 1	5.24	In-situ compacted clay	Constructed
Cell 2	5.24	GCL, 60 mil HDPE	Constructed
Cell 3	3.58	2' clay, 60 mil HDPE	Constructed
Cell 4	2.75	2' clay, GCL, 60 mil HDPE	Constructed
Cell 5/6	7.94	GCL, 60 mil HDPE	Constructed
Cell 7/8	6.25	GCL, 60 mil HDPE	Constructed
Cell 9/10	6.42	GCL, 60 mil HDPE	Constructed
Cell 11/12	6.48	GCL, 60 mil HDPE	Constructed

Cell 13/14	18.90	GCL, 60 mil HDPE	Constructed
<b>Phase 3</b>			
Cell 1	9.2	GCL, 60 mil HDPE	Not constructed – anticipated construction 2014
Cell 2	13.56	GCL, 60 mil HDPE	Not constructed – construction will be initiated after permit amendment
<b>Phase 4</b>			
Cell 1	6.56	GCL (existing waste cell to be overlain with GCL, HDPE and a LCS)	Type IV liner constructed to be modified for Type I waste
<b>Cell Dimensions (cont)</b>			
Cell 2	2.51	GCL, 60 mil HDPE	Not constructed
Cell 3	6.19	GCL, 60 mil HDPE	Not constructed
<b>Phase 5</b>			
Cell 1	3.77	GCL, 60 mil HDPE	Not constructed

**Maximum Waste Elevation & Final Cover:** The elevation of the landfill is proposed to be increased from 640.5' msl to 664' msl on the west side and from 637' msl to 652' msl on the east side. The final cover proposed for the landfill will include a GCL and Flexible Membrane Liner (FML) cover or an alternative final cover that will utilize the "water balance design" per TCEQ guidelines. If a standard GCL and FML cover design are incorporated, then final elevation of the waste is 662' msl on the west side and 652' msl on the east side.

### 3.3 Topographic Map 30 TAC § 330.61(e)

Figure II-1.5 - "Topographic Map" shows the landfill boundary on a United States Geological Survey (USGS) 7 ½ minute quadrangle map of the area.

### 3.4 Aerial Photograph 30 TAC § 330.61(f)

An aerial photograph of the Landfill and surrounding area from Texas Natural Resources Information Systems is attached as Figure II-1.6. The photo presents an aerial view of the site and the area one mile outside of the permit boundary.

### 3.5 Land Use Map 30 TAC § 330.61(g)

Figures II-1.7 and II-1.8 show the various land uses within a one mile radius of the landfill boundary.

Land Uses within one mile of the Landfill include the following:

**Residential Areas:** The closest residential property is located approximately 800' to the west of the landfill. Two residential subdivisions with low population densities are located west of the landfill and include Western Hide and Salina Cantu. The areas around the Landfill have low density residential characteristics. A windshield survey of streets and a review of aerial

photographs identified approximately 630 residential buildings located within one mile of the Landfill. The majority of these residential buildings are located approximately 0.7 miles to the west of the Landfill. According to the City's GIS Department, the region around the landfill has a population density of between 6 to 258 persons per acre, the lowest density rating used by the Laredo GIS Department. Refer to Attachment II-7 (Laredo GIS Maps).

**Schools:** The Larga Vista Head Start, a preschool with a maximum capacity of 20 children, is located 0.9 miles to the west of the Landfill. Two new schools are anticipated to be constructed in the near-term following approval of bond funds. One is a middle school and the other is an elementary school. These are both located approximately one-third of a mile south of the Landfill. A traffic signal is being installed at the intersection of Hwy 359 and EG Ranch Road (the road the schools are located on) to improve safety at the intersection of EG Ranch Road, Hwy 359 and the Landfill entrance. No other schools have been identified within one mile of the permit boundary. The J. Zaffirini Elementary School and the Bill Johnson Student Activity Center are located over a mile away to the west of the landfill on SH 359.

**Churches:** No churches have been identified within one mile of the Landfill.

**Hospitals:** No hospitals are located within a one mile radius of the Landfill. The Laredo Medical Center is approximately 4.2 miles northwest of the Landfill.

**Daycare facilities:** No daycare facilities have been identified within one mile of the Landfill.

**Oil and gas development:** There are two oil and/or gas production facilities located to the north and south of the Landfill within 500'. The Texas Railroad Commission has identified these facilities and their information is provided in Attachment II-4.

**Supplemental Information:** Refer to Attachment II-7 – City GIS Information for supplemental data on land uses within one mile of the Landfill.

### **3.6 Impact on Surrounding Area 30 TAC § 330.61(h)**

The City has been operating the Landfill since the initial 1986 permitting. A review of historical photographs of the region around the Landfill shows that the area was primarily undeveloped, with the exception of commercial development to the south. Since that time, there has been primarily commercial development around the area of the Landfill. The City's projected land use around the area of the Landfill is planned to remain primarily light industrial, light commercial and light residential development. Since 1986, there has been an increase in the number of businesses surrounding the Landfill. The Landfill is located on a City-designated truck route and its continued use will not adversely impact future capacity of SH 359.

The expected impact to the surrounding area is anticipated to be limited to the continuation of landfill related traffic for the additional period of approximately 18 to 20 years.

Land uses in proximity to the Landfill are primarily commercial and light industrial in nature. Commercial/Industrial businesses are located to the west, east and south of the site. To the

immediate south of the permitted area, the City owns maintenance facilities, as well as an administrative office, a material recovery facility (MRF), a brush storage area and undeveloped property. The properties immediately adjacent to the west, north and east of the site are drainage easements.

Figures II-1.7 and II-1.8 illustrate land uses within a one-mile radius of the permit boundary. A rail yard owned by Tex-Mex Railroad is located north of the permitted area. Five residences are located approximately 0.5 miles west of the permit boundary. The closest major residential neighborhood is located 0.7 miles to the west of the permit boundary.

An assessment of structures located within one mile of the Landfill was conducted by evaluating aerial photography for the area and a visual survey of residents and businesses within the one mile area. The data are proximate and may change due to new construction since the time of the survey. Table II.5 presents a summary of residential and commercial structures located within one mile of the Landfill. The evaluation examined structures in four quadrants: north and west of SH 359; north and east of SH 359; south and west of SH 359; and south and east of SH 359. The centerline of the Landfill was used as the east/west dividing line. SH 359 was used as the north/south dividing line.

**Table II.5**  
**Residential & Commercial Structures within One Mile**

<b>Quadrant</b>	<b>Residential</b>	<b>Commercial</b>	<b>Other</b>
Northwest	343	38	1 (Larga Vista Head Start)
Southwest	276	53	
Northeast	10	17	
Southeast	3	10	
Total	632	118	1

**Zoning:** Figure II-1.9 provided by the City of Laredo displays the zoning districts in the vicinity of the landfill site. The Landfill is located within the boundaries of the City of Laredo and is zoned as M-2 – Heavy Manufacturing District. The Landfill complies with M-2 zoning. Requirements for this zoning classification Section 24.65.16 M,2 HEAVY MANUFACTURING DISTRICT, includes:

1. All manufacturing activities shall be not less than 200' from any R-District.
2. All manufacturing uses requiring a special use permit for flammable products shall be at least 600' from any R-District and 200' from any B-District.
3. Manufacturing or warehousing activities, including storage and handling of hazardous materials.

The City's zoning map defines land uses within one mile of the Landfill to include the following.

1. R-1 Single family residential district
2. R-1-MH Single family manufactured housing district
3. R-1A Single family reduced area district
4. M-2 Light Manufacturing



**Growth Trends:** The City of Laredo's long-term comprehensive land use plan, as illustrated in Attachment II-7, illustrates that eventually, the land around the Landfill will include residential development and light manufacturing. The majority of this type of development will take place to the west and south of the Landfill. There is some commercial development currently located to the south and east of the Landfill, however only modest growth is anticipated for the area within 5 miles from the Landfill to the north, east and south of the Landfill.

The Laredo – Webb County Metropolitan Planning Organization completed a Texas Urban Mobility Plan entitled "Breaking the Gridlock Report". The Mobility Plan used 2003 data as its base year for demographic information. Findings from its report concluded: "In 2003, the population of the MPO's Urban Area Boundary was approximately 205,081 people. That figure is expected to increase to 441,412 by 2035.

Employment figures show the areas with a workforce of 76,398. That number is expected to grow to approximately 178,629 individuals by 2035. The Mobility Plan provides growth trend assessments by location within the Laredo area. Household growth in the area north of the landfill is anticipated to increase between 1-7%, while households in areas south of the Landfill are anticipated to increase 8-15% (period 2003-2035). According to the same Mobility Report, employment north and west of the landfill are anticipated to increase 1-5%, while areas east of the landfill area anticipated to increase 6-10% for the same time frame.

### **3.7 Transportation 30 TAC § 330.61(i)**

#### **3.7.1 Site Access and Traffic Study**

The Landfill accepts an average of 1140 tons per day of MSW. The tonnage accepted in 2012 was 334,502 tons.

The 1999 permit amendment reported a total of 312 vehicles entering the facility per day, including all pickups and residential traffic. For the TCEQ fiscal year from 9/1/2011 to 8/31/2012, the average number of vehicles entering the landfill was 355 customers (vehicles) per day open. This included vehicles ranging from semi-trailers to pick-up trucks (Source: City of Laredo). Other traffic associated with the site includes maintenance vehicles, 125 employee autos, 20 material recovery facility employee vehicles, and 25 trucks associated with brush delivery and recycling. These other vehicles account for 20% of traffic at the Landfill by vehicle number.

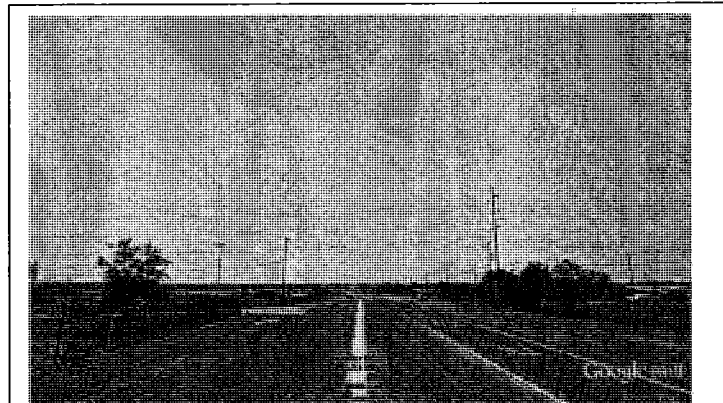


Photo II.2- State Hwy 359 at landfill entrance

The entrance road includes two paved incoming lanes and one paved exit lane. A separate entrance is maintained west of the Landfill entrance for City of Laredo staff and is primarily used for the solid waste collection fleet when they are not transporting waste to the Landfill. Both entrances are secured with lockable gates.

A traffic signal is being constructed at the site's entrance and EG Ranch Road in 2014, thereby improving safety at the entrance to the Landfill and the road that leads to the two planned schools that will be constructed by the Unified Independent School District (UISD).

The only route for solid waste vehicles to access the site is SH 359. SH 359 is a designated City of Laredo Truck Route (refer to map in Attachment II-8). This is a five lane asphalt road that includes a left turn lane into the landfill's entrance road. According to TxDOT Highway Traffic Maps for 2010, the estimated total vehicles using SH 359 is 12,400 vehicles per day.

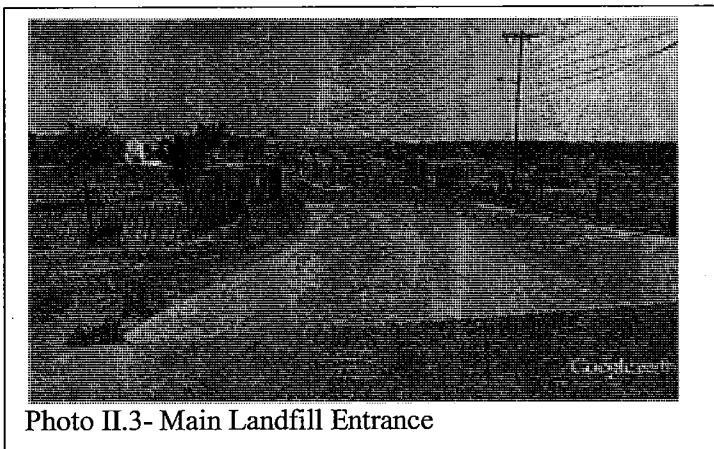


Photo II.3- Main Landfill Entrance

**Table II.6**  
**Landfill Traffic**

<b>Traffic Data (vehicles per day)</b>	
<b>Total Vehicles Per Day on SH 359</b>	<b>12,400</b>
<b>Solid Waste Vehicles</b>	<b>295</b>
<b>Employees Traffic and Facility Vehicles</b>	<b>170</b>
<b>Incidental Traffic to Facility – Resident and Small Business Use</b>	<b>355</b>
<b>Total Vehicle Site Use</b>	<b>720</b>
<b>Percent of Total Traffic</b>	<b>5.8%</b>

Landfill traffic therefore accounts for less than six percent of total traffic on SH 359. Figure II-1.10 illustrates traffic volumes at and near the landfill (Source: TxDOT Highway Maps for 2010 – Webb County).

The projected traffic volumes accessing the Landfill are anticipated to increase by approximately 30% by 2020 due to projected increases in waste volumes. Total vehicle use by that time may increase to approximately 950 vehicles per day. It is anticipated that with increases in population, the number of vehicles using SH 359 will also increase by 2020. Even without an increase in other traffic using SH 359, the percentage of vehicles using the site would represent 7.6% of the 12,400 vehicles per day.

Correspondence with the TxDOT was undertaken as part of the permitting effort. Letters from TxDOT are included in Attachment II-8. The Laredo District Administrator indicated that any proposed work to SH 359 is anticipated to consist of normal pavement maintenance projects. TxDOT does not have any comments on the proposed expansion of the Landfill.

### **3.7.2 Airport Safety 30 TAC § 330.61(i)(5)**

The Laredo International Airport (owned by the City of Laredo) is located 18,000' to the northwest of the Landfill boundary (Figure II-1.1). The Landfill is located within a six mile radius of the airport; therefore the City is required to coordinate permitting efforts with the FAA and the airport. The orientation of the runways at the Laredo International Airport is north and south.

In 2013, the FAA and airport administration did not express opposition to the landfill changes proposed. The correspondence with the FAA and the City's airport management are presented in Attachment II-9 – Airport Location Restrictions.

The Landfill's construction will not exceed 200' above grade. This exempts the Landfill from consideration as an obstruction by the FAA per 14 CFR 77.9.

### **3.8 General Geology and Soils 30 TAC § 330.61(j)**

Laredo lies within the Rio Grande embayment of the Gulf Coastal Plain. The Gulf Coastal Plain is characterized by a relatively flat, low-lying surface which slopes gradually to the Gulf of Mexico. The Gulf Coastal Plain sediments and alluvial sediments are composed of complex interbedded sediments of gravel, sand, silt and clays formed in a fluvial deltaic environment. Depositional sediments of the Tertiary system are present at the surface as outcrops throughout the general area surrounding the facility. The Tertiary is divided into the Eocene Series with one major group division within the region, the Claiborne Group. The Carrizo Sand is the lowermost formation of the Claiborne Group. The Carrizo is composed of a very permeable, massive, cross-bedded, medium-grained sand which ranges in thickness from 150' to 1,200'. Above the Carrizo Sand, the Biford, El Pico Clay, Laredo, and Yegua Formations occur in areas southwest of the Frio River which is located approximately 75 miles northwest of Laredo. These differ litho-logically and by fossil content from their equivalent counterparts northeast of the Frio River known as the Reklaw, Queen City Sand, Weches and Sparta Sand.

The predominantly sandy units, the Bigford Formation, the Queen City Sand and the Laredo formation and the Sparta Sand interfinger in the vicinity of the Frio River. The Bigford Formation consists of sand, silt and thin beds of shale, with shale making up about 25 percent of the formation in the outcrop. The Queen City Sand is a thick unit of sand, clay and sandy clay. The Queen City Bigford unit ranges in thickness from approximately 200' in Zavala County to 1,400' in Frio County. The Sparta Sand ranges from 40' to 200' in thickness and consists of sand with minor amounts of clay. The El Pico Clay outcrops in the northwestern corner of Webb County interfingering with the Queen City Sand to the east near the Frio River. The El Pico Clay consists mostly of clay with sandstone and coal. The clay is in part gypsiferous, medium gray to brown. The sandstone in this unit is mostly fine-grained with some medium to coarse-grained material, argillaceous, silty, in part gauconitic with thin to massive bedding. The

sandstone is friable to indurated and attains a thickness of 900' to 1,150'. The Laredo Formation consists of sand at its base grading upward to sandy clay and clay at the top. The Laredo Formation has a maximum thickness of 600' to 700'. The uppermost formation of the Claiborne Group is the Yeuga which consists mostly of sandy, silty, lignitic, chocolate- to reddish-brown clay with sandstone. The sandstone is a quartz, fine -grained, indurated to friable, massive, calcareous, glauconitic sand which weathers to a loose ferruginous yellow-orange and reddish-brown soil. The clay produces a dark-gray soil.

Information concerning the regional geology in the general area is documented in the Huntingdon Report in Attachment II-10.

### 3.8.1 Site Geology 30 TAC § 330.61(j)(1)

The facility is located on an outcrop of the Laredo Formation. The Laredo Formation is a geologic unit occurring in the Claiborne Group of the Eocene Series within the Tertiary System (Table II.7). The Laredo Formation is characterized as sandstone and clay with thick sandstone members in the upper and lower part which are very fine to fine-grained and are in part glauconitic, micaceous, ferruginous, cross-bedded, and dominantly red and brown in color. A clay stratum occupies the middle of the formation. The formation weathers to an orange-yellow color. Dark gray limestone concretions are common; some of which are fossiliferous. The average thickness beneath the site facility is about 620'.

**Table II.7**  
**Geologic Column**

<b>SYSTEM</b>	<b>SERIES</b>	<b>GROUP</b>	<b>GEOLOGIC UNIT</b>	<b>APPROXIMATE THICKNESS (FT)</b>
Tertiary	Eocene	Claiborne	Yegua Formation	700-1,000+
			Laredo Formation	600-700
			El Pico Clay	700-1,500
			Bigford Formation	200-900
			Carrizo Sand	150-1,200

Source: Modified from Texas Water development Board Report 210

That part of the Laredo Formation that has been investigated beneath the facility has been divided into four layers (Table II.8).

**Table II.8  
Geologic Lithology**

<b>Layer Name</b>	<b>Dominant Lithology</b>	<b>Comments</b>
Layer I	Sand and clay to sandy clay	Surficial unit
Layer II	Shaley sand/sandstone	Groundwater monitoring unit
Layer III	Shale	Aquiclude
Layer IV	Shaley sandstone	Non-water bearing unit

The site geology has been previously described in various site investigation reports, Huntingdon, 1994, F.G. Bryant, 1983, Rust E&I (REI), 1997, and in Volume II of IV of the Vertical Expansion Permit Application No. MSW-1693A dated June 14, 1999 by Earth Tech.

The facility is located on an outcrop of the Laredo Formation (Figure II-1.11). The Laredo Formation is a geologic unit occurring in the Claiborne Group of the Eocene Series within the Tertiary System. The Geologic Atlas of Texas, Laredo Sheet, 1976 characterizes the Laredo Formation as sandstone and clay with thick sandstone members in the upper and lower part. The formation is described as very fine to fine grained, in part glauconitic, micaceous, ferruginous, cross-bedded, dominantly red and brown with clay in the middle. It weathers to an orange-yellow color with dark gray limestone layers and concretions are common; some of which are fossiliferous with abundant marine megafossils. The average thickness beneath the site facility is about 620'. The site geology has been previously described in various site investigation reports, Huntingdon, 1994, F.G. Bryant, 1983, and Rust E&I (REI), 1997.

### **3.8.2 Fault Zones 30 TAC § 330.61(j)(2)**

There were no "fault zones" located on the site according to the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-11 provides the demonstration that the site is in compliance with Fault Zone Location Restrictions.

### **3.8.3 Seismic Impact Zones 30 TAC § 330.61(j)(1)**

There were no "seismic impact zones" identified in the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-12 provides the demonstration that the site is in compliance with Seismic Impact Zone Location Restrictions.

### **3.8.4 Unstable Conditions 30 TAC § 330.61(j)(1)**

There were no "unstable conditions" reported in the geologic assessment of the site performed for the initial permit application and confirmed in the 1999 amendment. Attachment II-13 provides the demonstration that the site is in compliance with Unstable Conditions.

### **3.9 Groundwater and Surface Water 30 TAC § 330.61(k)**

#### **3.9.1 Groundwater 30 TAC § 330.61(k)(1)**

The site is not located on the outcrop of or above any recognized Texas major or minor aquifer as presented in Attachment II-14. The uppermost water-bearing unit at the facility is found in Layer II, a layer of greenish-gray sandstone. This sandstone is micaceous, glauconitic containing scattered fossils with occasional highly cemented calcareous layers. A water-bearing zone has been identified in this unit. Layer II thickness ranges from 40' near the northwestern portion of the facility to 63' thick near the southeastern portion of the facility with the thickest section near the center at 70'. Previous in-situ slug testing of the monitored groundwater interval produced hydraulic conductivities ranging up to  $4 \times 10^{-4}$  cm/sec with a median value of  $3.0 \times 10^{-6}$  cm/sec. Groundwater flow velocity in Layer II is about 2'/year.

Groundwater elevations measured in the 17 monitoring wells at the facility ranged from a high of 483.05' above mean sea level (msl) in MW-4R1 (the background well) to a low of 429.14' msl in MW-11 during the November 2012 groundwater sampling event. A series of groundwater flow maps prepared by SCS Engineers using groundwater data from October 2004, 2006, and 2007 indicate flow from the southwestern corner (MW-4R1) toward the north, northeast, and east (Attachment II-14). Groundwater elevations from more recent data (November 2011 and November 2012) substantiate the same directions. Attachment II-14 presents the groundwater elevations for the 2007, 2011, and 2012 dates.

No metals have been detected in the groundwater from any of the monitoring well samples at concentrations exceeding federally-promulgated maximum concentration levels (MCLs). No volatile organic compounds (VOCs) have been detected in the groundwater from any of the monitoring well samples or in QA/QC samples. There are 17 groundwater monitoring wells located at the landfill.

**Table II.9  
Groundwater Elevations**

Location	June 2007	November 2011	November 2012
	Elevations in feet (MSL)		
MW-1	435.64	Plugged	
MW-2	435.96	Plugged	
MW-3R2	435.88	Plugged	
MW-4R1 (U)	479.61	483.00	483.05
MW-5 (D)	426.51	436.32	437.67
MW-6 (D)	424.60	429.92	431.04
MW-7 (D)	425.44	430.69	431.84
MW-8	427.65	Plugged	
MW-9	428.36	Plugged	
MW-10	429.03	Plugged	
MW-11 (D)	424.52	428.09	429.14
MW-12 (U)	466.72	471.78	451.18
MW-13 (D)		436.57	439.07
MW-14 (D)		438.90	440.10
MW-15 (D)		440.31	441.94
MW-16 (D)		436.61	437.41
MW-17 (D)		433.03	433.74
MW-18 (D)		432.60	433.35
MW-19 (D)		431.98	432.58
MW-20 (D)		432.00	432.66
MW-21 (D)		431.61	432.33
MW-22 (D)		436.91	437.31
MW-23 (D)		437.63	438.23

### **3.9.2 Surface Water 30 TAC § 330.61(k)(2)**

#### **3.9.2.1 Drainage Analyses**

The following provides a brief description of current and proposed site drainage. A more thorough presentation of on-site drainage is presented in Part III, Attachment 6. Figure II-1.13 presents a drainage map for the site. The City will continue to comply with its current TPDES permit.

#### **Current Pre-Development Drainage Condition**

The landfill site is bounded on the west, north and east sides by drainage easements of varying width that contain existing earthen drainage channels. These offsite channels were designed and constructed to convey stormwater originating from off-site drainage areas bordering the Landfill as well as stormwater generated south of SH 359. As represented on Part III, Attachment 6, Figure III-6.1– Existing Drainage Area Map, a large watershed of approximately 984.32 acres generates surface water flow directed to the channel adjacent to the east boundary. A small watershed of approximately 42.88

acres to the west of the site flows into the existing channel adjacent to the west boundary, and a small watershed of approximately 151.17 acres southeast of the site and across the state highway currently flows onto the site across the south facility boundary. Stormwater which crosses under SH 359 flows northward to just west of the Landfill maintenance building and travels via ditches along the southern and eastern portions of the Landfill, directed to a discharge point at the northeast corner of the Landfill. The stormwater drainage system has been redesigned to accommodate the new landfill cells and improve the conveyance by providing channels and culverts to an existing retention pond (Pond "C") before eventually leaving the site near the northeast corner of the landfill perimeter.

For the pre-development on-site flows the site can be divided into four separate major drainage areas and multiple sub-areas. One area, 37.87 acres, discharges from the site generally as sheet flow along the northern boundary. The second, 35.89 acres, passes through retention/detention Pond A and discharges from the site near the northwest corner of the landfill site. The third area contains 17.33 acres, passes through retention/detention Pond B and discharges to the drainage channel located off of the northern boundary near the center of the site. The fourth drainage area contains 107.64 acres and is passed through retention/detention Pond C and is discharged offsite at the site's northeast corner in the lined channel conveying the run-on from the 151.17 acre offsite basin mentioned above. A major drainage feature in the currently permitted design is a ditch identified as Ditch 2S-2/3. This ditch flows west to east along the north side of the natural gas pipeline easement (between Phases 2 and 3) and conveys runoff from a large portion of the site's interior to Pond C.

### **Proposed Post-Development Drainage Design**

The surface water management system design for the post-development condition is presented on Part III, Attachments 6A2 and 6A3. The proposed vertical expansion will result in two hills (West Phase and East Phase) containing three individual phases each. Proposed drainage areas were delineated based upon this final landfill configuration. To analyze the proposed post-development condition with the current pre-development condition, the resulting discharge rates will be compared for the two conditions at the most downstream point in the adjacent drainage channel near the landfill's northwest corner. As required in the regulations, the analysis will include the 25-year, 24-hour storm event and the 100-year, 24-hour storm event.

There is no change to the current pre-development offsite drainage areas or patterns with the proposed modifications within the landfill drainage design. The current discharge locations into the surrounding offsite drainage channels will remain the same for the proposed post-development condition. For the post-development on-site flows, as shown on Part III, Attachment 6A1 – Post-development Onsite Drainage Area map, the site is still divided into four separate major drainage areas and multiple sub-areas as in the pre-development condition. One area sheet flows off the north boundary lines and the remaining three areas each drain to retention ponds A, B and C-1/2. To accommodate the joining together of Phases 1 and 4 and Phases 2 and 3 into two hills,



the aforementioned lined ditch 2S-2/3 will be eliminated. To accomplish the conveyance of drainage formerly handled by this ditch, a HDPE pipe storm drain will be constructed from a point near the center of the site around the south end of Phase 3. This storm drain will discharge into retention Pond C-1, the upstream pond of a two-stage retention facility designed to replace the existing stormwater storage capacity of the current Pond C. The second, downstream pond of the two-stage facility is identified as Pond C-2. Due to the topography's slope, Ponds C-1 and C-2 are separated to have differing water surface elevations, thus maximizing the available storage volume. Discharge from Pond C-1 directly drains into Pond C-2.

Surface water run-off from the final cover of each phase will sheet flow across the top surface of the landfill and a short distance down the 4(H):1(V) landfill sideslope. Berms will be constructed at 40 vertical-foot intervals down the sideslope to form drainage terraces which intercept runoff and convey it laterally across the hillside to rundown channels. These are lined, flat-bottom channels which route runoff down the side slope to the landfill toe. Once the runoff is conveyed to the base of the landfill, it is carried in surface ditches to sedimentation basins located west of Phase 1 (sedimentation Pond A), northeast of Phase 1 (sedimentation Pond B), and east of Phase 3 (sedimentation Ponds C-1 and C-2). Culverts will be used at locations where drainage ditches cross access roads and easements as well as for sedimentation basin outlet structures.

### **3.10 Abandoned Oil, Gas, and Water Wells 30 TAC § 330.61(l)**

#### **3.10.1 Water Wells 30 TAC § 330.61(l)(1)**

A review of water wells located within one mile of the Landfill is presented in Figure II-1.14. The water well information was derived from the Texas Water Development Board (TWDB) 2012 Report. There are a total of 15 water wells located within one mile of the Landfill based on the TWDB information. There are no known abandoned water wells located within the permit boundary. Water well records are presented in Attachment II-3.

#### **3.10.2 Crude Oil and Gas Wells 30 TAC § 330.61(l)(2)**

A review of the Railroad Commission of Texas Public GIS Map Viewer has identified known oil and gas wells within a one mile radius of the landfill site. These are displayed on Figure II-1.14, "Water and Oil and Gas Wells". There are no known abandoned oil or gas wells located within the permit boundary. Attachment II-4 includes oil and gas well information from the Texas Railroad Commission.

### **3.11 Floodplain and Wetlands 30 TAC § 330.61(m)**

#### **3.11.1 Floodplains 30 TAC § 330.61(m)(1)**

Since the 1999 amendment, there have been no major changes in land use or traffic patterns surrounding the landfill. However, since the 1999 amendment, the City's floodplain map has been updated. The revised Federal Emergency Management Administration (FEMA) flood study shows portions of the landfill located in an area identified as Zone A Floodplain within the

perimeter of the landfill permit boundary. Zone A is defined as: “No Base Flood Elevations Determined.” AZ&B undertook a detailed evaluation of the area, including use of current (October 2012) aerial survey data. This evaluation demonstrated that the Landfill is not currently located in the floodplain. A letter of map revision (LOMR) had been filed by a third party for areas that included the Landfill. A review of that request was conducted, and the City filed an appeal to the findings of this map in July 2013. FEMA reviewed this appeal, and requested the City submit a new LOMR to revise the third party LOMR. The revised LOMR submitted by the City demonstrates that the Landfill is located outside the floodplain. This LOMR was formally adopted by FEMA on July 3, 2014.

Attachment II-15 presents information on floodplain location restrictions compliance.

### **3.11.2 Wetlands 30 TAC § 330.61(m)(2)**

A review of the site was conducted in March 7, 2013, by Dr. Margaret Forbes, PhD, a certified wetlands specialist, to evaluate potential wetlands located on the site. Based on a review of site conditions, hydrology, and other conditions such as plant species, it was concluded that there are no jurisdictional wetlands located on the Landfill. Refer to Attachment II-16 for the wetlands demonstration report concluding that there are no wetlands currently located within the permit boundary.

### **3.12 Endangered or Threatened Species 30 TAC § 330.61(n)**

There are four federally listed species that are believed to occur in Webb County. During a March 7, 2013 site visit conducted by Dr. Margaret Forbes, none of these species were encountered. The following is a list of the species, a brief description of their preferred habitat, and a comparison of that habitat to habitat observed at the landfill. Correspondence regarding endangered and threatened species is provided in Attachment II-16.

#### Ashy Dogweed (*Thymophylla tephroleuca*) – federal endangered

Ashy dogweed is a perennial wildflower restricted to unique soils found in South Texas. Known populations of ashy dogweed are located on sandy pockets of Maverick-Catarina, Copita-Zapata, and Nueces-Comita soils of southern Webb and northern Zapata counties. It occurs on both disturbed and undisturbed sites.

Maverick-Catarina soils are mapped within the center area of the landfill, where no vegetation is present, and just south of the additional 3.12 acres added to the permit boundary. Copita-Zapata and Nueces-Comita soils are not present. It is very unlikely that Ashy dogweed is present at the site in vegetated areas.

#### Johnston’s Frankenia (*Frankenia johnstonii*) – federal endangered

Johnston’s frankenia is a salt-loving shrub that produces salt crystals on the underside of the leaves. Its leaves turn crimson red from November through February, making it easy to identify. It has small white flowers and, like ashy dogweed, blooms following rain events. It occurs within openings in the blackbrush dominated brushlands on pockets of highly saline soils, often in association with saladillo (*Varilla texana*), another salt-loving plant. It is restricted to specific soil types in the Maverick series.

This shrub was not observed during the site visit and is unlikely to be present on site due to the limited occurrence of Maverick soils in vegetated areas. Some Maverick soils are mapped just south of the 3.12-acre parcel.

Least tern (*Sterna antillarum*) – federal endangered

Least terns are small white terns with black markings and a forked tail. They nest along sand and gravel bars within braided streams and rivers. They may also nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc). They eat small fish and crustaceans.

The length of stream outside the 3.12-acre parcel did not contain sand or gravel bars, or appropriate food for the Least tern. No other potential habitat suitable for this species was observed within the landfill. Therefore, it is extremely unlikely that this species utilizes the site.

Texas hornshell (*Popenaias popeii*) – federal candidate species

The Texas hornshell is a freshwater mussel that occurs where fine substrata collect in undercut riverbanks, crevices, shelves, and at the base of large boulders. This type of habitat was not present on-site. Therefore, it is extremely unlikely that this species utilizes the site.

### **3.13 Easements and Buffer Zones**

#### **3.13.1 Easements**

There is a 70' wide electric easement which is located in the central part of the Landfill that runs North/South and divides the West and East phases of the Landfill. The easement is owned by AED Central Power and Light (P.O. Box 1258, Laredo, Texas, 78042). A 50' natural gas pipeline easement running east to west through the landfill has been abandoned with a portion of the pipeline having been removed. No waste activities will occur within easements, buffer zones, or right-of-ways within 25' of the centerline of the utility easement.

#### **3.13.2 Buffer Zones**

**Buffer Zones:** The Laredo Landfill currently meets the buffer zone requirements as defined in MSW Permit 1693A.

TCEQ regulations require a minimum 125' for buffer zones for new applications and for permit amendments involving vertical or horizontal expansions. The regulations state: *"For vertical expansion, the owner or operator shall establish and maintain a 125-foot buffer zone. A vertical expansion is any height increase that exceeds the maximum permitted final contour for any cell or unit for which an increase is requested. For a vertical expansion, the buffer distance must be measured from the outermost edge of the newly permitted solid waste disposal airspace."* *"For vertical or lateral expansions of existing landfills, the new buffer zone requirements shall apply only to newly permitted airspace, regardless of whether or not the previously permitted airspace has been*

*constructed or filled with solid waste. The new buffer zone may include any previously permitted airspace.”*

The landfill has buffer zones located along each side of the landfill. The widths of the buffer zones vary considerably across the site, but meet the minimum required 50’ distance requirement as previously approved in the 1999 Permit Amendment.

In addition to buffer zones that are located within the Landfill permit, the City has drainage easements that border the Landfill along the west, east and northern boundaries. These easements were negotiated between the City and Hurd Ranch Company. The terms of the easements state that the City controls the easements “in perpetuity” and the City has the responsibility to maintain these easements. As part of the easement agreements, the City constructed a nine foot tall metal panel fence along the eastern border of the site, with the intent of providing additional screening between the Landfill and the industrial property owned by Hurd. It is the intention of the City to continue to maintain this easement as long as the Landfill is in operation and throughout the closure and post-closure care periods. The drainage easements vary in width between 100’ and 200’.

Figure II-1.4 – Buffer Zones - illustrates the Landfill’s official buffer zone boundaries. The following presents a discussion of buffers that are in place at the Landfill between the toe of the Landfill and adjacent properties. The buffer zones along the northern boundary of the Landfill remain unchanged. No new waste is located along the northern portion of the Landfill. The buffer zones along the northern boundary include the existing buffer that ranges between approximately 53’ and 64’ within the permit boundary, and between 352’ and 430’ when the drainage easement is factored into the buffer zone. Buffer zones along the east side of the landfill range between 126’ and 316’ within the permit boundary and 231’ and 421’ with the drainage easement factored into the buffer zone. The buffer zone along the southern border ranges between 77’ and 269’. In addition to the buffer along the southern border of the site, the City owns the property where administrative and fleet maintenance vehicles are located and represents an additional 700’ of buffer between the Landfill permit boundary and SH 359. The City commits to maintaining ownership of this property throughout the life of the landfill, and through the post-closure care period. The western boundary buffer zone ranges between 105’ and 146’; with the drainage easement, this buffer is between 205’ and 274’. Table II.10 summarizes the buffer zones along the perimeter of the landfill.

**Table II.10  
Buffer Zones**

	<b>Without Easement Min-Max</b>	<b>With Drainage Easement Min-Max</b>
<b>North *</b>	56-78	352-430
<b>East</b>	126-316	231-421
<b>West</b>	105-174	205-274
<b>South**</b>	76-269	537-743

\* No new waste within 125' of permit boundary or fill limits

\*\* Southern boundary includes City-owned property not part of permit

\*\* The fill area boundaries have not changed on the southern boundary-

The buffer zones include access roads that are routinely maintained providing access for vehicles to perform periodic monitoring as well as emergency vehicles.

The drainage design presented in Part III, Attachment 6 demonstrates that the facility will comply with drainage and sediment control within the perimeter of the permitted boundary.

### **3.14 Historical and Archaeological Review 30 TAC § 330.61(o)**

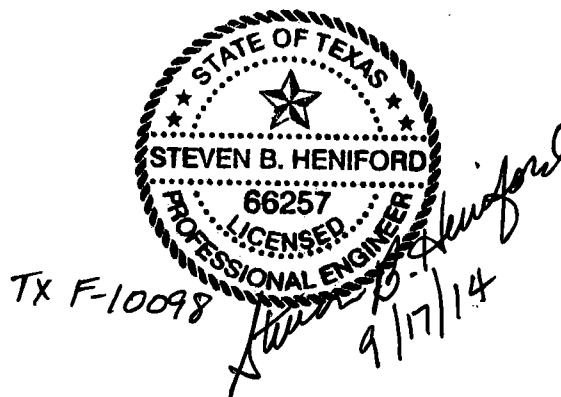
Coordination with the Texas Historical Commission regarding historically significant sites and structures, as well as known archaeological sites was undertaken. The Historical Commission reviewed information provided by the City. Based on the evaluation of site conditions, the Texas Historical Commission responded that the project may proceed – no significant sites were identified. Copies of Correspondence letters are included in Attachment II-2.

### **3.15 Council of Governments and Local Government 30 TAC § 330.61(p)**

Correspondence with the South Texas Development Council and local government agencies including the City of Laredo has been initiated and a copy of the correspondence is included in Attachment II-2.

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 1**  
**Figures**

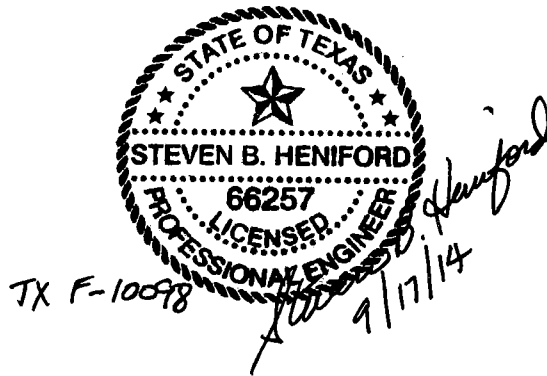


**LAREDO LANDFILL  
PART II  
Attachment 1  
Figures**

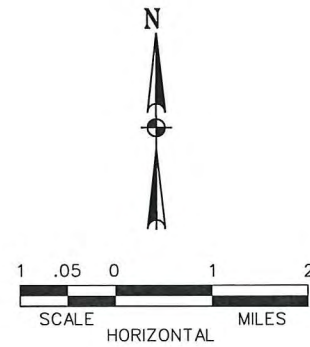
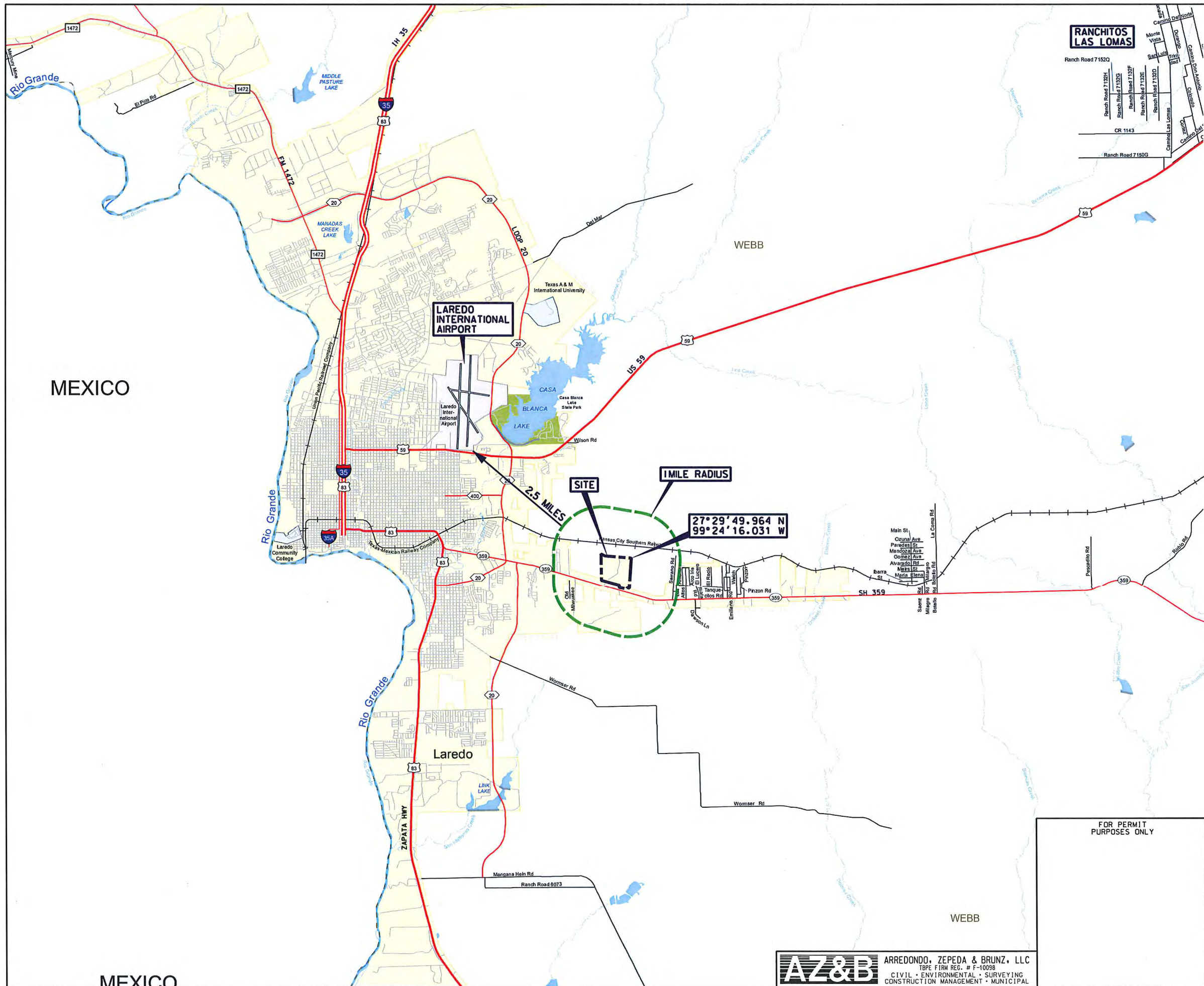
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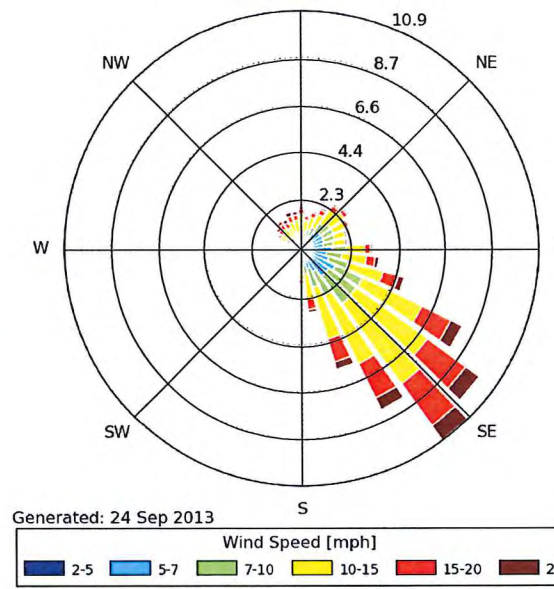




**LEGEND**

- City Limits
- Permit Boundary

[LRD] LAREDO INTL AIRPORT  
Windrose Plot [All Year]  
Period of Record: 01 Jan 1970 - 23 Sep 2013  
Obs Count: 321402 Calm: 8.0% Avg Speed: 10.5 mph



SOURCE: IOWA STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

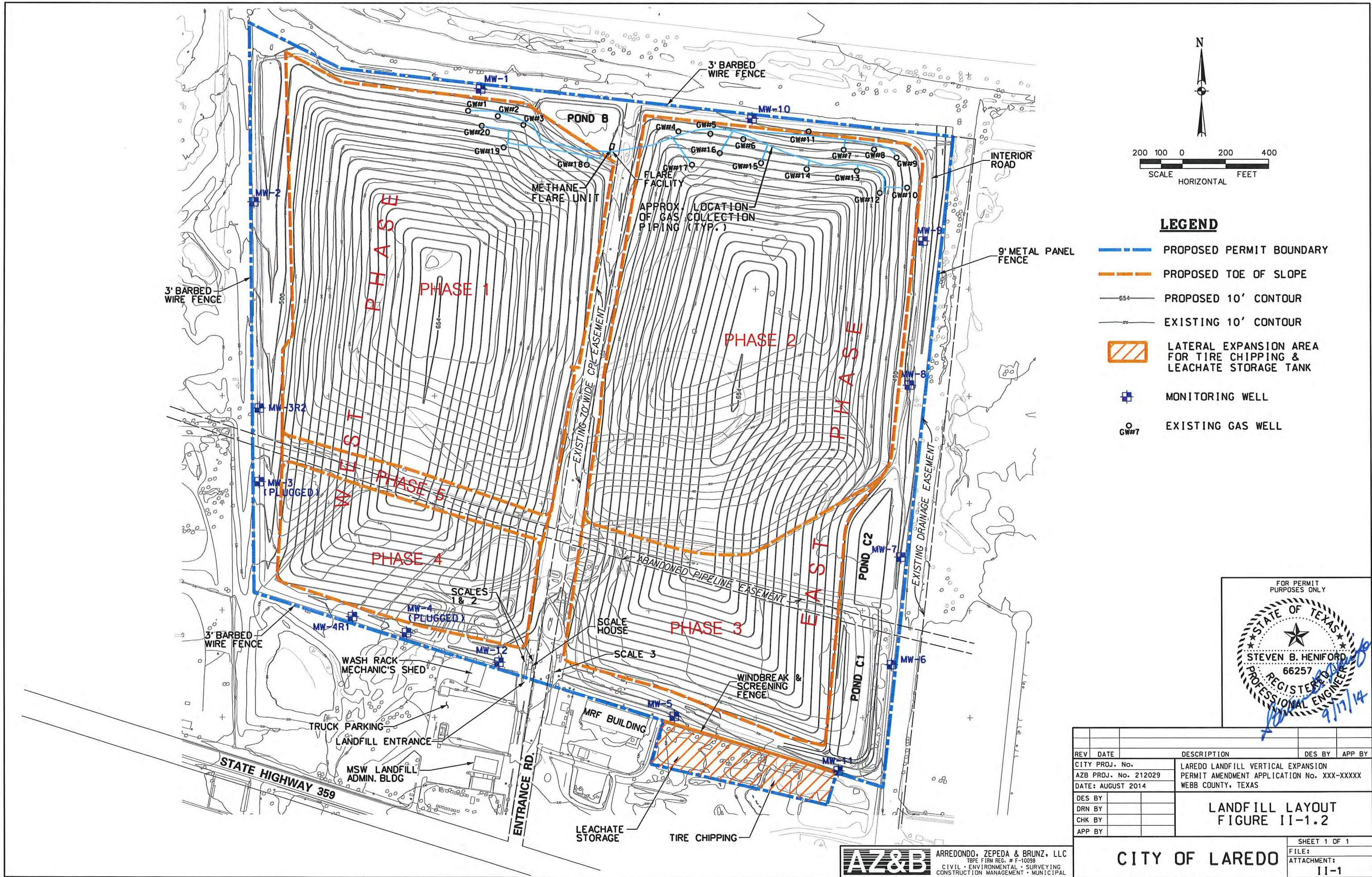
MAPPING IMAGES ARE FROM TEXAS DEPARTMENT OF TRANSPORTATION, COUNTY GRID MAPS, 2012

FOR PERMIT PURPOSES ONLY

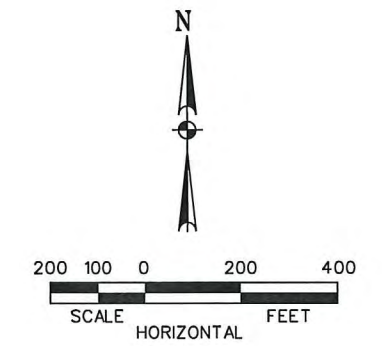
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		GENERAL LOCATION MAP FIGURE II-1.1		
DRN BY AZB				
CHK BY SH				
APP BY MC				
CITY OF LAREDO		SHEET OF		
		FILE:		
		ATTACHMENT:		
		II-1		

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSP FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL



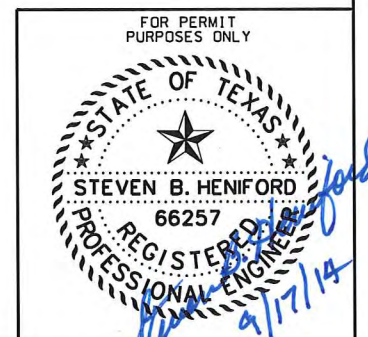






### LEGEND

- PROPOSED PERMIT BOUNDARY
- PROPOSED TOE OF SLOPE
- LATERAL EXPANSION AREA FOR TIRE CHIPPING & LEACHATE STORAGE TANK
- MONITORING WELL

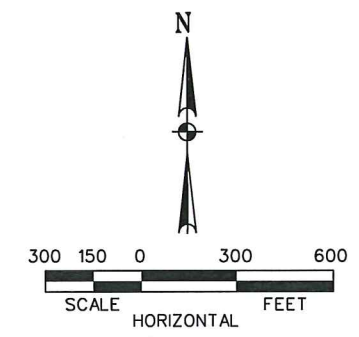


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CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. XXX-XXXXX		
DATE:		WEBB COUNTY, TEXAS		
DES BY		AERIAL VIEW		
DRN BY		LANDFILL LAYOUT		
CHK BY		FIGURE II-1.3		
APP BY				
CITY OF LAREDO		SHEET 1 OF 1		
		FILE: ATTACHMENT: 11-1		



ARREDONDO, ZEPEDA & BRUNZ, LLC  
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CONSTRUCTION MANAGEMENT • MUNICIPAL





**LEGEND**

- PERMIT BOUNDARY
- BUFFER ZONE BOUNDARY
- FILL LIMIT
- EXISTING DRAINAGE EASEMENTS
- XXX.X' DISTANCE TO PERMIT BOUNDARY
- XXX.X' DISTANCE TO OUTER LIMITS OF DRAINAGE EASEMENT
- LIMITS OF NEW FILL

NOTE:  
PROPERTY LINES AND EASEMENT INFORMATION  
WERE OBTAINED FROM HISTORICAL RECORDS,  
AND IS DEPICTED HERE SOLELY FOR PLANNING  
PURPOSES AND NOT FOR CONSTRUCTION.

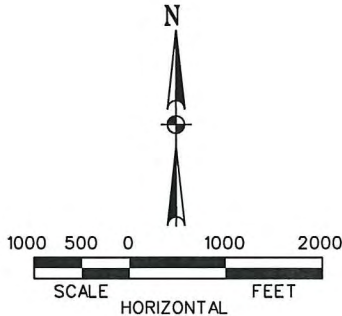
SOURCE: AERIAL MAP, TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

FOR PERMIT PURPOSES ONLY		O 11/15/13		MC	SH
REV	DATE	DESCRIPTION		DES BY	APP BY
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B			
DATE: AUGUST 2014		WEBB COUNTY, TEXAS			
DES BY	SH				
DRN BY	AZB				
CHK BY	SH				
APP BY	MC				
				<b>BUFFER ZONE &amp; DRAINAGE EASEMENT</b> <b>FIGURE II-1.4</b>	
				<b>CITY OF LAREDO</b>	
				SHEET	OF
				FILE:	
				ATTACHMENT:	II-1









**LEGEND**

--- PROPOSED PERMIT  
BOUNDARY

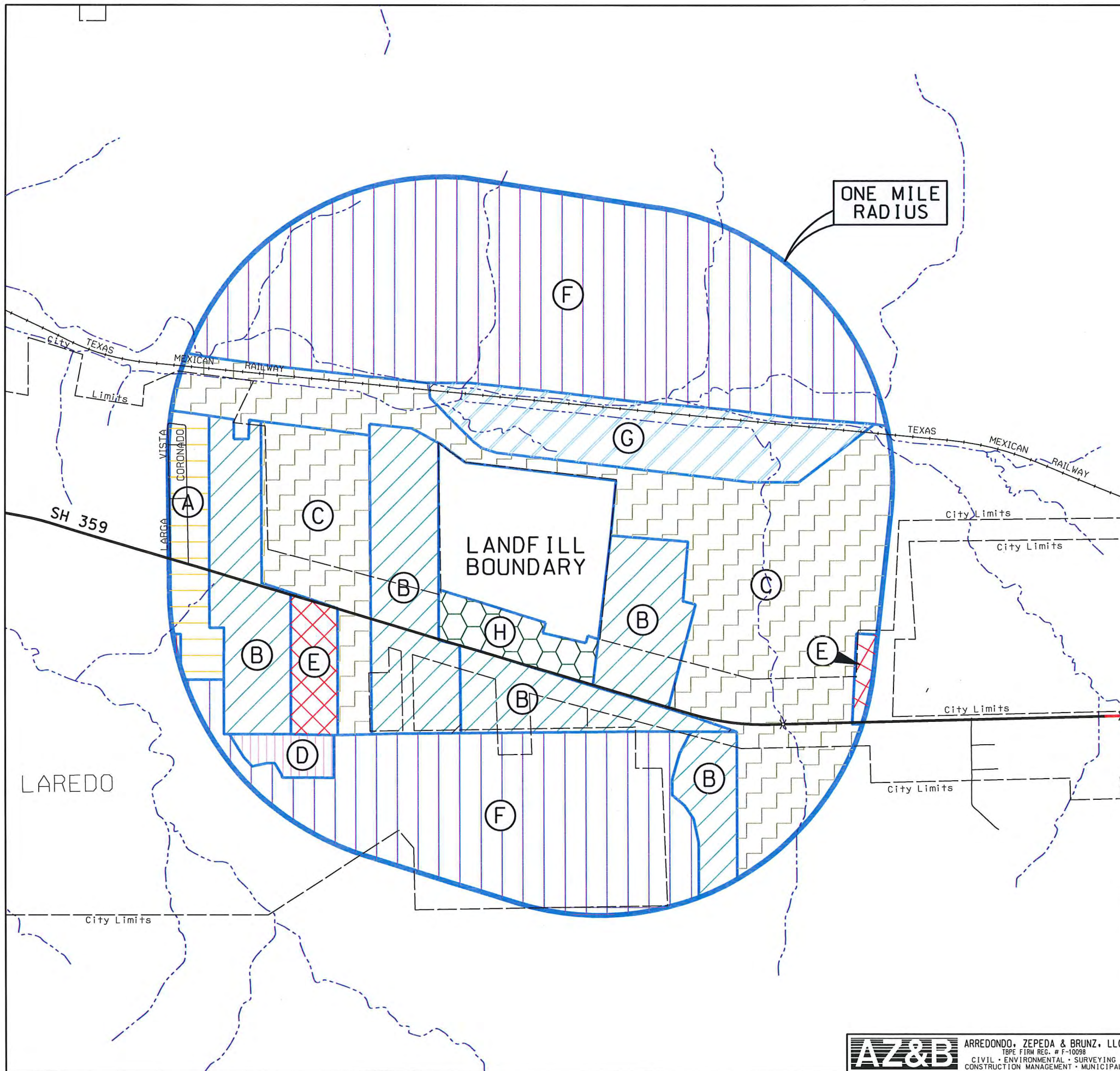
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY	SH	AERIAL PHOTOGRAPH FIGURE II-1.6		
DRN BY	AZB			
CHK BY	SH			
APP BY	MC			
CITY OF LAREDO			SHEET OF	
			FILE:	
			ATTACHMENT:	
			II-1	

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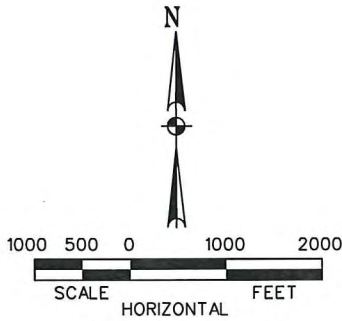
**Legend For Primary Land Uses**

- (A) RESIDENTIAL
- (B) COMMERCIAL/LIGHT INDUSTRIAL
- (C) UNDEVELOPED
- (D) PLANNED RESIDENTIAL/COMMERCIAL
- (E) MIXED USE
- (F) UNDEVELOPED WITH SOME OIL/GAS PRODUCTION
- (G) RAIL YARD
- (H) CITY OWNED PROPERTY
- CITY LIMITS

SOURCE: AREA RECONNAISSANCE AND AERIAL MAP REVIEW NOV. 2012  
TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

FOR PERMIT PURPOSES ONLY					
REV	DATE	DESCRIPTION		DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION			
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B			
DATE: AUGUST 2014		WEBB COUNTY, TEXAS			
DES BY	SH	<b>SURROUNDING LAND USE FIGURE II-1.7</b>		SHEET OF	
DRN BY	AZB			FILE:	
CHK BY	SH			ATTACHMENT:	
APP BY	MC			II-1	
ARREDONDO, ZEPEDA & BRUNZ, LLC T&E FIRM REG. # F-10098 CIVIL • ENVIRONMENTAL • SURVEYING CONSTRUCTION MANAGEMENT • MUNICIPAL				CITY OF LAREDO	





**LEGEND**

--- AMENDED PERMIT BOUNDARY

SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

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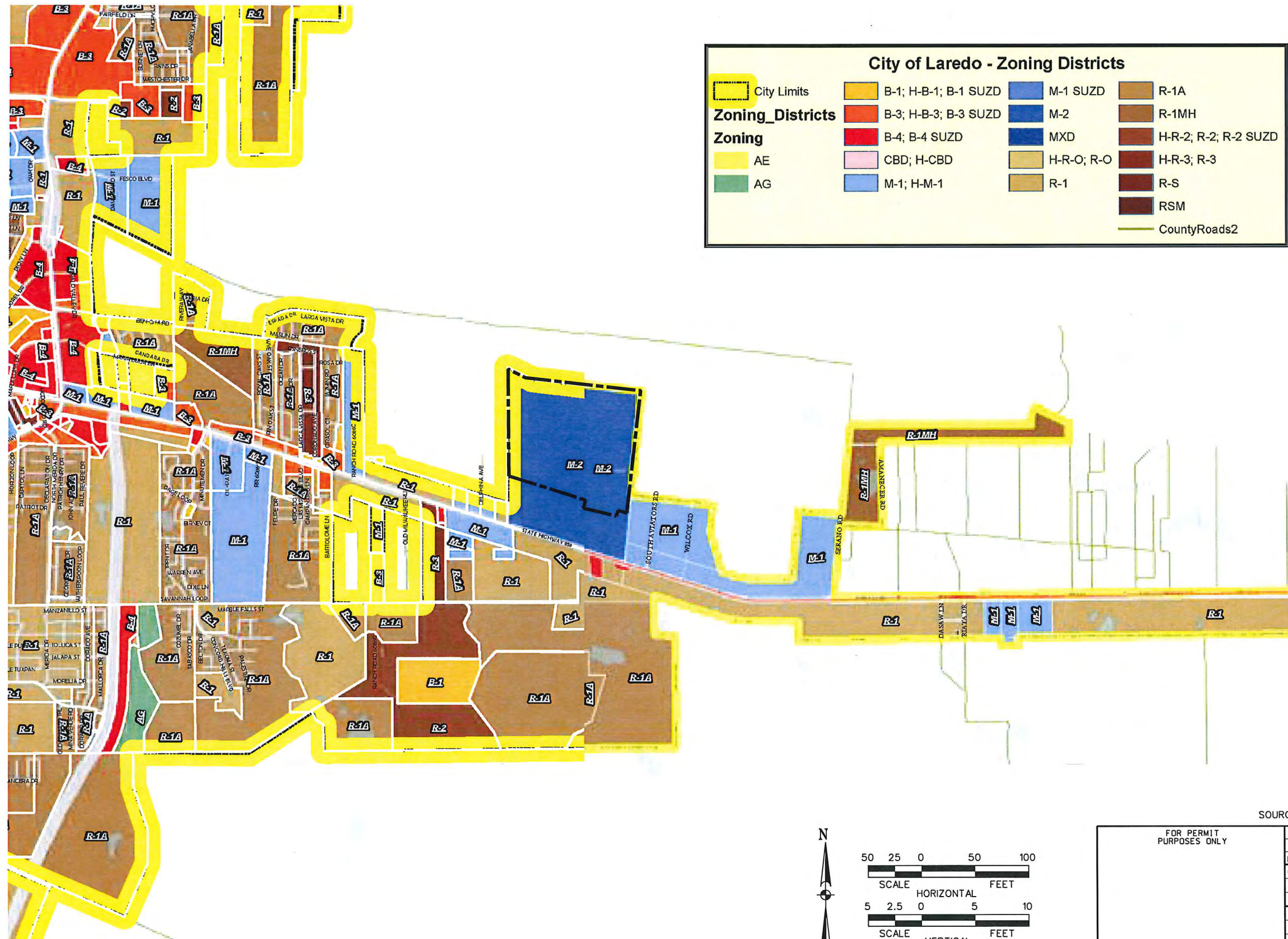
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		AERIAL VIEW OF LAND USE FIGURE II-1.8		
DRN BY AZB				
CHK BY SH				
APP BY MC				

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CITY OF LAREDO

SHEET OF  
FILE:  
ATTACHMENT:  
II-1





City Limits

Zoning\_Districts

Zoning

B-1; H-B-1; B-1 SUZD

B-3; H-B-3; B-3 SUZD

B-4; B-4 SUZD

CBD; H-CBD

M-1; H-M-1

M-1 SUZD

M-2

MXD

H-R-O; R-O

R-1

R-1A

R-1MH

H-R-2; R-2; R-2 SUZD

H-R-3; R-3

R-S

RSM

CountyRoads2

N

0 1500 3000

SCALE FEET

LEGEND

PERMIT BOUNDARY

N

50 25 0 50 100

SCALE HORIZONTAL FEET

5 2.5 0 5 10

SCALE VERTICAL FEET

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
 TYPE FIRM REG. # F-10098  
 CIVIL • ENVIRONMENTAL • SURVEYING  
 CONSTRUCTION MANAGEMENT • MUNICIPAL

SOURCE: CITY OF LAREDO, BUILDING DEVELOPMENT SERVICES DEPARTMENT

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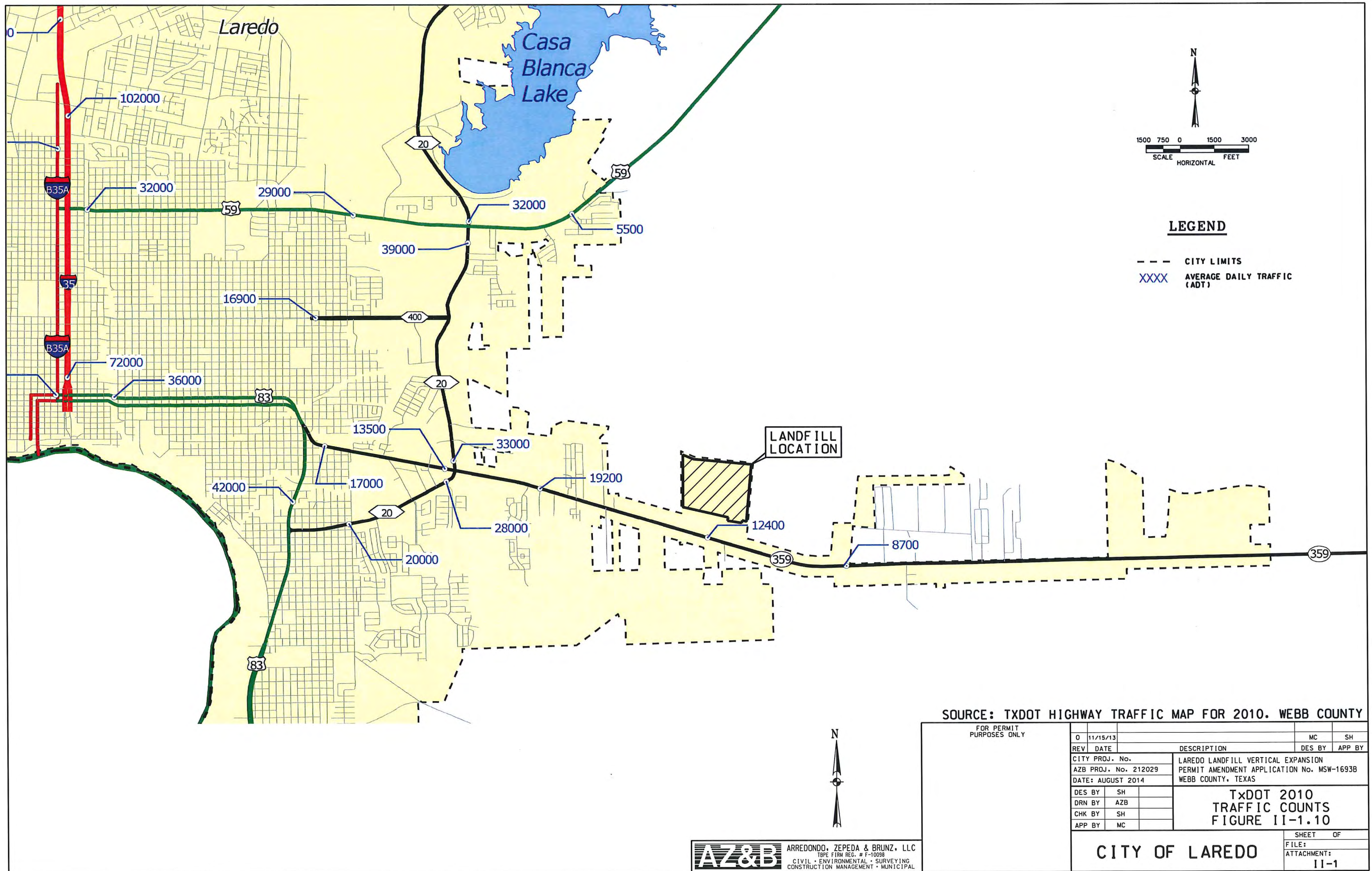
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY	SH			
DRN BY	AZB			
CHK BY	SH			
APP BY	MC			

ZONING MAP  
 FIGURE II.1.9

CITY OF LAREDO

SHEET OF  
 FILE:  
 ATTACHMENT:  
 II-1





SOURCE: TXDOT HIGHWAY TRAFFIC MAP FOR 2010. WEBB COUNTY

FOR PERMIT  
PURPOSES ONLY

0	11/15/13		MC	SH
REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY	SH			
DRN BY	AZB			
CHK BY	SH			
APP BY	MC			

**TXDOT 2010  
TRAFFIC COUNTS  
FIGURE II-1.10**

**CITY OF LAREDO**

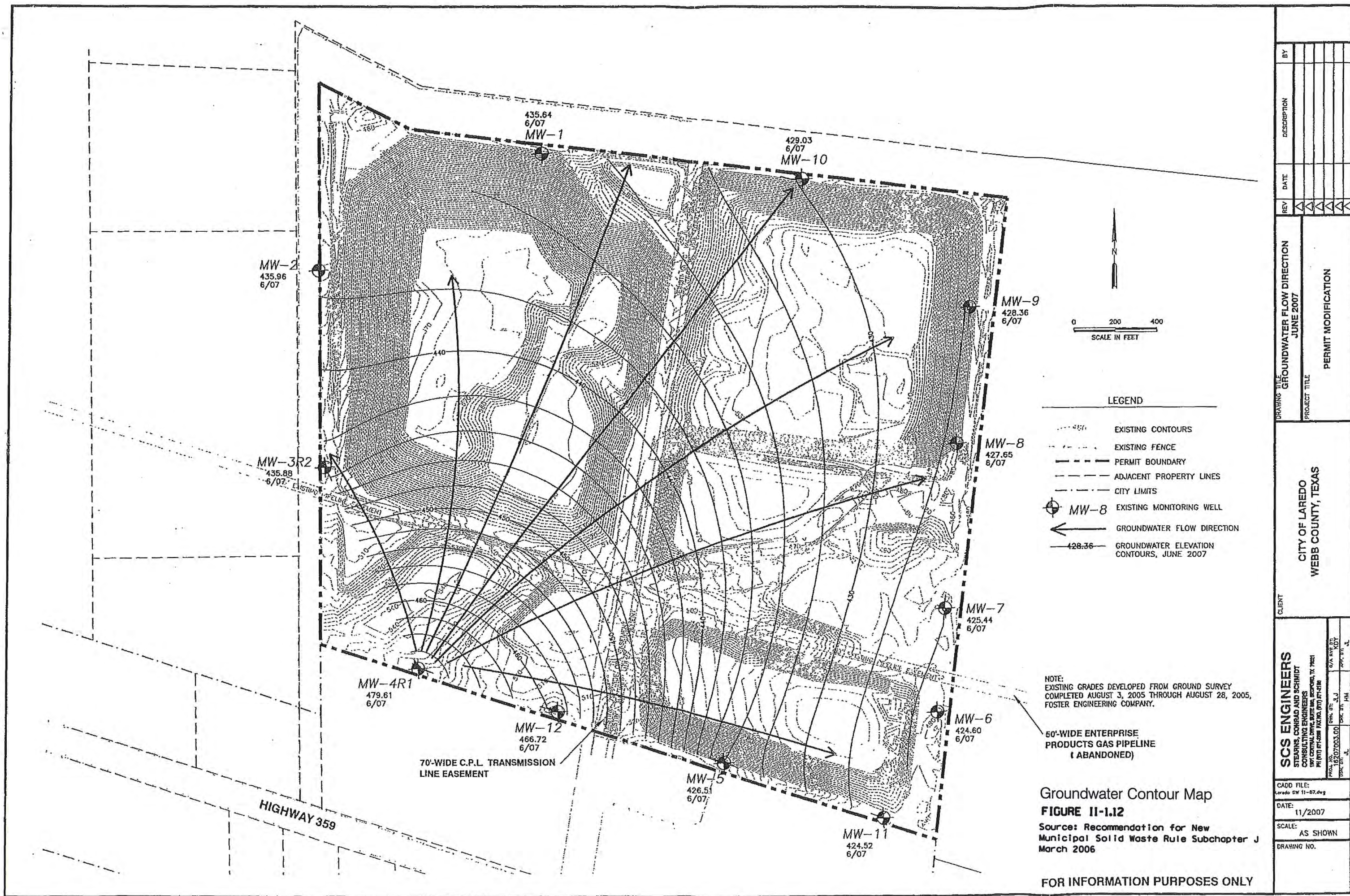
SHEET OF  
FILE:  
ATTACHMENT:  
II-1

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSP# FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL





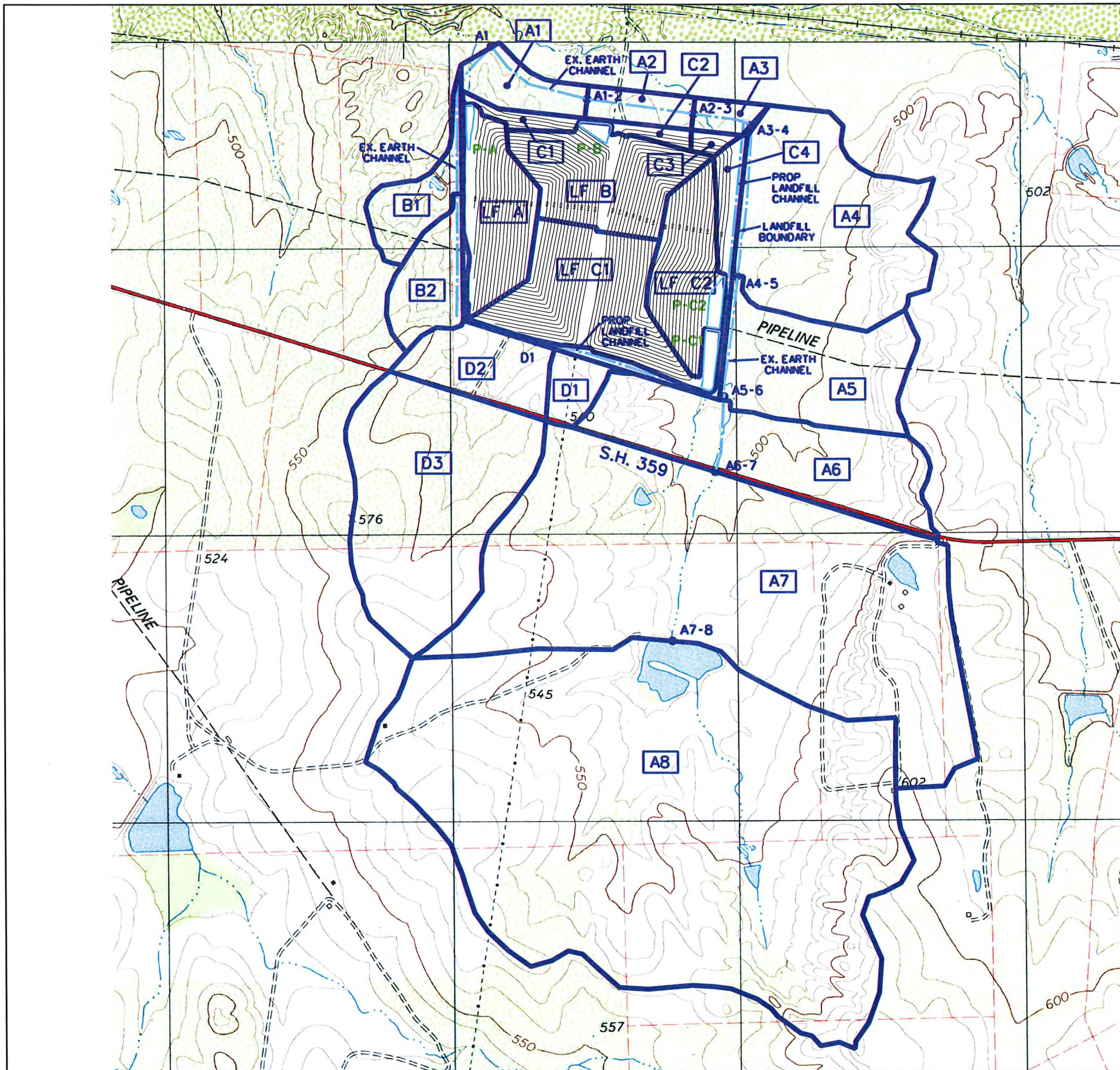




Groundwater Contour Map  
**FIGURE II-1.12**  
 Source: Recommendation for New  
 Municipal Solid Waste Rule Subchapter J  
 March 2006

FOR INFORMATION PURPOSES ONLY





# DRAINAGE AREA SUMMARY

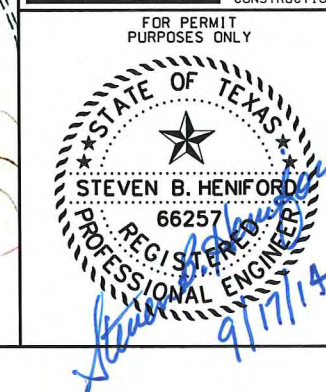
AREA I.D.	AREA	AREA
	(Sq. Mi.)	(ACRES)
A1	0.026	16.4
A2	0.026	16.7
A3	0.010	6.4
A4	0.154	98.5
A5	0.097	61.9
A6	0.122	77.8
A7	0.458	293.0
A8	0.700	447.8
B1	0.031	20.0
B2	0.036	23.1
C1	0.008	5.2
C2	0.006	4.0
C3	0.004	2.4
C4	0.015	9.7
D1	0.026	16.8
D2	0.045	28.8
D3	0.175	111.9
LF A	0.055	35.3
LF B	0.070	44.9
LF C1	0.091	58.4
LF C2	0.047	30.2

## LEGEND

- A3 AREA I.D.
- A1-2 HEC-HMS JUNCTION POINT
- CHANNEL
- DRAINAGE AREA BOUNDARY

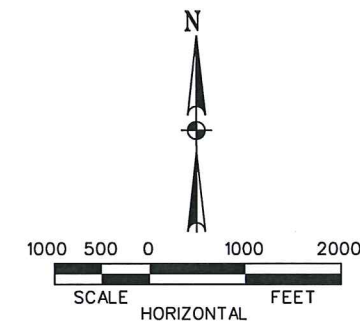
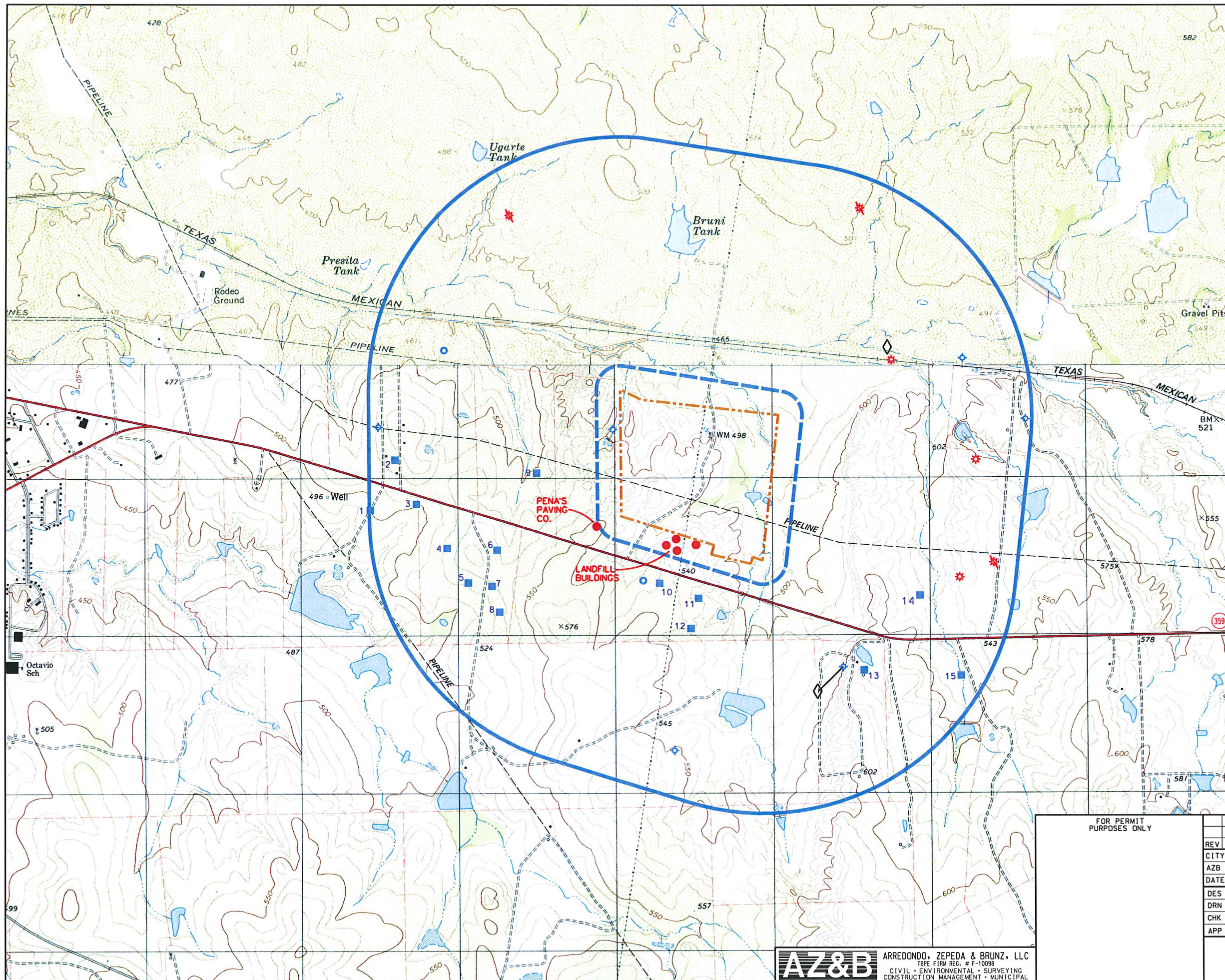


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REV	DATE	DESCRIPTION	DES BY	APP BY
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		<b>DRAINAGE CONDITIONS FIGURE II-1.13</b>		
DRN BY AZB				
CHK BY SH				
APP BY MC				
<b>CITY OF LAREDO</b>			SHEET OF	
			FILE:	
			ATTACHMENT:	II-1





### LEGEND

- PERMIT BOUNDARY
- 500' RADIUS FROM PERMIT BOUNDARY
- 1 MILE RADIUS FROM PERMIT BOUNDARY
- ◆ OIL/GAS DRY HOLE
- ◆ GAS WELL
- ◆ PLUGGED GAS WELL
- ◆ OIL/GAS PERMITTED LOCATION
- ◆ DIRECTIONAL WELL SURFACE LOCATION
- WATER WELL LOCATION
- STRUCTURE OUTSIDE OF PERMIT BOUNDARY AND WITHIN 500 FEET OF BOUNDARY

FOR BASE MAP LEGEND REFER TO THE TOPOGRAPHICAL MAP SYMBOLS, DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION.

NOTES:  
THE TWO STREAMS WITHIN THE PERMIT BOUNDARY FLOW INTO AN UNNAMED TRIBUTARY OF CHACON CREEK, WHICH LIES APPROXIMATELY 2.5 MILES WEST OF THE LANDFILL'S NORTHWEST CORNER.

THE PIPELINE INTERSECTING THE LANDFILL, WHICH RUNS EAST/WEST, HAS BEEN ABANDONED.

### SOURCES:

BASE MAP SOURCE IS LAREDO EAST, 1980 AND LAREDO SOUTH, 1979. USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS.

TEXAS WATER DEVELOPMENT BOARD, WATER WELL REPORTS 2012.

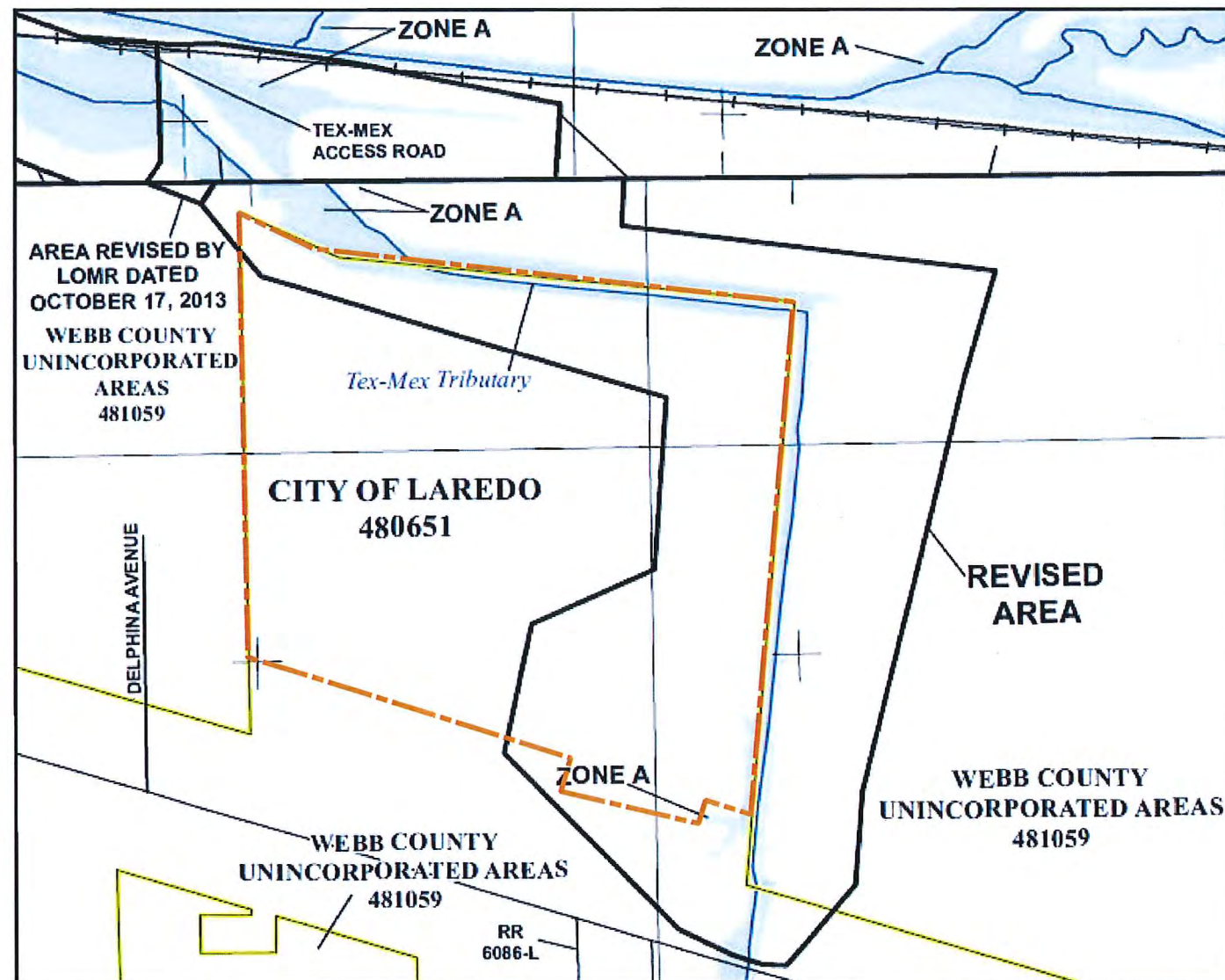
RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		<b>WATER, OIL &amp; NATURAL GAS WELL LOCATIONS</b>		
DRN BY AZB				
CHK BY SH				
APP BY MC				
		<b>FIGURE II-1.14</b>		
		<b>CITY OF LAREDO</b>		SHEET OF
				FILE:
				ATTACHMENT:
				II-1

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TBPB FIRM REG. # F-10098  
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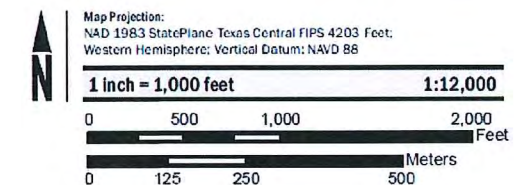


# **LEGEND**

--- PROPOSED PERMIT BOUNDARY

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X

## **SCALE**



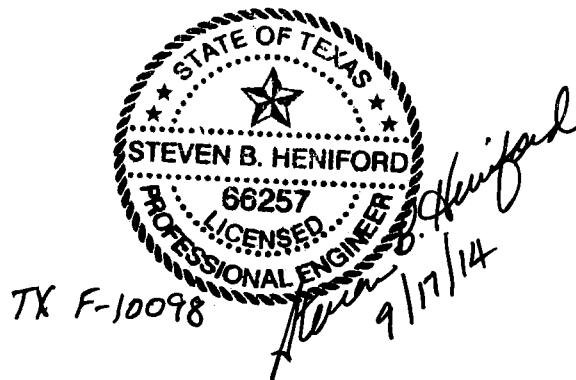
PANELS 1220 & 1385 of 1700

FOR PERMIT PURPOSES ONLY		0	11/15/13		MC	SH
		REV	DATE	DESCRIPTION	DES BY	APP BY
		CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
		AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
		DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
		DES BY	SH	<b>FIRM - FLOOD INSURANCE RATE MAP MAP NUMBER 48479C1385C FIGURE 11-1.15</b>		
		DRN BY	AZB			
		CHK BY	SH			
		APP BY	MC			
CITY OF LAREDO					SHEET	OF
					FILE:	
					ATTACHMENT:	
						11-1

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 2  
Correspondence**



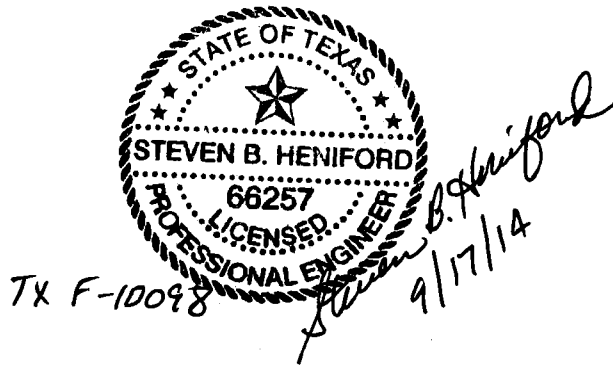
**LAREDO LANDFILL  
PART II  
Attachment 2  
Correspondence**

**TABLE OF CONTENTS**

**List of Attachments**

Letter to Texas Historical Commission from Arredondo, Zepeda & Brunz (6/21/2013)

Letter to South Texas Development Council from City of Laredo (10/21/2013)



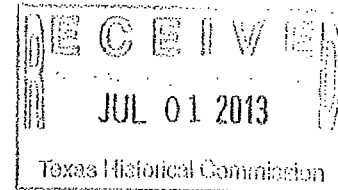


Arredondo, Zepeda & Brunz, LLC

11355 McCree Road  
Dallas, Texas 75238

June 21, 2013

Mr. Mark Wolfe  
State Historic Preservation Officer  
Texas Historical Commission  
PO Box 12276  
Austin, Texas 78771-2276



Mr. Wolfe:

Arredondo, Zepeda & Brunz LLC is currently preparing a Type I Municipal Solid Waste Landfill Permit Amendment for the City of Laredo. The City owns and operates the Landfill which is located approximately 2.5 miles east of downtown Laredo. A map illustrating the location of this 204 acre site is attached to this correspondence. The amendment will add capacity to the site by increasing the height of the landfill and filling areas that were previously used for a 50' wide natural gas utility easement.

In addition to the information provided below, AZ&B is including correspondence from the Texas Historical Commission (THC) related to the 1999 Permit Amendment. The 1999 amendment expanded the fill areas vertically. This permit amendment will increase the height of the fill areas; utilize space that was previously used for a natural gas pipeline that intersected the site in an east/west direction; and add four acres to the south of the existing permit boundary. The four acres will be used for an above ground storage tank and a tire chipping operation. No excavations are planned for the four acre tract.

AZ&B is requesting that your office provide us with a letter documenting our coordination with the THC regarding this project. We would appreciate any assistance you can provide us to help fulfill the TCEQ requirement.

The following presents information to assist in your review of the project.

- 1) *Specify whether the property is owned or controlled by a public agency. Control in this sense includes any easement that would allow an entity to construct utility lines across private property.*

The City owns and operates the Laredo Landfill. Easements include the following:

A Central Power & Light Easement that runs north/south through the property. This easement is for high power electric transmission lines. The easement is recorded in Vol. 201, pp 200-207 of the Official Public Records of Webb County, Texas.

An abandoned Pacific Gas Transmission Co. easement intersects the property in an east/west orientation.

- 2) *When appropriate provide a street address.*

The City of Laredo Landfill  
6912 Texas Highway 359  
Laredo, Texas 78044

civil

structural

municipal

surveying

planning





11355 McCree Road  
Dallas, Texas 75238

- 3) *Include a general location map that shows in detail where the project area lies in relation to a major city or where it is within the County.*

A General Location Map is attached for reference.

- 4) *Include a copy of a US Geologic Survey 7.5 minute quadrangle clearly showing the location and boundary of the construction area. Please be sure the map name is clearly noted on the copy.*

Attached is a map illustrating the location of the Landfill. Note that the project has completed most of its excavation and most of the future fill operations will take place above areas that have already been constructed.

- 5) *Describe the nature of the project, including the proposed impacts that will occur to the ground surface, noting the surface area that will be impacted and the depth of impact as well as any extenuating circumstances that may be important for the review, such as evidence of severe erosion on or previous construction within the project area.*

The Landfill permit amendment seeks to increase the height of previously permitted areas within the permit boundary. No additional acreage will be added to the permit amendment. Areas that will require excavation will be where an existing natural gas pipeline was previously constructed and has been abandoned by the owner. In addition to the excavation where the abandoned pipeline is located, the City will be constructing a pond. The pond is located within the permit boundaries of the landfill, in an area that was previously designated for either pond construction or in an area that was to be excavated for a landfill cell. The amount of excavation that will take place where the abandoned pipeline is located will be approximately 59,000 square yards to an estimated depth of 10-20 feet deep. The ponds will cover an area approximately 7,000 square yards to an estimated 10-12 feet deep. Note that the excavation of the pipeline will take place in an area that is between two areas that have already been excavated and there were no historic/archaeological findings during construction. Similarly, the ponds will be excavated in areas that have had excavation take place in close proximity to previously excavated areas, with no historic/archaeological findings present. The location of areas that will be excavated for the landfill cells and ponds is shown on the attached figure.

- 6) *List construction dates for any buildings or structures located on or near the project area, if known.*

No buildings will be constructed as part of this project. Excavation of areas for future landfill cells and ponds will take place in the next one to two years as future cells are required. No specific date has been determined at this time.

- 7) *Include photographs of at least two elevations and one street-scape for any buildings on the property.*

Attached

- 8) *Provide a brief history of the property and names of architects or builders if known.*

The site has been operating as a municipal solid waste landfill since its original permit in 1986. Prior to it becoming a municipal solid waste landfill, the property was ranch land, with two utilities



Arredondo, Zepeda & Brunz, LLC

11355 McCree Road  
Dallas, Texas 75238

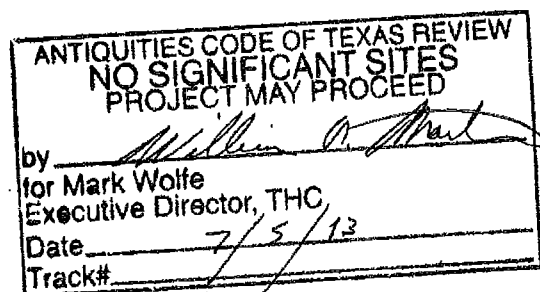
intersecting the property. The only buildings within the permit boundary are the landfill gate house which is a small one-person structure (refer to photo), a flare facility to manage landfill gas, a leachate storage tank, and a tire chipping facility.

The landfill was amended in 1999 and correspondence did take place between the City and The Historical Commission.

Thank you for your assistance on this matter. If you have any questions, feel free to contact me at 214 (341) 9900.

Best Regards,  
Arredondo, Zepeda & Brunz, LLC

Michael E. Carleton  
Project Manager



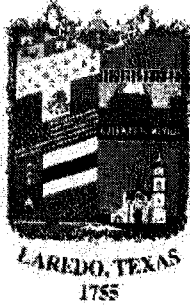
civil

structural

municipal

surveying

planning



## CITY OF LAREDO SOLID WASTE SERVICES

6912 HWY 359  
LAREDO, TX 78044-1965  
956-795-2510

October 21, 2013

Mr. Amando Garza, Jr.  
Executive Director  
South Texas Development Council  
1002 Dickey Lane  
Laredo, Texas 78043-2187

RE: Compliance with Regional Solid Waste Management Plan  
City of Laredo Municipal Solid Waste Landfill – Permit #1693A  
Vertical Expansion; Laredo, Webb County, Texas

Mr. Garza:

The City of Laredo is preparing a permit amendment application to the Texas Commission on Environmental Quality (TCEQ). The City owns and operates the Laredo Landfill. Per the requirements of 30 TAC 330.51(b)(10) pertaining to documentation of coordination with applicable agencies' for permit amendments, the City is providing your agency with notice of its intent to seek approval of its permit amendment. **We are seeking documentation from the South Texas Development Council that the request for a permit amendment is in conformance with the STDC's regional solid waste management plan.**

The purpose of this amendment is to increase capacity by filling in areas that were previously in a now abandoned easement and to increase the height of the landfill. This permit amendment will allow the City to continue to provide disposal services to residential and commercial customers beyond the currently available 6 to 8 years of remaining capacity. The landfill permit boundaries will not be expanded as part of this permit amendment. A location map of the Laredo Landfill is attached to this request.

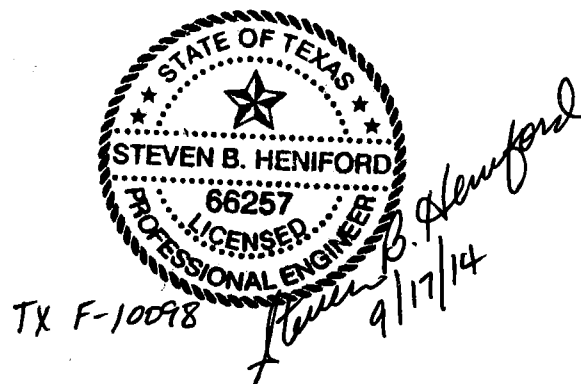
Arredondo, Zepeda & Brunz LLC has been selected by the City of Laredo to prepare the permit amendment application. Please review this letter, and if you have any questions or comments, feel free to contact me at 956.795.2510.

Sincerely,

Stephen R. Geiss  
Manager, Solid Waste Services

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 3**  
**Water Well Records**





**LAREDO LANDFILL  
PART II  
Attachment 3  
Water Well Records**

**TABLE OF CONTENTS**

**List of Tables**

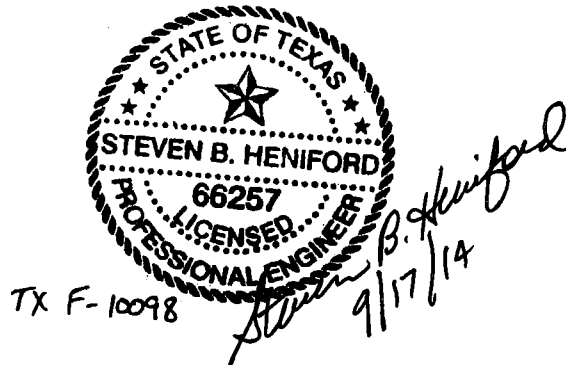
Table II.3.1: Water Well Records

**List of Figures**

Figure II.3.1: Water, Oil and Natural Gas Well Locations

**List of Attachments**

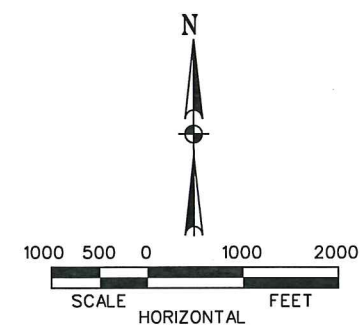
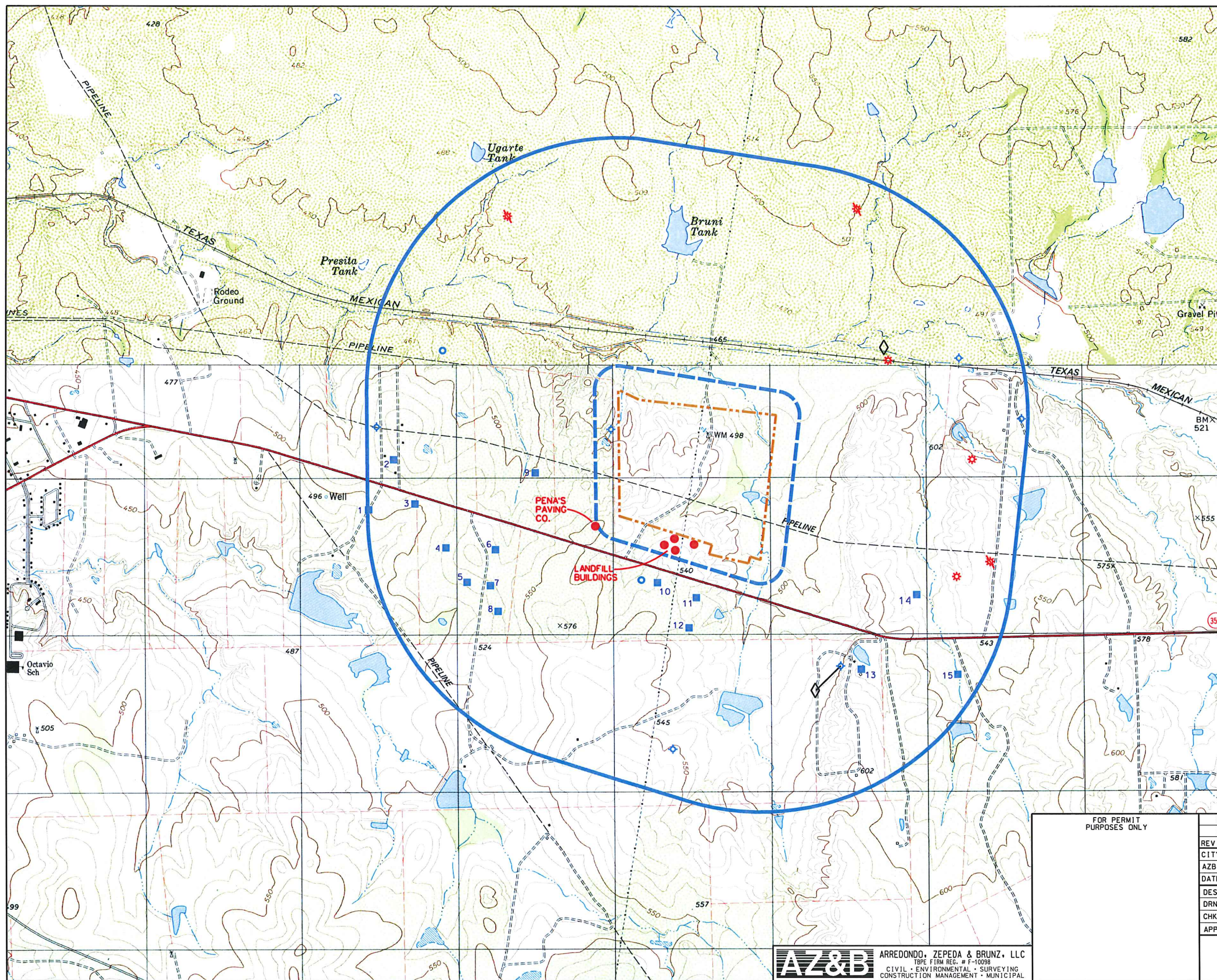
Water Well Records



**Table II.3.1  
Water Well Records**

<b>Location Number</b>	<b>Well Number</b>	<b>Date</b>	<b>Static Water Level (feet)</b>
1	85-37-2	7/24/86	114
1	85-37-2C	12/17/63	118
1	85-37-2N	9/1/82	100
1	85-37-2N	7/14/82	100
2	85-37-2Q	5/2/84	140
2	85-37-2M	6/26/82	168
2	85-37-2M	7/9/82	180
2	85-37-2E	4/6/66	140
3	85-37-2Q	5/4/84	140
3	85-37-2C	5/10/83	120
4	85-37-2	9/23/85	130
5	85-37-2	7/9/86	120
6	85-37-3	N/A	N/A
7	85-37-2	5/23/86	120
8	85-37-2N	11/14/84	100
9	85-37-3	7/14/87	160
10	85-37-3	3/2/89	120
11	85-37-3F	2/21/84	98
12	85-37-3F	12/5/84	118
13	85-37-3E	12/21/83	135
14	85-37-3D	3/29/83	180
15	85-37-3	6/27/90	190





### LEGEND

- AMENDED PERMIT BOUNDARY
- 500' RADIUS FROM PERMIT BOUNDARY
- 1 MILE RADIUS FROM PERMIT BOUNDARY
- OIL/GAS DRY HOLE
- ★ GAS WELL
- ★ PLUGGED GAS WELL
- OIL/GAS PERMITTED LOCATION
- ◇ DIRECTIONAL WELL SURFACE LOCATION
- WATER WELL LOCATION
- STRUCTURE OUTSIDE OF PERMIT BOUNDARY AND WITHIN 500 FEET OF BOUNDARY

FOR BASE MAP LEGEND REFER TO THE TOPOGRAPHICAL MAP SYMBOLS, DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION.

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THE PIPELINE INTERSECTING THE LANDFILL, WHICH RUNS EAST/WEST, HAS BEEN ABANDONED.

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TEXAS WATER DEVELOPMENT BOARD, WATER WELL REPORTS 2012.

RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

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DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY SH		<b>WATER, OIL &amp; NATURAL GAS WELL LOCATIONS FIGURE II-3.1</b>		
DRN BY AZB				
CHK BY SH				
APP BY MC				
CITY OF LAREDO			SHEET OF	
			FILE:	
			ATTACHMENT:	II-3

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSPS FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL



Please use black ink.  
Send original copy by  
certified mail to the  
Texas Water Commission  
P.O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

Texas Water Well Drillers Board  
P. O. Box 13087  
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Edwin Ward Address P.O. 1666 Laredo, Tx 78044  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: Webb 1 1/2 miles in S.E. direction from Laredo  
County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right  
with distance and direction from two intersecting sec-  
tion or survey lines, or he must locate and identify the  
well on an official Quarter- or Half-Scale Texas County  
General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map.

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Injection ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check): ☐ Driven  
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored  
☐ Air Rotary ☐ Cable Tool ☐ Other \_\_\_\_\_

6) WELL LOG:

Date Drilling: \_\_\_\_\_  
Started 7/22 19 86  
Completed 7/24 19 86

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
<u>6 3/4</u>	<u>Surface</u>	<u>710</u>

7) BOREHOLE COMPLETION:

☒ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other Cased to 685  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
------------	----------	---

0	2	Topsoil
2	40	Siltstone Yellow
400	220	Sandy Shale & Clay Gray
220	685	Sandy Shale & Clay Gray
685	695	Sand Gray White
695	710	Sandy Shale Gray

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
4"	new	PVC Pipe Plain	0	685	

9) CEMENTING DATA [Rule 319.44(b)]

Cemented from 685 ft. to 609 ft. No. of Sacks Used 10  
10 ft. to 0 ft. No. of Sacks Used 2  
Method used Basket & Circulation  
Cemented by Woods Drilling

10) SURFACE COMPLETION

☐ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☒ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:

Static level 114 ft. below land surface Date 7-24-86  
Artesian flow none gpm. Date \_\_\_\_\_

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_  
None

13) TYPE PUMP:

☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder  
☒ Other None Yet  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata 685-695  
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:

Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 20 gpm with 260 ft. drawdown after 2 hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co. Water Well Driller's License No. 2220  
(Type or Print)

ADDRESS P.O. Box 6489 Laredo Tx 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) Jessy Wood (Signed) \_\_\_\_\_ (Registered Driller Trainee)  
(Licensed Water Well Driller)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only  
Well No. 85-37-2  
Located on map \_\_\_\_\_

TWC-0392 (Rev. 06-10-85)

TEXAS WATER COMMISSION COPY

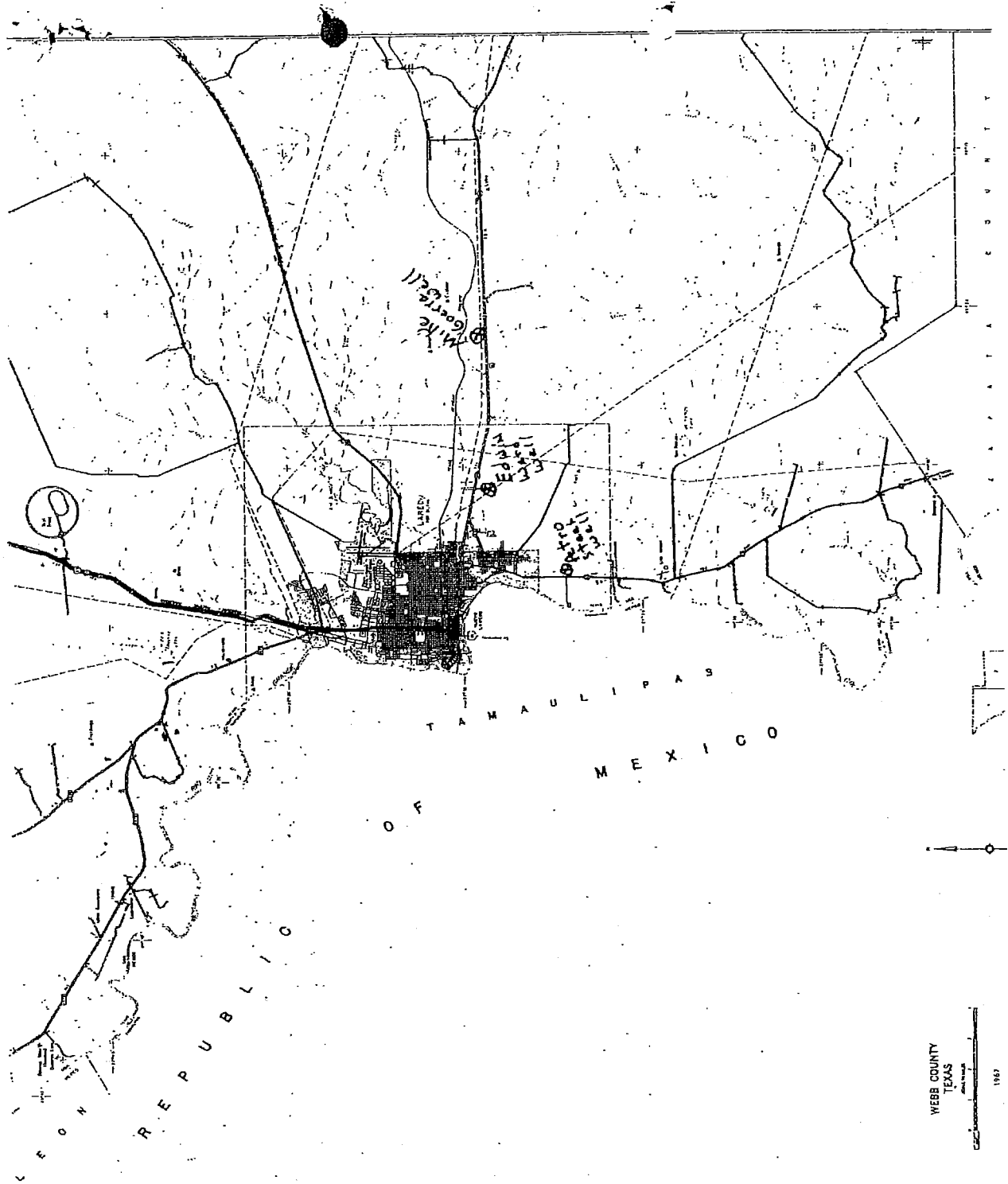


**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Texas Water Commission are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a Commission copy, shall include the name, mailing address, and telephone number of the Board and the Commission. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.



2C

1

File original copy with  
Texas Water Commission  
P. O. Box 2311, Capitol Station  
Austin 11, Texas

State of Texas

## DRILLERS LOG AND WELL DATA REPORT

For use by TWC only  
Well No. 85-37-2C  
Location on map 450  
By JS Date 64  
Map no. 240 (2)

1) Well Owner: Mr. Antonio Cavazos 520 Garcia Laredo Texas

2) Land Owner: Mr. Antonio Cavazos 520 Garcia Laredo Texas

3) Intended use: Industrial ☐ Municipal ☐ Irrigation ☐ Other Livestock

4) Location of well: County Webb Labor \_\_\_\_\_ League \_\_\_\_\_ Abstract No. \_\_\_\_\_

NW 1 NE 1 SW 1 SE 1 of Section \_\_\_\_\_ Block No. 13 Survey \_\_\_\_\_ Porcion No. 31 & 32

4 miles in east direction  
from Laredo

Sketch map of well location with distances from two section or survey lines, and to landmarks, roads, and creeks.

### DRILLERS LOG OF WELL

Method of drilling: Standard rig Diameter of hole 8 1/2 in. Date drilled Dec. 17, 1963

All measurements made from 0 ft. above ground level.

From (ft)	To (ft)	Description and color of formation material	From (ft)	To (ft)	Description and color of formation material
1	5	surface			
5	29	yellow sandstone			
29	218	gray shale			
218	226	salt water			
226	371	gray sandy shale			
371	384	water sand			
384	390	gray sandy shale			

(Use continuation sheets if necessary)

### COMPLETION DATA

**COMPLETION**

Straight wall ☐

Under reamed ☐

Gravel packed ☐

Open hole ☒

Other From 385 to 390

**CASING**

Type: Old ☒ New ☐

Cemented from 365 ft. to surface.

Diameter (inches)	Setting	
	from (ft)	to (ft)
7" O.D.	1' above surface	385

**SCREEN**

Type \_\_\_\_\_

Perforated ☐ Slotted ☒

Diameter (inches)	Setting	
	from (ft)	to (ft)
	371	384

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

Rene Gutierrez Rene Gutierrez Reg. No. 397

Please attach electric log, chemical analysis, and other pertinent information if available.

If well was tested by your company or if you installed the permanent pump please complete the following:

### WATER LEVEL AND PUMP DATA

Static water level 118 ft. below ground level

Pumping level		
feet	hours	gpm
260		16

Pump type \_\_\_\_\_

Designed pumping rate \_\_\_\_\_ gpm ☐ gph ☐

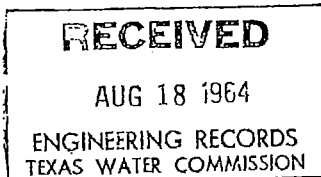
Type power unit \_\_\_\_\_

Horsepower \_\_\_\_\_

Depth to bowls, cylinder, jet, etc., \_\_\_\_\_ ft. below pump base.

Name of contractor testing well or installing permanent pump if other than your company: \_\_\_\_\_

C-34 (62-4)







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Send original copy by  
certified mail to the  
Texas Department of Water Resources  
P. O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

For TDWR use only  
Well No. 85-37-24  
Located on map YES  
Received: Ruf

1) OWNER D.E. Beard Trucking Address P.O. 1990 Laredo TX 78041  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: Webb 3 1/4 miles in East direction from Laredo  
County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right  
with distance and direction from two intersecting sec-  
tion or survey lines, or he must locate and identify the  
well on an official Quarter- or Half-Scale Texas County  
General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. ON 85-29-7C

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):  
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:

Date drilled 7-12-82

DIAMETER OF HOLE  
Dia. (in.) From (ft.) To (ft.)  
6 3/4 Surface 300

7) BOREHOLE COMPLETION:  
☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☐ Other cased to bottom  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0-50	Siltstone	yellow
50-120	Shale	black
120-140	Sandstone	gray
140-180	Shale	Black
180-300	Shale & Sandstone stks.	

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
5"		PVC Plain	0	160	
		PVC Perforated	160	300	1/8

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:  
Cemented from 160 ft. to surface ft.  
Method used Plug & basket  
Cemented by Woods Drilling  
(Company or Individual)

9) WATER LEVEL:  
Static level 100 ft. below land surface Date 7-14-82  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

10) PACKERS: Type Rubber Depth 160

11) TYPE PUMP:  
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder  
☐ Other none yet  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

13) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata stks. 180-300  
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS:  
☐ Type Test: ☐ Pump ☐ Bailor ☒ Jetted ☐ Estimated  
Yield: 25 gpm with 300 ft. drawdown after 2 1/8

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Jerry Woods Water Well Drillers Registration No. 2220  
(Type or Print)  
ADDRESS P.O. Box 568 Hebbronville Texas 78361  
(Street or RFD) (City) (State) (Zip)  
(Signed) Jerry Woods Woods Drilling  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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Please use black ink.  
Send original copy by  
certified mail to the  
Texas Department of Water Resources  
P. O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

Texas Water Well Drillers Board  
P. O. Box 13087  
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Enrique Flores Address 4413 Flores Laredo Tx 78041  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: County Webb 5 miles in East direction from Laredo  
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. map on 85-37-2a

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):  
☐ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:

Date drilled 5-1-84

DIAMETER OF HOLE  
Dia. (in.) From (ft.) To (ft.)  
6 3/4 Surface 280

7) BOREHOLE COMPLETION:

☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☐ Other cased to bottom  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	2	Gravel
2	10	Clay Yellow
10	60	Siltstone Yellow
60	90	Shale Gray
90	110	Shale Green
110	180	Sandy Shale Gray
180	280	Sand & Shale Stks. Gray

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
5"	new	PVC Plain	0	180	
5"	new	PVC perf.	180	280	1/4"

9) CEMENTING DATA [Rule 319.44(b)]

Cemented from 180 ft. to surface ft.  
ft. to \_\_\_\_\_ ft.  
Method used circulation & basket  
Cemented by Woods Drilling Co.

10) SURFACE COMPLETION

☒ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:

Static level 140 ft. below land surface Date 5-2-84  
Artesian flow none gpm. Date \_\_\_\_\_

12) PACKERS:

Type Depth  
None

13) TYPE PUMP:

☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder  
☐ Other None  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No 200-220  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata 270-280  
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:

Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 15 gpm with 260 ft. drawdown after 2 hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co. Water Well Driller's License No. 2220  
(Type or Print)

ADDRESS P.O. Box 6489 Laredo Tx 78042  
(Street or RFD) (City) (State) (Zip)

(Signed)

Jerry Woods  
(Licensed Water Well Driller)

(Signed)

(Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only  
Well No. 85-37-2a  
Located on map Yes C.F.S.

DEPARTMENT OF WATER RESOURCES COPY

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The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas  
**WATER WELL REPORT**

For TDWR use only  
Well No. 85-37-2m  
Located on map YES  
Received: RUB

ATTENTION OWNER: Confidentiality/Privilege Notice on Reverse Side

1) OWNER Guadalupe Medellin Lot 60 Address 304 East Lyon Laredo TX 78040  
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Webb 3 miles in East direction from Laredo  
(Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description: Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. DN 85-29-7C

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):  
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored  
☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:  
Date drilled 6-25-82

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
<u>6 3/4</u>	<u>Surface</u>	<u>340</u>

7) BOREHOLE COMPLETION:  
☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other cased to bottom  
If Gravel Packed give interval . . . from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
						From	To	
<u>0-5</u>	<u>Topsoil</u>	<u>Yellow</u>						
<u>5-60</u>	<u>Siltstone</u>	<u>black &amp; gray</u>	<u>5"</u>	<u>new</u>	<u>PVC Plain</u>	<u>0</u>	<u>270</u>	
<u>60-320</u>	<u>Shale sandy</u>	<u>black &amp; gray</u>	<u>5"</u>	<u>new</u>	<u>PVC Perforated</u>	<u>270</u>	<u>340</u>	<u>1/8</u>
<u>320-340</u>	<u>Sandstone &amp; shale str.</u>	<u>gray</u>						

CEMENTING DATA  
Cemented from 260 ft. to surface ft.  
Method used Plug & basket  
Cemented by Woods Drilling Co.  
(Company or Individual)

9) WATER LEVEL:  
Static level 168 ft. below land surface Date 6-26-82  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

10) PACKERS: Type Rubber Depth 260

11) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 320 ft.

12) WELL TESTS:  
☐ Type Test ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 8 gpm with 340 ft. drawdown after 2 hrs.

13) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata 320-340  
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Jerry Woods Water Well Drillers Registration No. 2220  
(Type or Print)

ADDRESS Box 568 Hebbronville TX 78361  
(Street or RFD) (City) (State) (Zip)

(Signed) Jerry Woods Woods Drilling  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

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File original copy with  
Texas Water Development Board  
P. O. Box 12386, Capitol Station  
Austin, Texas 78711

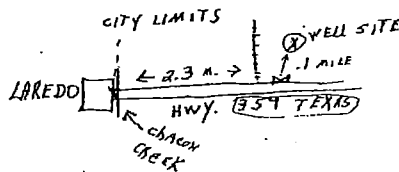
State of Texas

# DRILLERS LOG AND WELL DATA REPORT

For use by TWDB only  
Well No. 85-37-2E  
Located on map 740  
By NC Date 66  
Map no. \_\_\_\_\_

- 1) Well Owner: Mr. A. E. Guajardo, Jr. P. O. Box 1119 Laredo Texas  
2) Land Owner: Mr. A. E. Guajardo, Jr. P. O. Box 1119 Laredo, Texas  
3) Intended use: Industrial ☐ Municipal ☐ Irrigation ☐ Other Livestock  
4) Location of well: County Webb Labor \_\_\_\_\_ League \_\_\_\_\_ Abstract No. \_\_\_\_\_  
NW 1/4 NE 1/4 SW 1/4 SE 1/4 of Section \_\_\_\_\_ Block No. \_\_\_\_\_ Survey El Ramchito, Ramch.

2.3 miles in E direction  
from Laredo Town



Sketch map of well location with distances from two section  
or survey lines, and to landmarks, roads, and creeks.

## DRILLERS LOG OF WELL

Method of drilling: Standard rig Diameter of hole 8 1/4 in. Date drilled April 6, 1966

All measurements made from 0 ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material	From (ft.)	To (ft.)	Description and color of formation material
1	2	surface	305	324	gray clay
2	56	yellow stone	324	335	water sand
56	115	gray sandy shale	335	407	gray clay
115	125	wet sand	407	418	water sand
125	240	gray sandy shale	418	472	gray clay
240	254	water sand	472	490	water sand
254	290	gray sandy shale	490	500	gray clay
290	305	water sand			

(Use continuation sheets if necessary)

## COMPLETION DATA

COMPLETION	CASING	SCREEN
Straight wall <input type="checkbox"/> Under reamed <input type="checkbox"/> Gravel packed <input type="checkbox"/> Open hole <input type="checkbox"/> Other _____	Type: Old <input checked="" type="checkbox"/> New <input type="checkbox"/> Cemented from <u>1</u> ft. to <u>470</u> ft. Diameter (inches) <u>7" O.D.</u> Setting from (ft) <u>1' above surface</u> to (ft) <u>500</u>	Type _____ Perforated <input type="checkbox"/> Slotted <input checked="" type="checkbox"/> Diameter (inches) _____ Setting from (ft) <u>472</u> to (ft) <u>490</u>

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

David E. De La Cruz  
Signature

David E. De La Cruz  
Company Name

Reg. No. 67

Please attach electric log, chemical analysis, and other pertinent information if available.

If well was tested by your company or if you installed the permanent pump please complete the following:

## WATER LEVEL AND PUMP DATA

Static water level <u>140</u> ft. below <u>surface</u> Pumping level feet hours gpm <u>382</u> <u>23</u>	Pump type _____ Designed pumping rate _____ gpm <input type="checkbox"/> gph <input type="checkbox"/> Type power unit _____ Horsepower _____ Depth to bowls, cylinder, jet, etc., _____ ft. below pump base.
--	--

Name of contractor testing well or installing permanent pump if other than your company: \_\_\_\_\_

Carroll Meador  
Texas Water Development Board

SEP 26 1966



Arredondo, Zepeda & Brunz, LLC  
Version 0

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the department, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a department copy, shall include the name, mailing address, and telephone number of the Board and the department. The well log required herein shall at the request in writing to the department, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.

③

**IMPORTANT NOTICE FOR PERSONS  
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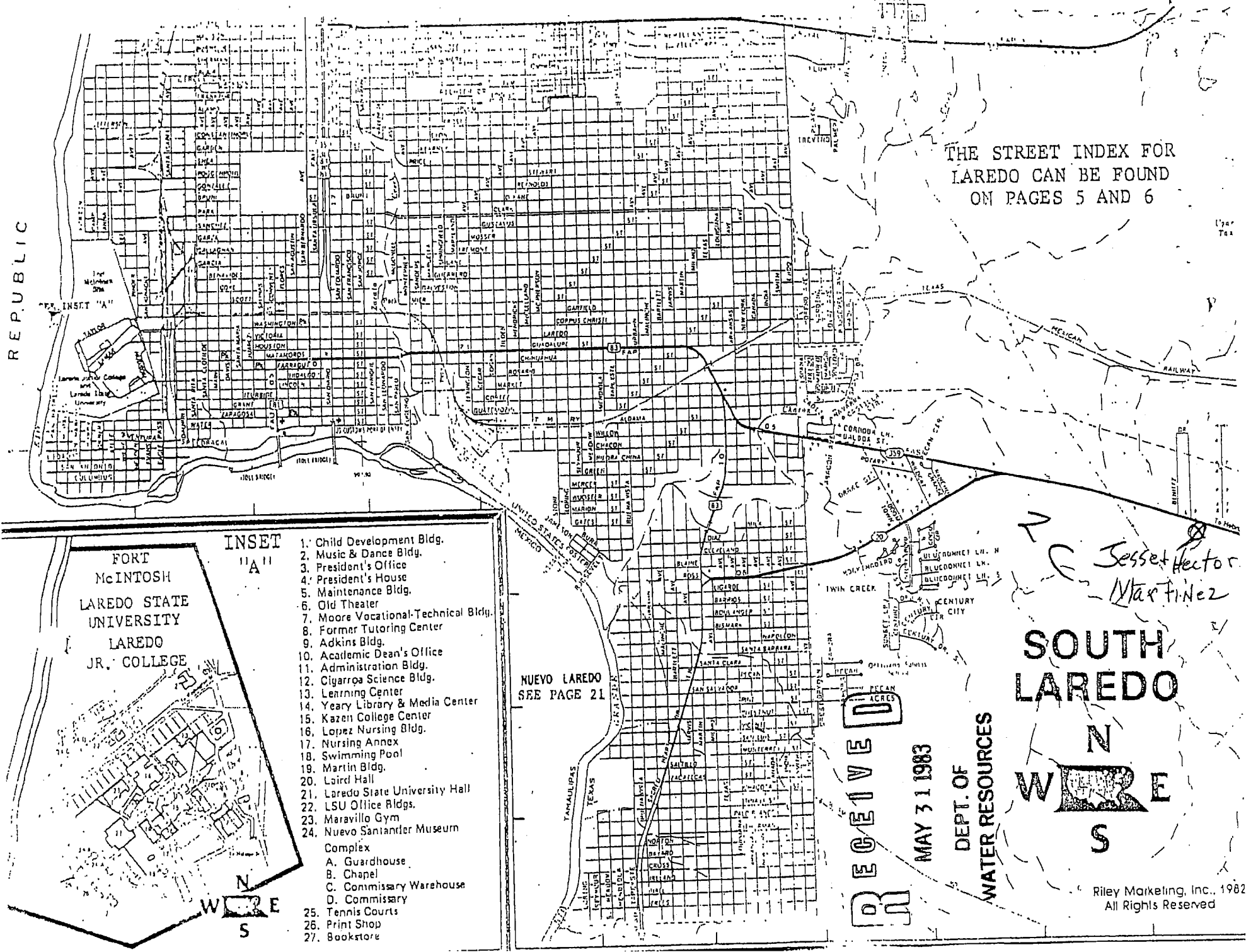
"Every registered water well driller drilling, deepening, or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within sixty (60) days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

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REPUBLIC

THE STREET INDEX FOR  
LAREDO CAN BE FOUND  
ON PAGES 5 AND 6



INSET  
"A"

FORT  
McINTOSH  
LAREDO STATE  
UNIVERSITY  
LAREDO  
JR. COLLEGE

1. Child Development Bldg.
2. Music & Dance Bldg.
3. President's Office
4. President's House
5. Maintenance Bldg.
6. Old Theater
7. Moore Vocational-Technical Bldg.
8. Former Tutoring Center
9. Adkins Bldg.
10. Academic Dean's Office
11. Administration Bldg.
12. Cigarroa Science Bldg.
13. Learning Center
14. Yeary Library & Media Center
15. Kazen College Center
16. Lopez Nursing Bldg.
17. Nursing Annex
18. Swimming Pool
19. Martin Bldg.
20. Laird Hall
21. Laredo State University Hall
22. LSU Office Bldgs.
23. Maravillo Gym
24. Nuevo Santander Museum Complex
25. Tennis Courts
26. Print Shop
27. Bookstore

NUEVO LAREDO  
SEE PAGE 21

Seset Hector  
Martinez

SOUTH  
LAREDO



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MAY 31 1983

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WATER RESOURCES

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Version 0

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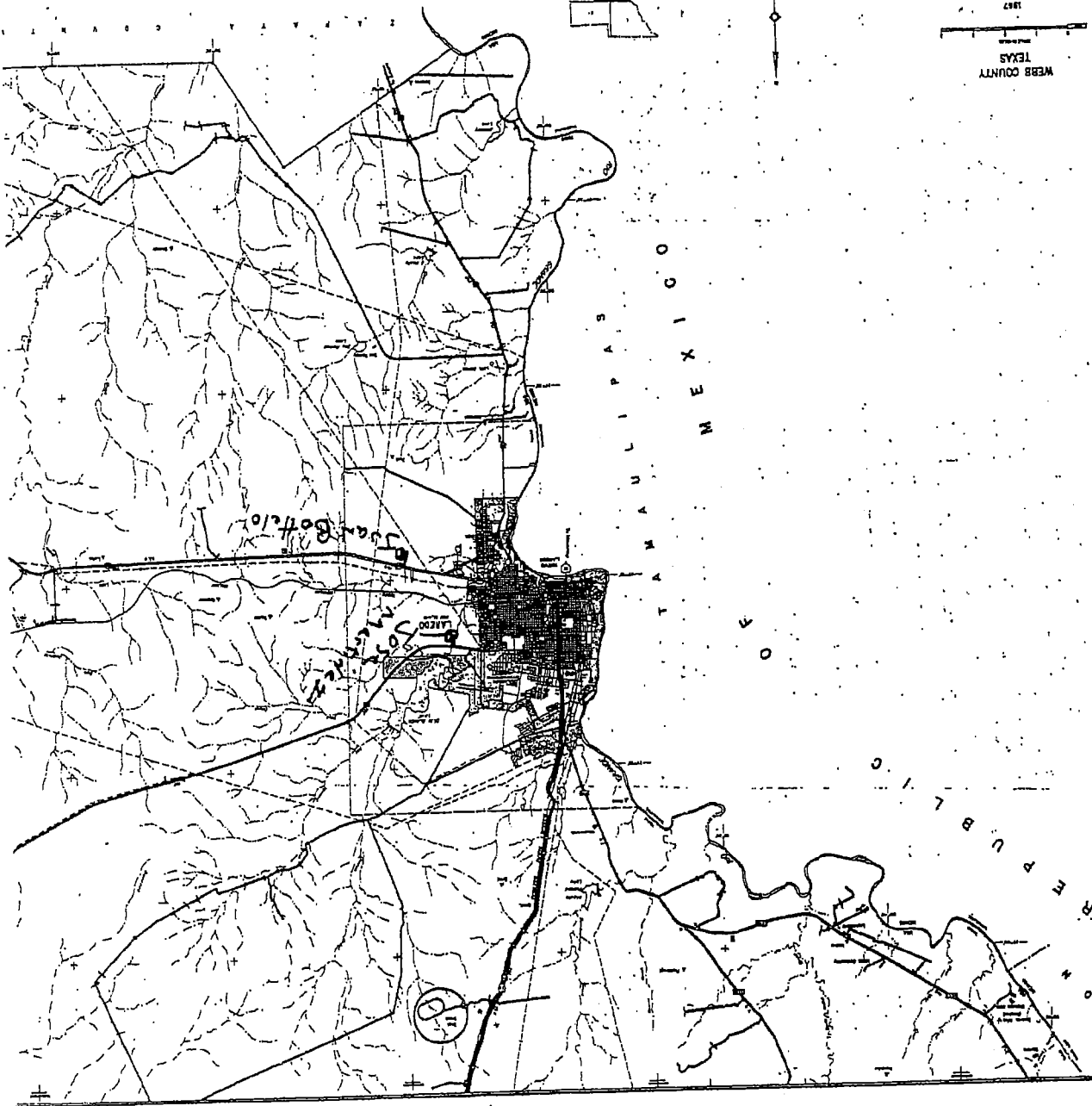
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1.2m/s/1/1/1  
8m/1/1/1

WEBB COUNTY  
8838

WEBB COUNTY  
TEXAS  
1987  
HARRIS COUNTY TO APT. LINE  
1987  
HARRIS COUNTY TO APT. LINE  
1987  
HARRIS COUNTY TO APT. LINE





TEXAS WATER COMMISSION COPY

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
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Please use black ink.  
Send original copy by  
certified mail to the  
Texas Water Commission  
P.O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

Texas Water Well Drillers Board  
P. O. Box 13087  
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Air Weld Address P. O. Box 3095 Laredo, Tex 78044  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: 3 miles in East direction from Laredo  
County: Webb (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. over

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Injection ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check): ☐ Driven  
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored  
☐ Air Rotary ☐ Cable Tool ☐ Other \_\_\_\_\_

6) WELL LOG:

Date Drilling: 2-21 19 89  
Started \_\_\_\_\_  
Completed 2-24 19 89

DIAMETER OF HOLE  
Dia. (in.) From (ft.) To (ft.)  
6 3/4 Surface 740

7) BOREHOLE COMPLETION:

☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other Cased 740'  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Topsoil
5	15	Clay Tan
15	55	Siltstone Yellow
55	650	Sandy Shale Gray
650	740	Sandy Shale Stks Gray

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	

9) CEMENTING DATA [Rule 319.44(b)]

Cemented from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. No. of Sacks Used \_\_\_\_\_  
\_\_\_\_\_ ft. to \_\_\_\_\_ ft. No. of Sacks Used \_\_\_\_\_  
Method used \_\_\_\_\_  
Cemented by \_\_\_\_\_

10) SURFACE COMPLETION

☐ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:

Static level \_\_\_\_\_ ft. below land surface Date \_\_\_\_\_  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

12) PACKERS:

Type \_\_\_\_\_ Depth \_\_\_\_\_

13) TYPE PUMP:

☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water: Fresh Depth of strata 650-740  
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:

Type Test: ☐ Pump ☐ Bailor ☐ Jetted ☐ Estimated  
Yield: \_\_\_\_\_ gpm with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME WOODS DRILLING CO.  
(Type or Print)

Water Well Driller's License No. 2220

ADDRESS P. O. Box 6489  
(Street or RFD)

LAREDO  
(City)

TEXAS  
(State)

78042  
(Zip)

(Signed) Jerry Woods  
(Licensed Water Well Driller)

(Signed) \_\_\_\_\_  
(Registered Driller Trainee)

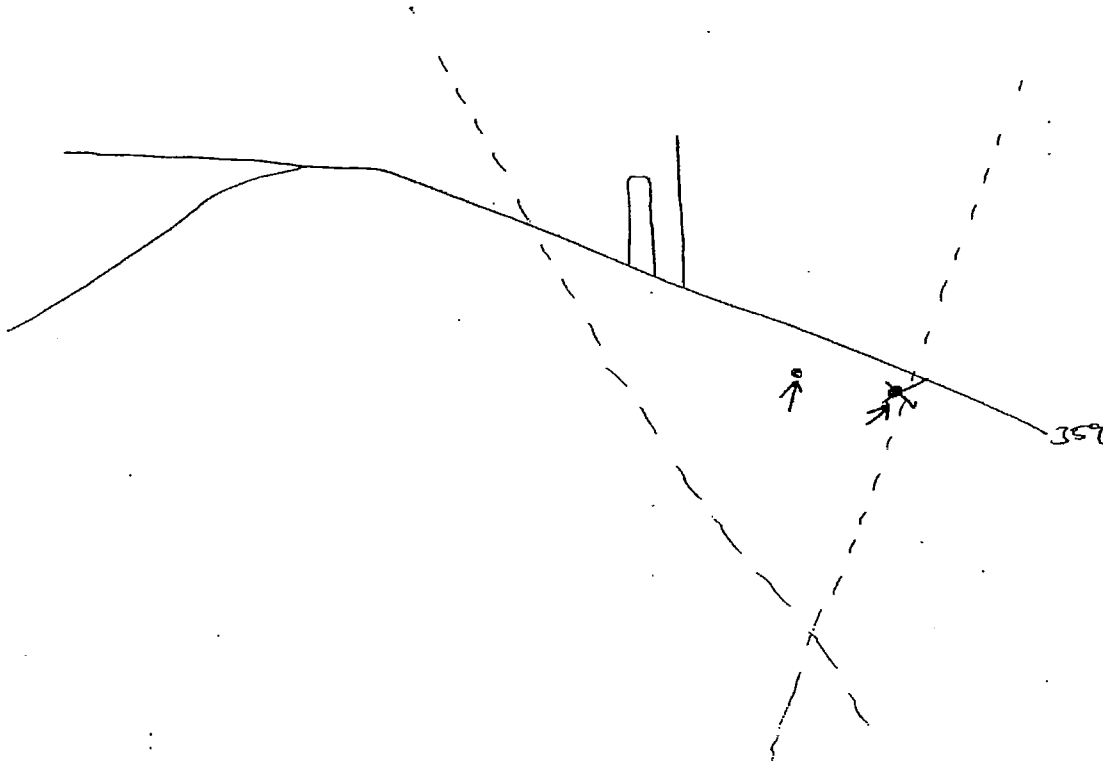
For TWC use only  
Well No. 85-37-23  
Located on map \_\_\_\_\_

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

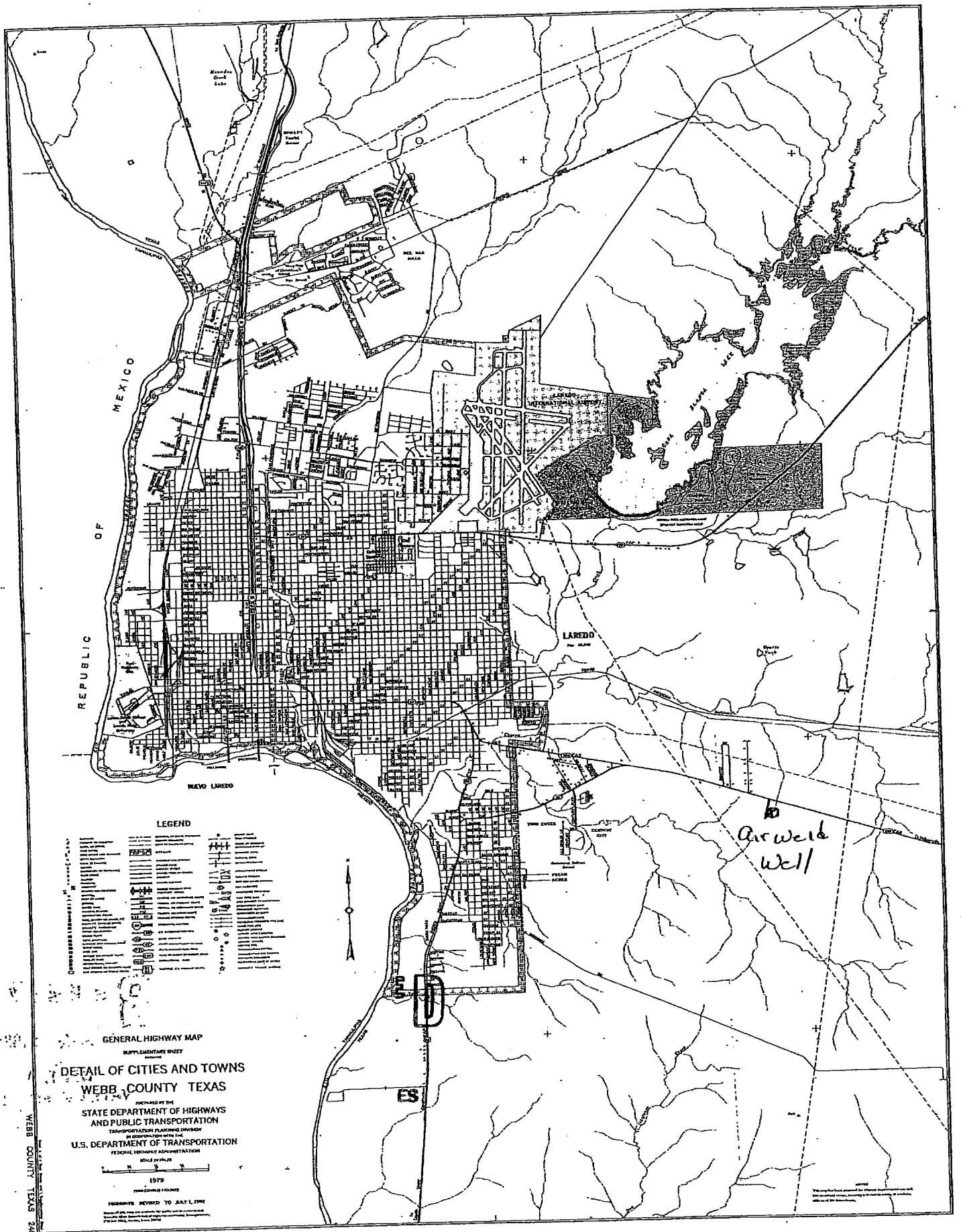
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Send original copy by  
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Texas Water Commission  
P.O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

Texas Water Well Drillers Board  
P. O. Box 13087  
Austin, Texas 78711

7

1) OWNER Leticia Duran (Name) Address Route 3 Bx 24P Laredo Tx 78041  
(Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: Webb 2 miles in S.E. direction from Laredo  
County (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right  
with distance and direction from two intersecting sec-  
tion or survey lines, or he must locate and identify the  
well on an official Quarter- or Half-Scale Texas County  
General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. map on 85-37-2

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Injection ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check): ☐ Driven  
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Other \_\_\_\_\_

6) WELL LOG:  
Date Drilling: \_\_\_\_\_  
Started 5-21 19 86  
Completed 5-23 19 86

DIAMETER OF HOLE  
Dia. (in.) From (ft.) To (ft.)  
6 3/4 Surface 290

7) BOREHOLE COMPLETION:  
☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other Cased to 290  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	5	Top
5	35	Siltstone Yellow
35	220	Sandy Shale Gray
220	290	Sand & Shale Stks. Gray

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgt., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
5"	New	PVC PLAIN	0	189	
5"	"	PVC PERF	180	220	1/8"
5"	"	PVC PLAIN	220	270	
"	"	PVC PERF	270	290	1/8"

9) CEMENTING DATA [Rule 319.44(b)]  
Cemented from 160 ft. to 30 ft. No. of Sacks Used 10  
10 ft. to 0 ft. No. of Sacks Used 2  
Method used Circulation, plug & basket  
Cemented by Woods Drilling

10) SURFACE COMPLETION  
☐ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☒ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:  
Static level 120 ft. below land surface Date 5-23-86  
Artesian flow None gpm. Date \_\_\_\_\_

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_  
None

13) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 210 ft.

15) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER" stks  
Type of water? light salt Depth of strata 180-280  
Was a chemical analysis made? ☐ Yes ☒ No

14) WELL TESTS:  
Type Test: ☒ Pump ☐ Bailor ☐ Jetted ☐ Estimated  
Yield: 8 gpm with 180 ft. drawdown after 6 hrs.

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co. Water Well Driller's License No. 2220  
(Type or Print)

ADDRESS P.O. Box 6489 Laredo Tx 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) Jerry Woods (Signed) \_\_\_\_\_ (Registered Driller Trainee)  
(Licensed Water Well Driller)  
Please attach electric log, chemical analysis, and other pertinent information, if available.  
For TWC use only  
Well No. 85-37-2  
Located on map \_\_\_\_\_

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Send original copy by certified mail to the Texas Department of Water Resources  
P. O. Box 13087  
Austin, Texas 78711

**State of Texas**  
**WATER WELL REPORT**  
ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

Texas Water Well Drillers Board  
P. O. Box 13087  
Austin, Texas 78711

1) OWNER E. G. Ranch L. T. D. Address 1805 Clark Laredo, Tx 78040  
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL: County Webb 4 miles in East 1 south direction from Laredo  
(N.E., S.W., etc.) (Town)

☐ Legal description: Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. 85-37-2N

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):  
☐ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:  
Data drilled 11-13-84

DIAMETER OF HOLE		Description and color of formation material
Dia. (in.)	From (ft.) To (ft.)	
6 3/4	Surface 176	Topsoil Yellow
		Siltstone Gray
		Sandy Shale Gray
		Sand (1-2gpm) Gray
		Shale Sandy Gray
		Sand (5gpm) Gray
		Sand (7gpm) Gray

7) BOREHOLE COMPLETION:  
☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other cased to 176  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
5"	new	PVC perf	136	176	1/4"
5"	new	PVC plain	136	0	

9) CEMENTING DATA [Rule 319.44(b)]  
Cemented from 10 ft. to surface ft.  
\_\_\_\_\_ ft. to \_\_\_\_\_ ft.  
Method used Gravity  
Cemented by Woods Drilling Co.

10) SURFACE COMPLETION  
☒ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:  
Static level 100 ft. below land surface Date 11-14-84  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_  
None

13) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 168 ft.

14) WELL TESTS:  
Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 12 1/2 gpm with 170 ft. drawdown after 2 hrs.

15) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata 135-176  
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co. Water Well Driller's License No. 2220  
(Type or Print)

ADDRESS P.O. Box 6489 Laredo Tx 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) Jerry Woods (Signed) \_\_\_\_\_  
(Licensed Water Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

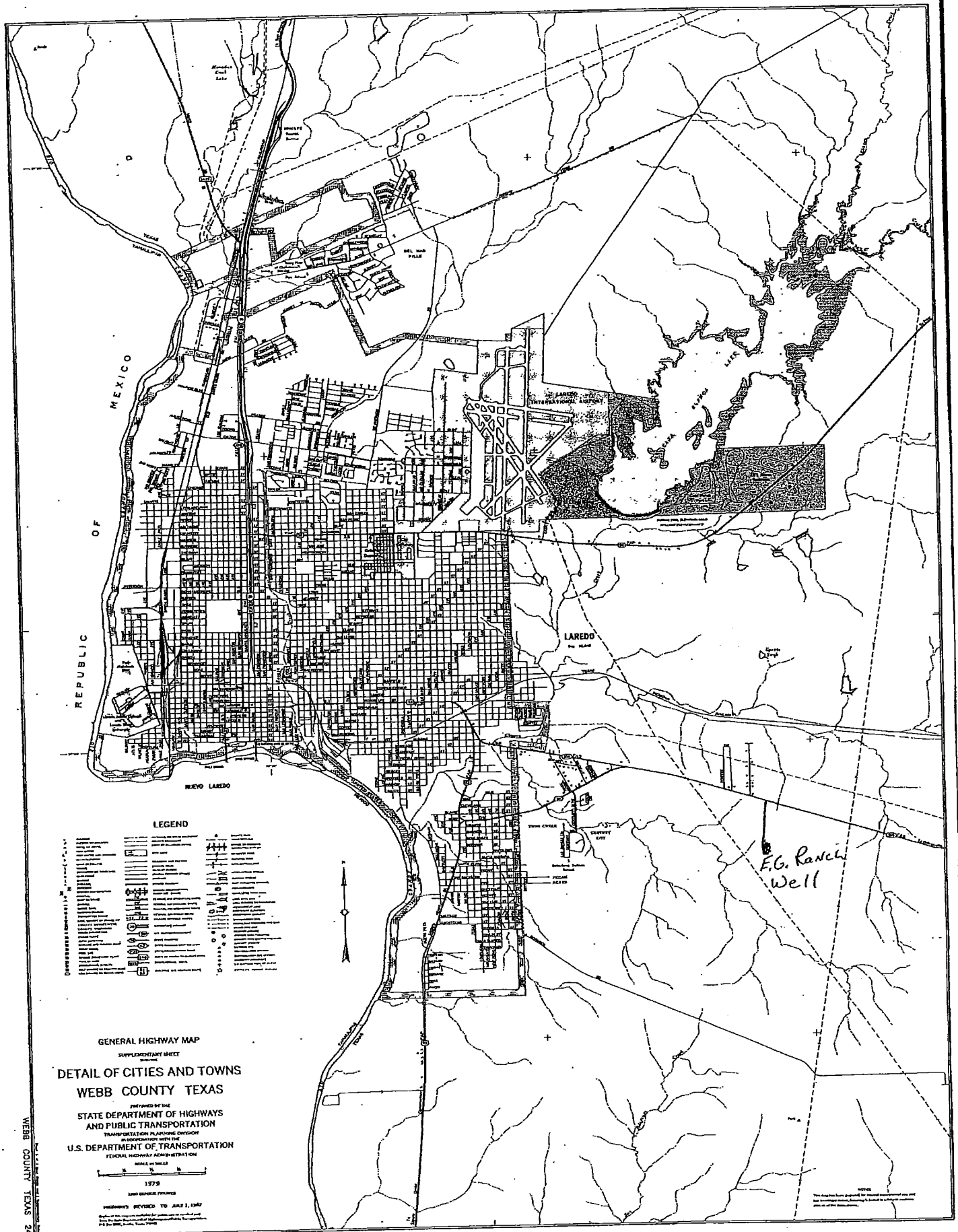
For TDWR use only  
Well No. 85-37-2N  
Located on map 180 AM

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State of Texas  
WATER WELL REPORT

Texas Water Well Drillers Board  
P.O. Box 13087  
Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Mario Salinas Address 1702 San Bernardo Laredo TX 78040  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: 4 miles in East direction from Laredo  
County Webb (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right  
with distance and direction from two intersecting sec-  
tion or survey lines, or he must locate and identify the  
well on an official Quarter- or Half-Scale Texas County  
General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. ON 85-295 over

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Monitor ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Injection ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check): ☐ Driven  
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Other \_\_\_\_\_

6) WELL LOG:  
Date Drilling: 7-11 1987  
Started 7-14 1987  
Completed \_\_\_\_\_  
DIAMETER OF HOLE  
Dig. (in.) From (ft.) To (ft.)  
Surface 700

7) BOREHOLE COMPLETION:  
☒ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other closed to 675  
If Gravel Packed give interval . . . from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0	8	Chiche
8	55	siltstone yellow
55	660	Sandy shale Gray
660	700	sand Gray white

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
5"	New	3eh 40 PUC	0	675	

9) CEMENTING DATA (Rule 319.44(b))  
Cemented from 675 ft. to 575 ft. No. of Sacks Used 10  
10 ft. to 0 ft. No. of Sacks Used 3  
Method used Circulation Plus & Bucket  
Cemented by Woods Drilling

10) SURFACE COMPLETION  
☐ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☒ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:  
Static level 160 ft. below land surface Date 7-14-87  
Artesian flow NONE gpm. Date \_\_\_\_\_

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_

13) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 378' ft.

15) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ NO  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? FRESH Depth of strata 675-700  
Was a chemical analysis made? ☐ Yes ☒ NO

14) WELL TESTS:  
Type Test: ☐ Pump ☐ Bailor ☒ Jetted ☐ Estimated  
Yield: 20 gpm with 400' ft. drawdown after \_\_\_\_\_ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co Water Well Driller's License No. 2220  
(Type or Print)  
ADDRESS P.O. Box 6489 Laredo TX 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) Jerry Woods (Signed) \_\_\_\_\_  
(Licensed Water Well Driller) (Registered Driller Trainee)  
Please attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only  
Well No. 85-37-3  
Located on map \_\_\_\_\_

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Advisory Council and the Texas Natural Resource Conservation Commission are concerned that some persons having wells drilled may not be aware of the confidentiality privilege provisions of Section 32.005 of the Texas Water Code, the Reporting of Well Logs, reads as follows:

"Every licensed driller drilling, deepening or otherwise altering a water well within this State shall make and keep a legible and accurate well log in accordance with the department rule on forms prescribed by the department. Not later than the 60th day after the completion or cessation of drilling, deepening, or otherwise altering the well, the licensed driller shall deliver or transmit by certified mail a copy of the well log to the department and to the owner of the well or the person for whom the well was drilled. Each copy of a well log, other than a department copy must include the name, mailing address, and telephone number of the department. The well log shall be recorded at the time of drilling, and must show the depth, thickness, and character of the strata penetrated, the location of water-bearing strata, the depth, size and character of casing installed, and any other information required by department rule. The department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner or person for whom the well was drilled."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential:

[illegible]

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

Austin, Texas 78711

ATTENTION: This form must be completed by the person who drilled or supervised the drilling of the well.

1) OWNER Aramax Lumber Co. Address Rte 3 Box 20p Hwy 359 Laredo, Tex (Street or RFD) (City) (State) (Zip) 78043

2) LOCATION OF WELL:  
County Webb 4 miles in East direction from Laredo, Tex (N.E., S.W., etc.) (Town)

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map. on 85-37-3

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☐ Domestic ☒ Industrial ☐ Monitor ☐ Public Supply  
☐ Irrigation ☐ Test Well ☐ Injection ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check): ☐ Driven  
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored  
☒ Air Rotary ☐ Cable Tool ☐ Other \_\_\_\_\_

6) WELL LOG:

Date Drilling:	DIA METER OF HOLE
	Dia. (in.) From (ft.) To (ft.)
Started <u>3-1</u> , 19 <u>89</u>	<u>6 3/4</u> Surface <u>260</u>
Completed <u>3-2</u> , 19 <u>89</u>	

7) BOREHOLE COMPLETION:  
☒ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☒ Other Cased to 325'  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)	Gage Casing Screen
						From	To
<u>0</u>	<u>12</u>	<u>Caliche</u>					
<u>12</u>	<u>70</u>	<u>Siltstone Yellow</u>	<u>5</u>	<u>N</u>	<u>PVC Plain</u>	<u>0</u>	<u>225</u>
<u>70</u>	<u>225</u>	<u>Sandy Shale Gray</u>					
<u>225</u>	<u>260</u>	<u>Sand Gray White</u>					

9) CEMENTING DATA [Rule 319.44(b)]  
Cemented from 225 ft. to 125 ft. No. of Sacks Used 9  
10 ft. to 0 ft. No. of Sacks Used 4  
Method used Basket, Plug & Circulation  
Cemented by Woods Drilling Co.

10) SURFACE COMPLETION  
☐ Specified Surface Slab Installed [Rule 319.44(c)]  
☐ Pitless Adapter Used [Rule 319.44(d)]  
☒ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:  
Static level 120 ft. below land surface Date 3-2-89  
Artesian flow None gpm. Date \_\_\_\_\_

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_  
None

13) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 220 ft.

14) WELL TESTS:  
Type Test: ☐ Pump ☐ Bailor ☒ Jetted ☐ Estimated  
Yield: 12 gpm with 100 fi. drawdown after 2 hrs.

15) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? Fresh Depth of strata 225-260  
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME WOODS DRILLING CO. Water Well Driller's License No. 2220 W  
(Type or Print)

ADDRESS P.O. Box 6489 LAREDO TEXAS 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) Jerry Woods (Signed) \_\_\_\_\_ (Registered Driller Trainee)  
(Licensed Water Well Driller)

Please attach electric log, chemical analysis, and other pertinent information, if available.  
For TWC use only  
Well No. 85-37-3  
Located on map \_\_\_\_\_

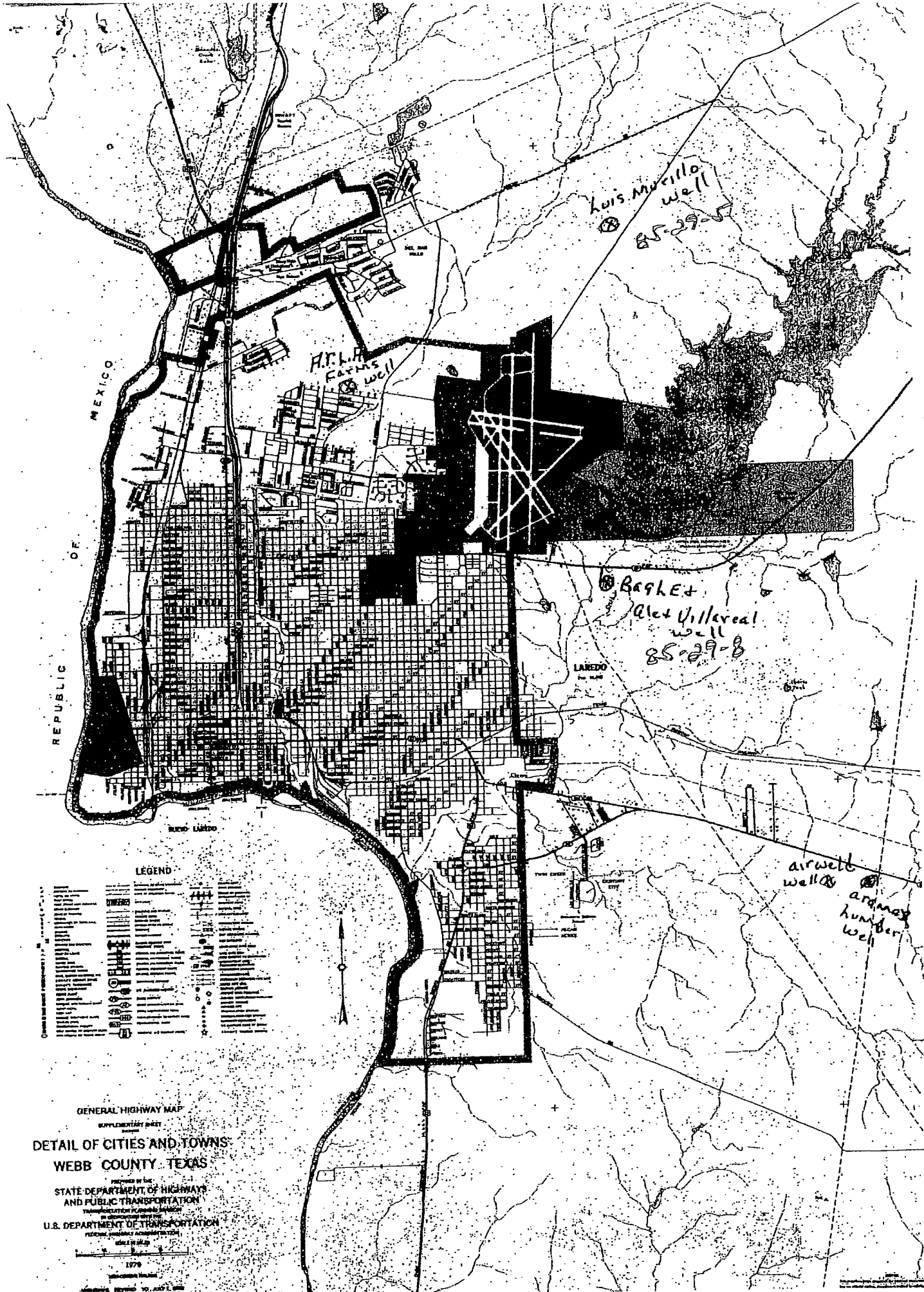
**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Texas Water Commission are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a Commission copy, shall include the name, mailing address, and telephone number of the Board and the Commission. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.





State of Texas  
WATER WELL REPORT

For TDWR use only  
Well No. 85-37-3F  
Located on map YES  
Received: C.F.S.

Send original copy by certified mail to the Texas Department of Water Resources, P. O. Box 13087, Austin, Texas 78711

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Arturo Molina (Name) Address Route 3 Box 20M Hwy 359 Laredo, Tx 78041 (City) (State) (Zip)

2) LOCATION OF WELL: County Webb 4 miles in East direction from Laredo (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description: Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map.

3) TYPE OF WORK (Check):  
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):  
☒ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):  
☐ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☒ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:  
Date drilled 2-18-84

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
6 3/4	Surface	255

7) BOREHOLE COMPLETION:  
☐ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☐ Other cased to bottom  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
						From	To	
0	15	Clay & gravel						
15	110	Siltstone						
110	120	Shale	5"	new	PVC Plain	0	200	
120	205	Sandstone	5"	new	PVC Perf.	200	255	1/8
205	215	Sand						
215	220	Shale						
220	225	Sand						

CEMENTING DATA  
Cemented from 200 ft. to surface ft.  
Method used circulation  
Cemented by Woods Drilling Co. (Company or Individual)

9) WATER LEVEL:  
Static level 98 ft. below land surface Date 2/21/84  
Artesian flow none gpm. Date \_\_\_\_\_

10) PACKERS: Type \_\_\_\_\_ Depth none

11) TYPE PUMP:  
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder  
☐ Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., 241 ft.

12) WELL TESTS:  
☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 20 gpm with 250 ft. drawdown after 2 hrs.

13) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? fresh Depth of strata 205-215  
Was a chemical analysis made? ☐ Yes ☒ No 220-255

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Jerry Woods (Type or Print) Water Well Drillers Registration No. 2220

ADDRESS P.O. Box 6489 (Street or RFD) Laredo (City) Tx (State) 78042 (Zip)

(Signed) Jerry Woods (Water Well Driller) Woods Drilling Co. (Company Name)

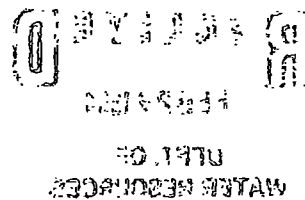
Please attach electric log, chemical analysis, and other pertinent information, if available.

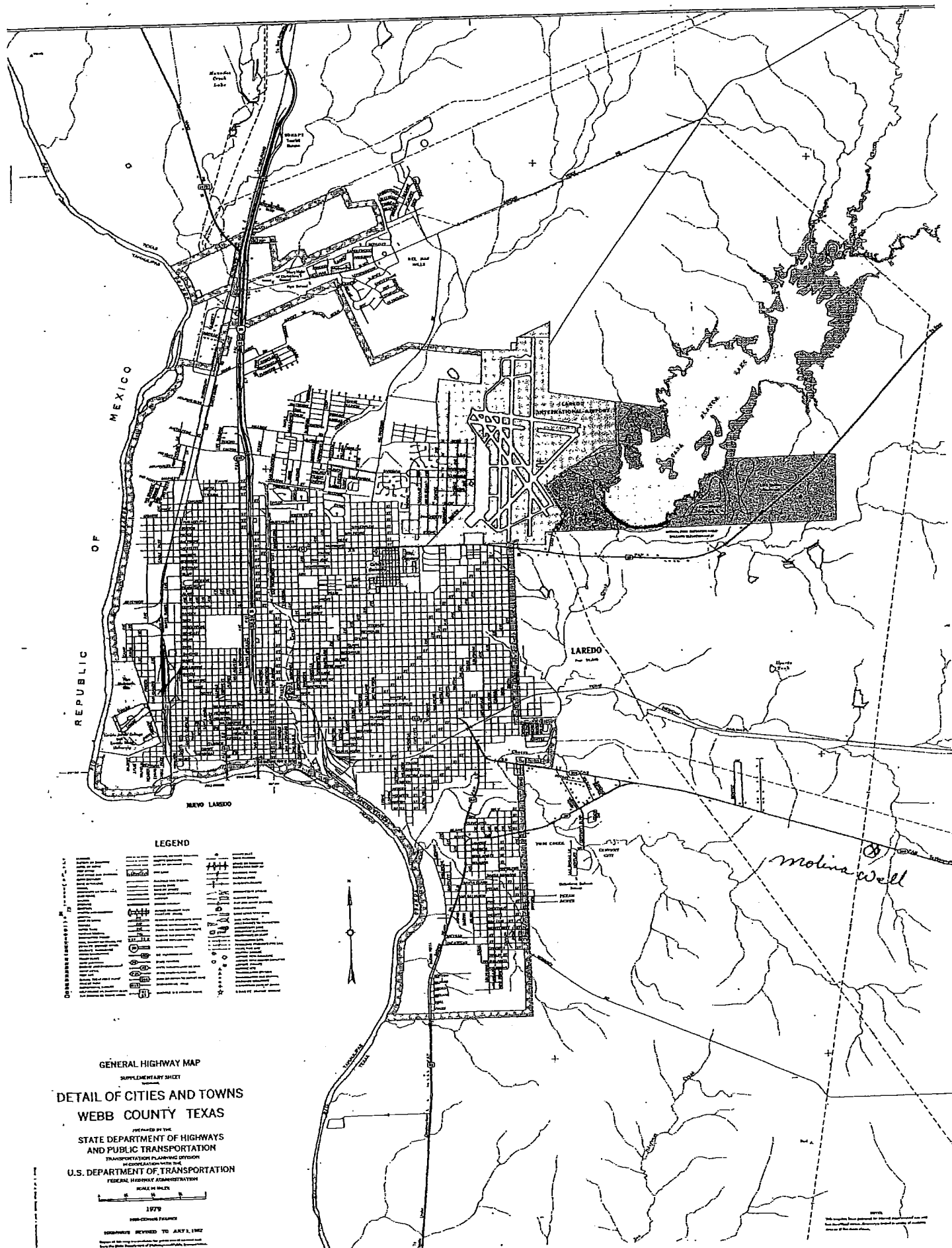
**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every registered water well driller drilling, deepening, or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within sixty (60) days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential. Please note that the term "Commission" in the above-quoted section and elsewhere in the Water Well Drillers Act now properly means the Texas Department of Water Resources (P. O. Box 13087; Austin, Texas 78711).







**ATTENTION OWNER:** Confidentiality Privilege Notice on Reverse Side

12

1) OWNER Ernesto Ayala Address 820 Juarez Laredo, Tx 78041  
(Name) (Street or RFD) (City) (State) (Zip)

2) LOCATION OF WELL:  
county Webb 5 1/2 miles in East 1/4 south direction from Laredo  
(N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:

Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_

Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_

Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map.

<b>3) TYPE OF WORK (Check):</b> <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging	<b>4) PROPOSED USE (Check):</b> <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input type="checkbox"/> Public Supply <input type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input type="checkbox"/> Other _____	<b>5) DRILLING METHOD (Check):</b> <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Air Hammer <input type="checkbox"/> Driven <input type="checkbox"/> Bored <input checked="" type="checkbox"/> Air Rotary <input type="checkbox"/> Cable Tool <input type="checkbox"/> Jetted <input type="checkbox"/> Other _____
---	---	---

6) WELL LOG:	DIAMETER OF HOLE			7) BOREHOLE COMPLETION:
	Dia. (in.)	From (ft.)	To (ft.)	
	6 3/4	Surface	240	
Date drilled	12-4-84			<input type="checkbox"/> Open Hole <input type="checkbox"/> Straight Wall <input type="checkbox"/> Underreamed <input type="checkbox"/> Gravel Packed <input checked="" type="checkbox"/> Other <u>cased to 240ft.</u> If Gravel Packed give interval ... from _____ ft. to _____ ft.

From (ft.)	To (ft.)	Description and color of formation material		8) CASING, BLANK PIPE, AND WELL SCREEN DATA:					
				Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
							From	To	
0	-	2	Topsoil	Brown					
2	-	4	Gravel						
4	-	38	Siltstone	Yellow	5"	new	PVC Plain	0	200
38	-	205	Sandy Shale	Gray	5"	new	PVC Perf	200	240
205	-	215	Sand (8-10gpm)	Gray					1/4"
215	-	223	Shale	Gray					
223	-	240	Sand (8-10gpm)	Gray					

9) CEMENTING DATA [Rule 319.44(b)]

Cemented from 200 ft. to 80ft. ft.  
10 ft. to surface ft.  
Method used circulation, Plug & basket  
Cemented by Woods Drilling Co.

10) SURFACE COMPLETION

☒ Specified Surface Slab Installed [Rule 319.44(c)]

☐ Pitless Adapter Used [Rule 319.44(d)]

☐ Approved Alternative Procedure Used [Rule 319.71]

11) WATER LEVEL:

Static level 118 ft. below land surface Date 12-5-84

Artesian flow none gpm. Date \_\_\_\_\_

12) PACKERS:	Type	Depth
None		

13) TYPE PUMP:

☐ Turbine      ☐ Jet      ☐ Submersible      ☐ Cylinder

☐ Other none yet

Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

14) WELL TESTS:

Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated

Yield: 16-18 gpm with 220 ft. drawdown after 2 hrs.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No

If yes, submit "REPORT OF UNDESIRABLE WATER" 205-215

Type of water? fresh Depth of strata 223-240

Was a chemical analysis made? ☐ Yes ☒ No

I here by certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Woods Drilling Co. Water Well Driller's License No. 2220  
(Type or Print)

ADDRESS P.O. Box 6489 Iaredo Tx 78042  
(Street or RFD) (City) (State) (Zip)

(Signed) \_\_\_\_\_ (Signed) \_\_\_\_\_  
(Licensed Water Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

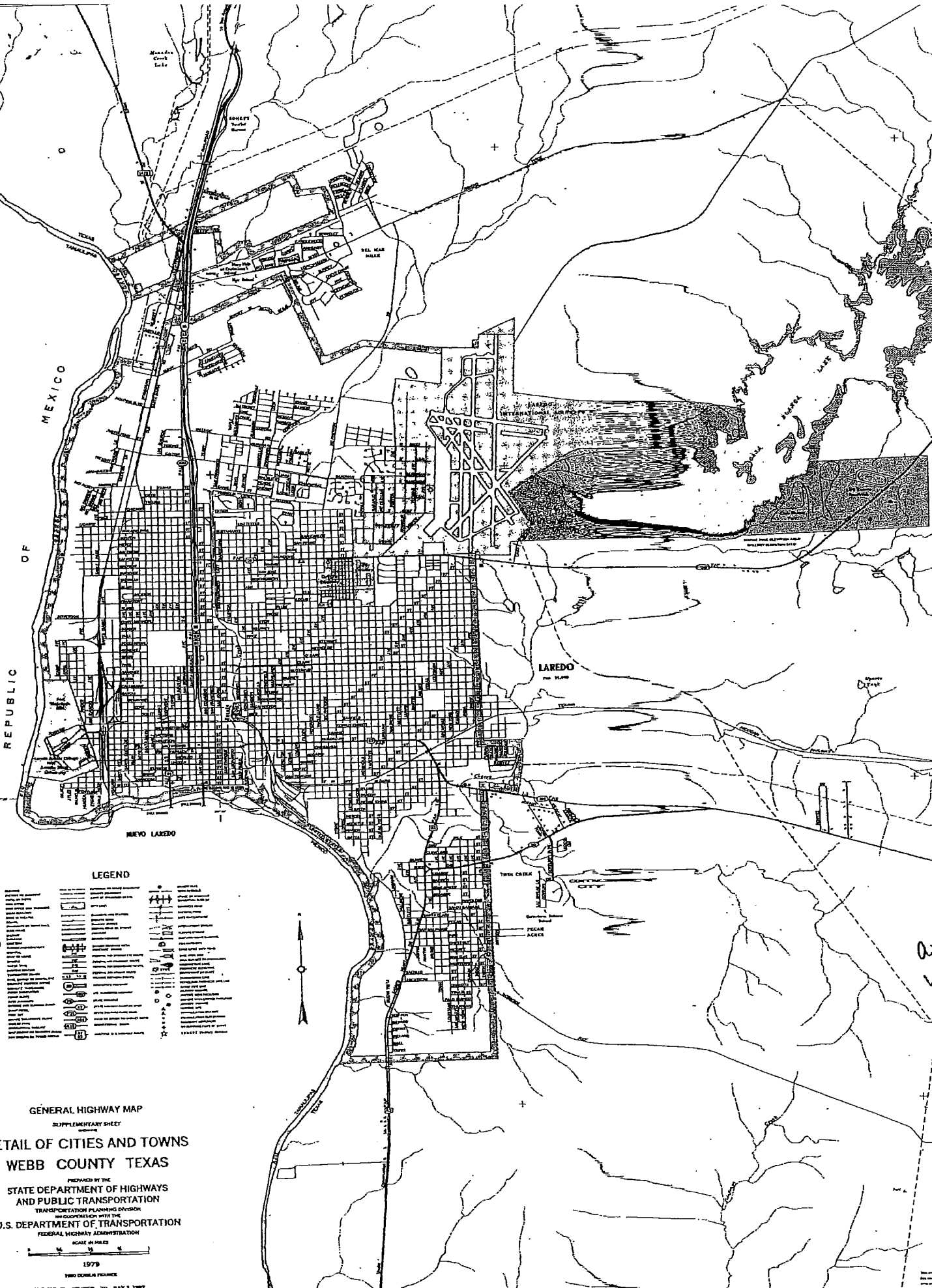
For TDWR use only  
Well No. 85-57-3F  
Located on map Yes DLF

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the department, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a department copy, shall include the name, mailing address, and telephone number of the Board and the department. The well log required herein shall at the request in writing to the department, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.



LEGEND

- Interstate Highway
- State Highway
- County Road
- Local Road
- City Street
- Waterway
- Bridge
- Barrier
- Boundary
- City
- Town
- Village
- Hamlet
- Unincorporated Community
- Post Office
- Religious Building
- Government Building
- Public Building
- Commercial Building
- Industrial Building
- Residential Building
- Recreational Building
- Healthcare Building
- Education Building
- Transportation Building
- Utility Building
- Other Building

GENERAL HIGHWAY MAP  
SUPPLEMENTARY SHEET

DETAIL OF CITIES AND TOWNS  
WEBB COUNTY TEXAS

PREPARED BY THE  
STATE DEPARTMENT OF HIGHWAYS  
AND PUBLIC TRANSPORTATION  
TRANSPORTATION PLANNING DIVISION  
IN COOPERATION WITH THE  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

SCALE IN MILES  
0 1 2 3 4 5 6 7 8 9 10

1979

THIRD DUBLIN PRINTER

HIGHWAYS REVISED TO JULY 1, 1982

City of Laredo  
Landfill Permit Amendment

II.3-50

Arredondo, Zepeda & Brunz, LLC  
Version 0

RECEIVED  
JAN 18 1985

13



RECEIVED  
MAY 25 1983  
DEPT. OF  
WATER RESOURCES

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every registered water well driller drilling, deepening, or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within sixty (60) days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential. Please note that the term "Commission" in the above-quoted section and elsewhere in the Water Well Drillers Act now properly means the Texas Department of Water Resources (P. O. Box 13087; Austin, Texas 78711).

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas  
WATER WELL REPORT

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

For TDWR use only  
Well No. 8537-3D  
Located on map YES  
Received: C.F.S.

1) OWNER Laredo Investment Co. Address P.O. 1759 Laredo Tx 78041  
(Name) (Street or RFD) (City) (State) (Zip)  
2) LOCATION OF WELL: 246 4 1/2 miles in East direction from Laredo  
County Webb (N.E., S.W., etc.) (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:  
Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_

☒ See attached map.

3) TYPE OF WORK (Check):

☒ New Well ☐ Deepening  
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):

☐ Domestic ☐ Industrial ☒ Public Supply  
☐ Irrigation ☐ Test Well ☐ Other \_\_\_\_\_

5) DRILLING METHOD (Check):

☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored  
☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other \_\_\_\_\_

6) WELL LOG:

Date drilled 3-28-83

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
9 7/8	Surface	1245

7) BOREHOLE COMPLETION:

☒ Open Hole ☐ Straight Wall ☐ Underreamed  
☐ Gravel Packed ☐ Other cased to 1190  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.)	To (ft.)	Description and color of formation material
0 - 10		Topsoil
10 - 35		Siltstone yellow
35 - 50		Shale gray
50 - 520		Shale green
520 - 560		Shale & Sand stks. gray
560 - 1190		Sandy Shale green & gray
1190 - 1220		Sand gray & tan
1220 - 1245		Shale (sandy) green

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
7"	new	Steel Plain	0	1190	none

CEMENTING DATA

Cemented from 1190 ft. to surface ft.  
Method used circulation  
Cemented by Perfection Cementing Co.  
(Company or Individual)

9) WATER LEVEL:

Static level 180 ft. below land surface Date 3-29-83  
Artesian flow none gpm. Date \_\_\_\_\_

10) PACKERS:

Type \_\_\_\_\_ Depth \_\_\_\_\_  
none

11) TYPE PUMP:

☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder  
☐ Other none yet  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

12) WELL TESTS:

☐ Type Test: ☐ Pump ☐ Bailer ☒ Jetted ☐ Estimated  
Yield: 35-40 gpm with 600 ft. drawdown after 3 1/2 hrs.

13) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☒ No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? Fresh Depth of strata 1190-1220'  
Was a chemical analysis made? ☐ Yes ☒ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Jerry Woods Water Well Drillers Registration No. 2220  
(Type or Print)  
ADDRESS Box 568 Hebbronville Tx 78361  
(Street or RFD) (City) (State) (Zip)  
(Signed) Jerry Woods Woods Drilling Co.  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

[illegible]

**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Department of Water Resources are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

"Every registered water well driller drilling, deepening, or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within sixty (60) days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential. Please note that the term "Commission" in the above-quoted section and elsewhere in the Water Well Drillers Act now properly means the Texas Department of Water Resources (P. O. Box 13087; Austin, Texas 78711).

Arredondo, Zepeda & Brunz, LLC  
Version 0

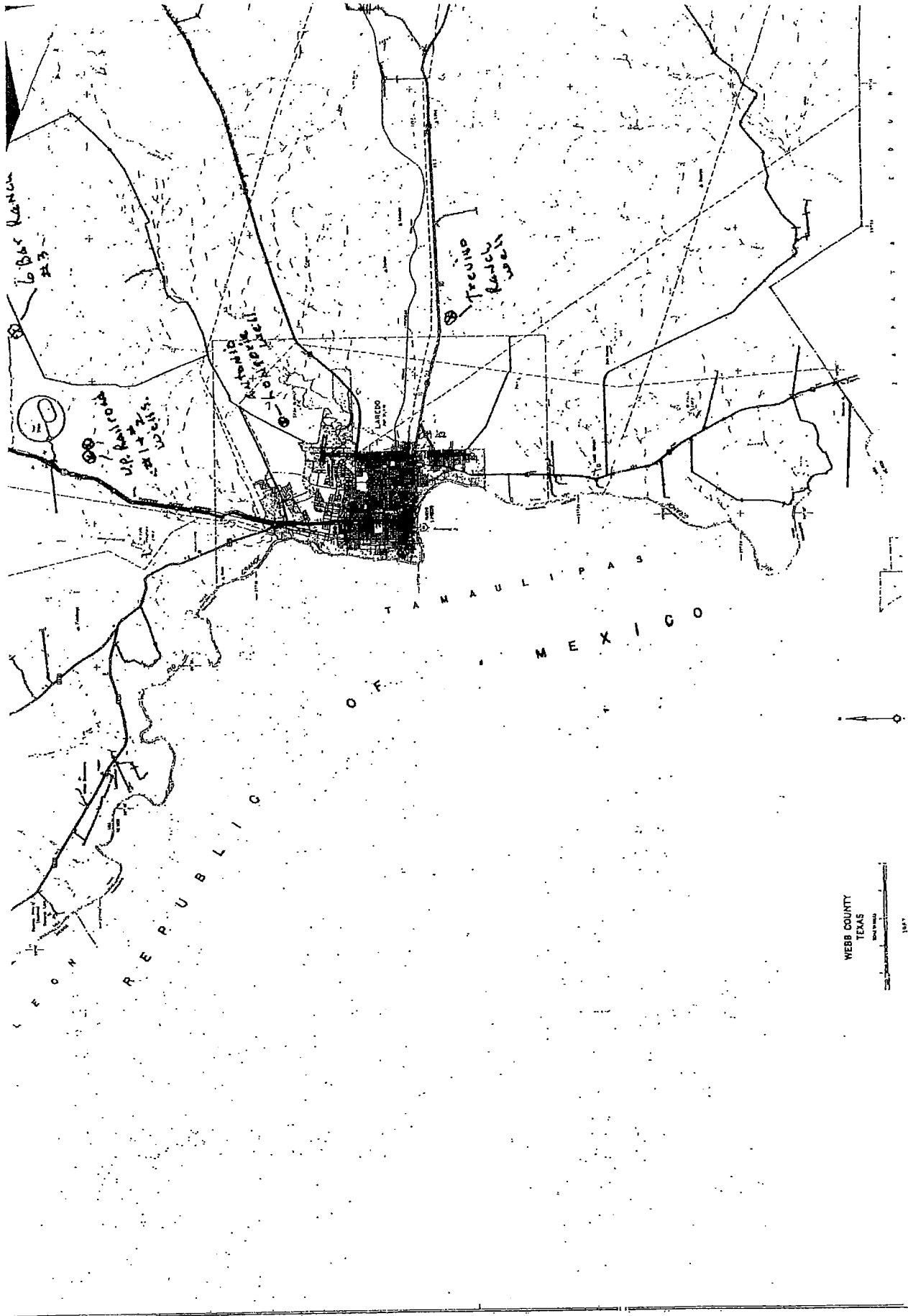


**IMPORTANT NOTICE FOR PERSONS  
HAVING WELLS DRILLED CONCERNING  
PRIVILEGE OF CONFIDENTIALITY**

The Water Well Drillers Board and the Texas Water Commission are concerned that some persons having water wells drilled may not be aware of the confidentiality privilege provision of Section 5 of the Water Well Drillers Act. Section 5, the Reporting of Well Logs, reads as follows:

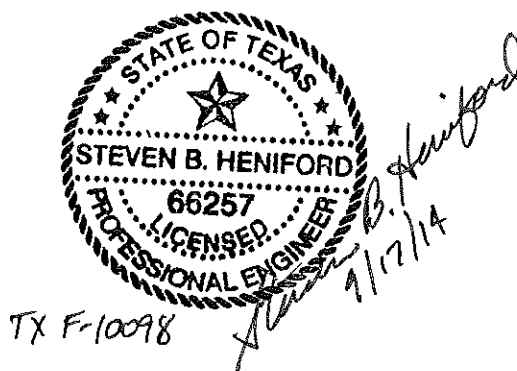
"Every licensed water well driller drilling, deepening or otherwise altering a water well within this State shall make and keep, or cause to be made and kept, a legible and accurate well log, and within 30 days from the completion or cessation of drilling, deepening or otherwise altering such a water well, shall deliver or transmit by certified mail a copy of such well log to the Commission, and the owner thereof or the person having had such well drilled. Each copy of a well log, other than a Commission copy, shall include the name, mailing address, and telephone number of the Board and the Commission. The well log required herein shall at the request in writing to the Commission, by certified mail, by the owner or the person having such well drilled be held as confidential matter and not made of public record."

The last sentence specifies the means whereby you can, if you wish, assure that logs of your wells will be kept confidential.



**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 4**  
**Oil & Gas Wells**

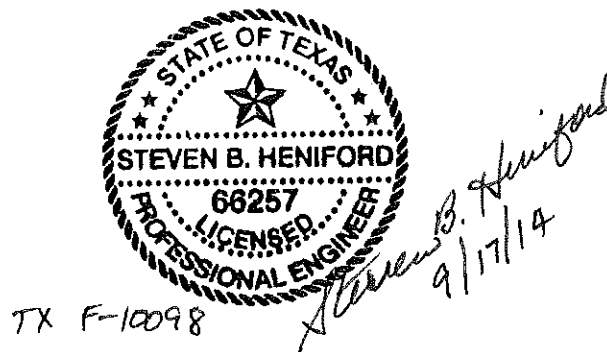


**LAREDO LANDFILL  
PART II  
Attachment 4  
Oil & Gas Wells**

**TABLE OF CONTENTS**

**List of Figures**

Figure II.4.1 Oil & Gas Well Locations



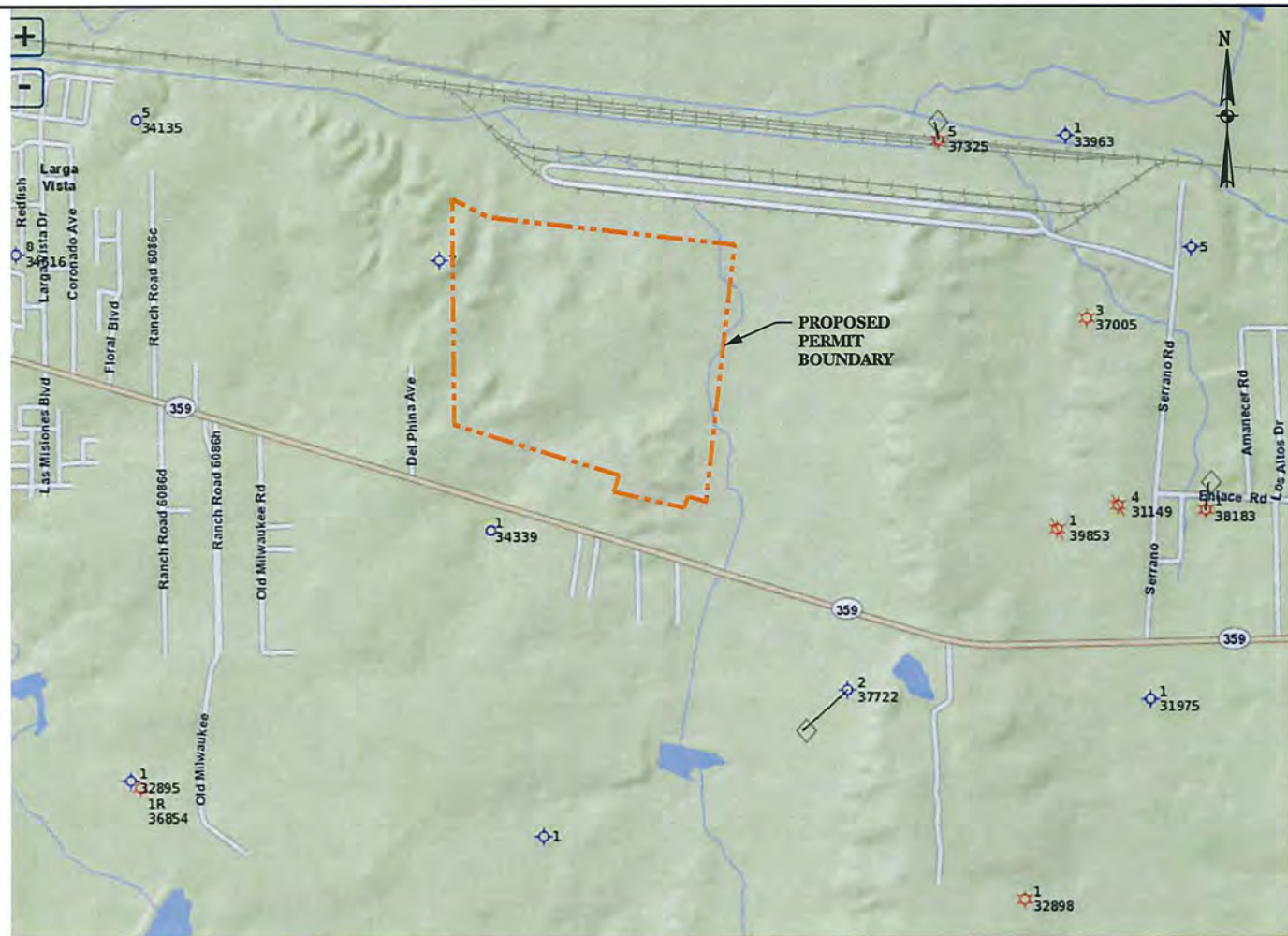
## LEGEND

--- PROPOSED PERMIT BOUNDARY

### RRC Map

#### Well Locations

- Permitted Location
- Dry Hole
- Oil
- Gas
- Oil / Gas
- Plugged Oil
- Plugged Gas
- Canceled / Abandoned Location
- Plugged Oil / Gas
- Injection / Disposal
- Core Test
- Sulfur Test
- Storage from Oil
- Storage from Gas
- Shut-In Oil
- Shut-In Gas
- Injection / Disposal from Oil
- Injection / Disposal from Gas
- Injection / Disposal from Oil / Gas
- Geothermal
- Brine Mining
- Water Supply
- Water Supply from Oil
- Water Supply from Gas
- Water Supply from Oil / Gas
- Observation
- Observation from Oil
- Observation from Gas
- Observation from Oil / Gas
- Storage
- Service



SOURCE: RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

1000 500 0 1000 2000  
SCALE HORIZONTAL FEET

**AZ&B**

ARREDONDO, ZEPEDA & BRUNZ, LLC  
TQPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

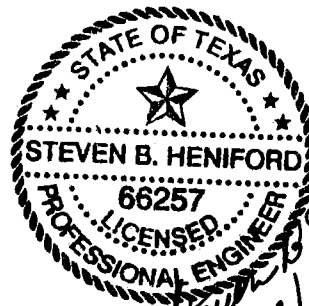
FOR PERMIT  
PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-16938		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY		<b>OIL &amp; GAS WELL LOCATIONS FIGURE II-4.1</b>		
DRN BY				
CHK BY				
APP BY				
CITY OF LAREDO			SHEET OF	
			FILE:	
			ATTACHMENT:	II-4



**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 5  
Drainage Easement**



TX F-10098

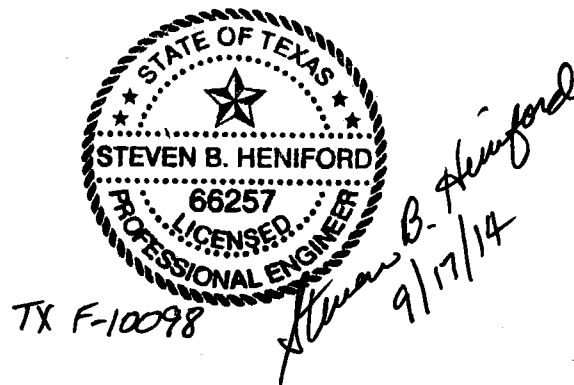
*Steven B. Heniford*  
9/17/14

**LAREDO LANDFILL  
PART II  
Attachment 5  
Drainage Easement**

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**List of Attachments**

Drainage Easement Agreement, City of Laredo & Hurd Ranch Company (3/21/2003)



DOC#: 794592  
DOC#: 794592

Recorded  
APR. 16, 2003 AT 03:35PM

Signed: [Signature]  
NARGIE R. IBARRA  
COUNTY CLERK

### AGREEMENT

This Agreement is made and entered into this 21<sup>st</sup> day of March, 2003, by and between The City of Laredo, a Municipal Corporation, ("City"), and Hurd Ranch Company, Ltd., a Texas limited partnership ("Hurd").

WHEREAS, Hurd is the current owner of the land outlined in red on the plat attached hereto as Exhibit "A";

WHEREAS, the City is the current owner of the tract outlined in blue on the plat attached hereto as Exhibit "A", ("Landfill"); and

WHEREAS, in consideration of the undertakings of the City as hereinafter set forth, Hurd is willing to convey to the City an easement over three tracts of land for the drainage of surface water from the Landfill and surrounding areas as described in that certain Drainage Easement to be executed and effective as of March 21, 2003 ("Drainage Easement") attached hereto as Exhibit "B"; and

WHEREAS, in consideration of the undertakings of the City as hereinafter set forth, Hurd is willing to release in favor of the City that certain 30' utilities easement reserved in Special Warranty Deed dated June 30, 1994, by and between Hurd, as Grantor, and the City, as Grantee, recorded in Volume 227, Page 165-170 of the Official Deed Records of Webb County, Texas ("Release"); and

WHEREAS, the City deems it advantageous to itself and to its operation of the Landfill to enter into this agreement with Hurd;

NOW, THEREFORE, City and Hurd for and in consideration of the covenants and mutual agreements hereinafter contained, do hereby agree as follows:

1. Hurd will execute the Drainage Easement and Release simultaneously with the City's execution of this Agreement.
2. The City shall build, at its cost, drainage channels and water detention facilities (such channels and detention facilities being herein collectively referred to as the "Facilities") in accordance with plans dated August 27, 2002, approved and signed by the City's engineers and Hurd's engineer, Foster Engineering. It is understood and agreed that the Facilities to be constructed by the City pursuant to this paragraph 2 are intended to provide sufficient storm water runoff detention capacity to enable Hurd and its successors to develop a minimum of 170 industrial use acres (refer to Howland Engineering & Surveying letter dated August 12, 2002, attached hereto as Exhibit "C") adjacent to the Landfill without the need for further detention capacity.

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3. The City shall maintain the Facilities, at its sole cost, until they are abandoned by the mutual agreement of the City and Hurd.

4. The City shall be responsible for such action as may be necessary to ensure that the Facilities are available for use by Hurd at all times following the completion of their construction. Should concrete pilot channels be required on the drainage ditches, they will be built at the City's sole expense.

5. The City shall build and maintain, at its expense, a twenty-foot (20') wide, all-weather access road ("Road") along the entire length of Tract 1 of the Drainage Easement. Hurd, its successors and contractors, shall have the right to use the Road for any lawful purpose at any time.

6. Hurd reserves the right to place utilities on any area covered by the Drainage Easement.

7. The City shall build and maintain, at its expense, a nine-foot (9') high fence ("Fence") along the entire east boundary of the Landfill immediately upon completion of construction of the Facilities on Tract Three. The Fence is to be built in accordance with the plan dated April 4, 2000, prepared by the City's consulting engineers, WSBC Civil Engineering, Inc., attached hereto as "Exhibit D".

8. The City shall commence construction of the Facilities as promptly as possible following the execution of this Agreement and shall cause the construction of the Facilities, the Road, and the Fence to be completed within twenty four (24) months of the effective date of this Agreement. If the Facilities, the Road and the Fence are not completed within the aforesaid period, the City shall, on demand by Hurd, re-convey the Drainage Easement to Hurd at no cost.

The laws of the State of Texas shall govern the rights and obligations of the parties under this Agreement. All obligations of the parties under this Agreement are performable in Webb County, Texas.

Each party represents and warrants to the other party that it has full authority to enter into this Agreement, is competent to do so, and that the person executing on behalf of the City is duly authorized and empowered to do so.

This Agreement and the parties' rights, duties, and obligations under this Agreement are not transferable or assignable by either without the express prior written consent of the other party; provided that Hurd may transfer any of its rights under this Agreement to any entity under common control with Hurd without having to obtain the City's consent. Except as aforesaid, any attempt by a party to transfer or assign this Agreement or any of its rights, duties, or obligations under this Agreement without such consent is void.

This Agreement shall be binding upon and inure to the benefit of the parties and each of their successors and permitted assigns.

A non-breaching party's waiver or acquiescence in any breach of this Agreement by a breaching party, or the failure of a non-breaching party to insist upon strict performance by a breaching party of any obligations contained in this Agreement, shall not constitute a waiver of any subsequent or other breach or failure.

The provisions of this Agreement are severable. Should any provision hereof be held unlawful or invalid by any competent authority, the remainder of the Agreement shall remain in full force and effect.

EXECUTED and EFFECTIVE as of this 21<sup>st</sup> day of March, 2003.

CITY OF LAREDO,  
a Municipal Corporation

HURD RANCH COMPANY, LTD.,  
a Texas limited partnership

BY: Larry Dovelina  
Larry Dovelina  
City Manager

By: J. R. Hurd  
J. R. Hurd, General Partner

ATTEST:

Gustavo Guévara, Jr.  
Gustavo Guévara, Jr.  
City Secretary

APPROVED AS TO FORM:  
Jaime L. Flores  
City Attorney

By: Valeria M. Rueda  
Jerry Bruce Cain  
Assistant City Attorney

Data/patricia/hrc/agmt/drainage/ceasement

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## DRAINAGE EASEMENT

THE STATE OF TEXAS

)

COUNTY OF WEBB

)

That HURD RANCH COMPANY, LTD., a Texas limited partnership, whose address is P. O. Box 6846, San Antonio, Texas 78209, for and in consideration of the sum of Ten Dollars (\$10.00) Cash to us in hand paid by City of Laredo, a Texas municipal corporation, whose address is 1110 Houston Street, Laredo, Texas 78042, do hereby GIVE, GRANT and CONVEY to said City of Laredo, the right to construct, reconstruct and perpetually maintain a drainage easement together with all necessary laterals in, over, upon and across the following tracts of land situated in Webb County, Texas, to-wit:

### Tract I

Being a 100 foot strip of land containing 7.83 acres situated in Porcion 31, Jose Treviño, Abstract 3116 and Porcion 32, Antonio Treviño, Abstract 296, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

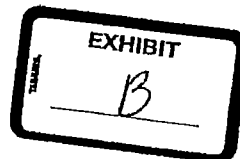
Beginning at a ½" Iron Rod found at the Southwest corner of a 251.2262 acre tract, known as the Laredo Landfill, Recorded in Volume 227, Pages 165-170, Deed Records Webb County, Texas, also being on the North right-of-way line of State Highway 359, for the True Point of Beginning;

Thence North 75 degrees 39 minutes, 30 seconds West, along the North right-of-way line of State Highway 359 and the Southeast boundary line of said Hurd Ranch Company, Ltd. Tract, a distance of 103.47 feet, to found fence corner post being the Southwest corner of said 2603.55 acre tract, for the Southwest corner hereof;

Thence North 00 degrees 32 minutes, 22 seconds West, with the West boundary line of said 2603.55 acre tract also being the East boundary line of A.M. Brunz Estate, Part E-2, of Share 1, as per deed recorded in Volume 2, Page 142, Plat Records Webb County, Texas, a distance of 3421.05 feet, to a point on the West line of said aforementioned tract, for the Northwest corner hereof;

Thence South 63 degrees 51 minutes, 33 seconds East, a distance of 111.92 feet to a Concrete Monument found being the Northwest corner of said 251.2262 acre tract, for the Northeast corner hereof;

Page 1



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Thence South 00 degrees 32 minutes, 22 seconds East, along the common boundary line of said Hurd Ranch Company, Ltd. (2603.55 acre tract) and the West boundary line of said Laredo Landfill (251.2262 acre tract), a distance of 3397.38 feet, to the Point of Beginning and containing 7.83 acres, more or less.

Bearings and distances on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum, 1927.

#### TRACT 2

Being a strip of land containing 23.52 acres situated in Porcion 31, Jose Treviño, Abstract 3116, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

Beginning at Concrete Monument found at the Northeast corner of a 251.2262 acre tract, known as the Laredo Landfill, Recorded in Volume 227, Pages 165-170, Deed Records Webb County, Texas, also being on a Southwest line of said 2603.55 acre tract, for the True Point of Beginning;

Thence North 63 degrees 51 minutes 33 seconds West, a distance of 111.92 feet, to a point on the East boundary line of A.M. Bruni Estate, Part E-2, of Share I, as per deed recorded in Volume 2, Page 142, Plat Records Webb County, Texas, for the Southwest corner hereof;

Thence with said East line of said Share I, North 00 degrees 32 minutes 22 seconds West, a distance of 248.30 feet, to a point being parallel with the Southwest line of Texas Mexican Railway Co., Recorded in Volume 526, Page 16, Deed Records, Webb County, Texas, with an offset distance of 30 feet, for an interior corner hereof;

Thence parallel with the Southwest line of Texas Mexican Railway Co., with an offset distance of 30 feet, North 63 degrees 49 minutes 21 seconds West, a distance of 2270.69 feet, for the Westerly Southwest corner hereof;

Thence North 06 degrees 17 minutes 37 seconds East, a distance of 31.90 feet, to the Southwest corner of said Texas Mexican Railway Co., for the Northwest corner hereof;

Thence along the Southwest boundary, line of Said Texas Mexican Railway

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Co., South 63 degrees 49 minutes 21 seconds East, a distance of 2939.96 feet, to a point of deflection and an interior corner hereof;

Thence along the Southwest boundary line of Said Texas Mexican Railway Co., South 83 degrees 42 minutes 28 seconds East, a distance of 3257.48 feet, for Northeast corner hereof;

Thence South 06 degrees 17 minutes 32 seconds West, a distance of 151.00 feet, for Easterly exterior corner hereof;

Thence parallel with the Southwest line of Texas Mexican Railway Co., with an offset distance of 151 feet North 83 degrees 42 minutes 28 seconds West, a distance of 215.00 feet, for a point of deflection and an interior corner hereof;

Thence South 51 degrees 17 minutes 32 seconds West, a distance of 141.53 feet, for Southeast corner hereof;

Thence North 83 degrees 42 minutes 57 seconds West, passing the Northeast corner of said Laredo Landfill at a distance of 104.93 feet and continuing along the Northeast boundary line of said Laredo Landfill for a total distance of 2986.26 feet, for a point of deflection and an exterior corner hereof;

Thence North 63 degrees 51 minutes 33 seconds West, along the Northeast boundary line of said Laredo Landfill, a distance of 479.17 feet, to the Point of Beginning and containing 23.52 acres more or less.

Bearings and distance on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum, 1927.

#### Tract 3

Being a 105 foot strip of land containing 9.98 acres situated in Porcion 31, Jose Treviño, Abstract 3116 and Porcion 32, Antonio Treviño, Abstract 296, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

Beginning at a ½" Iron Rod found at the Southeast corner of a 251.2262 acre tract known as the Laredo Landfill, Recorded in Volume 227, Pages

165-170, Deed Records Webb County, Texas, also being on the North right-of-way line of State Highway 359, for the True Point of Beginning;

Thence North 06 degrees 19 minutes 00 seconds East, along the East boundary line of said Laredo Landfill, a distance of 753.64 feet, to a Found Concrete Monument, for a point of deflection hereof;

Thence North 06 degrees 17 minutes 32 seconds East, continuing along the East boundary line of said Laredo Landfill, a distance of 3047.04 feet, to a found fence corner post on the Northeast corner of said Laredo Landfill also being an interior corner of said 2603.55 acre tract, for the Northwest corner hereof;

Thence South 83 degrees 42 minutes 57 seconds East, a distance of 105.00 feet, for the Northeast corner hereof;

Thence South 06 degrees 17 minutes 32 seconds West, parallel said East boundary line of said Laredo Landfill with an offset distance of 105 feet, a distance of 3047.06 feet, for a point of deflection hereof;

Thence South 06 degrees 19 minutes 00 seconds West, parallel said Southeast boundary line of said Laredo Landfill with an offset distance of 105 feet, a distance of 173.99 feet, for a point of deflection hereof;

Thence South 33 degrees 13 minutes 15 seconds East, a distance of 77.12 feet, to a point on the Northeast line of a 540' x 80' Tx-Dot Drainage Easement, for a point of deflection hereof;

Thence South 72 degrees 45 minutes 30 seconds East, a distance of 63.88 feet, for an exterior corner hereof;

Thence South 17 degrees 14 minutes 30 seconds West, parallel the East boundary line of said Tx-Dot Drainage Easement, with an offset distance of 5 feet, a distance of 540.00 feet, to a point being on the North right-of-way line of State Highway 359, for the most southerly Southwest corner hereof;

Thence North 72 degrees 45 minutes 30 seconds West, along North right-of-way line of State Highway 359, a distance of 116.58 feet, to the Point of Beginning and containing 9.98 acres, more or less.

Bearings and distances on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum 1927.



THIS Drainage Easement is subject to the terms and provisions of that certain unrecorded Agreement dated March \_\_\_\_, 2003 by and between Hurd Ranch Company, Ltd. and the City of Laredo.

TO HAVE AND TO HOLD, the same perpetually to the CITY OF LAREDO, a municipal corporation, together with the right and privilege at any and all times to enter said premises, or any part thereof, for the purpose of constructing, reconstructing, and maintaining a drainage easement over upon and across the above described real property therewith, all upon the conditions that the City of Laredo will at all times, after doing any work in connection with the constructions, reconstruction or repair of said drainage easement or any lateral thereof, will not create a nuisance or do any act that will be detrimental to said premises.

EXECUTED on this the \_\_\_\_ day of \_\_\_\_\_, 2003.

HURD RANCH COMPANY, LTD.

BY: \_\_\_\_\_  
J. R. Hurd, General Partner

STATE OF TEXAS )(

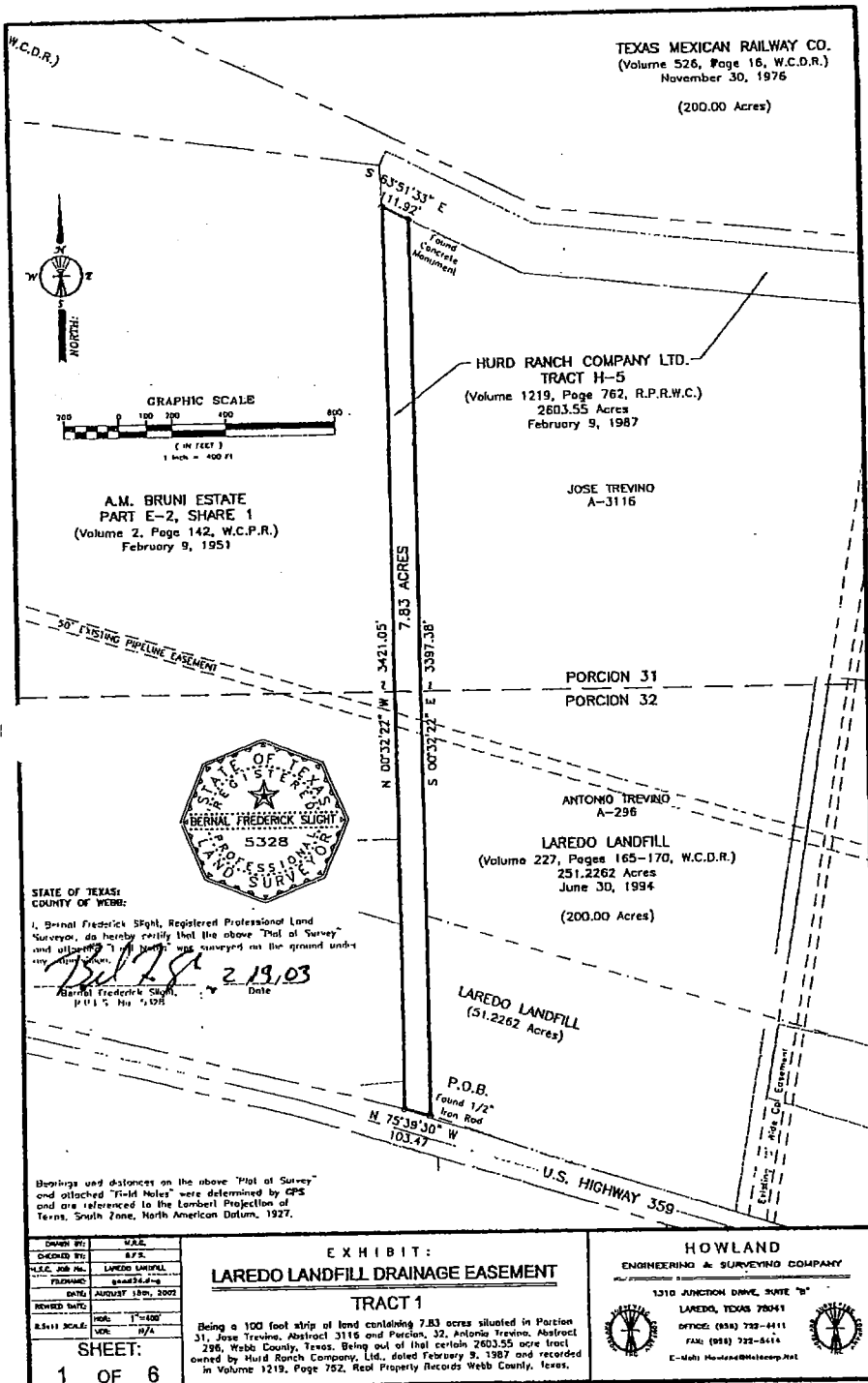
COUNTY OF WEBB )(

This instrument was acknowledged before me on this the \_\_\_\_ day of March, 2003, by J. R. Hurd, General Partner of Hurd Ranch Company, Ltd., a Texas limited partnership.

\_\_\_\_\_  
Notary Public State of Texas

Date/petrcia/hrc/drainageeasement/landfill

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Tract 1  
Laredo Landfill  
Drainage Easement  
Webb County, Texas

Being a 100 foot strip of land containing 7.83 acres situated in Porcion 31, Jose Trevino, Abstract 3116 and Porcion, 32, Antonio Trevino, Abstract 296, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

Beginning at a 1/2" Iron Rod found at the Southwest corner of a 251.2262 acre tract, known as the Laredo Landfill, Recorded in Volume 227, Pages 165-170, Deed Records Webb County, Texas, also being on the North right-of-way line of State Highway 359, for the True Point of Beginning;

Thence North 75 degrees 39 minutes, 30 seconds West, along the North right-of-way line of State Highway 359 and the Southeast boundary line of said Hurd Ranch Company, Ltd. Tract, a distance of 103.47 feet, to found fence corner post being the Southwest corner of said 2603.55 acre tract, for the Southwest corner hereof;

Thence North 00 degrees 32 minutes, 22 seconds West, with the West boundary line of said 2603.55 acre tract also being the East boundary line of A.M. Bruni Estate, Part E-2, of Share 1, as per deed recorded in Volume 2, Page 142, Plat Records Webb County, Texas, a distance of 3421.05 feet, to a point on the West line of said aforementioned tract, for the Northwest corner hereof;

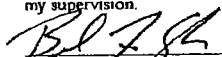
Thence South 63 degrees 51 minutes, 33 seconds East, a distance of 111.92 feet to a Concrete Monument found being the Northwest corner of said 251.2262 acre tract, for the Northeast corner hereof;

Thence South 00 degrees 32 minutes, 22 seconds East, along the common boundary line of said Hurd Ranch Company, Ltd. (2603.55 acre tract) and the West boundary line of said Laredo Landfill (251.2262 acre tract), a distance of 3397.38 feet, to the Point of Beginning and containing 7.83 acres, more or less.

Bearings and distances on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum, 1927.

STATE OF TEXAS:  
COUNTY OF WEBB:

I, Bernal Frederick Slight, Registered Professional Land Surveyor, do hereby certify that the above "Field Notes" and attached "Plat of Survey" was surveyed on the ground under my supervision.

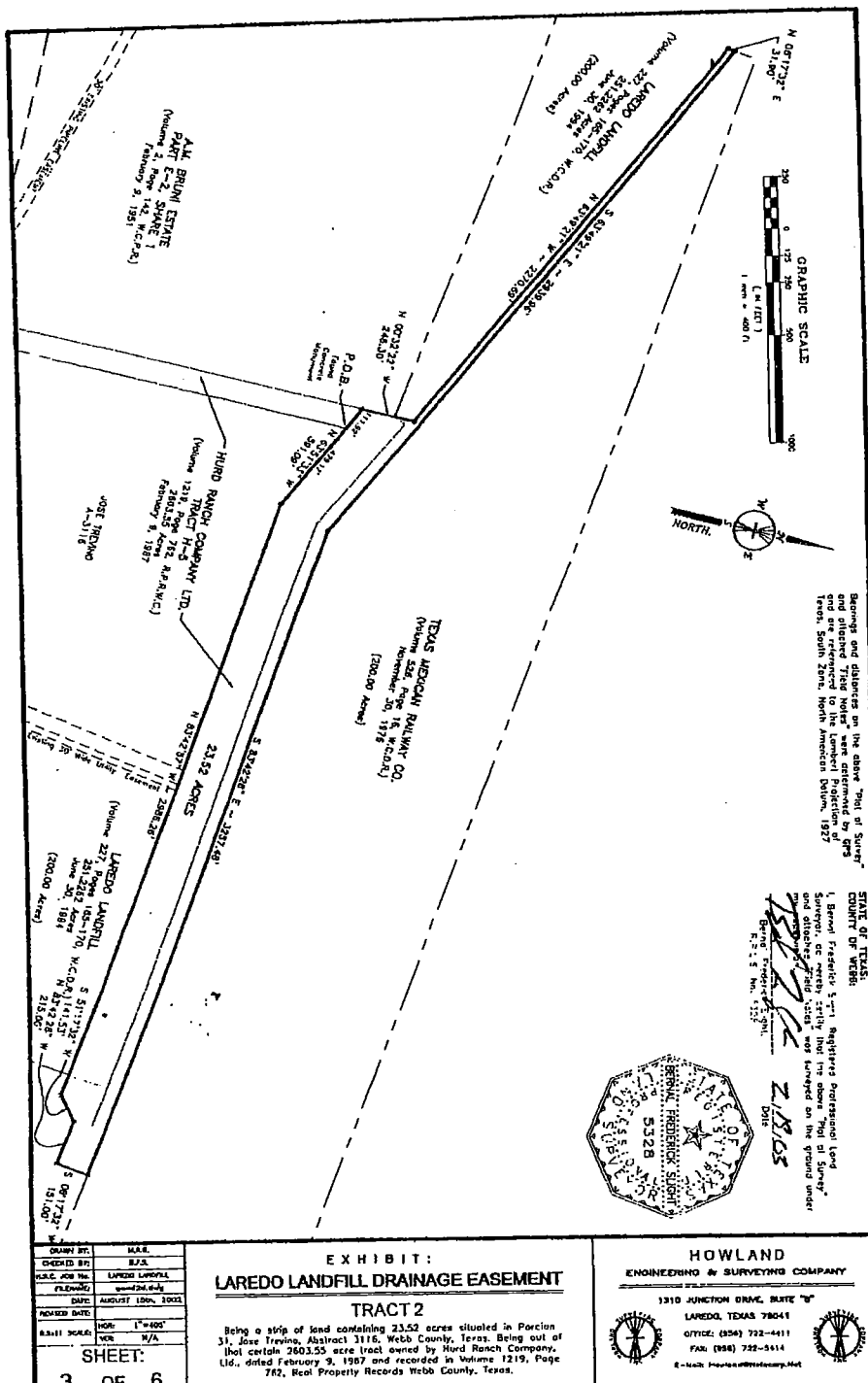
  
Bernal Frederick Slight,  
R.P.L.S. No. 5328

8/17/03  
Date



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Sheet 2 of 6

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Howland Surveying Co., Inc. — DBA  
**HOWLAND**  
 Engineering & Surveying Company  
 Oil and Gas Location Surveys • Boundary Surveys • City Lot Surveys • Engineering & Planning



Tract 2  
 Laredo Landfill  
 Drainage Easement  
 Webb County, Texas

Being a Tract of land containing 23.52 acres situated in Porcion 31, Jose Trevino, Abstract 3116, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

Beginning at Concrete Monument Found at the Northeast corner of a 251.2262 acre tract, known as the Laredo Landfill, Recorded in Volume 227, Pages 165-170, Deed Records Webb County, Texas, also being on a Southwest line of said 2603.55 acre tract, for the True Point of Beginning;

Thence North 63 degrees 51 minutes 33 seconds West, a distance of 111.92 feet, to a point on the East boundary line of A.M. Brund Estate, Part E-2, of Shore 1, as per deed recorded in Volume 2, Page 142, Plat Records Webb County, Texas, for the Southwest corner hereof;

Thence North 00 degrees 32 minutes 22 seconds West, with said East line of said Shore 1, a distance of 248.30 feet, to a point being 30' offset of the Southwest line of Texas Mexican Railway Co., Recorded in Volume 526, Page 16, Deed Records, Webb County, Texas, for an interior corner hereof;

Thence North 63 degrees 49 minutes 21 seconds West, parallel with the Southwest line of Texas Mexican Railway Co., continue with an offset distance of 30 feet, a distance of 2270.69 feet, for the Westerly Southwest corner hereof;

Thence North 06 degrees 17 minutes 32 seconds East, a distance of 31.90 feet, to the Southwest corner of said Texas Mexican Railway Co., for the Northwest corner hereof;

Thence South 63 degrees 49 minutes 21 seconds East, along the Southwest boundary line of said Texas Mexican Railway Co., a distance of 2939.96 feet, to a point of deflection and an interior corner hereof;

Thence South 83 degrees 42 minutes 28 seconds East, continuing along the Southwest boundary line of said Texas Mexican Railway Co., a distance of 3257.48 feet, for Northeast corner hereof;

Thence South 06 degrees 17 minutes 32 seconds West, a distance of 151.00 feet, for Easterly exterior corner hereof;

Thence North 83 degrees 42 minutes 28 seconds West, parallel with the Southwest line of Texas Mexican Railway Co., continue with an offset distance of 151 feet, a distance of 215.00 feet, for a point of deflection and an interior corner hereof;

Thence South 51 degrees 17 minutes 32 seconds West, a distance of 143.53 feet, for Southeast corner hereof;

Thence North 83 degrees 42 minutes 57 seconds West, passing the Northeast corner of said Laredo Landfill at a distance of 104.93 feet and continuing along the Northeast boundary line of said Laredo Landfill for a total distance of 2986.26 feet, for a point of deflection and an exterior corner hereof;

Thence North 63 degrees 51 minutes 33 seconds West, along the Northeast boundary line of said Laredo Landfill, a distance of 479.17 feet, to the Point of Beginning and containing 23.52 acres, more or less.

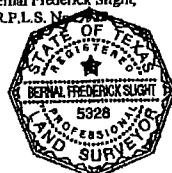
Bearings and distances on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum, 1927.

STATE OF TEXAS:  
 COUNTY OF WEBB:

I, Bernal Frederick Slight, Registered Professional Land Surveyor, do hereby certify that the above "Field Notes" and attached "Plat of Survey" was surveyed on the ground under my supervision.

*B.F. Slight*  
 Bernal Frederick Slight,  
 R.P.L.S. No. 5328

*2/19/03*  
 Date

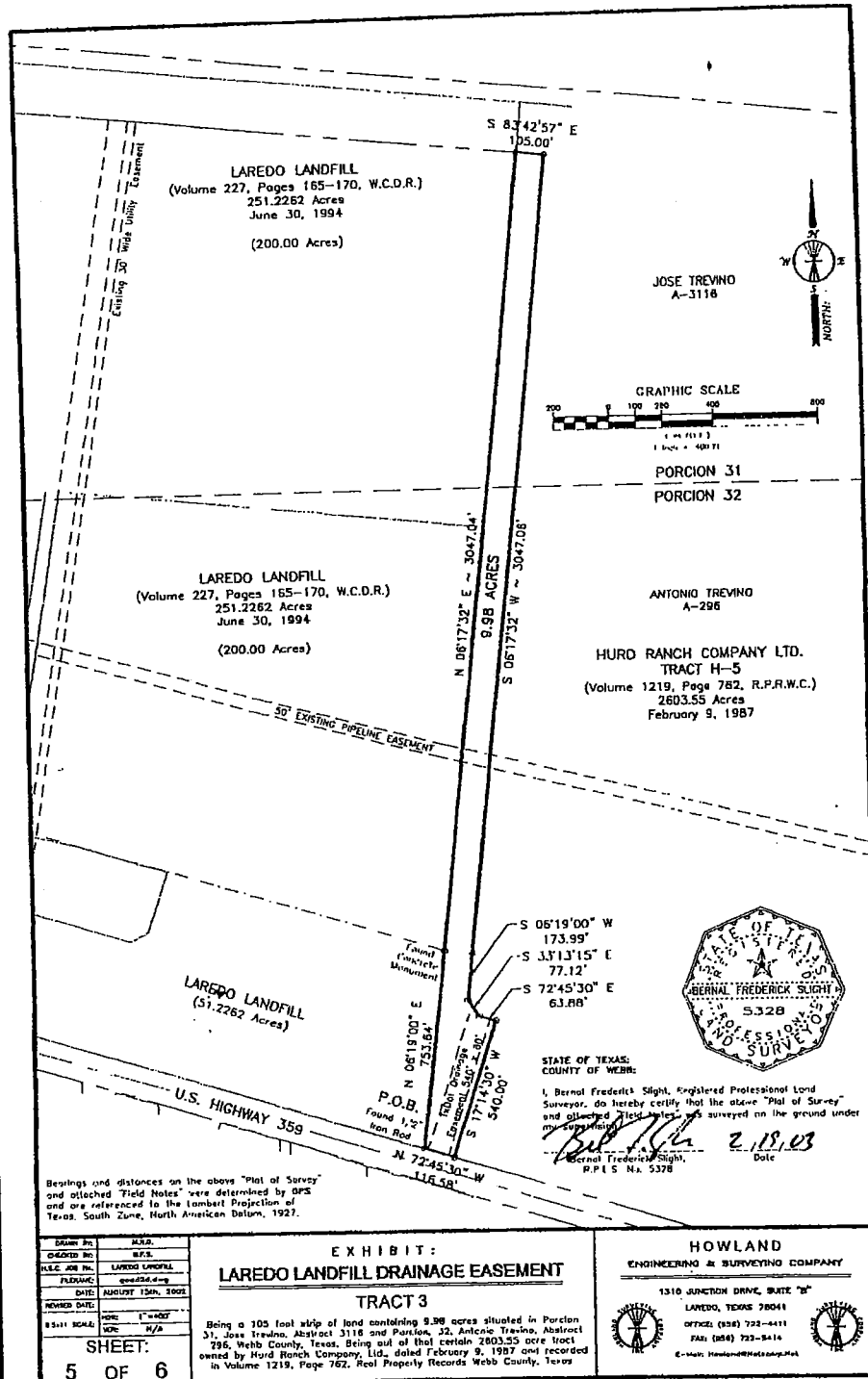


C:\DWG\Engineering\Land Fill\Tract 2.doc

Sheet 4 of 6

PLANTATION PROFESSIONAL BUILDING • 1310 JUNCTION DR. • SUITE B • LAREDO, TEXAS 78045 • TEL: (956) 722-4411 • FAX: (956) 722-5414





1376 771



**Tract 3  
 Laredo Landfill  
 Drainage Easement  
 Webb County, Texas**

Being a 105 foot strip of land containing 9.98 acres situated in Porcion 31, Jose Trevino, Abstract 3116 and Porcion, 32, Antonio Trevino, Abstract 296, Webb County, Texas. Being out of that certain 2603.55 acre tract owned by Hurd Ranch Company, Ltd., dated February 9, 1987 and Recorded in Volume 1219, Page 762, Real Property Records Webb County, Texas.

Beginning at a 1/2" Iron Rod found at the Southeast corner of a 251.2262 acre tract, known as the Laredo Landfill, Recorded in Volume 227, Pages 165-170, Deed Records Webb County, Texas, also being on the North right-of-way line of State Highway 359, for the True Point of Beginning;

Thence North 06 degrees 19 minutes 00 seconds East, along the East boundary line of said Laredo Landfill, a distance of 753.64 feet, to a Found Concrete Monument, for a point of deflection hereof;

Thence North 06 degrees 17 minutes 32 seconds East, continuing along the East boundary line of said Laredo Landfill, a distance of 3047.04 feet, to a found fence corner post on the Northeast corner of said Laredo Landfill also being an interior corner of said 2603.55 acre tract, for the Northwest corner hereof;

Thence South 43 degrees 42 minutes 57 seconds East, a distance of 105.00 feet, for the Northeast corner hereof;

Thence South 06 degrees 17 minutes 32 seconds West, parallel said East boundary line of said Laredo Landfill with an offset distance of 105 feet, a distance of 3047.06 feet, for a point of deflection hereof;

Thence South 06 degrees 19 minutes 00 seconds West, parallel said Southeast boundary line of said Laredo Landfill with an offset distance of 105 feet, a distance of 173.99 feet, for a point of deflection hereof;

Thence South 72 degrees 45 minutes 30 seconds East, a distance of 63.88 feet, for an exterior corner hereof;

Thence South 33 degrees 13 minutes 15 seconds East, a distance of 77.12 feet, to a point on the Northeast line of a 540' x 80' Tx-Dot Drainage Easement, for a point of deflection hereof;

Thence South 17 degrees 14 minutes 30 seconds West, parallel the East boundary line of said Tx-Dot Drainage Easement, with an offset distance of 5 feet, a distance of 540.00 feet, to a point being on the North right-of-way line of State Highway 359, for the most Southerly Southwest corner hereof;

Thence North 72 degrees 45 minutes 30 seconds West, along North right-of-way line of State Highway 359, a distance of 116.58 feet, to the Point of Beginning and containing 9.98 acres, more or less.

Bearings and distances on the above "Plat of Survey" and attached "Field Notes" were determined by GPS and are referenced to the Lambert Projection of Texas, South Zone, North American Datum, 1927.

**STATE OF TEXAS:  
 COUNTY OF WEBB:**

I, Bernal Frederick Slight, Registered Professional Land Surveyor, do hereby certify that the above "Field Notes" and attached "Plat of Survey" was surveyed on the ground under my supervision.

*Bernal Frederick Slight*  
 Bernal Frederick Slight,  
 R.P.L.S. No. 5328

3/17/07  
 Date



Sheet 6 of 6  
 C:\DWG\Engineering\Land Fil\Tract 3.doc

1376  
 772

Howland Surveying Co., Inc. - DBA  
**HOWLAND**  
Engineering & Surveying Company  
Oil and Gas Location Surveys \* Boundary Surveys \* City Lot Surveys \* Engineering & Planning



August 12, 2002

Mr. Oscar J. Sepulveda P.E.  
Foster Engineering Company  
1004 Hillside Rd.  
Laredo, Texas 78041

**RE: Landfill Drainage Improvements**

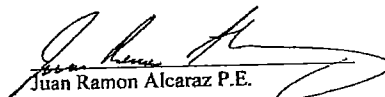
Project: Landfill Drainage Improvements  
Scope of Work: Drainage Ditches on the North, East, and West sides of the Landfill

Dear Mr. Sepulveda,

Attached are the new detention volumes you requested for industrial development on the Hurd Enterprises, Ltd. Property. Using the original detention volume provided to you at our last meeting, the Hurd Enterprises, Ltd. Property can develop between 155 and 160 acres. The detention volume needed for 155, 160, 170, and 180 acres for industrial development are also provided. Providing an additional foot of detention on the main channel detention pond would generate enough detention for the 170 acres industrial development

If you have any questions or if we need to provide more information please call me.

Sincerely,  
Howland Engineering & Surveying Company

  
Juan Ramon Alcaraz P.E.

1376 773

**EXHIBIT "C"**

PLANTATION PROFESSIONAL BUILDING \* 1310 JUNCTION DR. \* SUITE B \* LAREDO, TEXAS 78045 \* TEL: (956) 722-4411 \* FAX: (956) 722-5414

LANFILL5.PRN  
RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:   
Subtitle: DETENTION VOLUMES NEEDED  
Subarea : 155

COVER DESCRIPTION	A	Hydrologic Soil Group		D
		B	C	
		Acres (CN)		
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts				
Industrial				
			155(91)	
Total Area (by Hydrologic Soil Group)			155	

SUBAREA: 155 TOTAL DRAINAGE AREA: 155 Acres WEIGHTED CURVE NUMBER: 91\*

\* - Generated for use by GRAPHIC method  
D TIME OF CONCENTRATION AND TRAVEL TIME Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:   
Subtitle: DETENTION VOLUMES NEEDED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		3000						5.00	0.167
Time of Concentration = 0.42*									

--- Sheet Flow Surface Codes ---  
A Smooth Surface F Grass, Dense  
B Fallow (No Res.) G Grass, Bermuda  
C Cultivated < 20 % Res. H Woods, Light  
D Cultivated > 20 % Res. I Woods, Dense  
E Grass-Range, Short J Range, Natural  
--- Shallow Concentrated ---  
Surface Codes ---  
P Paved  
U Unpaved

\* - Generated for use by GRAPHIC method.  
D GRAPHICAL PEAK DISCHARGE METHOD Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:   
Subtitle: DETENTION VOLUMES NEEDED

Data: Drainage Area : 155 \* Acres  
Runoff Curve Number : 91 \*  
Time of Concentration: 0.42 \* Hours  
Rainfall Type : III  
Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

Page 1

LANFILL5.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.07	0.05	0.04	0.03	0.03	0.02	0.02
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.07	2.83	4.27	5.45	6.53	7.52	8.90
Unit Peak Discharge (cfs/acre/in)	0.689	0.689	0.689	0.689	0.689	0.689	0.689
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	192	263	397	506	606	698	827

\* - Value(s) provided from TR-55 system routines  
 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
 County : WEBB Checked: Date:  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 155 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.5 inches  
 Peak Inflow: 698.2247 cfs  
 Peak Outflow: 401 cfs  
 Detention Basin Storage Volume: 1.87 inches or 24.2 acre feet

0

1376 775



LANFILL4.PRN  
RUNOFF CURVE NUMBER COMPUTATION      Version 2.00

Project : LANDFILL      State: TX      User: JRA      Date: 08-08-99  
 County : WEBB      Checked: \_\_\_\_\_      Date: \_\_\_\_\_  
 Subtitle: DETENTION VOLUMES NEEDED  
 Subarea : 160

COVER DESCRIPTION	A	Hydrologic Soil Group			D
		B	C	Acres (CN)	
FULLY DEVELOPED URBAN AREAS (Veg Estab.)					
Urban Districts      Avg % imperv	-	-	160(91)	-	
Industrial      72					

Total Area (by Hydrologic Soil Group)      160

SUBAREA: 160      TOTAL DRAINAGE AREA: 160 Acres      WEIGHTED CURVE NUMBER: 91\*

\* - Generated for use by GRAPHIC method  
 TIME OF CONCENTRATION AND TRAVEL TIME      Version 2.00

Project : LANDFILL      State: TX      User: JRA      Date: 08-08-99  
 County : WEBB      Checked: \_\_\_\_\_      Date: \_\_\_\_\_  
 Subtitle: DETENTION VOLUMES NEEDED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		3000						5.00	0.167
Time of Concentration = 0.42*									

--- Sheet Flow Surface Codes ---  
 A Smooth Surface      F Grass, Dense  
 B Fallow (No Res.)      G Grass, Bermuda  
 C Cultivated < 20 % Res.      H Woods, Light  
 D Cultivated > 20 % Res.      I Woods, Dense  
 E Grass-Range, Short      J Range, Natural  
 --- Shallow Concentrated ---  
 Surface Codes  
 P Paved  
 U Unpaved

\* - Generated for use by GRAPHIC method  
 GRAPHICAL PEAK DISCHARGE METHOD      Version 2.00

Project : LANDFILL      State: TX      User: JRA      Date: 08-08-99  
 County : WEBB      Checked: \_\_\_\_\_      Date: \_\_\_\_\_  
 Subtitle: DETENTION VOLUMES NEEDED

Data: Drainage Area : 160 \* Acres  
 Runoff Curve Number : 91 \*  
 Time of Concentration: 0.42 \* Hours  
 Rainfall Type : III  
 Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

LANFILL4.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.07	0.05	0.04	0.03	0.03	0.02	0.02
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.07	2.83	4.27	5.45	6.53	7.52	8.90
Unit Peak Discharge (cfs/acre/in)	0.689	0.689	0.689	0.689	0.689	0.689	0.689
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	199	271	410	522	626	721	854

\* - Value(s) provided from TR-55 system routines  
 0 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
 County : WEBB Checked: \_\_\_\_\_ Date: \_\_\_\_\_  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 160 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.5 inches  
 Peak Inflow: 720.7481 cfs  
 Peak Outflow: 401 cfs  
 Detention Basin Storage Volume: 1.92 inches or 25.6 acre feet

0

1376 777

LANFILL3.PRN  
RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED  
Subarea : 170

COVER DESCRIPTION	A	Hydrologic Soil Group			D
		B	C	Acres (CN)	
FULLY DEVELOPED URBAN AREAS (Veg Estab.)					
Urban Districts					
Industrial				170(91)	
Total Area (by Hydrologic Soil Group)				170	

SUBAREA: 170 TOTAL DRAINAGE AREA: 170 Acres WEIGHTED CURVE NUMBER: 91\*

\* - Generated for use by GRAPHIC method  
TIME OF CONCENTRATION AND TRAVEL TIME Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		3000						5.00	0.167
Time of Concentration = 0.42*									

--- Sheet Flow Surface Codes ---  
A Smooth Surface F Grass, Dense  
B Fallow (No Res.) G Grass, Bermuda  
C Cultivated < 20 % Res. H Woods, Light  
D Cultivated > 20 % Res. I Woods, Dense  
E Grass-Range, Short J Range, Natural  
--- Shallow Concentrated ---  
Surface Codes ---  
P Paved  
U Unpaved

\* - Generated for use by GRAPHIC method  
GRAPHICAL PEAK DISCHARGE METHOD Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Data: Drainage Area : 170 \* Acres  
Runoff Curve Number : 91 \*  
Time of Concentration: 0.42 \* Hours  
Rainfall Type : III  
Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

Page 1

LANFILL3.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.07	0.05	0.04	0.03	0.03	0.02	0.02
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.07	2.83	4.27	5.45	6.53	7.52	8.90
Unit Peak Discharge (cfs/acre/in)	0.689	0.689	0.689	0.689	0.689	0.689	0.689
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	211	288	435	555	665	766	907

\* - Value(s) provided from TR-55 system routines  
 0 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
 County : WEBB Checked: Date:  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 170 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.5 inches  
 Peak Inflow: 765.7949 cfs  
 Peak Outflow: 401 cfs  
 Detention Basin Storage Volume: 2.01 inches or 28.5 acre feet

0

1376 779

LANFILL2.PRN  
RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : LANDFILL  
County : WEBB  
Subtitle: DETENTION VOLUMES NEEDED  
Subarea : 180

User: JRA  
Checked: \_\_\_\_\_

Date: 08-08-99  
Date: \_\_\_\_\_

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts				
Industrial			180(91)	
Total Area (by Hydrologic Soil Group)			180	

SUBAREA: 180 TOTAL DRAINAGE AREA: 180 Acres WEIGHTED CURVE NUMBER: 91\*

\* - Generated for use by GRAPHIC method  
TIME OF CONCENTRATION AND TRAVEL TIME Version 2.00

Project : LANDFILL  
County : WEBB  
Subtitle: DETENTION VOLUMES NEEDED

User: JRA  
Checked: \_\_\_\_\_

Date: 08-08-99  
Date: \_\_\_\_\_

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		3000						5.00	0.167
Time of Concentration = 0.42*									=====

--- Sheet Flow Surface Codes ---  
A Smooth Surface F Grass, Dense  
B Fallow (No Res.) G Grass, Bermuda  
C Cultivated < 20 % Res. H Woods, Light  
D Cultivated > 20 % Res. I Woods, Dense  
E Grass-Range, Short J Range, Natural  
--- Shallow Concentrated ---  
Surface Codes ---  
P Paved  
U Unpaved

\* - Generated for use by GRAPHIC method  
GRAPHICAL PEAK DISCHARGE METHOD Version 2.00

Project : LANDFILL  
County : WEBB  
Subtitle: DETENTION VOLUMES NEEDED

User: JRA  
Checked: \_\_\_\_\_

Date: 08-08-99  
Date: \_\_\_\_\_

Data: Drainage Area : 180 \* Acres  
Runoff Curve Number : 91 \*  
Time of Concentration: 0.42 \* Hours  
Rainfall Type : III  
Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

Page 1



LANFILL2.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.07	0.05	0.04	0.03	0.03	0.02	0.02
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.07	2.83	4.27	5.45	6.53	7.52	8.90
Unit Peak Discharge (cfs/acre/in)	0.689	0.689	0.689	0.689	0.689	0.689	0.689
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	223	305	461	588	704	811	960

\* - Value(s) provided from TR-55 system routines  
 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
 County : WEBB Checked: Date:  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 180 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.5 inches  
 Peak Inflow: 810.8416 cfs  
 Peak Outflow: 401 cfs  
 Detention Basin Storage Volume: 2.09 inches or 31.4 acre feet

0

1376 781

LANFIL6.PRN  
RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED  
Subarea : 180

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts			200(94)	
Commercial & business				

Total Area (by Hydrologic Soil Group) 200

SUBAREA: 180 TOTAL DRAINAGE AREA: 200 Acres WEIGHTED CURVE NUMBER: 94\*

\* - Generated for use by GRAPHIC method  
TIME OF CONCENTRATION AND TRAVEL TIME Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		4000						5.00	0.222
									Time of Concentration = 0.47*

--- Sheet Flow Surface Codes ---  
A Smooth Surface F Grass, Dense --- Shallow Concentrated ---  
B Fallow (No Res.) G Grass, Bermuda --- Surface Codes ---  
C Cultivated < 20 % Res. H Woods, Light P Paved  
D Cultivated > 20 % Res. I Woods, Dense U Unpaved  
E Grass-Range, Short J Range, Natural

\* - Generated for use by GRAPHIC method  
GRAPHICAL PEAK DISCHARGE METHOD Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Data: Drainage Area : 200 \* Acres  
Runoff Curve Number : 94 \*  
Time of Concentration: 0.47 \* Hours  
Rainfall Type : III  
Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

Page 1

LANFIL6.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.04	0.03	0.02	0.02	0.02	0.01	0.01
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.35	3.13	4.60	5.79	6.88	7.88	9.27
Unit Peak Discharge (cfs/acre/in)	0.659	0.659	0.659	0.659	0.659	0.659	0.659
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	269	359	528	664	789	903	1063

\* - Value(s) provided from TR-55 system routines  
 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
 County : WEBB checked: Date:  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 200 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.9 inches  
 Peak Inflow: 902.9015 cfs  
 Peak Outflow: 432 cfs  
 Detention Basin Storage Volume: 2.25 inches or 37.4 acre feet

0

1376 783

LANFIL7.PRN  
RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED  
Subarea : 220

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts Avg % imperv			220(94)	
Commercial & business 85				
Total Area (by Hydrologic Soil Group)			220	

SUBAREA: 220 TOTAL DRAINAGE AREA: 220 Acres WEIGHTED CURVE NUMBER: 94\*

\* - Generated for use by GRAPHIC method  
TIME OF CONCENTRATION AND TRAVEL TIME Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.8	50	.01	E					0.114
Shallow Concent'd		1000	.01	P					0.137
Open Channel		4000						5.00	0.222
Time of Concentration = 0.47*									

--- Sheet Flow Surface Codes ---  
A Smooth Surface F Grass, Dense  
B Fallow (No Res.) G Grass, Bermuda  
C Cultivated < 20 % Res. H Woods, Light  
D Cultivated > 20 % Res. I Woods, Dense  
E Grass-Range, Short J Range, Natural  
--- Shallow Concentrated ---  
Surface Codes ---  
P Paved  
U Unpaved

\* - Generated for use by GRAPHIC method  
GRAPHICAL PEAK DISCHARGE METHOD Version 2.00

Project : LANDFILL State: TX User: JRA Date: 08-08-99  
County : WEBB Checked: Date:  
Subtitle: DETENTION VOLUMES NEEDED

Data: Drainage Area : 220 \* Acres  
Runoff Curve Number : 94 \*  
Time of Concentration: 0.47 \* Hours  
Rainfall Type : III  
Pond and Swamp Area :

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100

Page 1

LANFIL7.PRN							
24-Hr Rainfall (in)	3	3.8	5.3	6.5	7.6	8.6	10
Ia/P Ratio	0.04	0.03	0.02	0.02	0.02	0.01	0.01
Used	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Runoff (in)	2.35	3.13	4.60	5.79	6.88	7.88	9.27
Unit Peak Discharge (cfs/acre/in)	0.659	0.659	0.659	0.659	0.659	0.659	0.659
Pond and Swamp Factor 1.0% Ponds Used	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Peak Discharge (cfs)	296	394	580	730	868	993	1169

\* - Value(s) provided from TR-55 system routines  
 STORAGE VOLUME FOR DETENTION BASINS Version 2.00

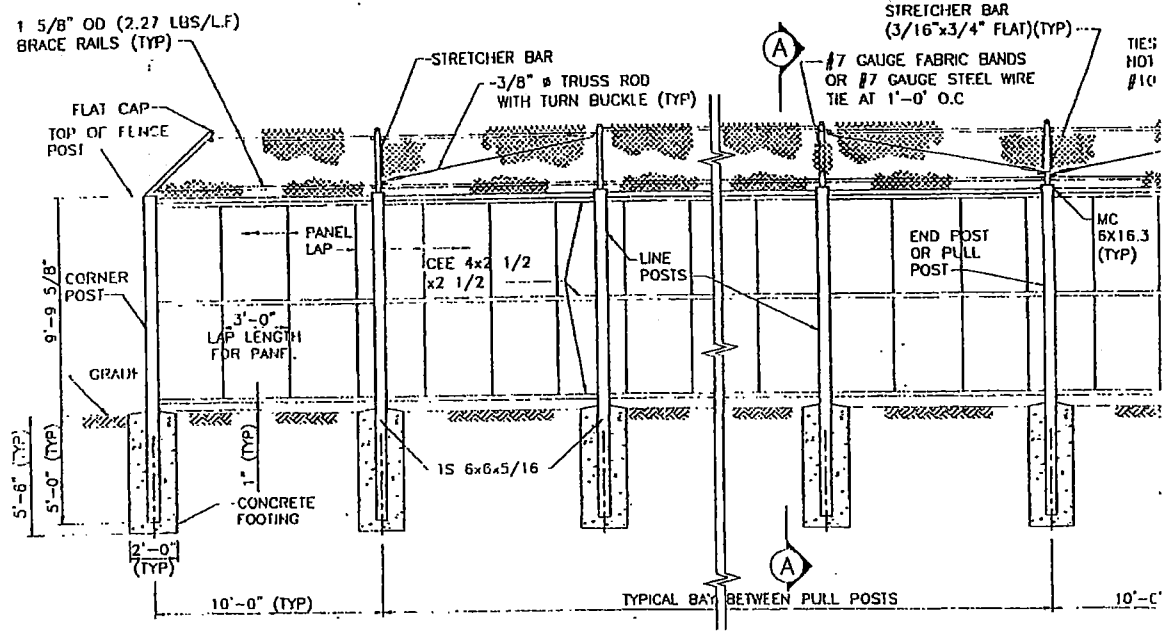
Project : LANDFILL User: JRA Date: 08-08-99  
 County : WEBB State: TX Checked: Date:  
 Subtitle: DETENTION VOLUMES NEEDED

Drainage Area: 220 Acres Rainfall Frequency: 50 years  
 Rainfall-Type: III  
 Runoff: 7.9 inches  
 Peak Inflow: 993.1917 cfs  
 Peak Outflow: 476 cfs  
 Detention Basin Storage Volume: 2.24 inches or 41.1 acre feet

0

1376 785

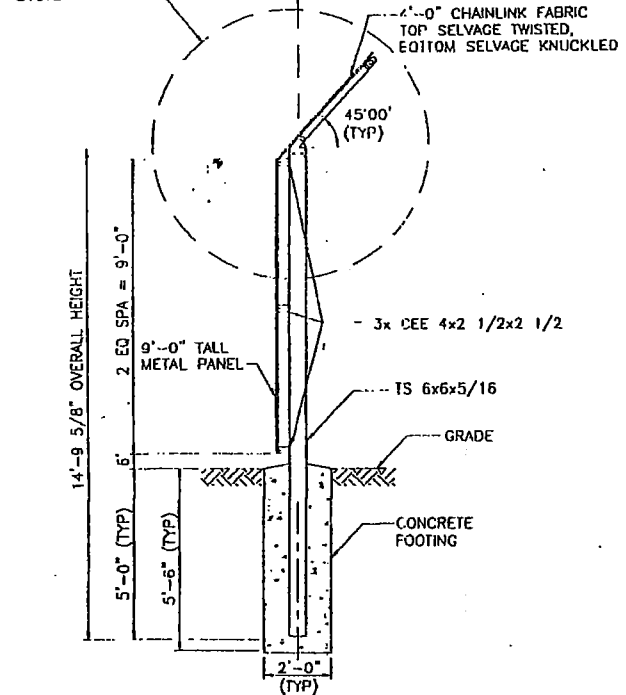




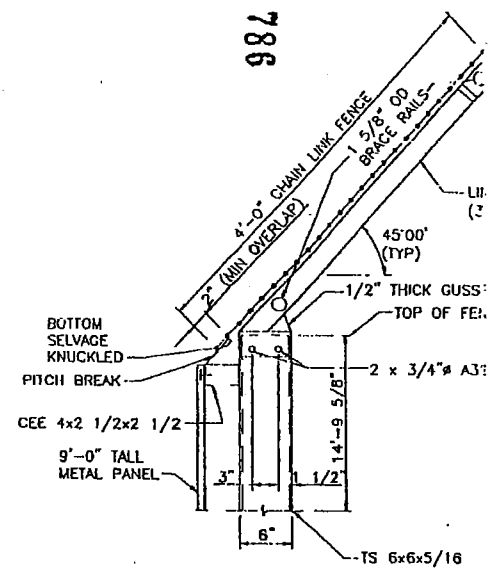
FENCE ELEVATION  
SCALE 1"=6'-0"

1376  
786

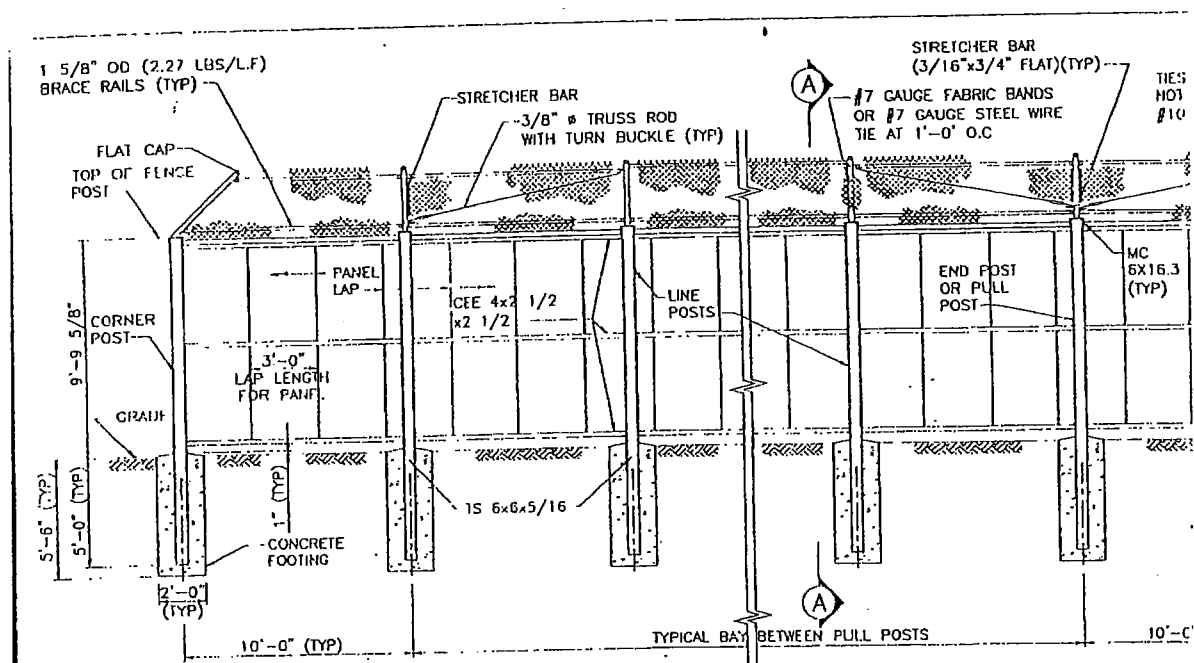
TRASH COLLECTION SYSTEM DETAIL



SECTION A-A

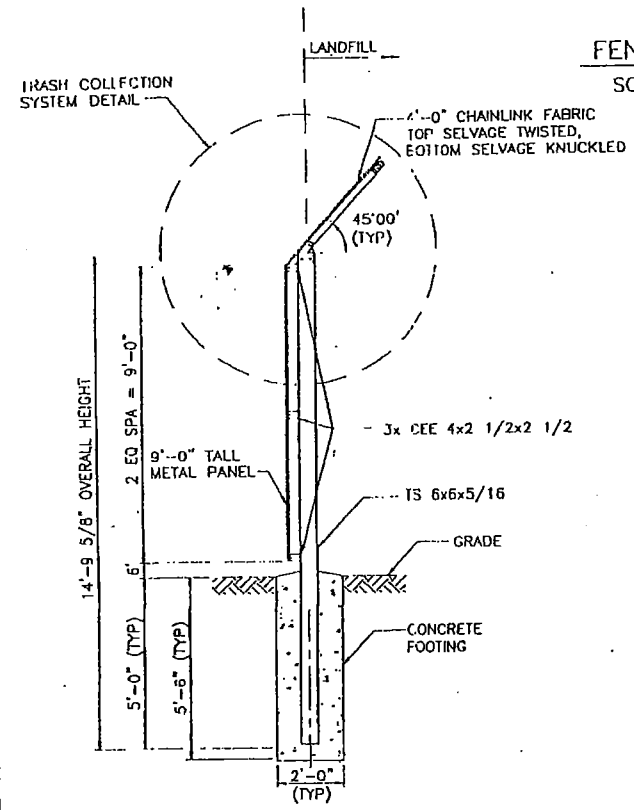


TRASH COLLECTION SYSTEM DETAILS  
SCALE 3/4"=1'-0"

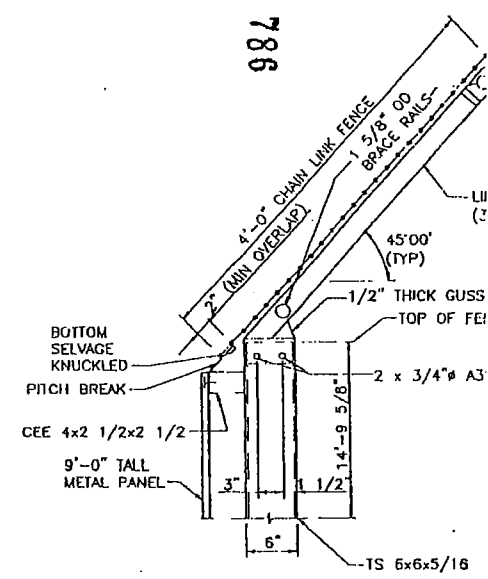


FENCE ELEVATION  
SCALE 1"=6'-0"

1376  
786



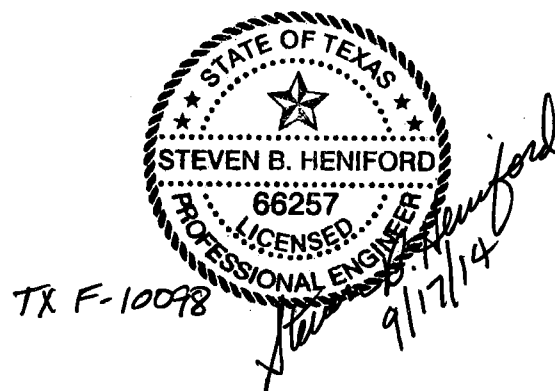
SECTION A-A



TRASH COLLECTION SYSTEM DETAIL  
SCALE 3/4"=1'-0"

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 6**  
**Sequence of Development Plan**

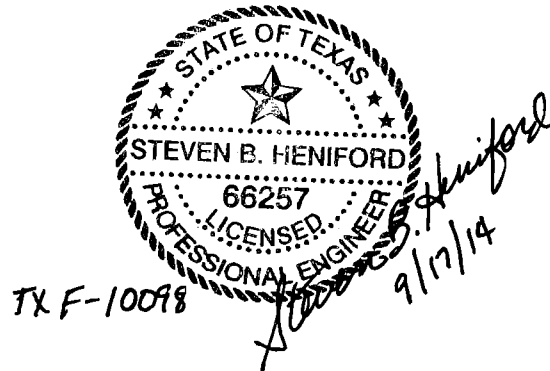


**LAREDO LANDFILL  
PART II  
Attachment 6  
Sequence of Development Plan**

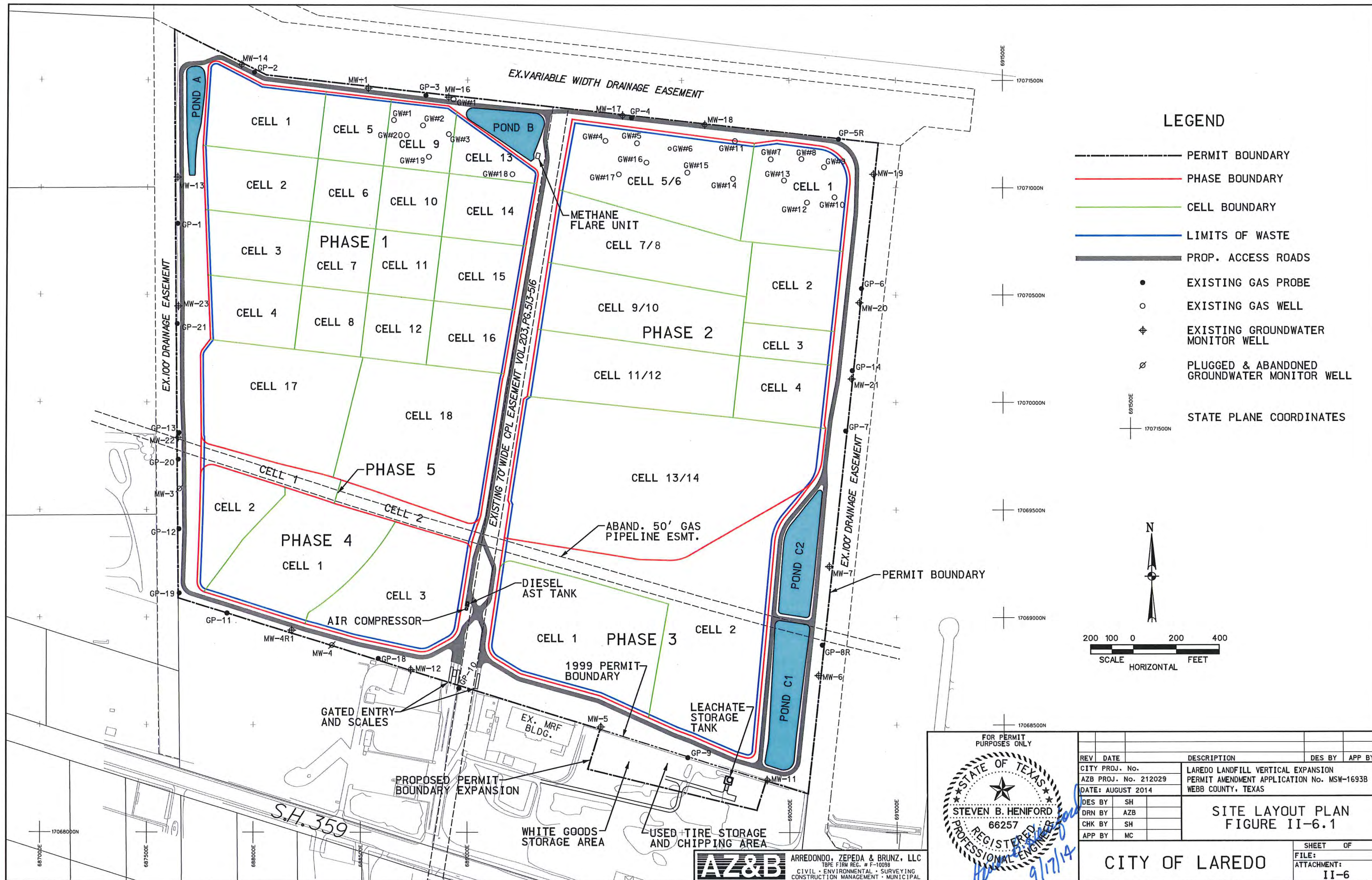
**TABLE OF CONTENTS**

**List of Figures**

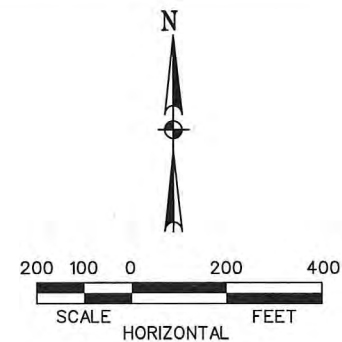
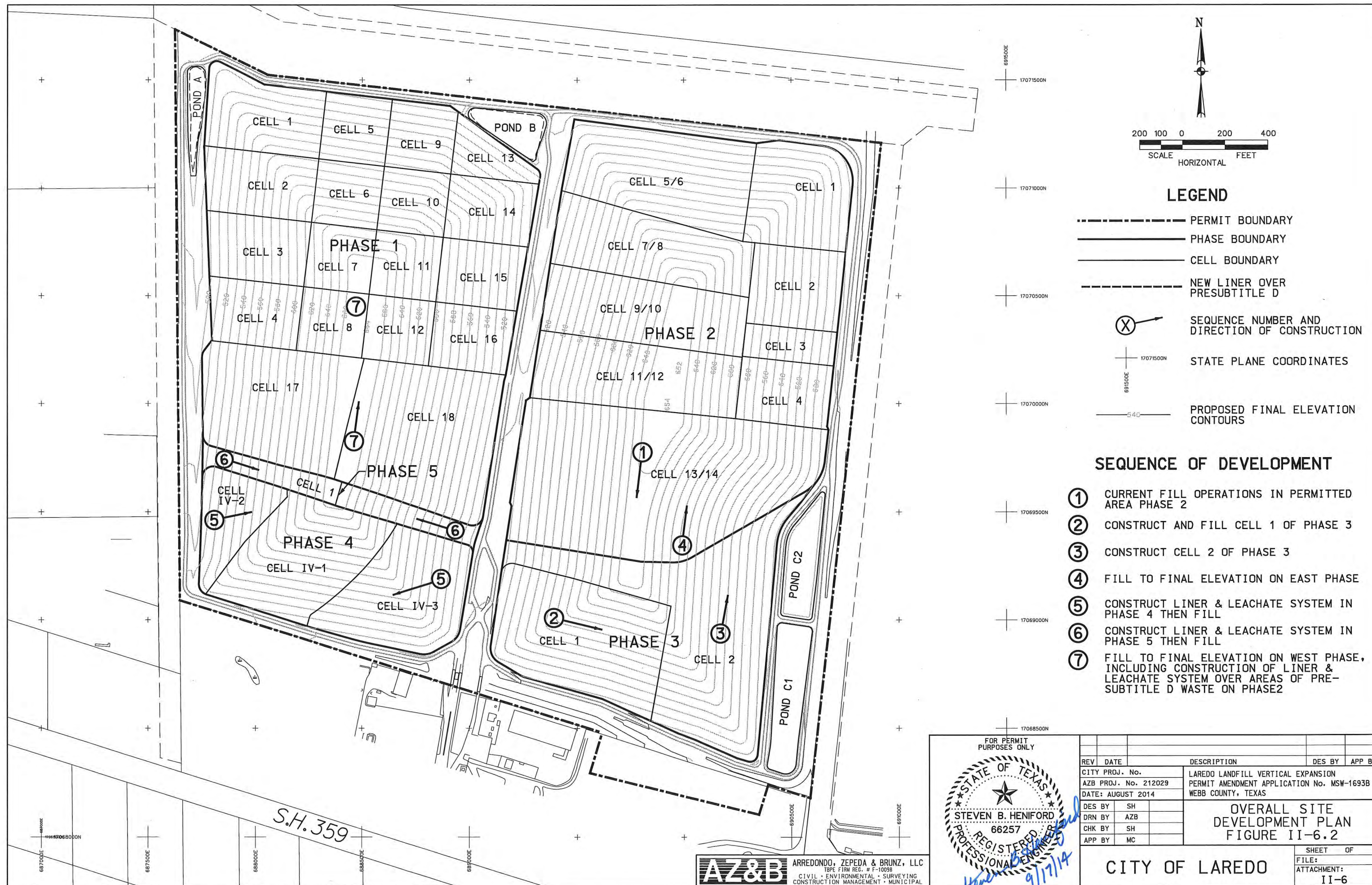
- Figure II.6.1: Site Layout Plan
- Figure II.6.2: Overall Site Development Plan
- Figure II.6.3: Site Development Plan Stage 1
- Figure II.6.4: Site Development Plan Stage 2
- Figure II.6.5: Site Development Plan Stage 3
- Figure II.6.6: Site Development Plan Stage 4
- Figure II.6.7: Site Development Plan Stage 5
- Figure II.6.8: Site Development Plan Stage 6
- Figure II.6.9: Site Development Plan Stage 7











**LEGEND**

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- NEW LINER OVER PRESUBTITLE D
- (X) --> SEQUENCE NUMBER AND DIRECTION OF CONSTRUCTION
- + STATE PLANE COORDINATES
- PROPOSED FINAL ELEVATION CONTOURS

**SEQUENCE OF DEVELOPMENT**

- 1 CURRENT FILL OPERATIONS IN PERMITTED AREA PHASE 2
- 2 CONSTRUCT AND FILL CELL 1 OF PHASE 3
- 3 CONSTRUCT CELL 2 OF PHASE 3
- 4 FILL TO FINAL ELEVATION ON EAST PHASE
- 5 CONSTRUCT LINER & LEACHATE SYSTEM IN PHASE 4 THEN FILL
- 6 CONSTRUCT LINER & LEACHATE SYSTEM IN PHASE 5 THEN FILL
- 7 FILL TO FINAL ELEVATION ON WEST PHASE, INCLUDING CONSTRUCTION OF LINER & LEACHATE SYSTEM OVER AREAS OF PRE-SUBTITLE D WASTE ON PHASE2

FOR PERMIT PURPOSES ONLY					
REV	DATE	DESCRIPTION		DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION			
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B			
DATE: AUGUST 2014		WEBB COUNTY, TEXAS			
DES BY	SH	<b>OVERALL SITE DEVELOPMENT PLAN FIGURE II-6.2</b>			
DRN BY	AZB				
CHK BY	SH				
APP BY	MC				
CITY OF LAREDO		SHEET OF		FILE:	
		II-6		ATTACHMENT:	



**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL





N

200 100 0 200 400

SCALE HORIZONTAL FEET

**LEGEND**

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- 600----- PROPOSED 10' CONTOUR
- 580----- EXISTING 10' CONTOUR
- STATE PLANE COORDINATES

681500E

17071500N

681500E

17071000N

681500E

17070500N

681500E

17070000N

681500E

17069500N

681500E

17069000N

681500E

17068500N

- NOTES:
1. STAGE 1 TO CONSIST OF FILL TO 1999 PERMITTED FINAL GRADE IN PHASE 2.
  2. LEACHATE STORAGE, DIESEL AST AND AIR COMPRESSOR RELOCATED PER 2013 PERMIT MODIFICATION.

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS

STEVEN B. HENIFORD

66257

REGISTERED PROFESSIONAL ENGINEER

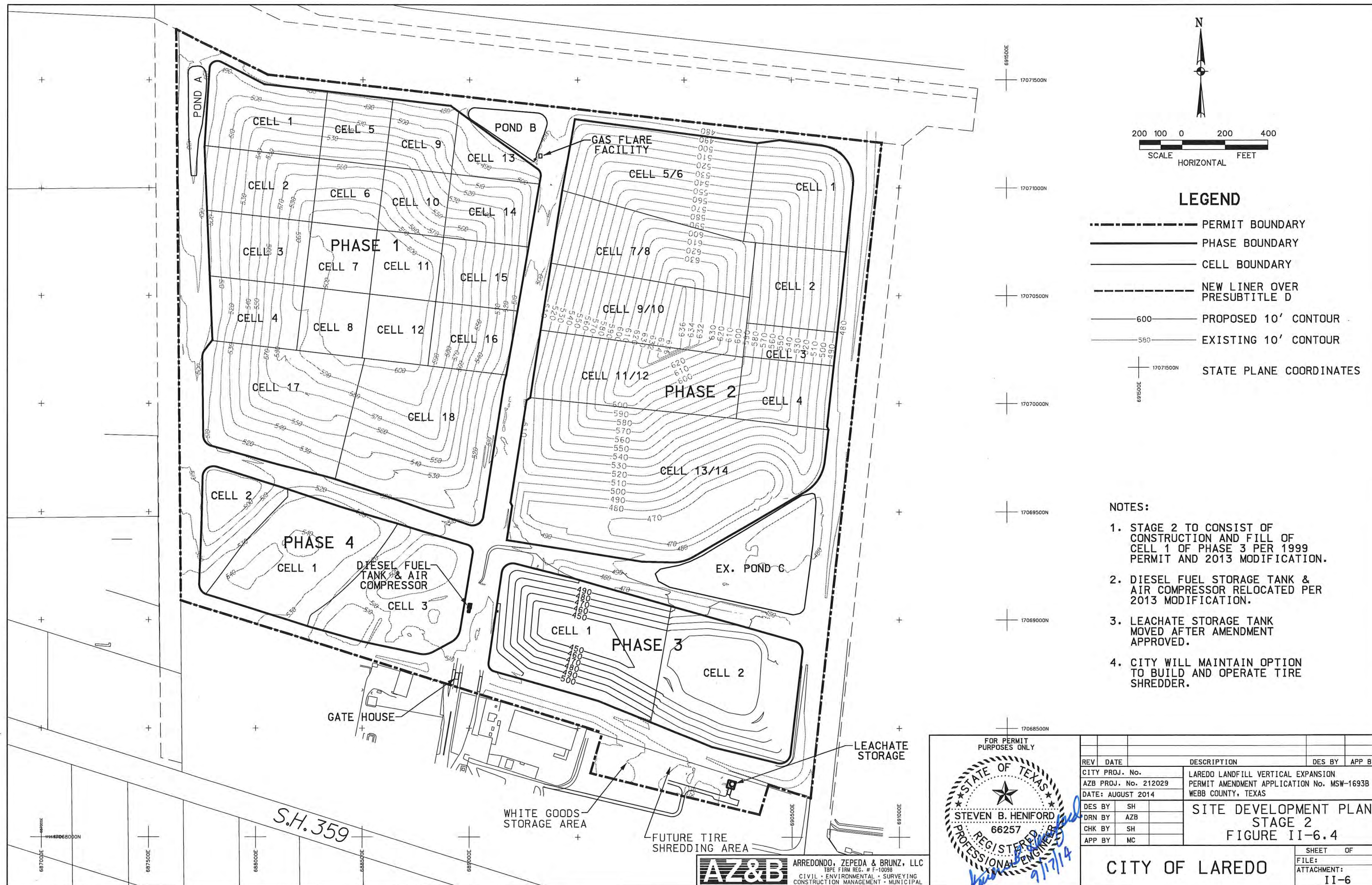
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AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY	SH	SITE DEVELOPMENT PLAN		
DRN BY	AZB	STAGE 1		
CHK BY	SH	FIGURE II-6.3		
APP BY	MC			

CITY OF LAREDO

FILE: II-6

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
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N

2001000200400

SCALEHORIZONTALFEET

LEGEND

-----

PERMIT BOUNDARY

-----

PHASE BOUNDARY

-----

CELL BOUNDARY

-----600-----

PROPOSED 10' CONTOUR

-----580-----

EXISTING 10' CONTOUR

-----

STATE PLANE COORDINATES

17071500N

17071000N

17070500N

17070000N

17069500N

17069000N

17068500N

687000E

687500E

688000E

688500E

689000E

689500E

- NOTES:
1. STAGE 3 TO OCCUR AFTER APPROVAL OF PERMIT AMENDMENT.
  2. STAGE 3 TO CONSIST OF CONSTRUCTION AND FILL OF PHASE 3 CELL 2 PER AMENDED PERMIT.
  3. PONDS C1 AND C2 TO BE CONSTRUCTED WITH PHASE 3, CELL 2 CONSTRUCTION.

FOR PERMIT PURPOSES ONLY

STATE OF TEXAS

STEVEN B. HENIFORD

66257

REGISTERED PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY	SH	SITE DEVELOPMENT PLAN STAGE 3 FIGURE II-6.5		
ORN BY	AZB			
CHK BY	SH			
APP BY	MC			

CITY OF LAREDO

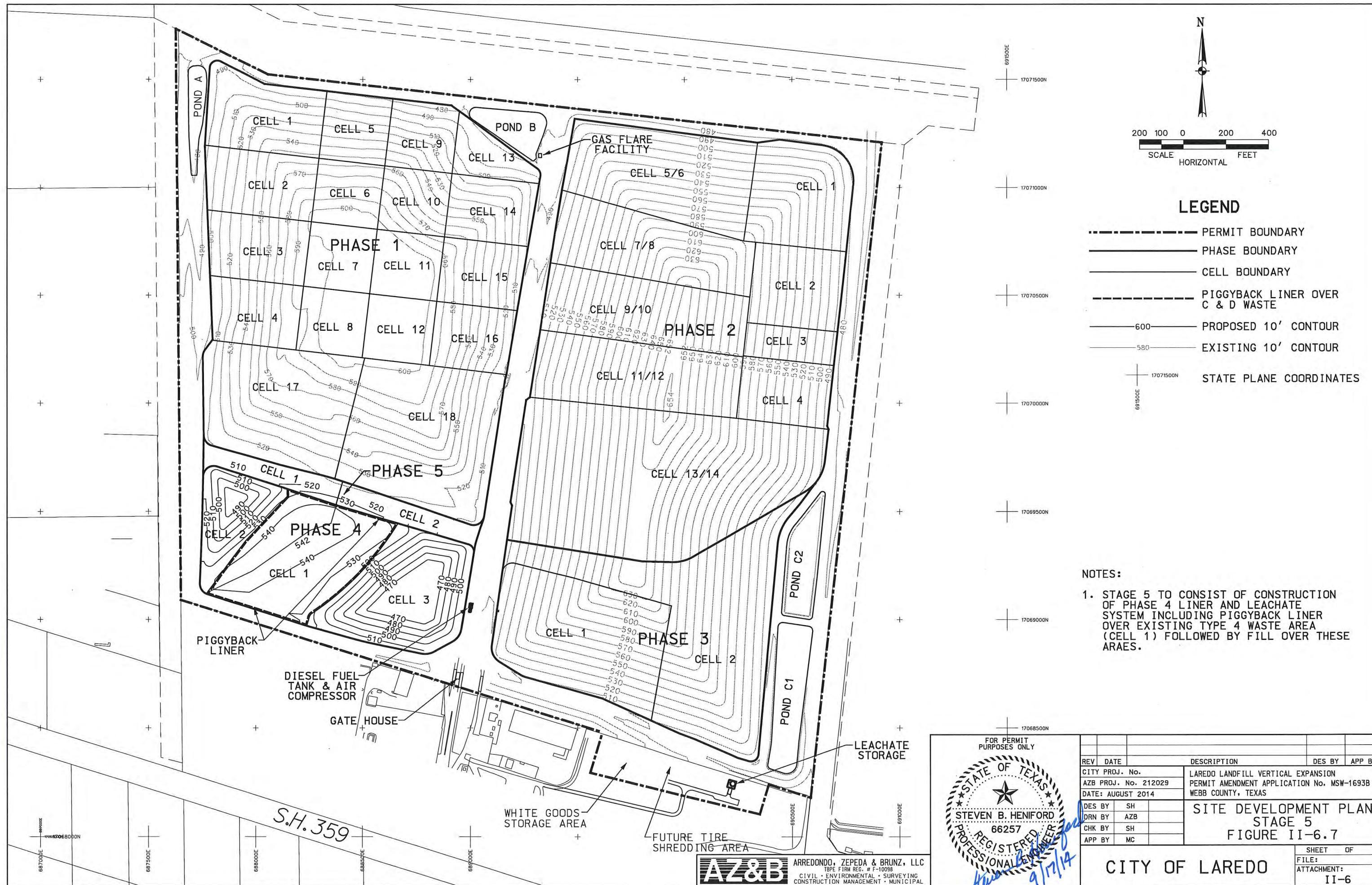
SHEET OF  
FILE:  
ATTACHMENT:  
II-6

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TPE FIRM REG. # T-10098  
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### LEGEND

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- PIGGYBACK LINER OVER C & D WASTE
- 600 ----- PROPOSED 10' CONTOUR
- 580 ----- EXISTING 10' CONTOUR
- STATE PLANE COORDINATES

### NOTES:

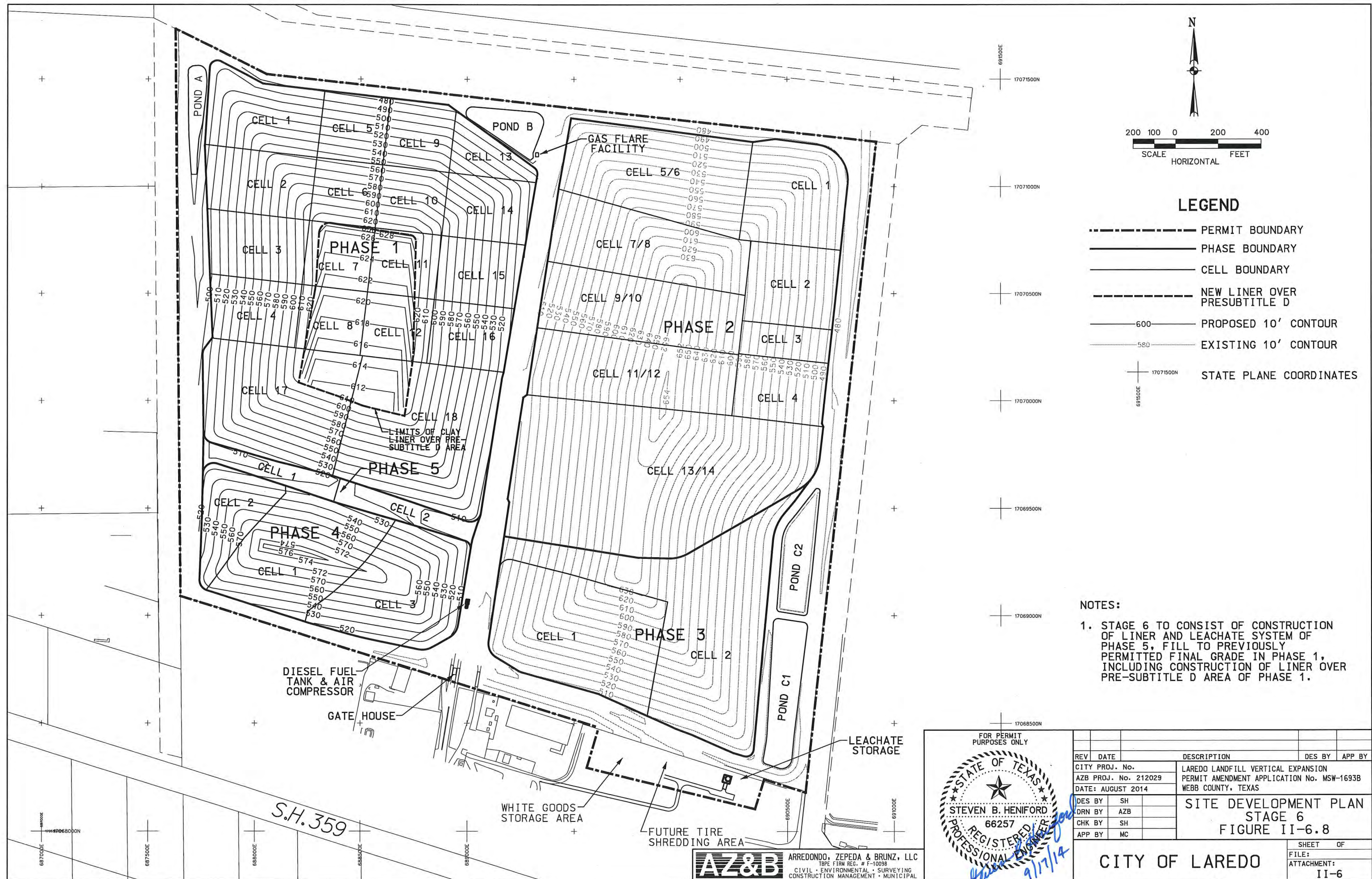
1. STAGE 5 TO CONSIST OF CONSTRUCTION OF PHASE 4 LINER AND LEACHATE SYSTEM INCLUDING PIGGYBACK LINER OVER EXISTING TYPE 4 WASTE AREA (CELL 1) FOLLOWED BY FILL OVER THESE AREAS.

FOR PERMIT PURPOSES ONLY			
REV	DATE	DESCRIPTION	DES BY APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION	
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B	
DATE: AUGUST 2014		WEBB COUNTY, TEXAS	
DES BY	SH	SITE DEVELOPMENT PLAN	
DRN BY	AZB	STAGE 5	
CHK BY	SH	FIGURE II-6.7	
APP BY	MC		
CITY OF LAREDO		SHEET OF	
		FILE:	
		ATTACHMENT:	
		II-6	

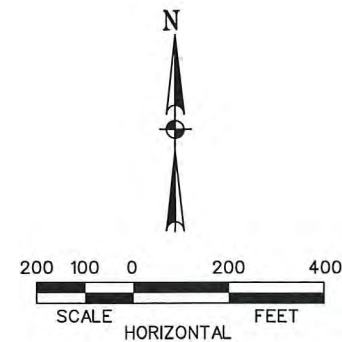


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**LEGEND**

- PERMIT BOUNDARY
- PHASE BOUNDARY
- CELL BOUNDARY
- 600----- PROPOSED 10' CONTOUR
- 580----- EXISTING 10' CONTOUR
- 17071500N----- STATE PLANE COORDINATES

- NOTES:**
1. STAGE 7 TO CONSIST OF FILL TO AMENDED PERMIT FINAL GRADE IN PHASES 1, 4 AND 5.
  2. BEGIN CLOSURE OF WEST PHASE.

FOR PERMIT PURPOSES ONLY			
REV	DATE	DESCRIPTION	DES BY APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION	
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B	
DATE: AUGUST 2014		WEBB COUNTY, TEXAS	
DES BY	SH	SITE DEVELOPMENT PLAN	
DRN BY	AZB	STAGE 7	
CHK BY	SH	FIGURE II-6.9	
APP BY	MC		
CITY OF LAREDO		SHEET OF	
		FILE:	
		ATTACHMENT:	
		II-6	

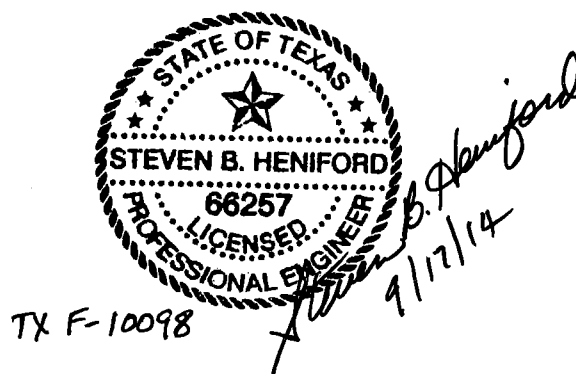


**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
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CONSTRUCTION MANAGEMENT • MUNICIPAL



**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 7**  
**City GIS Information**

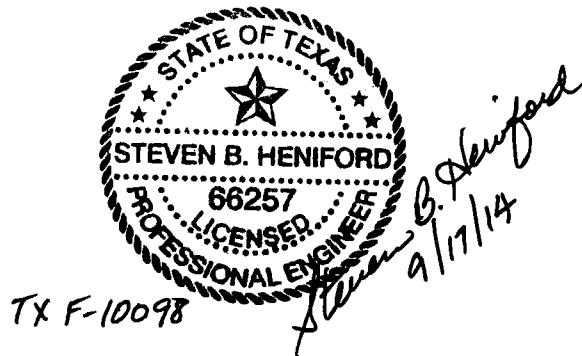


**LAREDO LANDFILL  
PART II  
Attachment 7  
City GIS Information**

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- Figure II.7.1: Laredo Population Density
- Figure II.7.2: Laredo Subdivisions
- Figure II.7.3: Laredo Land Use Map
- Figure II.7.4: Laredo Parks
- Figure II.7.5: Laredo Industrial Parks
- Figure II.7.6: Laredo Truck Route Map
- Figure II.7.7 Long Range Thoroughfare Plan – Laredo, Texas
- Figure II.7.8 Future Land Use Plan





Census 2000 Population: 176,576



SOURCE: U.S. CENSUS BUREAU

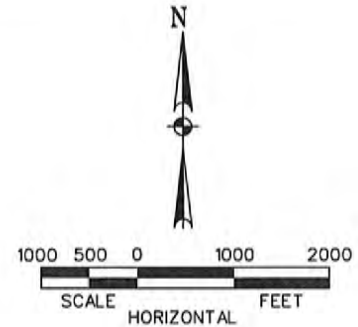
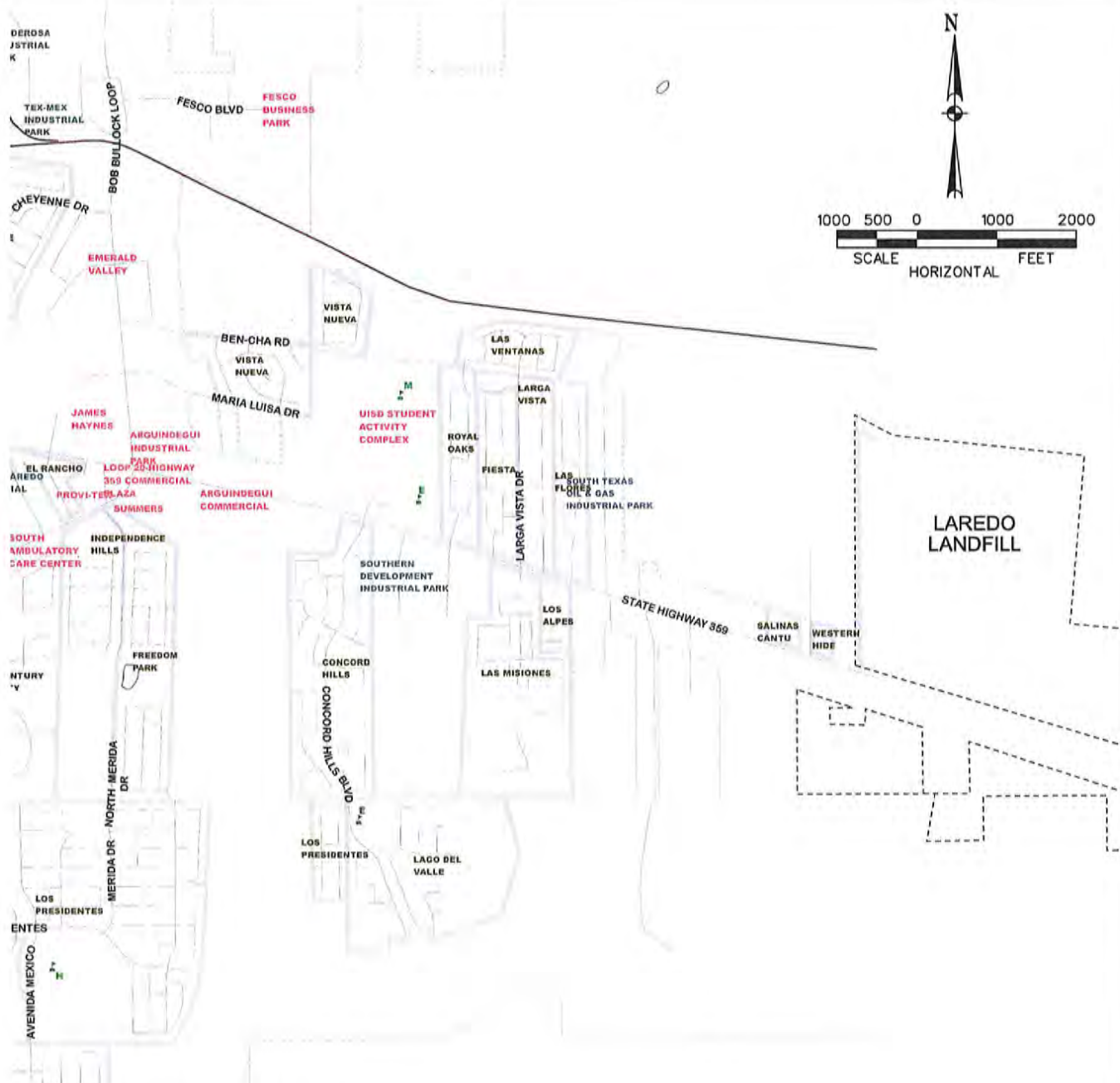


DES BY	
DRN BY	
CHK BY	
APP BY	

LAREDO  
POPULATION DENSITY  
FIGURE II-7.1

CITY OF LAREDO

SHEET	OF
FILE:	
ATTACHMENT:	
11-7	



## LAREDO, TEXAS

- Public Schools      ROADS  
 Railroad\_General      City Limits

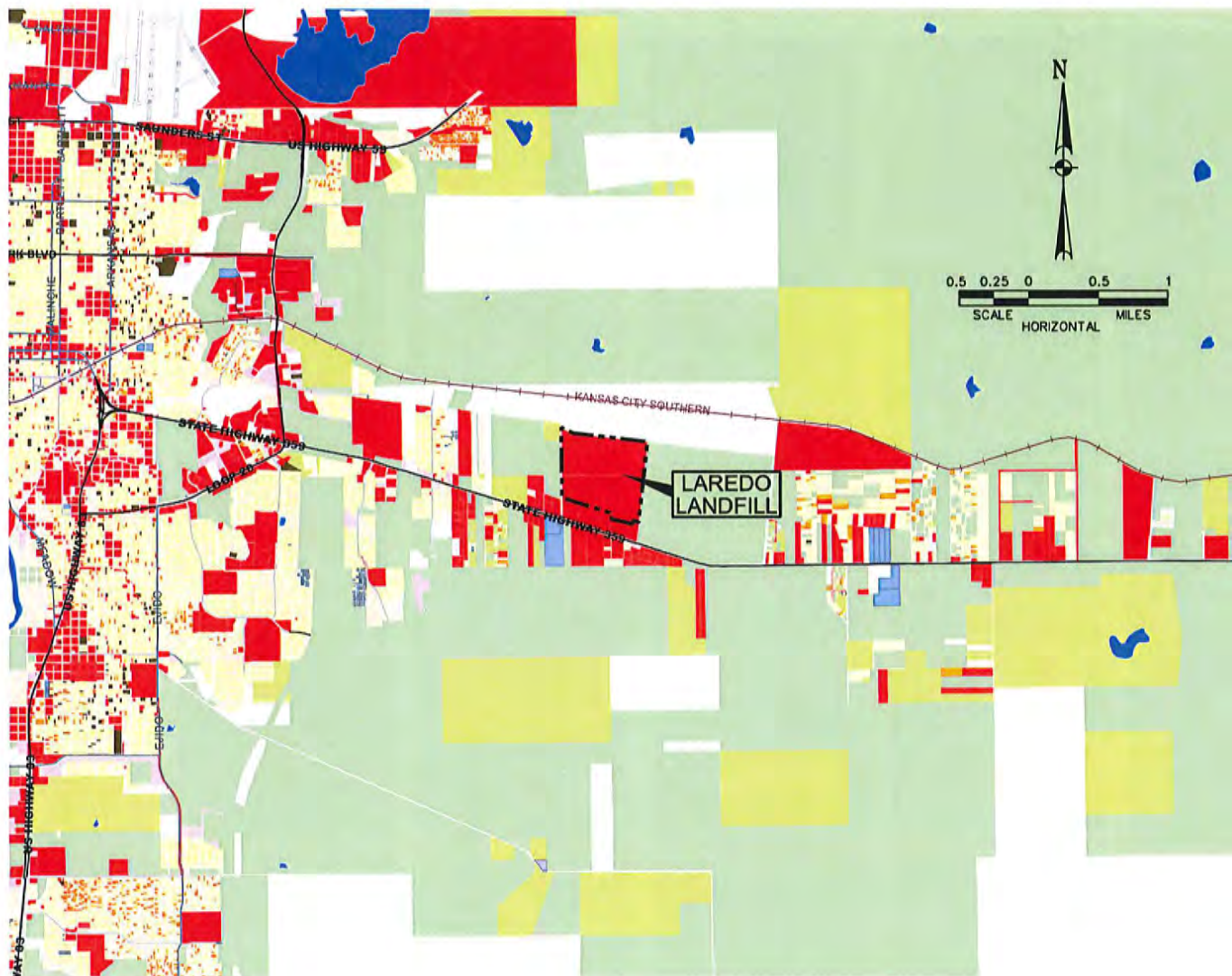
Red Label = Commercial Subdivisions  
 Brown Label = Residential Subdivisions  
 Blue Labels = Industrial Subdivisions

SOURCE: CITY OF LAREDO GIS DEPARTMENT

**AZ&B**  
 ARREDONDO, ZEPEDA & BRUNZ, LLC  
 TBP# FIRM REG. # F-10038  
 CIVIL • ENVIRONMENTAL • SURVEYING  
 CONSTRUCTION MANAGEMENT • MUNICIPAL

FOR PERMIT PURPOSES ONLY		REV	DATE	DESCRIPTION	DES BY	APP BY
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		AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
		DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
		DES BY		LAREDO SUBDIVISIONS FIGURE II-7.2		
DRN BY						
CHK BY						
APP BY						
CITY OF LAREDO				SHEET OF		
				FILE:		
				ATTACHMENT:		
				11-7		





### LEGEND

#### WebbCAD 2010

#### state\_cd

A1-SF RESIDENTIAL

A2- MOBILE HOME

A5- BLDG INCOMPLETE

B1- MULTIFAMILY

C1-VACANT RESIDENTIAL

C2- VACANT COMM & INDUST

C3- VACANT RURAL & RECREAT

D1- ACREAGE QUALIFIED

D2- ACREAGE NONQUALIFIED

E1- FARM/RANCH IMPROV

F1- COMMERCIAL

F2- INDUSTRIAL

J- GAS CO

J2

J3

J4

J5- RAILROAD

J7

M1

O1- REAL ESTATE INVEST

--- PERMIT BOUNDARY

**AZ&B**

ARREDONDO, ZEPEDA & BRUNZ, LLC  
TYPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

SOURCE: WEBB COUNTY APPRAISAL DISTRICT PROPERTY STATE CODES

FOR PERMIT  
PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY		LAREDO LAND USE MAP FIGURE II-7.3		
DRN BY				
CHK BY				
APP BY				

**CITY OF LAREDO**

SHEET OF  
FILE:  
ATTACHMENT:  
II-7





ID	Park Name	District
1	Parks and Recreation Main Office	3
2	Garcia Vela Little League	3
3	Andres Ramos Park	4
4	Elstetter Park	5
5	Farias Splash Park	7
6	Farias Recreation Center	7
7	Andrew Trautman Park	6
8	Las Brisas Park	5
9	Taylor Ball Park	4
10	Al King Little League Field	4
11	Inner City Park	4
12	Sanchez Ochoa Park	4
13	Cruz Little League Field	5
14	Katherine Taver Recreation Center	4
15	Albert Ochoa Park	5
16	Base Community Sports Complex	5
17	Canizales Park	1
18	Century City Park	1
19	Chaparral Park	1
20	Cigarroa Recreation Center	8
21	Circle Drive Park	8
22	Civic Center Auditorium/ Ballrooms	8
23	Civic Center Pool Complex	8
24	Dryden Park	2
25	East Hachar Recreation Center	3
26	Canizales Boxing Gym	3
27	Eastwoods Park	2
28	El Cuatro Park	1
29	El Eden	1
30	Freddy Benavides Sports Complex	1
31	George Washington Park	1
32	Jose Ortiz - Elida Valdez Park	1
33	La Ludrillera Senior Rec Center	7
34	Lafayette Street Park	8
35	Las Palmas Trail	7
36	Lilia Perez Senior Center	7
37	Loma Alta Park	8
38	Los Dos Laredo Park	8
39	M.E. Benavides Sports Complex	3
40	Market Street Tennis Courts	5
41	Northeast Hillside Recreation Center	5
42	Bias Castaneda Park	5
43	Three Points Park / Pool	3
44	Santa Fe Park	3
45	Toddler Park	4
46	Veterans/ West Martin Field	2
47	Villa del Sol Park	2
48	Bruni Plaza	8
49	Jarvis Plaza	8
50	San Agustin Plaza	8
51	El Mercado	8
52	St. Peter's Plaza	4
53	Dr. Cecilia Moreno Park	4
54	Jose "Pepe" Moreno Field	4
55	Scott St. Park	8
56	Seven Flags Park	8
57	Houston Park	8
58	Arteza Park	8
59	Mario Tijerina Park	1
60	Indian Sunset Muller Park	7
61	Robert DeLano Park	5
62	Thomas Pool & Pavilion	5
63	Thomas Tennis Courts	5
64	East Martin Field	8
65	El Paseo del Antiguo	8
66	Noon Lions Park	3
67	Santa Rita Park	3
68	San Ignacio Soccer Field	6
69	St. James Community Baseball Fields	6
70	Village Heights Park	6
71	North Central Park	6
72	San Isidro Park	6
73	Divine Mercy Park	6
74	Highland Park	6
75	Heritage Park	2
76	Cheyenne Park	1
77	Independence Hills Regional Park	3
78	Nature Quest Trail	3
79	Slaughter Park	6
80	Andrew Creek Park	1
81	Manasas Creek	1
82	Cielito Lindo Park	7
83	Tree Farm Nursery	7
84	Father McNaboe Sports Complex	3
85	Chacon Creek Hike & Bike	2
86	Las Misiones Park	2
87	Lago del Valle	2
88	Campo Real	7
89	Northwest Community Center	6
90	Summer Property	6
91	Shilo's Crossing	6
92	Haynes Health and Wellness Center	2
93	Chacon Creek Hike & Bike	2
94	Zacate Creek Linear Park	8
95	Anna St Park	7

Legend

Center\_Points

Pool Locations

boys\_and\_girls\_club

Center\_footprint

parks

Map Created by: Andres Castaneda  
GIS Division - Building Development Services  
Date: 06/13/2012

### ★ Recreation Centers

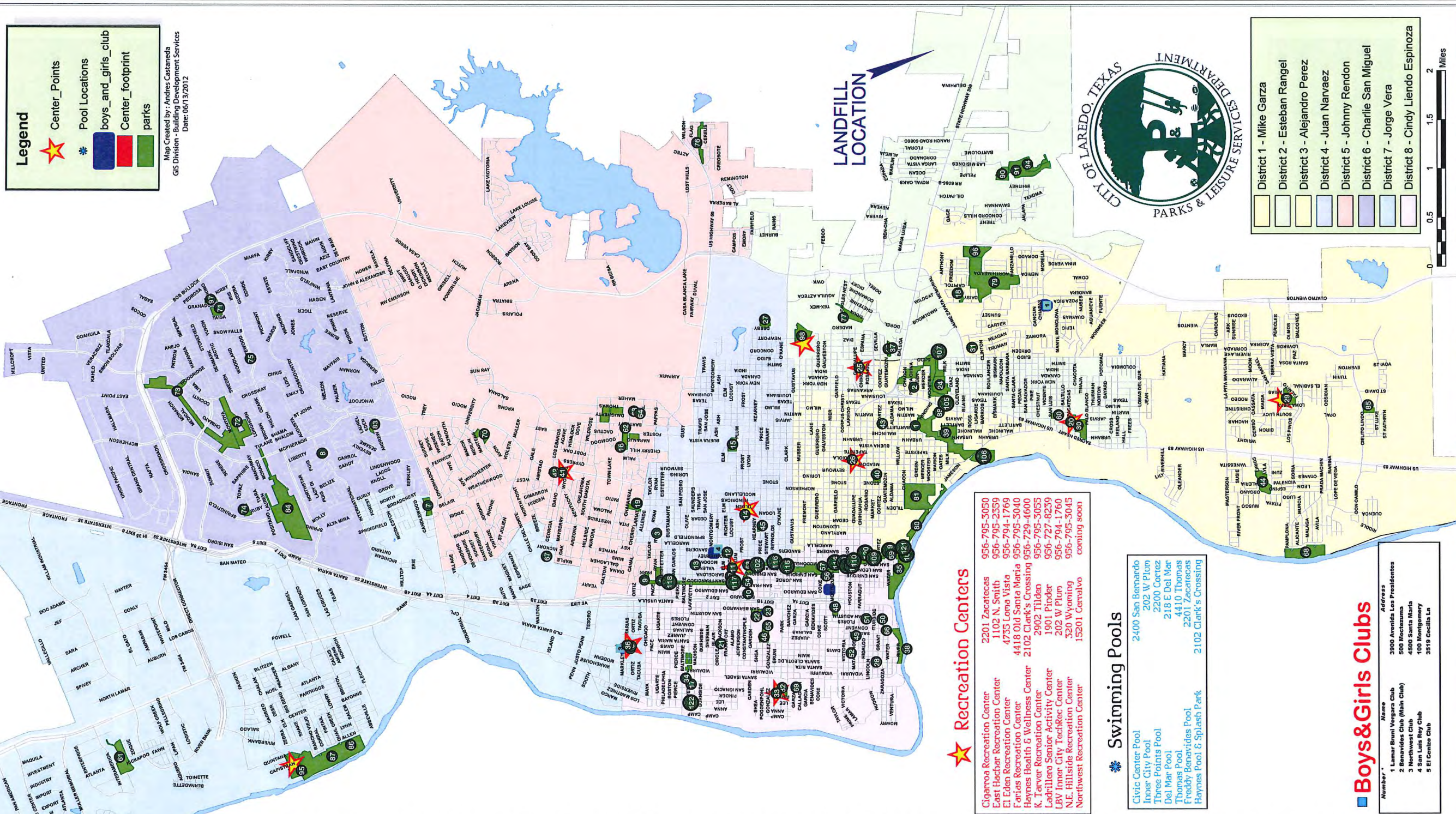
Cigarroa Recreation Center	956-795-3050
East Hachar Recreation Center	956-795-2359
El Eden Recreation Center	4735 Loma Vista
Farias Recreation Center	4418 Old Santa Maria
Haynes Health & Wellness Center	2102 Clark's Crossing
K. Tarver Recreation Center	2902 Tilden
Ladrillera Senior Activity Center	1901 Phider
LBV Inner City TechRec Center	202 W Plum
N.E. Hillside Recreation Center	320 Wyoming
Northwest Recreation Center	15201 Carnalvo

### ★ Swimming Pools

Civic Center Pool	2400 San Bernardo
Inner City Pool	202 W Plum
Three Points Pool	2200 Cortez
Del Mar Pool	218 E Del Mar
Thomas Pool	4410 Thomas
Freddy Benavides Pool	2201 Zacatecas
Haynes Pool & Splash Park	2102 Clark's Crossing

### ★ Boys & Girls Clubs

Number	Name	Address
1	Lamar Bruni Vengas Club	3900 Avenida Los Presidentes
2	Benavides Club (Main Club)	500 Mactezuma
3	Northwest Club	4500 Santa Maria
4	San Luis Rey Club	100 Montgomery
5	El Cenizo Club	3519 Cecilia Ln



CITY PROJ. NO. 212029  
AZB PROJ. NO. 212029  
DATE: AUGUST 2014

FOR PERMIT PURPOSES ONLY

LAREDO LANDFILL VERTICAL EXPANSION  
PERMIT AMENDMENT APPLICATION NO. MSW-1693B  
WEBB COUNTY, TEXAS

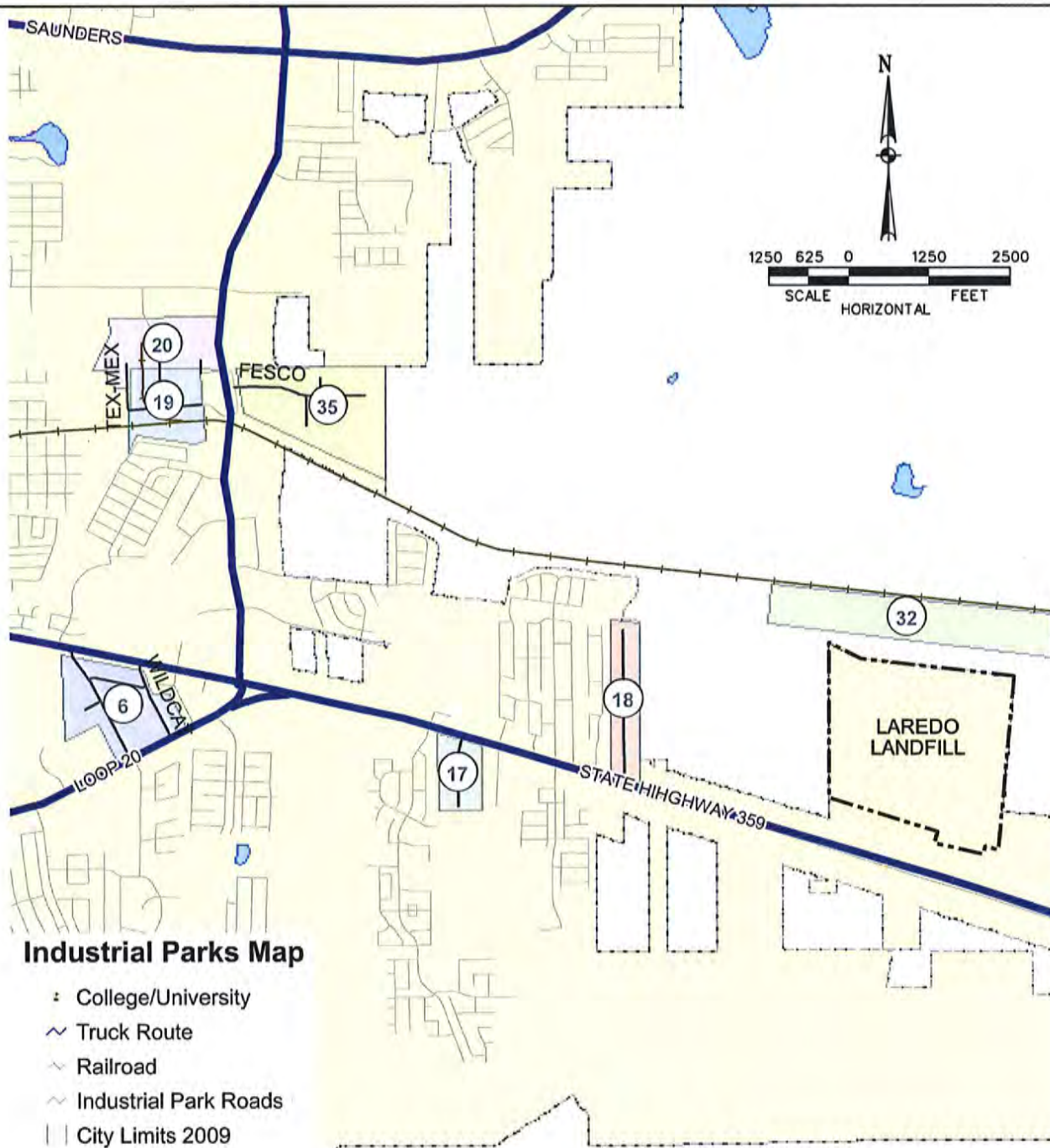
PARKS AND RECREATION  
CENTER LOCATIONS  
FIGURE 11-7.4

DES BY  
DRN BY  
CHK BY  
APP BY

CITY OF LAREDO

SHEET 11-7 OF 11-7





### Industrial Parks Map

- College/University
- ~ Truck Route
- ~ Railroad
- ~ Industrial Park Roads
- || City Limits 2009

MAP ID	NAME	CITY LIMITS	FTRADEZONE	ACRES
6	SOUTH LAREDO INDUSTRIAL PARK	Y	N	62
17	SOUTHERN DEVELOPMENT INDUSTRIAL PARK	Y	N	23
18	SOUTH TEXAS OIL & GAS INDUSTRIAL PARK	Y	N	34
19	TEX-MEX INDUSTRIAL PARK	Y	N	39
20	PONDEROSA INDUSTRIAL PARK	Y	N	48
32	TEX-MEX SWITCHING YARD	N	Y	87
35	FESCO BUSINESS PARK	Y	N	87

### LEGEND

--- PERMIT BOUNDARY

SOURCE: CITY OF LAREDO GIS DEPARTMENT, 2014

**AZ&B**

ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSP# FIRM REG. # F-10096  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

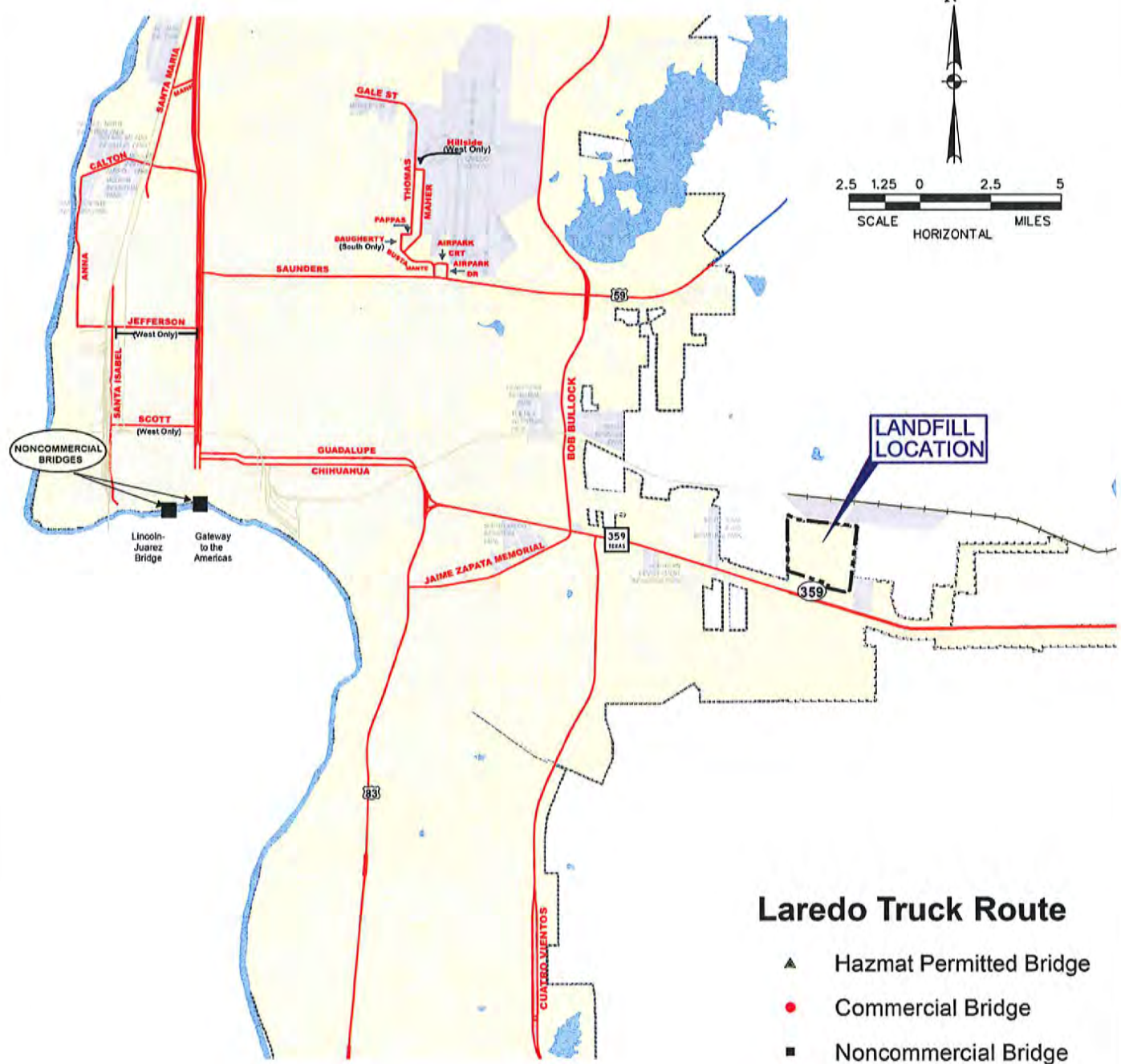
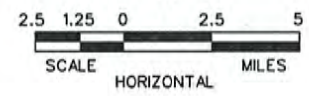
FOR PERMIT  
PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: AUGUST 2014		WEBB COUNTY, TEXAS		
DES BY		<b>LAREDO INDUSTRIAL PARKS FIGURE II-7.5</b>		
DRN BY				
CHK BY				
APP BY				

**CITY OF LAREDO**

SHEET OF  
FILE:  
ATTACHMENT:  
II-7





## Laredo Truck Route

- ▲ Hazmat Permitted Bridge
- Commercial Bridge
- Noncommercial Bridge
- City of Laredo Truck Route
- Permitted By State
- Industrial Parks
- City Limits

### LEGEND

--- PERMIT BOUNDARY

SOURCE: CITY OF LAREDO GIS DEPARTMENT, 2014

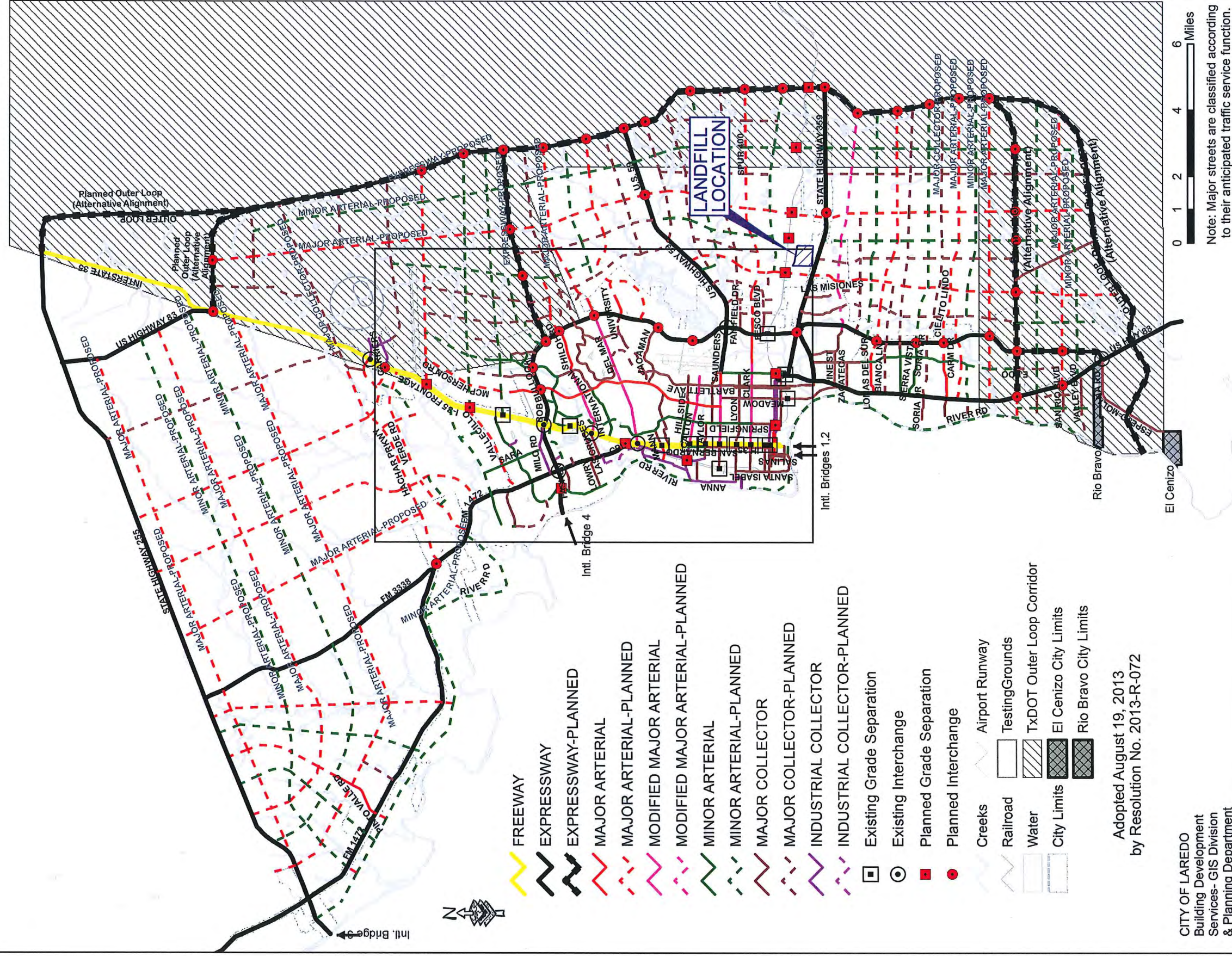


ARREDONDO, ZEPEDA & BRUNZ, LLC  
TBP# FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL  
SOURCE: U.S. CENSUS BUREAU

FOR PERMIT PURPOSES ONLY	CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
	AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION No. MSW-1693B
	DATE: AUGUST 2014	WEBB COUNTY, TEXAS
	DES BY	LAREDO TRUCK ROUTE MAP FIGURE 11-7.6
	DRN BY	
	CHK BY	
	APP BY	CITY OF LAREDO
		SHEET OF
		FILE:
		ATTACHMENT:
		11-7



# Long Range Thoroughfare Plan- Laredo, Texas Transportation Element of the Comprehensive Plan Handbook



## **Policy-Cross-Sections**

[illegible]

FOR PERMIT PURPOSES ONLY

CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
AZB PROJ. NO. 212029	PERMIT AMENDMENT APPLICATION NO. MSW-1693B
DATE: AUGUST 2014	WEBB COUNTY, TEXAS
DES BY	LONG RANGE
DRN BY	THOROUGHFARE PLAN
CHK BY	FIGURE 11-7.7
APP BY	

LONG RANGE  
THOROUGHFARE PLAN  
FIGURE 11-7.7

**AZ&B**

**ARREDONDO, ZEPEDA & BRUNZ, LLC**  
 TBE FIRM REG. # F-10098  
 CIVIL • ENVIRONMENTAL • SURVEYING  
 CONSTRUCTION MANAGEMENT • MUNICIPAL

CITY OF LAREDO

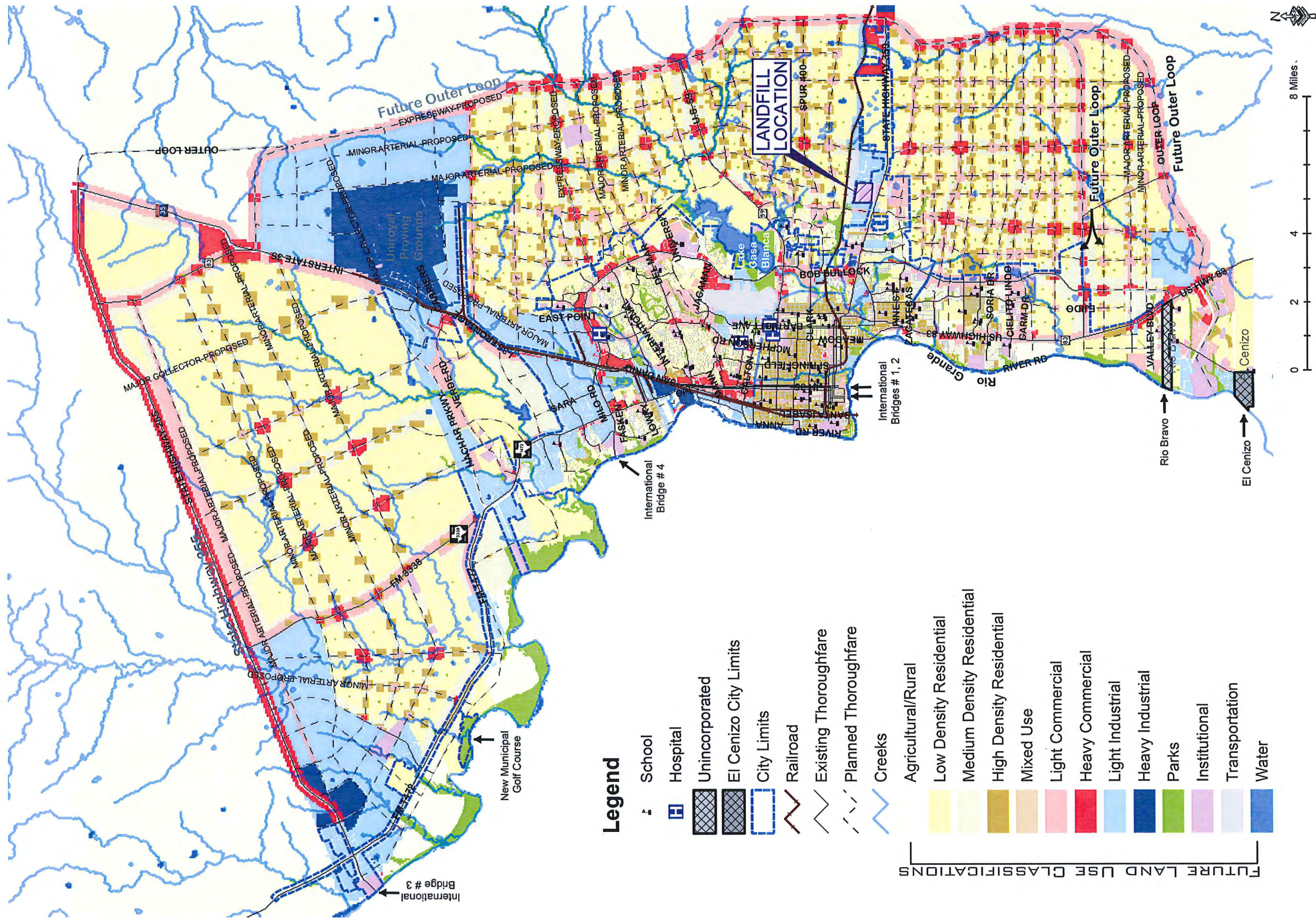
SHEET	OF
FILE:	
ATTACHMENT:	11-7



# FUTURE LAND USE PLAN- LAREDO, TEXAS

Land Use Element of the Comprehensive Plan Handbook

Adopted August 19, 2013 as per Resolution 2013-R-072.

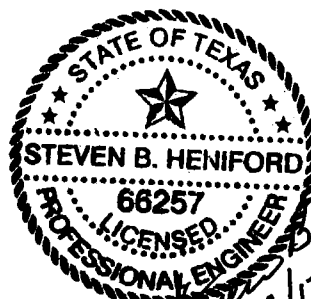


FOR PERMIT PURPOSES ONLY	CITY PROJ. No.	LAREDO LANDFILL VERTICAL EXPANSION
	AZB PROJ. No. 212029	PERMIT AMENDMENT APPLICATION NO. MSW-1693B
	DATE: AUGUST 2014	WEBB COUNTY, TEXAS
	DES BY	
FUTURE LAND USE PLAN FIGURE II-7.8	DRN BY	
	CHK BY	
	APP BY	
CITY OF LAREDO		
SHEET 11-7 OF 11-7		



**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 8  
Transportation Information**



TX F-10098

*Heniford*  
9/17/14



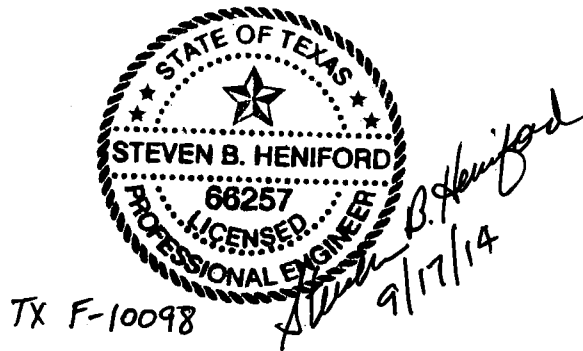
**LAREDO LANDFILL  
PART II  
Attachment 8  
Transportation Information**

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Letter to TxDOT Regarding Permit Amendment (06/21/2013)

Letter from TxDOT Regarding Permit Amendment (07/03/2013)





Arredondo, Zepeda & Brunz, LLC

11355 McCree Road  
Dallas, Texas 75238

*PART II - Correspondence*

June 21, 2013

Ms. Melisa Montemayor  
District Administrator  
TxDOT, Laredo District  
1817 Bob Bullock Loop  
Laredo, Texas 78043

Ms. Montemayor:

The City of Laredo is currently preparing a permit amendment for its municipal solid waste landfill, located on State Highway 359, 2.5 miles east of downtown Laredo. The permit amendment is intended to increase the height of the landfill and add approximately 3.5 acres south of the existing permit boundary. The landfill has been operating at this location since 1986. The Texas Commission on Environmental Quality (TCEQ) requires that the City notify TxDOT of our proposed amendment and seek your comments specifically related to transportation issues.

This letter is being sent to your attention to obtain review and or direction from your agency and to fulfill the TCEQ requirement of coordination with TxDOT. Please forward this submittal to any appropriate persons within your office as required. The landfill was previously amended in 1999. Correspondence with TxDOT took place at that time and a copy of the letter from TxDOT is included with this submission.

General Landfill Information:

The landfill accepts 1000 to 1300 tons per day of municipal solid waste. The 1999 permit amendment had a total of 312 vehicles entering the facility per day, including all pickups and residential traffic. For the TCEQ fiscal year from 9/1/2011 to 8/31/2012, the average number of vehicles entering the landfill was 355 customers (vehicles) per day open. This included vehicles ranging from semi-trailers to pick-up trucks (Source: City of Laredo). Other traffic associated with the site includes maintenance vehicles, 125 employee autos, 20 material recovery facility employee vehicles, and 25 trucks associated with brush delivery and recycling.

The entrance road includes two paved incoming lanes and one paved exit lane. A separate entrance is maintained west of the Landfill entrance for City of Laredo staff and is primarily used for the solid waste collection fleet when they are not transporting waste to the Landfill. Both entrances are secured with lockable gates.

The primary route for solid waste vehicles to access the site is SH 359, which is a designated City of Laredo Truck Route. This is a five lane asphalt road that includes a left turn lane into the landfill's entrance road. According to TxDOT Highway Traffic Maps for 2010, the estimated total vehicles using SH 359 is 12,400 vehicles per day (295 solid waste vehicles +355 incidental traffic+170 various

civil      ■      municipal      ■      surveying      ■      planning

(214) 341-9900 • Fax (214) 341-9925



Arredondo, Zepeda & Brunz, LLC

11355 McCree Road  
Dallas, Texas 75238

employee and facility vehicles/12400=6.6 %). Landfill traffic therefore accounts for less than seven percent of total traffic on SH 359. Future landfill traffic is anticipated to increase at the same rate as population increases in the region. Figure 2 illustrates traffic volumes at and near the landfill (Source: TxDOT Highway Maps for 2010 – Webb County).

Any data your office can provide related to future improvements or changes to SH 359 would be appreciated.

Enclosed are two figures which show the general site location and traffic data at this location as prepared by TxDOT.

Please forward a response to this letter with your comments. If you have any questions or comments, feel free to contact me at 214 341-9900.

Sincerely,

Michael E. Carleton  
Project Manager

cc: Mr. Steve Geiss, Laredo Solid Waste Manager  
enc: Drawings and previous correspondence

civil

municipal

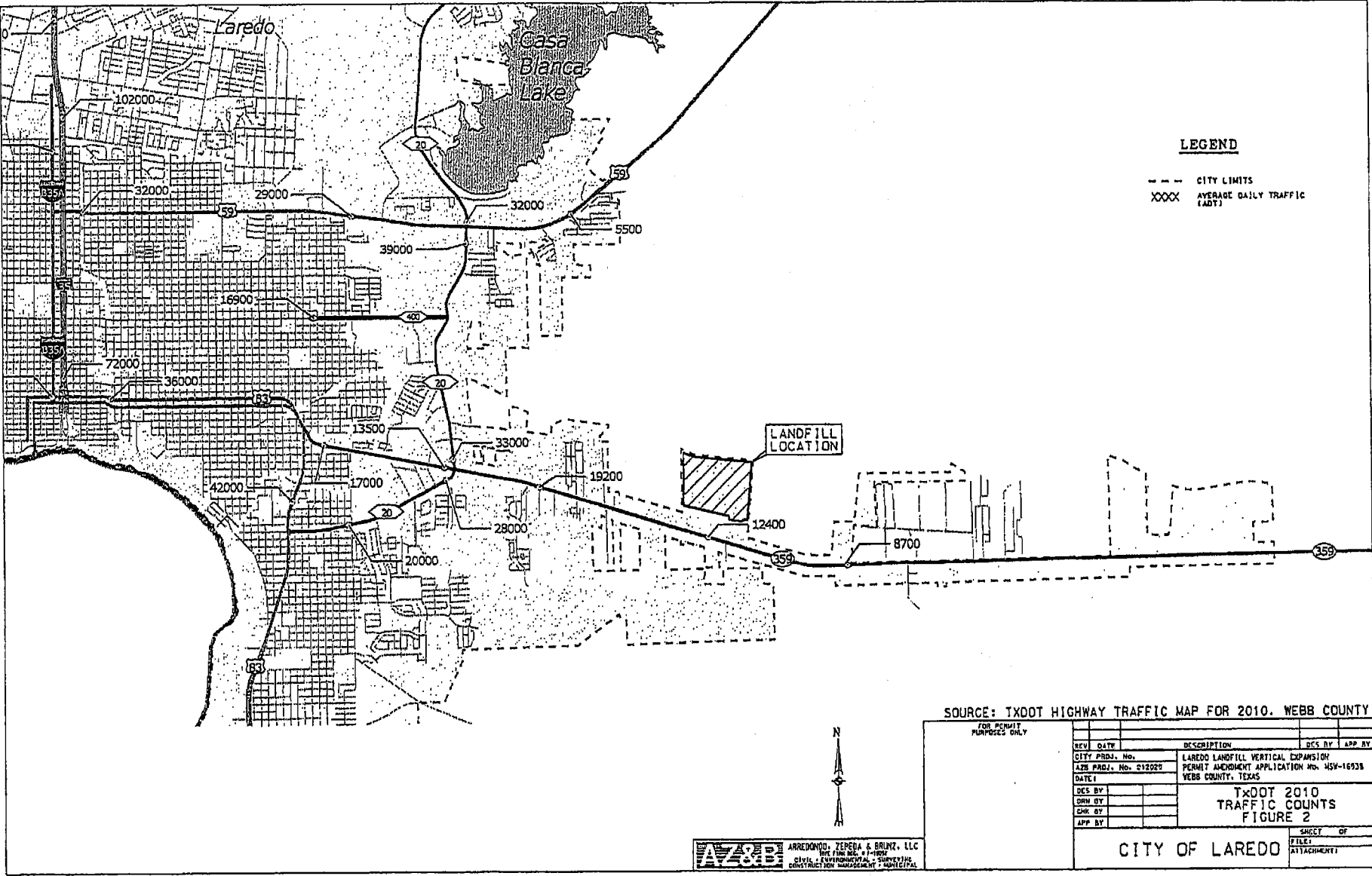
surveying

planning

(214) 341-9900 • Fax (214) 341-9925









# **Texas Department of Transportation®**

1817 BOB BULLOCK LOOP • LAREDO, TX 78043 • (956) 712-7400 FAX (956) 712-7401

July 3, 2013

Michael Carleton – Project Manager  
Arredondo, Zepeda and Brunz, LLC  
11355 McCree Road  
Dallas, Texas 75238

Re: City of Laredo Landfill Expansion Request for Comments or Additional Information

Dear Mr. Carleton,

Thank you for your June 21, 2013 letter concerning the expansion and raising of the City of Laredo landfill located on SH 359. At this time, we have no additional information to provide you concerning the roadways leading to the landfill including on SH 359. Any work currently proposed to SH 359 is anticipated to consist of normal pavement maintenance projects. In addition, we have no comments on the proposed expansion of the landfill.

If we can be of help to the City of Laredo as it relates to the roadways or entrance leading into the Laredo landfill, please feel free to contact me at (956) 712-7456 or Carlos Rodriguez, P.E., our Laredo Area Engineer at (956) 712-7701.

Sincerely,

Melisa D. Montemayor  
Laredo District Administrator

MDM:mwg

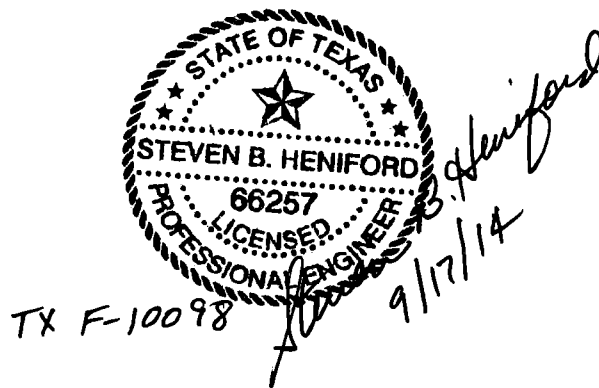
#### OUR GOALS

MAINTAIN A SAFE SYSTEM • ADDRESS CONGESTION • CONNECT TEXAS COMMUNITIES • BEST IN CLASS STATE AGENCY

*An Equal Opportunity Employer*

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 9  
Airport Location Restrictions**



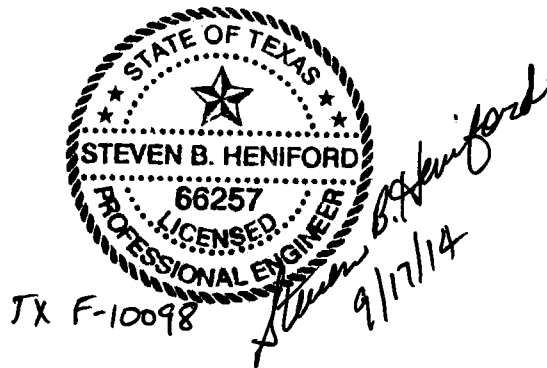
**LAREDO LANDFILL  
PART II  
Attachment 9  
Airport Location Restrictions**

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Response from FAA to Arredondo, Zepeda & Brunz LLC (12/30/2013)







Arredondo, Zepeda & Brunz, LLC

11355 McCree Road  
Dallas, Texas 75238

September 3, 2013

William Mitchell  
Federal Aviation Administration  
Southwest Region  
2601 Meacham Boulevard  
Fort Worth, TX 76137

Dear Mr. Mitchell:

The City of Laredo is submitting a permit amendment to the Texas Commission on Environmental Quality (TCEQ) for its municipal solid waste landfill. The landfill is located at 6912 Hwy 359 and has been in operation since 1986. The City is required to notify the FAA and request approval/comments regarding the permit amendment as the Landfill is within 6 miles of the City of Laredo International Airport. The permit amendment is intended to expand the facility by filling in areas that were previously used for a natural gas pipeline. The pipeline has since been abandoned. The height of the landfill is proposed to be increased from 640.5' to 664' on the west side and from 637' feet to 652' on the east side. In addition, the City will be adding 3.5 acres of land to the south of the current permitted area to relocate a leachate storage tank and a used tire storage area.

The Laredo International Airport (owned by the City of Laredo) is located 18,000 feet to the northwest of the Landfill boundary (Figure 1). Figures 2 and 3 illustrate cross sections showing the currently permitted height and the proposed height of the Landfill.

The City is requesting a letter of approval from the FAA stating the Landfill does not pose a safety concern for the Laredo International Airport. No other publicly owned airports are located within 6 miles of the Landfill.

If you should have any questions or comments, feel free to contact me at 214 341-9900. Thank you for your assistance.

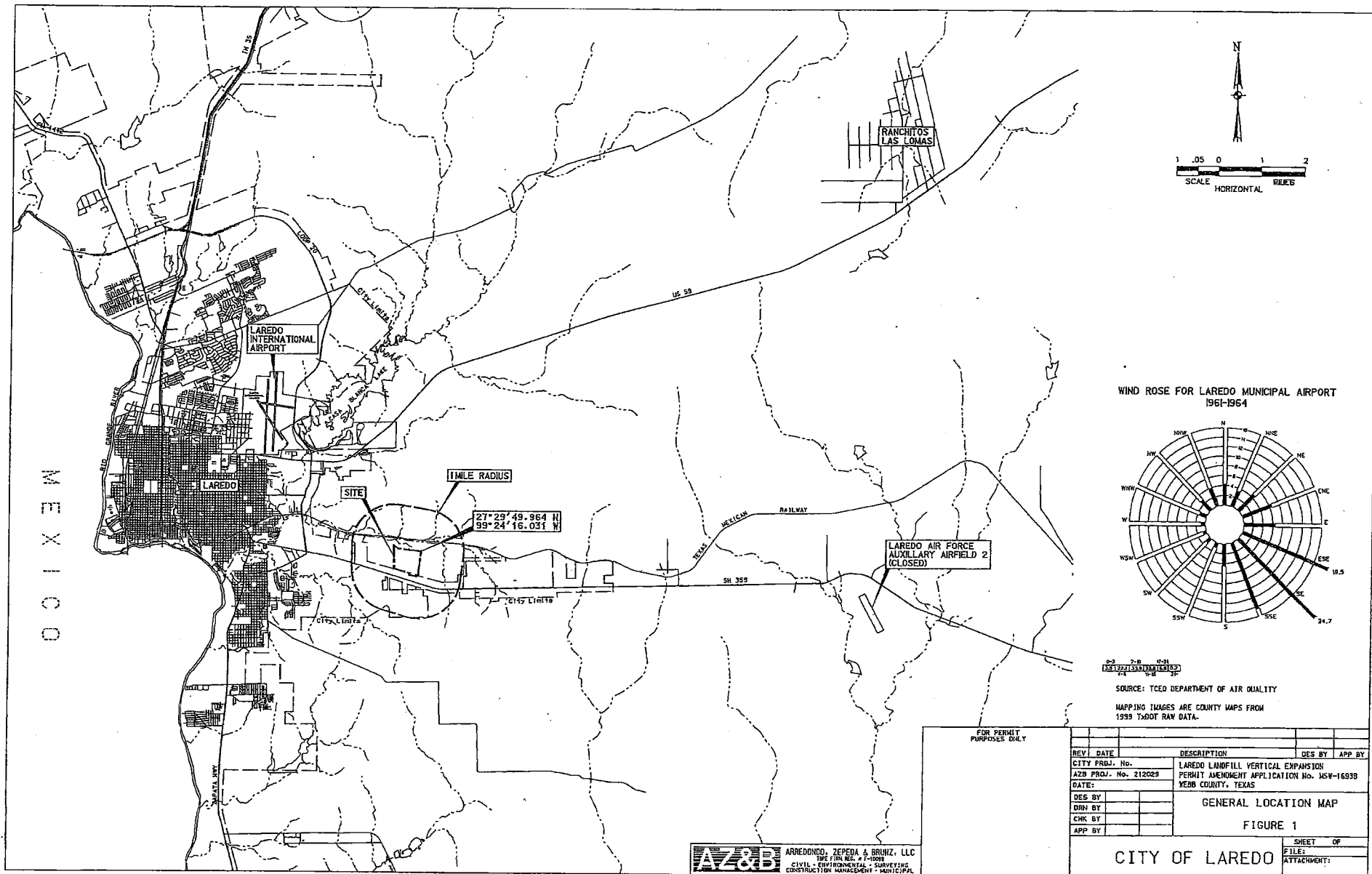
Sincerely,

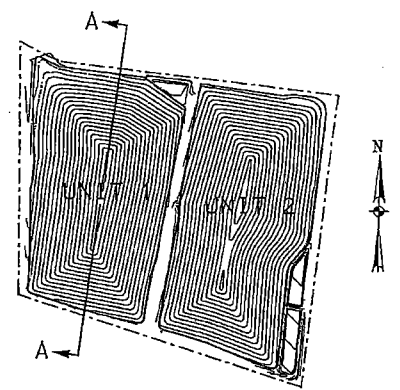
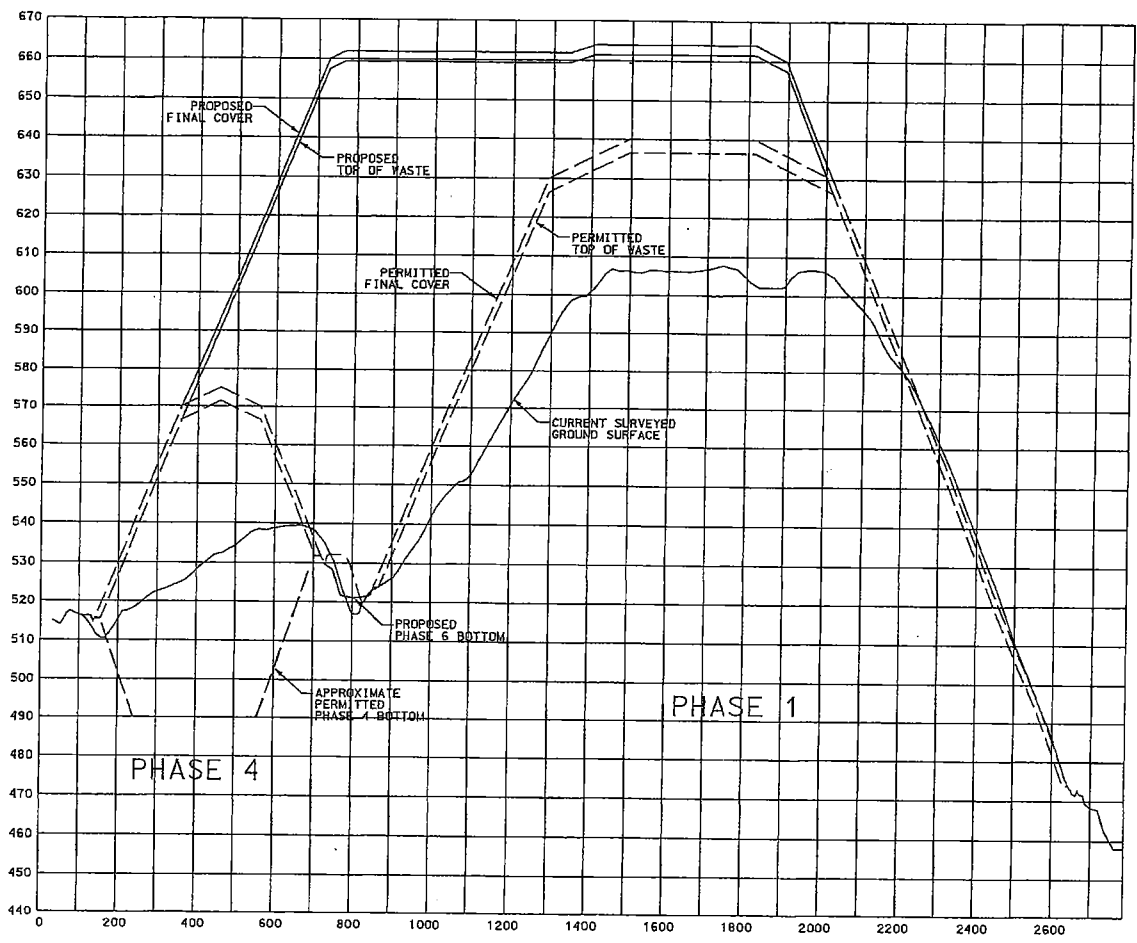
Michael E. Carleton  
Project Manager

cc. Steve Geiss, City of Laredo Solid Waste Manager  
enc. Location Map and Elevations

civil    ◦    structural    ◦    municipal    ◦    surveying    ◦    planning

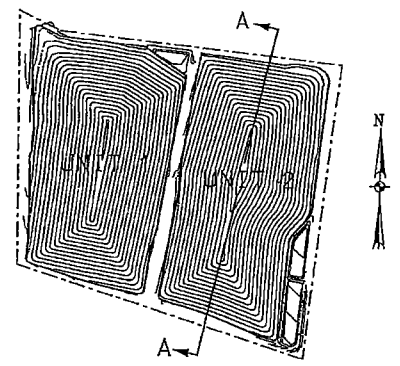
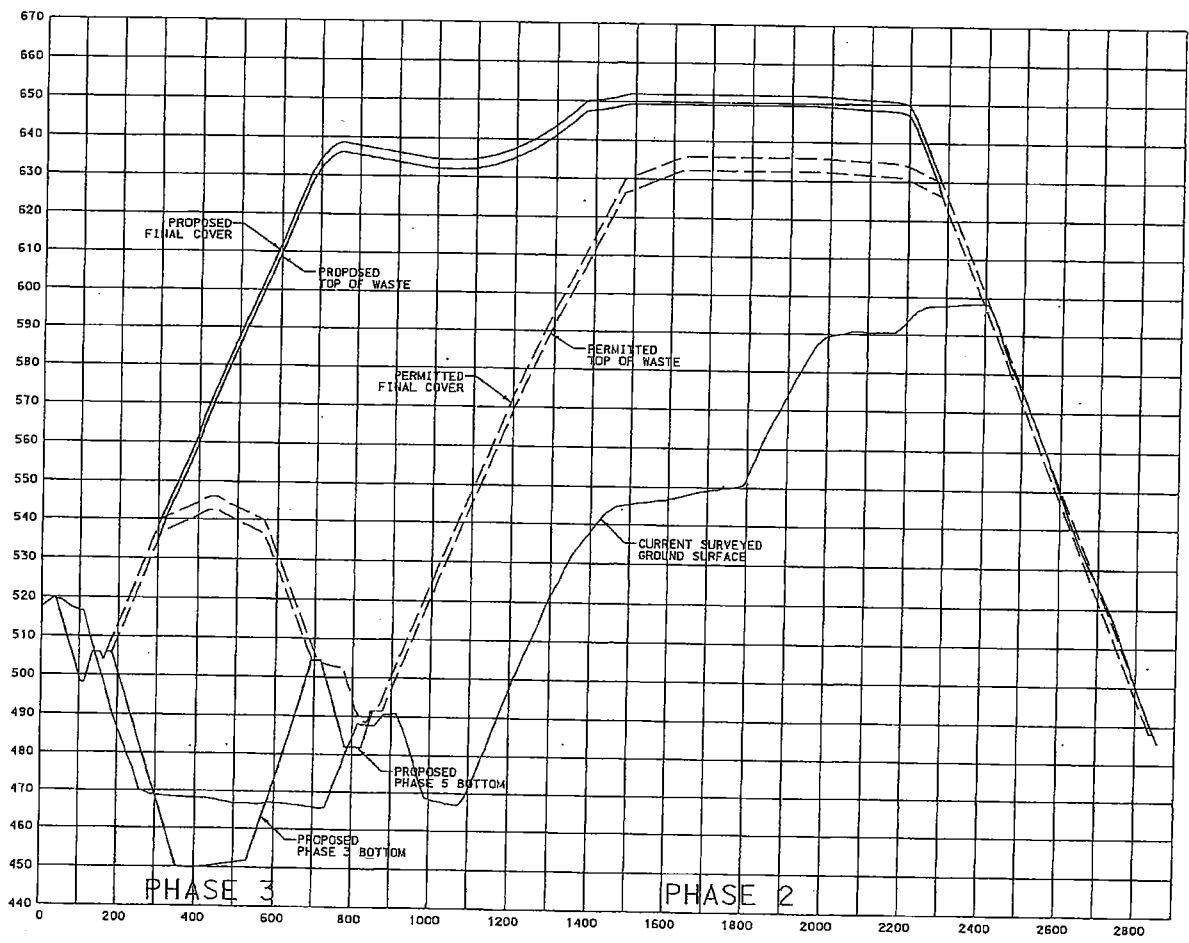
(214) 341-9900 • Fax (214) 341-9925





FOR PERMIT PURPOSES ONLY			
REV	DATE	DESCRIPTION	DES BY APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION	
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSY-1693B	
DATE:		WEBB COUNTY, TEXAS	
DES BY		FIGURE 2	
DRN BY		PROPOSED UNIT 1	
CHK BY		CROSS SECTION	
APP BY			
CITY OF LAREDO		SHEET OF	
		FILE:	
		ATTACHMENT:	
		XXX	

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
1911 FIVE STAR BLVD., SUITE 100  
CIVIL - ENVIRONMENTAL - SURVEYING  
CONSTRUCTION MANAGEMENT - MUNICIPAL



FOR PERMIT PURPOSES ONLY				
REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No.	212029	PERMIT AMENDMENT APPLICATION No. MSW-16938		
DATE:		WEBB COUNTY, TEXAS		
DES BY		<b>FIGURE 3 PROPOSED UNIT 2 CROSS SECTION</b>		
DRN BY				
CHK BY				
APP BY				
CITY OF LAREDO		SHEET OF FILE: ATTACHMENT: XXX		

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TWO FOUR EIGHT FOUR P ZERO  
CIVIL - ENVIRONMENTAL - SURVEYING  
CONSTRUCTION MANAGEMENT - MUNICIPAL





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Federal Aviation Administration  
Southwest Region, Airports Division  
Safety and Standards Branch

2601 Meacham Boulevard  
Fort Worth, Texas 76137

December 30, 2013

Mr. Michael E. Carleton  
Project Manager  
Arredondo, Zepeda & Brunz, LLC  
1135 McCree Road  
Dallas, TX 75238

Subject: City of Laredo, Texas  
Type I Municipal Solid Waste Landfill  
Permit Amendment Application No. 1149B

FAA File No. 85-016-TX

Dear Mr. Carleton:

This letter is in response to your June 21, 2013 notice of the City of Laredo's permit amendment application for their municipal solid waste landfill. The permit amendment is being submitted for the expansion the facility by filling areas that were previously used for a natural gas pipeline. The height of the landfill is to be increased from 640.5' to 664' on the west side and from 637' to 652' on the east side.

Using coordinates of 29 23' 13.79"N and 95 03' 21.90"W, representing the northwest corner of the facility, we determined that the Laredo International Airport is the only public use airport located within our 5 mile review criteria. The landfill appears to be located approximately 19,083 ft/3.614 miles southwest of the threshold for Runway 32, Laredo International Airport.

We have no objection to the revised permit application from a wildlife hazard standpoint provided the permit requires the City of Laredo Texas to initiate a wildlife control plan. The wildlife control should require the facility to be properly supervised to assure that bird populations are not increasing, and that appropriate wildlife hazard control procedures are being followed. Any increases in bird activity that might be hazardous to safe aircraft operations should result in prompt mitigation actions and/or closure of the facility.

Our position of no objection is based on the application of our guidance for hazardous wildlife attractants on or near airports FAA Advisory Circular 150/5200-33B, the results of our review and evaluation of the national wildlife strike data base, the results of the Airport Wildlife Hazard Assessment (WHA) and topographical information concerning the locations of water and other related conditions.

The national wildlife strike database indicates that there were only 24 wildlife strikes since 2008. Ten wildlife strikes were related to Runway 17L, three were related to Runway 17R,

and two to Runway 35R. The rest of the wildlife strikes were not related to a particular runway. The WHA did not indicate that there were wildlife issue related to the existing landfill and there is no data indicating that there were any wildlife incidents related to Lake Casa Blanca and the City of Laredo Landfill.

A copy of the application has been forwarded to Mr. Chris Shoulders, FAA Obstruction Evaluation Group Supervisor, for their review and comments concerning potential obstruction to air navigation based on the proposed elevation of the facility.

This site has been assigned our file No. 85-016-TX. Please refer to this number in any future correspondence regarding this site. Thank you for coordinating this project with us. If there are any questions, you can contact me at 817-222-5621 or [bill.mitchell@faa.gov](mailto:bill.mitchell@faa.gov).

Sincerely,

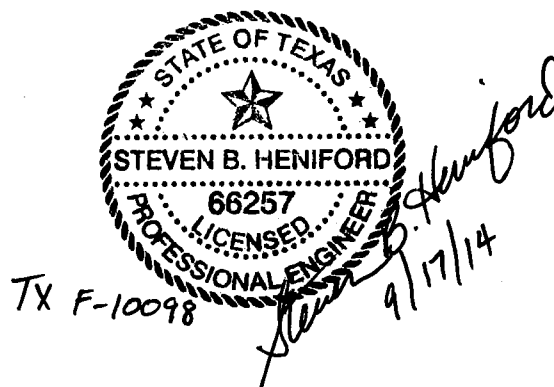
William Mitchell  
Lead Airport Certification Safety Inspector  
Airports Division

cc:  
Texas Department of Transportation  
Division of Aviation  
125 East 11th Street  
Austin, TX 78701-2483

ASW-650, AJV-15

**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 10**  
**Local Geology Report**

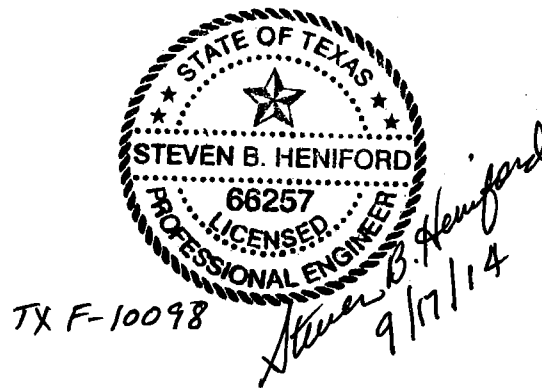


**LAREDO LANDFILL  
PART II  
Attachment 10  
Local Geology Report**

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**List of Attachments**

Final Report- Groundwater Characterization Study





581

**FINAL REPORT  
GROUNDWATER CHARACTERIZATION STUDY  
City of Laredo Landfill  
Webb County, Texas  
MSW Permit No. 1693**

Prepared for:

**CITY OF LAREDO  
Webb County, Texas**

  
\_\_\_\_\_  
David Wierch  
Project Manager

  
\_\_\_\_\_  
Mark P. Hemingway  
Senior Technical Review

Prepared by:

**HUNTINGDON ENGINEERING & ENVIRONMENTAL  
4150-B Freidrich Lane  
Austin, Texas 78744**

October 1994

ESW11993-LAREDO193-1481940902RE.DW

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- Figure 4 - Groundwater Elevation Contour Map (March 29, 1994)
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- Appendix B - Precipitation and Groundwater Elevation Data
- Appendix C - Slug Test Results and Calculation Worksheets

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## 1.0 INTRODUCTION

Huntingdon Engineering & Environmental/SWL Environmental Services (Huntingdon)\* was contracted by the City of Laredo to perform a groundwater characterization study at the City of Laredo Landfill (Municipal Solid Waste [MSW] Permit No. 1693) located in Webb County, Texas. The location of the site is indicated on Figure 1. The scope of work for the groundwater characterization study was defined in the workplan prepared by Huntingdon and approved by the Texas Natural Resource Conservation Commission (TNRCC) in October, 1993. In brief, the scope of work included piezometer installation and development, water level measurements, slug tests, data evaluation, and report preparation.

A preliminary report was prepared by Huntingdon in March, 1994 which discussed the field activities performed, and presented the initial water level data and slug test results. In addition to summarizing what was presented in the preliminary report, this final report presents all of the data collected during the six-month water level monitoring period. These data include depth to groundwater measurements and groundwater elevations, rainfall data, and a discussion of the regional geology and hydrogeology. The final report also includes recommendations on the number and locations of monitoring wells required for future site groundwater monitoring.

---

SWL has been a wholly-owned holding of Huntingdon since 1990. The name change from Southwestern Laboratories/SWL Environmental Services to Huntingdon will be complete by the end of calendar year 1994.

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Page 1

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584

Bruni  
Tank

SITE LOCATION

PIPELINE

S.H. 359

575

524

N

0 500 1000 2000  
(SCALE IN FEET)

BASE SOURCE MAP:  
U.S.G.S 7.5 MIN.  
LAREDO SOUTH &  
LAREDO EAST  
QUADRANGLES

SITE LOCATION  
MAP

CITY OF LAREDO LANDFILL  
CITY OF LAREDO  
LAREDO, TEXAS

**Huntingdon**

Huntingdon Engineering  
&  
Environmental, Inc.

REFERENCE NO: 506593-148

DRAWING NO: 93148300

DATE ISSUED: 08-18-1994

FIGURE NO.

1



**TABLE 1**  
**WATER-BEARING CHARACTERISTICS OF THE WILCOX AND CLAIBORNE GROUPS**  
City of Laredo Landfill  
Webb County, Texas

585

SYSTEM	SERIES	GROUP	GEOLOGIC UNIT		APPROXIMATE THICKNESS (ft)		CHARACTER OF ROCKS		WATER-BEARING PROPERTIES	
Tertiary	Eocene	Claiborne	Yegua Formation		700 - 1,000 +		Clay, silt with interbedded thin lignites and sandstones. Some minor beds of limestone and oyster shells are found.		Yields small quantities of slightly to moderately saline water to wells in the outcrop area.	
			Laredo Formation	Cook Mountain Formation	600 - 700	400 - 500	Glaucconitic sand and clay. Some gypsiferous clay and impure limestones.	Fossiliferous clay and shale. Some interbedded sandstone and limestone.	Yields small to moderate quantities of fresh to moderately saline water to wells	Yields small quantities of slightly to moderately saline water to wells.
				Sparta Sand		40 - 200		Medium to fine sand. Some interbedded clay.		Yields small to moderate quantities of fresh to moderately saline water to wells.
			El Pico Clay	Weches Formation	700 - 1,500	50 - 200	Clay with interbedded sandstones, claystones, and lignite coal lenses.	Fossiliferous, glauconitic shale and sand.	Yields small to moderate quantities of fresh to very saline water to wells.	Not known to yield water to wells.
				Queen City Sand		500 - 1,400		Marine, medium to fine sand with interbedded clay and shale.		Yields small to moderate quantities of fresh to slightly saline water to wells.
			Bigford Formation	Reklaw Formation	200 - 900	200 - 400	Sands with interbedded silts and shales. Plant remains are abundant.	Clay with interbedded glauconitic sand.	Yields small to moderate quantities of fresh to very saline water to wells.	Yields small quantities of slightly to moderately saline water to wells in or near the outcrop.
			Carrizo Sand		150 - 1,200		Coarse to fine sand, massive, crossbedded with a few partings of carbonaceous clay.		Principal aquifer in the area. Yields moderate to large quantities of fresh to slightly saline water to wells.	
			Wilcox		0 - 2,800		Interbedded sand, clay, and silt with discontinuous beds of lignite. The shale and clay sometimes contain gypsum.		Yields small to moderate quantities of fresh to slightly saline water to wells in the northern and western parts of the area.	

Source: Modified from Texas Water Development Board Report 210, Page 5.

## 2.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

### 2.1 Physiography, Topography, and Climate

The landfill site is located approximately 2.5 miles east of the City of Laredo, in southwestern Webb County, Texas. The topography of the area is relatively flat to undulating, with rolling hills present in a few locations. The principal drainage is the Rio Grande, which forms the southern boundary of Webb County, and flows southeastward into the Gulf of Mexico.

The climate of Webb County is characterized by long, hot summers and winters which are cool and fairly short. An average annual precipitation of 20.14 inches was recorded at the City of Laredo for the period from 1951 through 1980 (Bomar, 1983).

### 2.2 Stratigraphy

The geologic formations which crop out in Webb County range in age from Eocene to Holocene. Figure 2 is a geologic map of the area. In Webb County, the geologic formations crop out in belts that roughly parallel the Gulf Coast, with younger strata closer to the coast (east) and older ones further inland (west). Table 1 details the stratigraphy and water-bearing properties of the rock units that occur in the area.

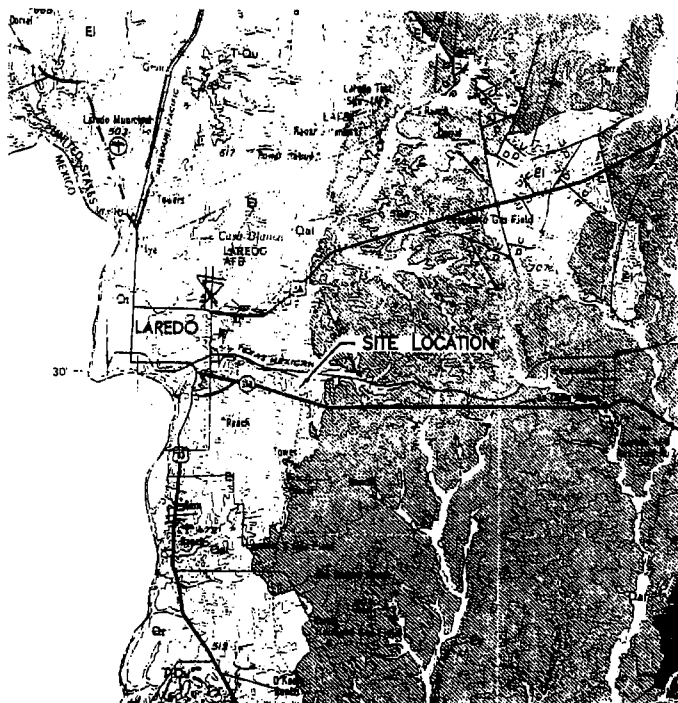
As shown on Figure 2, the site is situated on the outcrop of the Laredo Formation. This formation is composed mostly of sandstones and clays. The sandstones are described as being, in part, glauconitic, micaceous, ferruginous, cross bedded, and red and brown in color. The clays weather orange-yellow and contain abundant marine fossils. The thickness of the Laredo Formation in the vicinity of the site is approximately 620 feet (Bureau of Economic Geology, 1976). Underlying the Laredo Formation, from youngest to oldest, are the El Pico Clay, Bigford Formation, Carrizo Sand, and Wilcox Group, all of Eocene age. These formations crop out in northwest Webb County.

### 2.3 Hydrogeology

The Carrizo Sand Formation is the most important water-bearing unit in the northern half of Webb County. The Carrizo Sand Formation and the underlying Wilcox Group comprise the

Carrizo-Wilcox Aquifer. This is one of the most extensive aquifers in Texas, furnishing water to wells in a wide belt extending from the Rio Grande across the Arkansas and Louisiana borders (Texas Water Commission, 1989). However, in the southern portion of Webb County, the water quality of the Carrizo-Wilcox aquifer is poor, and it is not an important source of drinking water. The Laredo Formation provides small quantities of fresh to slightly saline water to wells in the vicinity of Laredo as well as in the central portion of Webb County (Texas Water Development Board, 1977).

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Recent (Holocene)

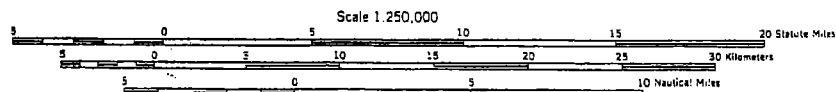
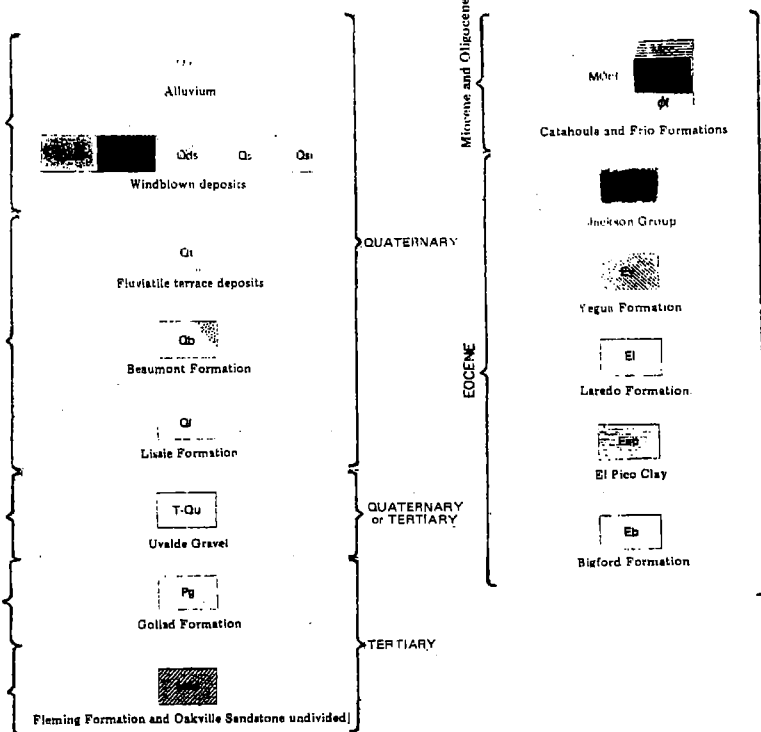
Pleistocene

Pleistocene or Pliocene

Pliocene

Miocene

# EXPLANATION SEDIMENTARY ROCKS



CONTOUR INTERVAL 50 FEET  
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

N

BASE SOURCE MAP:  
GEOLOGIC ATLAS OF TEXAS  
LAREDO SHEET, REVISED 1976

REGIONAL GEOLOGIC MAP	
CITY OF LAREDO LANDFILL CITY OF LAREDO LAREDO, TEXAS	
<b>Huntingdon</b> Huntingdon Engineering & Environmental, Inc.	
REFERENCE NO: 508593-148	FIGURE NO.
DRAWING NO: 93148301	2
DATE ISSUED: 08-18-1994	



## 3.0 PIEZOMETER INSTALLATION

Huntingdon personnel supervised the installation of twelve piezometers at the site from November 11 through December 3, 1993. The locations of the twelve piezometers, designated P-1 through P-12, are shown on Figure 3. All drilling activities were performed by Texcor Field Services, Inc. using a Mobile B-53 drill rig equipped for hollow-stem augering, and air and wet rotary drilling. Hollow-stem augering was used to drill through surficial silty sands and clays. Initial attempts to use air rotary techniques to drill through underlying shaly sandstone bedrock were unsuccessful. Wet rotary techniques were then used to advance the borings through the sandstone and shale bedrock to termination depth.

During hollow-stem augering, soil samples were collected at periodic depths using a split spoon sampling device. Soil cuttings brought to the surface by the augers were also used to describe the lithology. Rock samples were obtained continuously during wet rotary drilling using a double-tube core barrel. The borings were logged by a geologist familiar with environmental/geotechnical drilling and investigation techniques. Soil samples obtained were described by the field geologist using terminology from the Unified Soil Classification System.

The piezometers were installed within the open boreholes and are constructed of two-inch diameter, Schedule 40 polyvinyl chloride (PVC) pipe with 0.010 inch factory-slotted well screen. The eight shallow piezometers are screened at the contact between surficial silty sands and clays and an upper shaly sandstone discussed in Section 5.1. This contact was screened in order to determine if any perched groundwater exists beneath the site. The four deep piezometers are screened within the upper shaly sandstone. The shallow piezometers have screen lengths of 10 feet, while the deep piezometers have screen lengths of 20 feet. A 20/40 mesh silica sand was utilized to filter pack the piezometers from the bottom of the well screen to several feet above the screen. The filter pack was sealed with two feet of ¼-inch diameter hydrated bentonite pellets. An annular seal of bentonite grout was emplaced from the top of bentonite seal up to the surface. The piezometers were completed above grade with two-foot square concrete pads and locking steel wellhead protectors. Completion details are contained on the piezometer construction logs in Appendix A.

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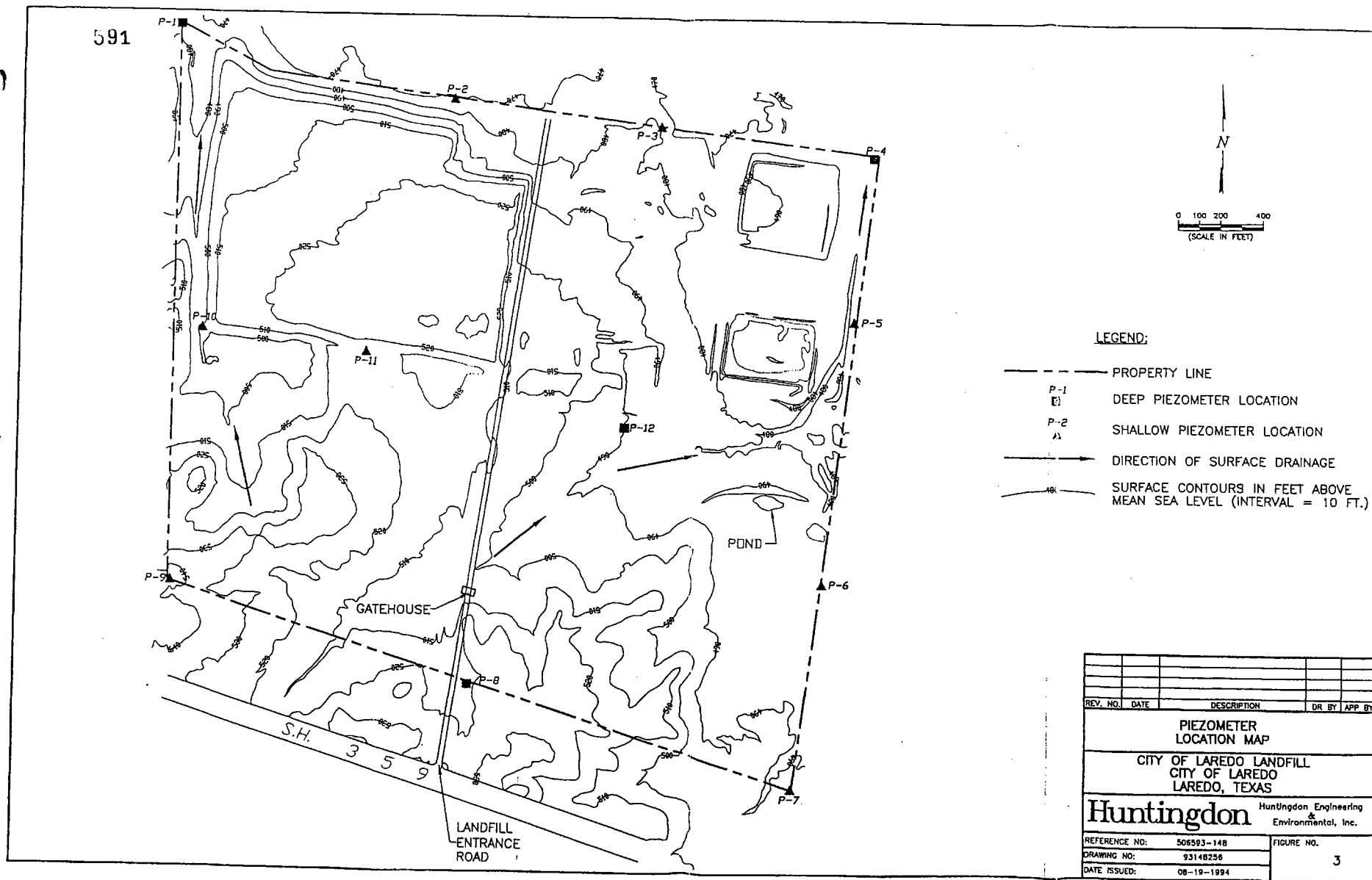
## 4.0 TOPOGRAPHY AND SURFACE DRAINAGE

The site is crossed by two drainage ways which flow predominately toward the north across the site (see Figure 3). Maximum elevation change across the site is approximately 70 feet, with the highest elevation of approximately 540 feet above Mean Sea Level (MSL) in the southwest corner, and the lowest elevation of approximately 470 feet above MSL in the drainage near the northeast corner.

ESW119931LAREDO193-1481940902RE.DW

Page 4-1

A member of the **HH** group of companies



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## 5.0 SITE GEOLOGY AND HYDROGEOLOGY

### 5.1 Stratigraphy

The following is a generalized description of the stratigraphy encountered during piezometer installation:

- Clay - Surficial unit present in most borings, ranging in thickness from 0 to 36 feet. Varying in color from tan and brown to maroon and gray, contains some silt, sand, and gravel.
- Silty Sand - Surficial unit present in remainder of borings ranging in thickness from 3 to 23 feet. The unit is tan to brown in color and contains some gravel.
- Upper Shaly Sandstone - Present below the clay and silty sand units, and encountered in all borings. The unit is greenish-gray in color, containing mica, glauconite, and scattered fossils, with occasional highly cemented (calcareous) layers. Borings for the eight shallow piezometers were terminated within the upper portion of this unit. Borings for two of the deep piezometers (P-1 and P-12) completely penetrated this unit. Thickness of the unit in these borings ranged from 52 to 77 feet. Borings for the two other deep piezometers (P-4, P-8) were terminated within the unit.
- Shale - Present beneath the shaly sandstone unit in borings P-1 and P-12. This unit is greenish-gray in color and contains scattered fossils. Thickness of the unit was 30 feet in P-12. The boring for P-1 was terminated within this unit.
- Lower Shaly Sandstone - Present beneath the shale unit in boring P-12. The boring for P-12 was terminated within this unit. Minimum thickness of the unit in P-12 was 59 feet. This unit is similar in color and composition to the upper shaly sandstone unit.

### 5.2 Hydrostratigraphic Units

Observations made during the drilling of the shallow piezometers indicated that groundwater was not present within the surficial deposits (i.e., the clay and silty sand) above the upper shaly sandstone unit. Groundwater observations could not be made during the drilling of the deep piezometers because of the presence of drilling fluids in the boreholes. Only after the drilling operations were complete, and the residual drilling fluids had been bailed out of the deep piezometers, was it determined that a water-bearing zone exists within the upper shaly sandstone unit. Based upon the depths to the water-bearing zone and subsequent equilibrated water levels,



it appears that the water-bearing zone is under unconfined to semiconfined conditions. The soil boring logs and TNRCC well reports (WWD-012) have been included in Appendix A.

### 5.3 Groundwater Flow Determination

From December 9 to December 17, 1993, the four deep piezometers were developed to remove the residual drilling fluids introduced during the drilling, and to bring the piezometers into proper hydraulic connection with the water bearing zone. Groundwater was not present within the shallow piezometers, and therefore they were not developed. Piezometers containing groundwater were developed by bailing and surging with a PVC ball type bailer. A submersible pump was also utilized during development. Development was considered complete after the removal of a minimum of 20 casing volumes of groundwater from each piezometer. A casing volume is defined as the volume of water present within the riser and screen during static conditions.

In order to determine groundwater elevations, the rim of each piezometer riser was surveyed and referenced to MSL by a registered land surveyor on December 15, 1993. Beginning in January 1994, monthly depth to water measurements were collected by Huntingdon personnel. Measurements were made from the top of the PVC riser using an electronic water level meter accurate to within 0.01 feet. The eight shallow piezometers were dry for the entire six-month monitoring period. Table 2 contains the depths to water, top of casing elevations, and resultant groundwater elevations from the four deep piezometers from January 11 to June 27, 1994.

The groundwater elevations from Table 2 were graphed versus time to depict seasonal fluctuations. The graph has been included in Appendix B along with copies of the field forms used in the preparation of Table 2. As shown in the graph, groundwater elevations have not fluctuated significantly in any of the piezometers during the six-month monitoring period. Piezometer P-8 experienced the greatest fluctuation in groundwater elevations ranging from a low of 433.87 feet above MSL on March 29, 1994, to a high of 434.64 feet above MSL on April 27, 1994. Piezometer P-1 experienced the least amount of change with a low of 433.11 feet above MSL on March 29, 1994 to a high of 433.53 feet above MSL on April 27, 1994.

TABLE 2  
GROUNDWATER ELEVATIONS  
City of Laredo Landfill  
Webb County, Texas

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PIEZOMETER	TOP OF CASING ELEVATION (FT. ABOVE MSL)	DEPTH TO WATER (1/11/94)	GROUNDWATER ELEVATION (1/11/94)	DEPTH TO WATER (2/17/94)	GROUNDWATER ELEVATION (2/17/94)	DEPTH TO WATER (3/29/94)	GROUNDWATER ELEVATION (3/29/94)	DEPTH TO WATER (4/27/94)	GROUNDWATER ELEVATION (4/27/94)	DEPTH TO WATER (5/27/94)	GROUNDWATER ELEVATION (5/27/94)	DEPTH TO WATER (6/27/94)	GROUNDWATER ELEVATION (6/27/94)
P-1	479.81	46.60	433.21	46.56	433.25	46.70	433.11	46.28	433.53	46.43	433.38	46.49	433.32
P-4	473.33	46.36	426.97	46.42	426.91	46.60	426.73	46.11	427.22	46.29	427.04	46.35	426.98
P-8	515.06	80.83	434.23	80.74	434.12	81.19	433.87	80.42	434.64	80.65	434.41	80.84	434.22
P-12	494.12	68.00	426.12	68.03	426.09	68.15	425.97	67.68	426.44	67.90	426.22	67.94	426.18

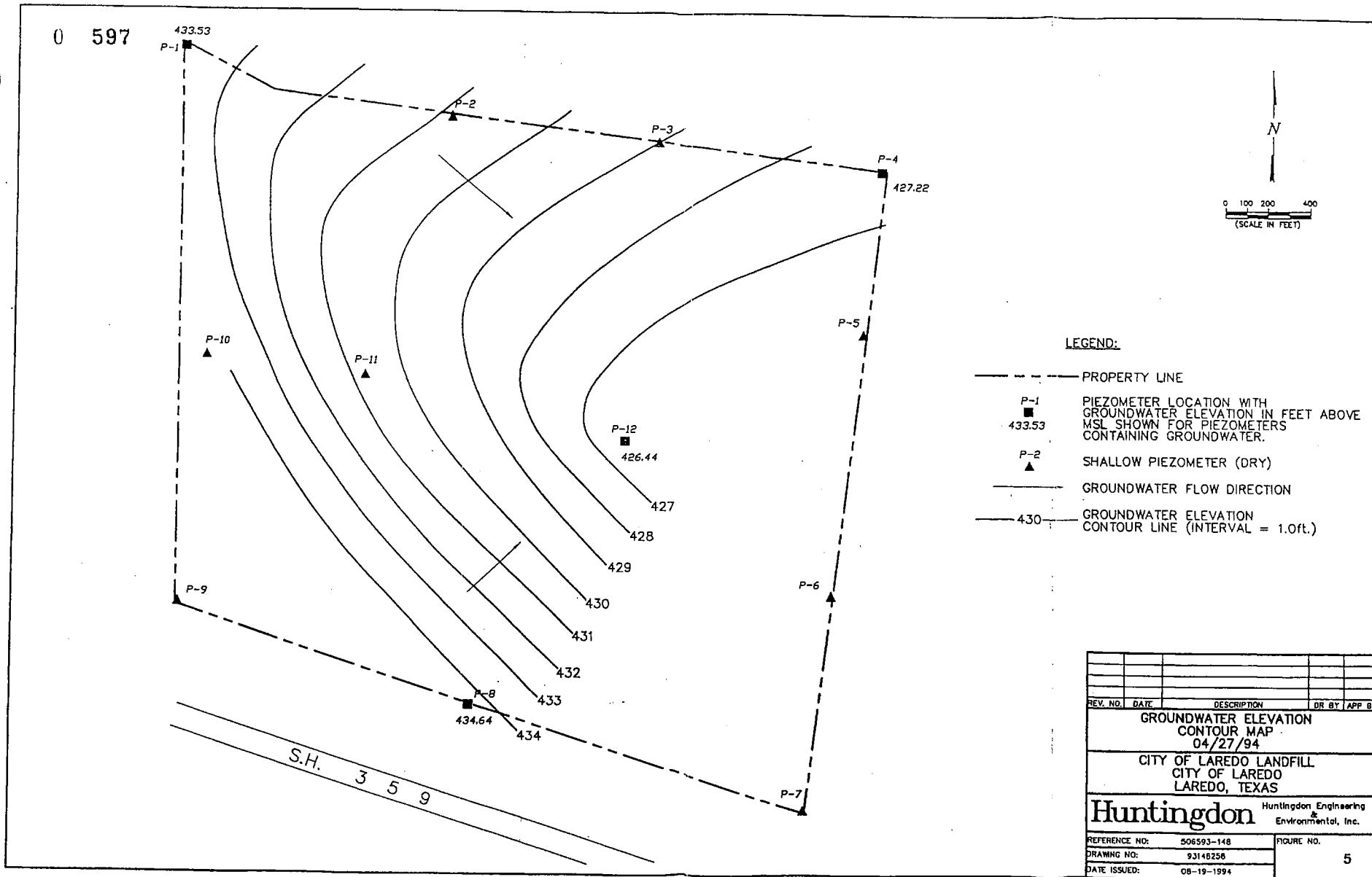
NOTE: The 8 shallow piezometers (P-2, P-3, P-5, P-6, P-7, P-9, P-10, P-11) were dry for the entire monitoring period.

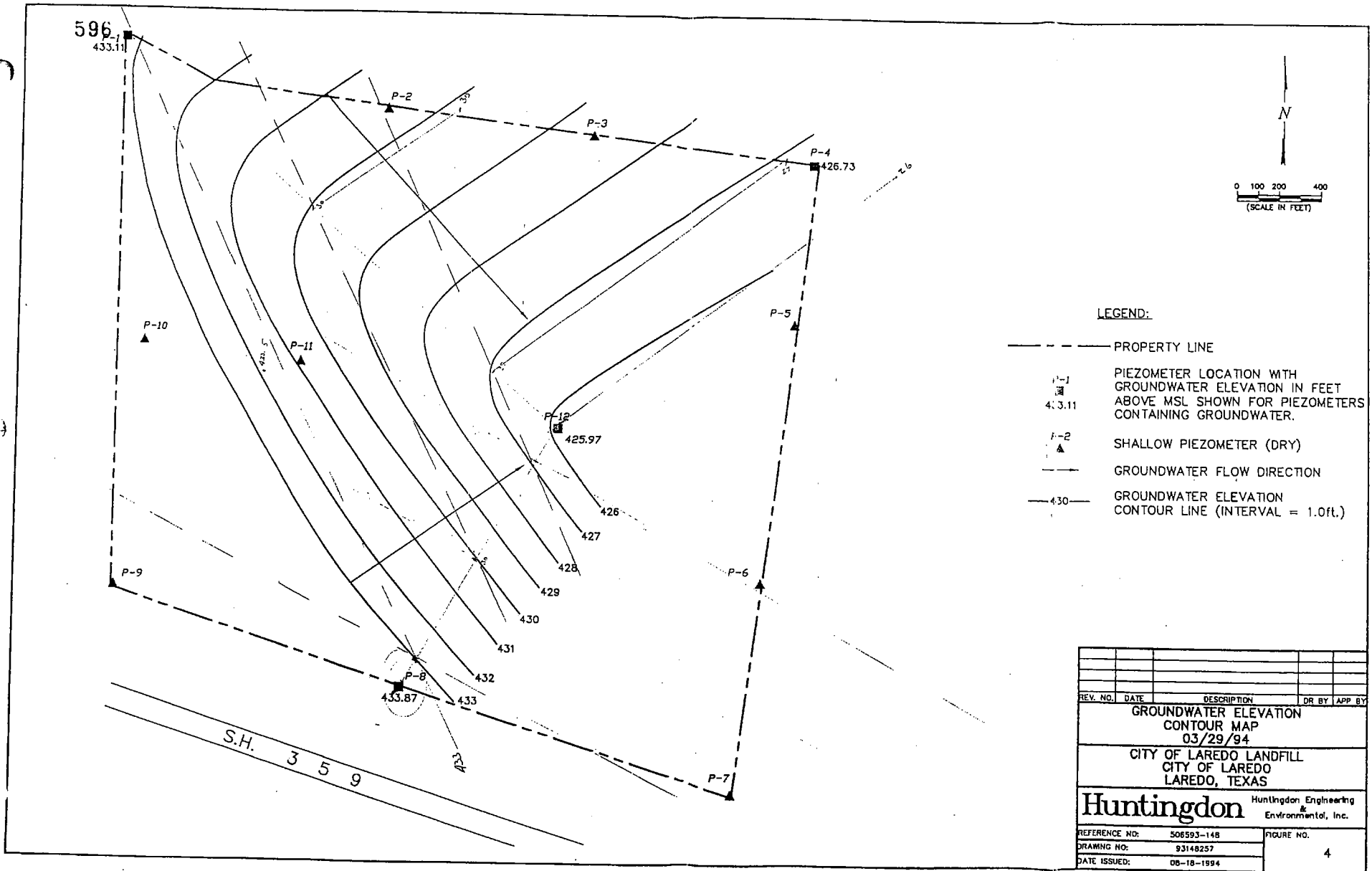
A groundwater contour map was prepared for March 29, 1994, which was the date the piezometers were at or near their seasonal low, as well as for April 27, 1994, the seasonal high. Figures 4 and 5 are groundwater elevation contour maps for March 29 and April 27, 1994, respectively. As shown in the figures, the groundwater flow direction in the water-bearing zone is to the southeast and northeast.

Rainfall data were also collected during the monitoring period by a weather observer for the National Weather Service located at the Laredo Airport. Table 3 contains the daily rainfall measurements from December 1, 1993 through June 30, 1994. A total of 8.8 inches of rainfall was recorded during the monitoring period. The wettest month was May, 1994, while the driest month was December, 1993. A graph of the biweekly rainfall totals has been included in Appendix B. As shown in the graph, the only significant rainfall events occurred during the first two weeks of May and June, 1994. During the same time periods, groundwater elevations did not increase significantly. Additionally, the eight shallow piezometers remained dry during the entire six-month monitoring period. This indicates that rainfall at the site is not a significant factor with respect to recharge of the water-bearing zone.

## 5.4 Aquifer Characterization

Rising head slug tests were conducted on the four deep piezometers by Huntingdon personnel on January 11 and 12, 1994. A PVC slug was used to displace water from each piezometer. The corresponding water level equilibration was recorded by a pressure transducer linked to a Hermit Environmental Data Logger, Model SE 1000C, manufactured by In-Situ Inc., of Laramie, Wyoming. The data was then plotted in graphical form on semi-logarithmic paper and analyzed by methods discussed in Bouwer and Rice (1976). For calculation purposes, the piezometers were assumed to partially penetrate a saturated zone with a thickness of 60 feet. Appendix C contains a description of the aquifer parameters, field data, graphs, and worksheets used in the analysis of the data. Table 4 contains the hydraulic conductivity (K) values determined from the slug tests.





REV. NO.	DATE	DESCRIPTION	DR BY	APP BY	
		GROUNDWATER ELEVATION CONTOUR MAP 03/29/94			
		CITY OF LAREDO LANDFILL CITY OF LAREDO LAREDO, TEXAS			
Huntingdon			Huntingdon Engineering & Environmental, Inc.		
REFERENCE NO:	506593-148	FIGURE NO.			
DRAWING NO:	93148257	4			
DATE ISSUED:	08-18-1994				



TABLE 3  
DAILY RAINFALL MEASUREMENTS  
City of Laredo Landfill  
Webb County, Texas

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DATE	RAIN (INCHES)	DATE	RAIN (INCHES)	DATE	RAIN (INCHES)	DATE	RAIN (INCHES)	DATE	RAIN (INCHES)	DATE	RAIN (INCHES)	DATE	RAIN (INCHES)
12/1/93	0	1/1/94	0	2/1/94	0	3/1/94	0	4/1/94	0	5/1/94	0.56	6/1/94	0
12/2/93	0	1/2/94	0	2/2/94	0	3/2/94	0	4/2/94	0	5/2/94	0.1	6/2/94	0
12/3/93	0	1/3/94	0	2/3/94	0	3/3/94	0	4/3/94	0	5/3/94	0	6/3/94	0
12/4/93	0	1/4/94	0	2/4/94	0	3/4/94	0	4/4/94	0	5/4/94	0	6/4/94	0
12/5/93	0	1/5/94	0	2/5/94	0	3/5/94	0	4/5/94	0	5/5/94	0	6/5/94	0
12/6/93	0	1/6/94	0	2/6/94	0	3/6/94	0.07	4/6/94	0	5/6/94	0	6/6/94	0
12/7/93	0	1/7/94	0	2/7/94	0	3/7/94	0	4/7/94	0	5/7/94	0	6/7/94	0
12/8/93	0	1/8/94	0	2/8/94	0	3/8/94	0	4/8/94	0	5/8/94	0	6/8/94	0
12/9/93	0	1/9/94	0	2/9/94	0	3/9/94	0.52	4/9/94	0	5/9/94	1.40	6/9/94	0
12/10/93	0	1/10/94	0	2/10/94	0.17	3/10/94	0	4/10/94	0	5/10/94	0	6/10/94	0.75
12/11/93	0	1/11/94	0	2/11/94	0	3/11/94	0	4/11/94	0	5/11/94	0	6/11/94	0
12/12/93	0	1/12/94	0	2/12/94	0	3/12/94	0	4/12/94	0	5/12/94	0	6/12/94	0.23
12/13/93	0	1/13/94	0	2/13/94	0	3/13/94	0	4/13/94	0	5/13/94	0	6/13/94	0.30
12/14/93	0	1/14/94	0	2/14/94	0	3/14/94	0	4/14/94	0	5/14/94	0	6/14/94	1.02
12/15/93	0	1/15/94	0	2/15/94	0	3/15/94	0.40	4/15/94	0	5/15/94	0.73	6/15/94	0
12/16/93	0	1/16/94	0	2/16/94	0	3/16/94	0.44	4/16/94	0.72	5/16/94	0	6/16/94	0
12/17/93	0	1/17/94	0	2/17/94	0	3/17/94	0.04	4/17/94	0	5/17/94	0	6/17/94	0
12/18/93	0	1/18/94	0	2/18/94	0	3/18/94	0	4/18/94	0	5/18/94	0	6/18/94	0
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12/24/93	0.16	1/24/94	0.15	2/24/94	0	3/24/94	0	4/24/94	0	5/24/94	0	6/24/94	0
12/25/93	0	1/25/94	0.04	2/25/94	0	3/25/94	0	4/25/94	0	5/25/94	0	6/25/94	0
12/26/93	0	1/26/94	0	2/26/94	0	3/26/94	0	4/26/94	0	5/26/94	0	6/26/94	0
12/27/93	0	1/27/94	0	2/27/94	0	3/27/94	0	4/27/94	0	5/27/94	0	6/27/94	0
12/28/93	0	1/28/94	0	2/28/94	0.05	3/28/94	0	4/28/94	0	5/28/94	0.69	6/28/94	0
12/29/93	0	1/29/94	0			3/29/94	0	4/29/94	0.01	5/29/94	0	6/29/94	0
12/30/93	0	1/30/94	0			3/30/94	0	4/30/94	0	5/30/94	0	6/30/94	0
12/31/93	0	1/31/94	0			3/31/94	0			5/31/94	0		

As shown in Table 4, the K values vary across the site from a low of  $4.38 \times 10^{-3}$  gallons per day per square feet (gpd/ft<sup>2</sup>) in P-8 to a high of 7.88 gpd/ft<sup>2</sup> in P-4. The average K value calculated for the four piezometers was 2.11 gpd/ft<sup>2</sup>. As previously mentioned, the groundwater flow direction in the water-bearing zone varies across the site. As a result, two different hydraulic gradients were calculated from the groundwater elevations shown on Figures 4 and 5. Hydraulic gradients of  $5.45 \times 10^{-3}$  and  $5.65 \times 10^{-3}$  feet per foot (ft/ft) were calculated, based on the change in hydraulic head measured between piezometers P-8 and P-12, for March 29 and April 27, 1994, respectively. This yields an average hydraulic gradient of  $5.55 \times 10^{-3}$  ft/ft toward the northeast. Additionally, hydraulic gradients of  $2.60 \times 10^{-3}$  and  $2.58 \times 10^{-3}$  ft/ft were calculated, based on the change in hydraulic head measured across the site between P-1 and P-12, for March 29 and April 27, 1994, respectively. This yields an average hydraulic gradient of  $2.59 \times 10^{-3}$  ft/ft toward the southeast. Using the two hydraulic gradients and the average K value from Table 4, two groundwater flow velocities can be approximated using a variation of Darcy's equation (Driscoll, 1986).

Equation 1: 
$$V = \frac{KI}{7.5 (N)}$$

where: V = Velocity of groundwater flow (feet/day);  
 K = Hydraulic conductivity (gpd/ft<sup>2</sup>);  
 I = Hydraulic gradient (ft/ft); and  
 N = Porosity (%).

A porosity of 30 percent, which is a typical value for shaly sandstone, was assumed. Substituting these values into Equation 1 yields a groundwater flow velocity of  $5.20 \times 10^{-3}$  feet per day (ft/day) toward the northeast, and another groundwater flow velocity of  $2.43 \times 10^{-3}$  ft/day toward the southeast. Appendix C contains the calculation worksheet for the groundwater flow gradients and velocities.

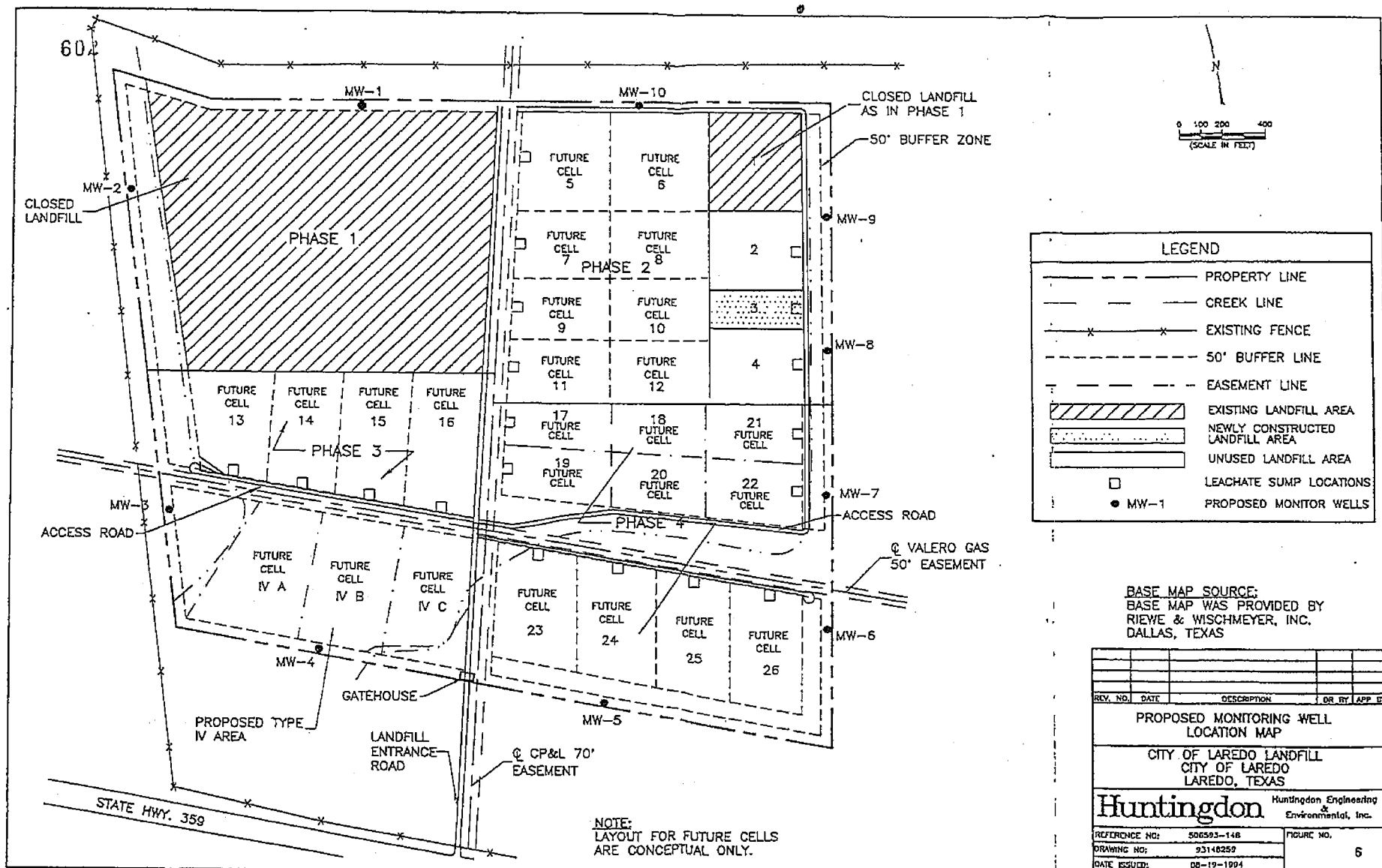
TABLE 4  
SLUG TEST RESULTS  
JANUARY 11 AND 12, 1994  
City of Laredo Landfill  
Webb County, Texas

PIEZOMETER	K (gpd/ft <sup>2</sup> )
P-1	$2.41 \times 10^{-1}$
P-4	7.88
P-8	$4.38 \times 10^{-3}$
P-12	$3.21 \times 10^{-1}$
Average K	2.11

gpd/ft<sup>2</sup> - gallons per day per square foot  
K - hydraulic conductivity

### 5.5 Groundwater Monitoring System

The proposed groundwater monitoring system will consist of ten monitoring wells located around the perimeter of the site. The location of wells to be included in this groundwater monitoring system are shown on Figure 6. The ten monitoring wells to be installed at the site will be constructed of four-inch diameter PVC riser and screen with a 10-foot screened interval set in the water-bearing zone. The piezometers used as part of this study should be properly plugged and abandoned according to the rules of the Texas Water Development Board (TWDB).



REV. NO.	DATE	DESCRIPTION	DR BY	APP BY	
<p>PROPOSED MONITORING WELL LOCATION MAP</p>					
<p>CITY OF LAREDO LANDFILL CITY OF LAREDO LAREDO, TEXAS</p>					
<p>Huntingdon</p>			<p>Huntingdon Engineering &amp; Environmental, Inc.</p>		
REFERENCE NO:	506593-148		FIGURE NO.		
DRAWING NO:	93148259				
DATE ISSUED:	08-19-1994				



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## 6.0 REFERENCES

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Bouwer, H. and Rice, R., 1976. A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells. Water Research, Vol. 12.

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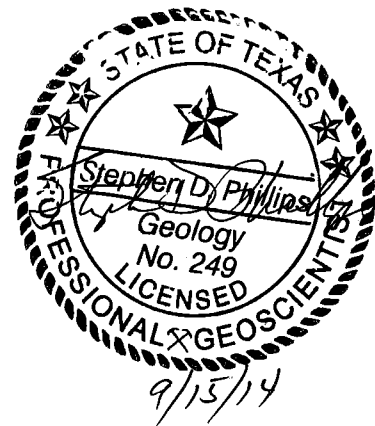
Driscoll, F., 1986. Groundwater and Wells, Johnson Division.

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Texas Water Development Board, 1977. Groundwater Resources of the Carrizo Aquifer in the Wilder Garden Area of Texas, Report 210.

**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 11  
Fault Zone Restrictions**



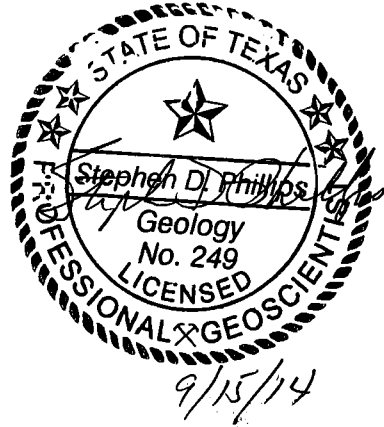
**LAREDO LANDFILL  
PART II  
Attachment 11  
Fault Zone Restrictions**

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**List of Attachments**

Previous Location Restriction Certifications



## Fault Areas, 30 TAC 330.303

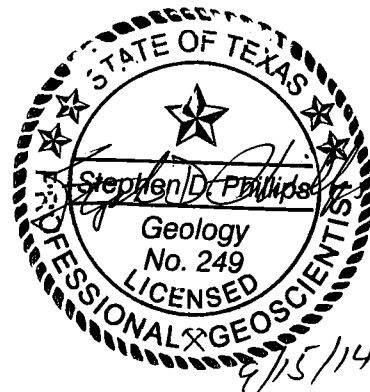
### FAULT AREAS

A review of published geological data was undertaken to determine the presence of any faults in the vicinity of the site. On the basis of the literature reviewed, it was determined that the site is not located within 200 feet of a fault that had displacement during Holocene time. A Holocene fault is defined as a fault that has ruptured or moved within recent geologic time, approximately 10,000 years. Additionally, no active faults are known to exist within one-half mile of the site. The nearest fault identified during the review of published geological literature was located approximately two miles northeast of the site. This fault has not experienced displacement during the Holocene Epoch.

In accordance with 30 TAC 330.303, I hereby certify that the Laredo Sanitary Landfill as authorized by Permit No MSW -1693 or as proposed in this Permit Amendment Application, is not located within 200 feet of a fault which has experienced displacement in Holocene Time.

Steve Phillips

Registered Geologist



### Location Restriction Documentation

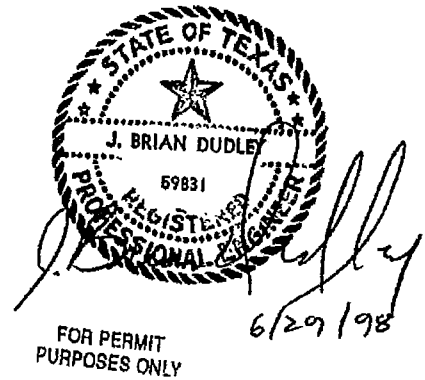
The information contained in this section is the fault areas portion of the documentation report "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo by SWL Environmental Services in May 1994. For this permit amendment application, the permitted acreage has been increased to 203.12 acres from the original 200 acres. The additional 3.12 acres will not be utilized for solid waste disposal.

**2. Fault Areas §330.53(b)(10)(B), §330.303**



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SUBTITLE D LOCATION DEMONSTRATION REPORT (EXCERPTS) .....	2



**FAULT AREAS, 30 TAC §330.303  
LOCATION RESTRICTION CERTIFICATION**

In accordance with 30 TAC §330.303, I hereby certify that the Laredo Sanitary Landfill, as authorized by Permit No. MSW-1693 or as proposed in this Permit Amendment Application, is not located within 200 ft of a fault which has experienced displacement in Holocene time.

J. Brian Dudley 6/29/98  
J. Brian Dudley, P.E. Date



**LOCATION RESTRICTION DOCUMENTATION**

The information contained in this section is the fault areas portion of the documentation report titled "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo Landfill by SWL Environmental Services in May 1994.

For this permit amendment application, the permitted acreage remains at the original 200 acres (with no lateral expansion), therefore the previous certification is still applicable.

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SWL

**CERTIFICATION OF DEMONSTRATION OF  
THE LOCATION RESTRICTIONS**

**CITY OF LAREDO LANDFILL  
WEBB COUNTY, TEXAS  
MSW PERMIT NO. 1693**

1994 MAY 16 PM 11:12  
SOLID WASTE UNIT

**Prepared for:**

**CITY OF LAREDO  
Laredo, Texas**

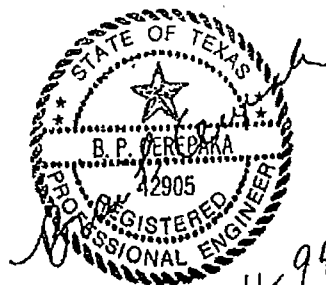
**Prepared by:**

**SWL ENVIRONMENTAL SERVICES  
Austin, Texas**

*Rose M. Guerra*  
\_\_\_\_\_  
City of Laredo

May 1994

LAREDO193-1481PER-MODV.CTN-RES.DW



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4150 Friedrich Lane  
P.O. Box 17366  
Austin, Texas 78760  
Phone: (512) 447-9081  
Fax: (512) 443-3442

May 11, 1994

Ms. Mary B. Adrian, P.E.  
Manager, Permits Section  
Municipal Solid Waste Division  
Texas Natural Resource Conservation Section  
P.O. Box 13087  
Austin, Texas 78711-3087

RE: City of Laredo - MSW Permit No. 1693, Class I Permit Modification

Dear Ms. Adrian:

This is a response to your letter, dated April 18, 1994, to Mr. Amador Escudero, P.E. regarding Location Restrictions for the referenced site.

The responses are as follows:

1. Signature and Certification

Three certified copies of the Location Restrictions which have been signed by the City of Laredo are attached. A copy is also being kept in the operating record of the facility as indicated in the attached document.

2. 100 year flood plain map

No 100 year flood plain has been designated for this area, therefore the requirement to provide a 100 year flood plain map for the facility is not applicable. This facility is not located in a 100-year flood plain as originally documented in MSW permit No. 1693 for this facility, so there is no requirement to demonstrate that there will be no washout of solid waste.

3. Airport Safety

Notification has been provided to the FAA and the airport as requested. Copies of the notification letters are also included to document this notification.

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SOUTHWESTERN LABORATORIES, INC.

SWL

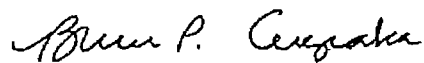
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Ms. Mary B. Adrian, P.E.  
May 11, 1994  
Page 2

Please let me know if you require further information. We would also request that our office be copied on any correspondence sent to the City of Laredo on this Class I modification.

Sincerely,

SWL ENVIRONMENTAL SERVICES



Bruce P. Cerepaka, P.E.  
Manager, Solid Waste Management

BPC/bpc/dm

cc: Amador Escudero, P.E., City Engineer  
Joe Guerra, DPW, City of Laredo

ESW1993LAREDO193-145ADRIAN-3.BC



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6.0 SEISMIC IMPACT ZONES .....	3
7.0 UNSTABLE AREAS .....	3

## FIGURES

- 1 - Airport Location Map
- 2 - Wetlands Map

## BIBLIOGRAPHY

Appendix A - Airport Safety Notification

1034 MAY 16 12:11:12  
SOLID WASTE PROJECT

LAREDO193-145PER-NODULCTN-RES.DW

### 3.0 FLOODPLAINS

No Flood Insurance Rate Map (FIRM) is available for the area and no flood protection is required for the potential 100-year frequency. Since no solid waste will be disposed of within a 100-year floodplain, washouts of solid waste from a 100-year flood will not occur.

### 4.0 WETLANDS

According to the 1989 National Wetlands Inventory (NWI) map of the area, two wetland areas are located within the site (see Figure 2). Both of these areas are located near the eastern property line. The total acreage of these wetland areas appears to be approximately two acres. However, it is difficult to determine the exact acreage from the NWI map. Prior to disturbing these areas, the City will need to conduct a wetlands delineation in order to determine the exact acreage of wetlands located within the site.

If one acre or less of jurisdictional wetlands exists on the site, the U.S. Army Corps of Engineers (USCE) by way of a nationwide permit, will allow the filling of discharge materials into these wetlands with no permit application or notification necessary. As a rule of thumb, if less than ten acres of isolated jurisdictional wetlands are identified, then the site would likely qualify for a nationwide permit and may not be restricted from development. However, depending on the quality and function of the wetland, the USCE may impose compensation requirements.

### 5.0 FAULT AREAS

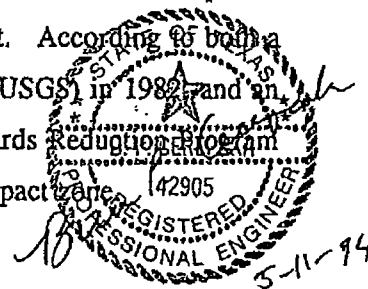
A review of published geological literature was undertaken to determine the presence of any faults in the vicinity of the site. A list of these sources is included in the bibliography. On the basis of the literature reviewed, it was determined that the site is not located within 200 feet of a fault that has had displacement during Holocene time. A Holocene fault is defined as a fault that has ruptured or moved within recent geologic time, approximately over the past 10,000

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years. Additionally, no active faults are known to exist within one-half mile of the site. The nearest fault identified during the review of published geological literature was located approximately two miles northeast of the site. However, this fault has not experienced displacement during the Holocene Epoch.

## 6.0 SEISMIC IMPACT ZONES

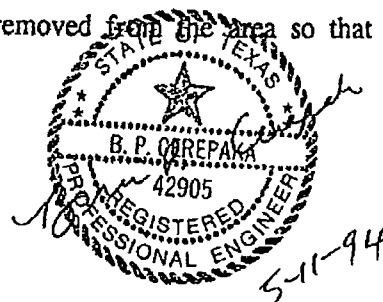
A seismic impact zone is defined as an area with a 10% or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10 g in 250 years. Maximum horizontal acceleration is defined as the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment. According to both a seismic hazard map prepared by the United States Geological Survey (USGS) in 1982 and an updated seismic hazard map prepared by the National Earthquake Hazards Reduction Program (NEHRP) of the FEMA in 1991, the site is not located in a seismic impact zone.



## 7.0 UNSTABLE AREAS

According to geologic maps of the area, the site is located on the Laredo Formation. The Laredo Formation is composed mostly of sandstones and clays. The sandstones are described as being, in part, glauconitic, micaceous, ferruginous, cross bedded, and red and brown in color. The clays weather orange-yellow and contain abundant marine fossils. The thickness of the Laredo Formation in the vicinity of the site is approximately 620 feet. Karst terrain features such as sinkholes, dissolution cavities, and caverns are not common within the Laredo formation. Additionally, soil borings drilled at the site did not encounter any karst features. A review of published geologic information does not indicate that subsidence has occurred or that sufficient quantities of water or oil and gas have been removed from the area so that

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## BIBLIOGRAPHY

Fish and Wildlife Service, 1989, National Wetlands Inventory Map, Scale 1:24,000.

Geologic Atlas of Texas, 1976, Laredo Sheet, Texas Bureau of Economic Geology.

Sellards, E.H., 1981, The Geology of Texas, The University of Texas Bulletin No. 3232.

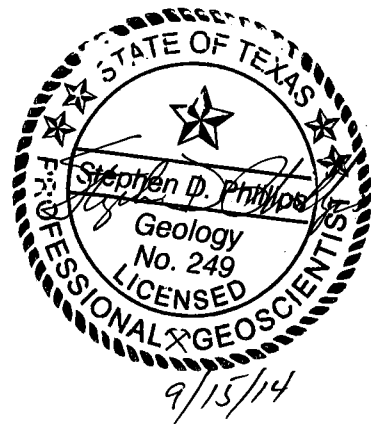
United States Geological Survey, 1982, Open File Report 82-1033, Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous U.S.

United States Geological Survey, 1977, Miscellaneous Field Investigation (MF) 916, Preliminary Young Fault Maps.

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**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 12**  
**Seismic Impact Zones**





**LAREDO LANDFILL  
PART II  
Attachment 12  
Seismic Impact Zones**

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Seismic Impact Zones Certification

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1

**List of Attachments**

Previous Seismic Impact Zones Certification (05/11/1994)

Previous Seismic Impact Zones Certification (06/29/1998)



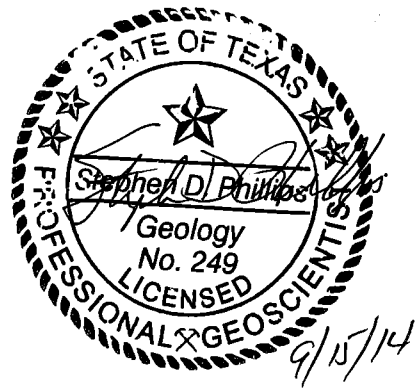
### Seismic Impact Zones, 30 TAC 330.304

A seismic impact zone is defined as an area with a 10% or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10 g in 250 years. Maximum horizontal acceleration is defined as the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment. According to the seismic hazard map prepared by the United States Geological Survey (USGS) updated in 2014, the site is not located in a seismic zone.

In accordance with 30 TAC 330.304, I hereby certify that the Laredo Sanitary Landfill as authorized by Permit No MSW -1693 or as proposed in this Permit Amendment Application, is not located within a seismic impact zone.

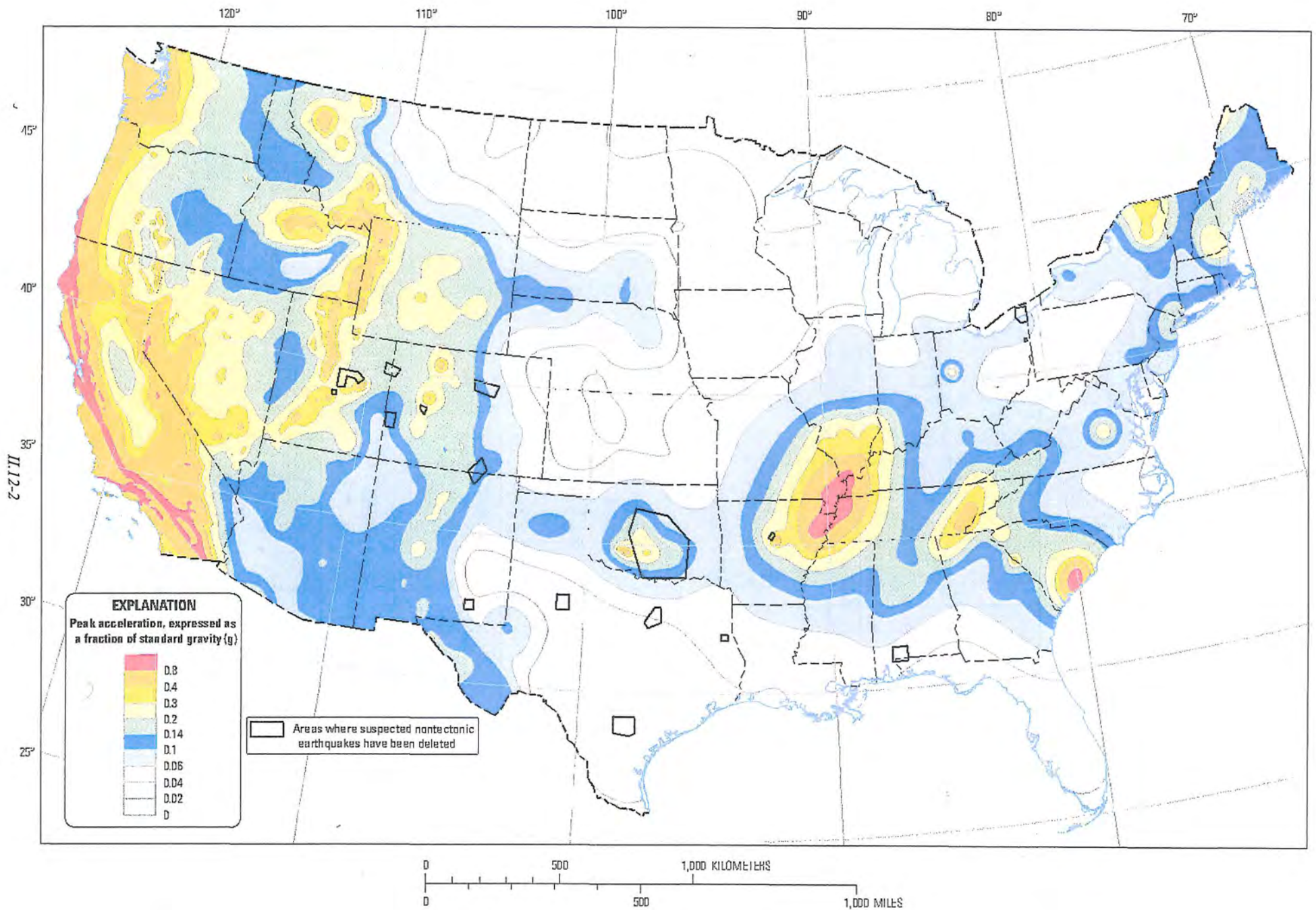
Steve Phillips

Registered Geologist



### Location Restriction Documentation

The information contained in this section is the seismic impact zone portion of the documentation report "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo by SWL Environmental Services in May 1994. For this permit amendment application, the permitted acreage has been increased to 203.12 acres from the original 200 acres. The additional 3.12 acres will not be utilized for solid waste disposal.

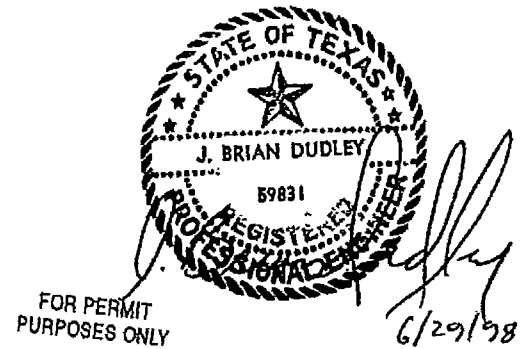


**Two-percent probability of exceedance in 50 years map of peak ground acceleration**

3. Seismic Impact Zones §330.53(b)(10)(C), §330.304

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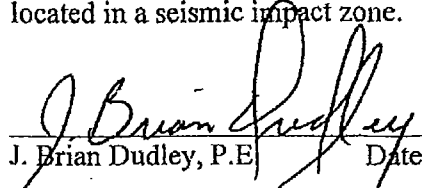
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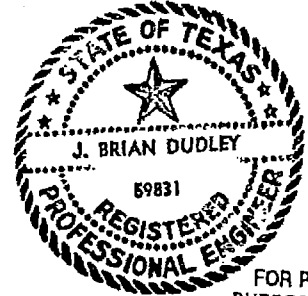




**SEISMIC IMPACT ZONES, 30 TAC §330.304  
LOCATION RESTRICTION CERTIFICATION**

In accordance with 30 TAC §330.304, I hereby certify that the Laredo Sanitary Landfill, as authorized by Permit No. MSW-1693 or as proposed in this Permit Amendment Application, is not located in a seismic impact zone.

 6/29/98  
J. Brian Dudley, P.E. Date

FOR PERMIT  
PURPOSES ONLY**LOCATION RESTRICTION DOCUMENTATION**

The information contained in this section is the seismic impact zones portion of the documentation report titled "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo Landfill by SWL Environmental Services in May 1994.

For this permit amendment application, the permitted acreage remains at the original 200 acres (with no lateral expansion), therefore the previous certification is still applicable.

CERTIFICATION OF DEMONSTRATION OF  
THE LOCATION RESTRICTIONS

CITY OF LAREDO LANDFILL  
WEBB COUNTY, TEXAS  
MSW PERMIT NO. 1693

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SOLID WASTE 1981

Prepared for:

CITY OF LAREDO  
Laredo, Texas

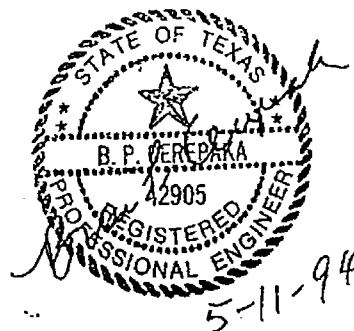
Prepared by:

SWL ENVIRONMENTAL SERVICES  
Austin, Texas

  
City of Laredo

May 1994

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4150 Freidrich Lane  
P.O. Box 17366  
Austin, Texas 78760  
Phone: (512) 447-9081  
Fax: (512) 443-3442

May 11, 1994

Ms. Mary B. Adrian, P.E.  
Manager, Permits Section  
Municipal Solid Waste Division  
Texas Natural Resource Conservation Section  
P.O. Box 13087  
Austin, Texas 78711-3087

RE: City of Laredo - MSW Permit No. 1693, Class I Permit Modification

Dear Ms. Adrian:

This is a response to your letter, dated April 18, 1994, to Mr. Amador Escudero, P.E. regarding Location Restrictions for the referenced site.

The responses are as follows:

1. Signature and Certification

Three certified copies of the Location Restrictions which have been signed by the City of Laredo are attached. A copy is also being kept in the operating record of the facility as indicated in the attached document.

2. 100 year flood plain map

No 100 year flood plain has been designated for this area, therefore the requirement to provide a 100 year flood plain map for the facility is not applicable. This facility is not located in a 100-year flood plain as originally documented in MSW permit No. 1693 for this facility, so there is no requirement to demonstrate that there will be no washout of solid waste.

3. Airport Safety

Notification has been provided to the FAA and the airport as requested. Copies of the notification letters are also included to document this notification.

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Ms. Mary B. Adrian, P.E.

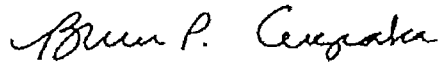
May 11, 1994

Page 2

Please let me know if you require further information. We would also request that our office be copied on any correspondence sent to the City of Laredo on this Class I modification.

Sincerely,

SWL ENVIRONMENTAL SERVICES



Bruce P. Cerepaka, P.E.  
Manager, Solid Waste Management

BPC/bpc/dm

cc: Amador Escudero, P.E., City Engineer  
Joe Guerra, DPW, City of Laredo

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## FIGURES

- 1 - Airport Location Map
- 2 - Wetlands Map

## BIBLIOGRAPHY

Appendix A - Airport Safety Notification

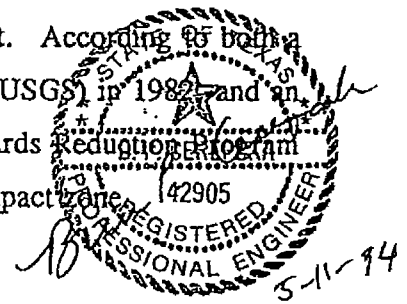
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SOLID WASTE UNIT



years. Additionally, no active faults are known to exist within one-half mile of the site. The nearest fault identified during the review of published geological literature was located approximately two miles northeast of the site. However, this fault has not experienced displacement during the Holocene Epoch.

## 6.0 SEISMIC IMPACT ZONES

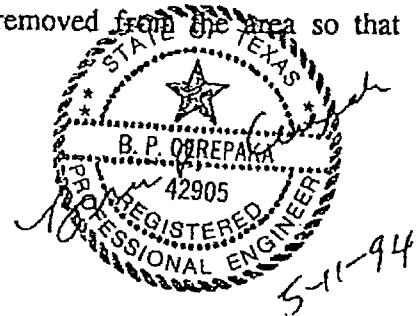
A seismic impact zone is defined as an area with a 10% or greater probability that the maximum horizontal acceleration in rock, expressed as a percentage of the earth's gravitational pull, will exceed 0.10 g in 250 years. Maximum horizontal acceleration is defined as the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90% or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment. According to both a seismic hazard map prepared by the United States Geological Survey (USGS) in 1982 and an updated seismic hazard map prepared by the National Earthquake Hazards Reduction Program (NEHRP) of the FEMA in 1991, the site is not located in a seismic impact zone.



## 7.0 UNSTABLE AREAS

According to geologic maps of the area, the site is located on the Laredo Formation. The Laredo Formation is composed mostly of sandstones and clays. The sandstones are described as being, in part, glauconitic, micaceous, ferruginous, cross bedded, and red and brown in color. The clays weather orange-yellow and contain abundant marine fossils. The thickness of the Laredo Formation in the vicinity of the site is approximately 620 feet. Karst terrain features such as sinkholes, dissolution cavities, and caverns are not common within the Laredo formation. Additionally, soil borings drilled at the site did not encounter any karst features. A review of published geologic information does not indicate that subsidence has occurred or that sufficient quantities of water or oil and gas have been removed from the area so that

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## BIBLIOGRAPHY

Fish and Wildlife Service, 1989, National Wetlands Inventory Map, Scale 1:24,000.

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Sellards, E.H., 1981, The Geology of Texas, The University of Texas Bulletin No. 3232.

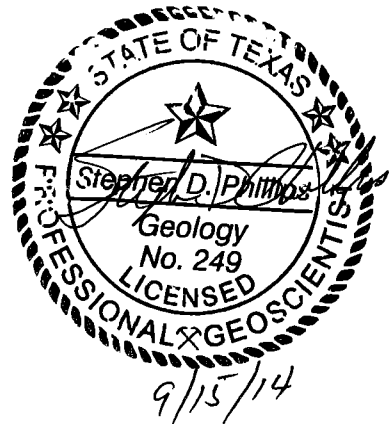
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United States Geological Survey, 1977, Miscellaneous Field Investigation (MF) 916, Preliminary Young Fault Maps.

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**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

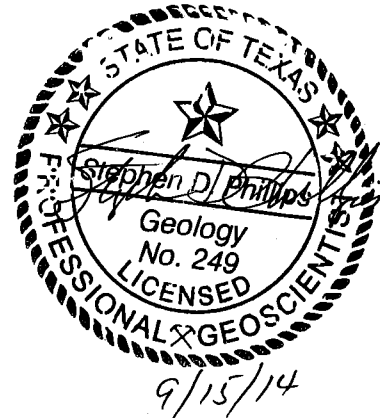
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**Attachment 13**  
**Unstable Conditions**



**LAREDO LANDFILL  
PART II  
Attachment 13  
Unstable Conditions**

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Previous Unstable Location Restriction Certification (06/29/1998)	



### **Unstable Areas, 30 TAC 330.305**

According to geologic maps of the area, the site is located on the Laredo Formation. The Laredo Formation is composed mostly of sandstones and clays. The sandstones are described as being, in part, glauconitic, micaceous, ferruginous, cross bedded, and red and brown in color. The clays weather orange-yellow and contain abundant marine fossils. The thickness of the Laredo Formation in the vicinity of the site is approximately 620 feet. Karst terrain features such as sinkholes, dissolution cavities, and caverns are not common within the Laredo formation. Additionally, soil borings drilled at the site did not encounter any karst features. A review of published geologic information does not indicate that subsidence has occurred or that sufficient quantities of water or oil and gas have been removed from the area so that subsidence is likely to become a problem in the future. Based on the information above, the site is not located in an unstable area.

In accordance with 30 TAC 330.305, I hereby certify that the Laredo Sanitary Landfill as authorized by Permit No MSW -1693 or as proposed in this Permit Amendment Application, is not located in unstable areas.

Steve Phillips

Registered Geologist



### **Location Restriction Documentation**

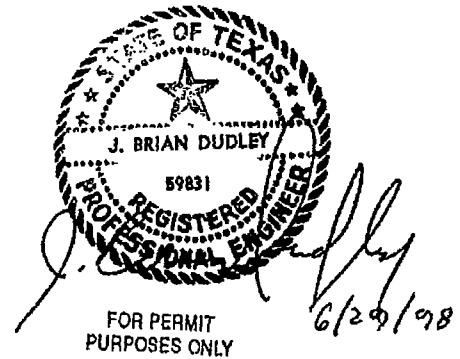
The information contained in this section is the fault areas portion of the documentation report "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo by SWL Environmental Services in May 1994. For this permit amendment application, the permitted acreage has been increased to 203.12 acres from the original 200 acres. The additional 3.12 acres will not be utilized for solid waste disposal



4. Unstable Areas §330.53(b)(10)(D), §330.250(b), §330.305

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**UNSTABLE AREAS, 30 TAC §330.305  
LOCATION RESTRICTION CERTIFICATION**

In accordance with 30 TAC §§ 330.250 (b) and 330.305, I hereby certify that there are no MSWLF units on the Laredo Sanitary Landfill, as authorized by Permit No. MSW-1693 or as proposed in this Permit Amendment Application, located in unstable areas.

J. Brian Dudley 6/29/98  
J. Brian Dudley, P.E. Date



FOR PERMIT  
PURPOSES ONLY

Acknowledged on behalf of owner, City of Laredo, Texas.

Florence Pena, III  
(Name) ~~Florence Pena, III~~

City Manager  
(Title)  
CITY OF LAREDO

**LOCATION RESTRICTION DOCUMENTATION**

The information contained in this section is the unstable areas portion of the documentation report titled "Certification of Demonstration of the Location Restrictions" which was prepared for the City of Laredo Landfill by SWL Environmental Services in May 1994.

For this permit amendment application, the permitted acreage remains at the original 200 acres (with no lateral expansion), therefore the previous certification is still applicable.

**CERTIFICATION OF DEMONSTRATION OF  
THE LOCATION RESTRICTIONS**

**CITY OF LAREDO LANDFILL  
WEBB COUNTY, TEXAS  
MSW PERMIT NO. 1693**

EST. MAY 15 PM 11:12  
SOLID WASTE UNIT

Prepared for:

**CITY OF LAREDO  
Laredo, Texas**

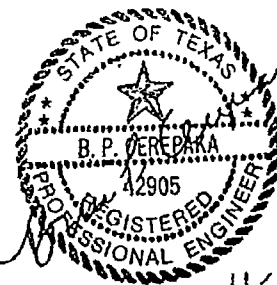
Prepared by:

**SWL ENVIRONMENTAL SERVICES  
Austin, Texas**

*[Signature]*  
City of Laredo

May 1994

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192



4150 Friedrich Lane  
P.O. Box 17366  
Austin, Texas 78760  
Phone: (512) 447-9081  
Fax: (512) 443-3442

May 11, 1994

Ms. Mary B. Adrian, P.E.  
Manager, Permits Section  
Municipal Solid Waste Division  
Texas Natural Resource Conservation Section  
P.O. Box 13087  
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2. 100 year flood plain map

No 100 year flood plain has been designated for this area, therefore the requirement to provide a 100 year flood plain map for the facility is not applicable. This facility is not located in a 100-year flood plain as originally documented in MSW permit No. 1693 for this facility, so there is no requirement to demonstrate that there will be no washout of solid waste.

3. Airport Safety

Notification has been provided to the FAA and the airport as requested. Copies of the notification letters are also included to document this notification.

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SOUTHWESTERN LABORATORIES, INC.

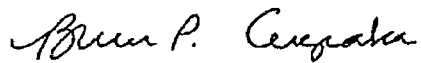


Ms. Mary B. Adrian, P.E.  
May 11, 1994  
Page 2

Please let me know if you require further information. We would also request that our office be copied on any correspondence sent to the City of Laredo on this Class I modification.

Sincerely,

SWL ENVIRONMENTAL SERVICES



Bruce P. Cerepaka, P.E.  
Manager, Solid Waste Management

BPC/bpc/dm

cc: Amador Escudero, P.E., City Engineer  
Joe Guerra, DPW, City of Laredo

ESW/1993/LAREDO/193-145/ADRIAN-J.BC

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## FIGURES

- 1 - Airport Location Map
- 2 - Wetlands Map

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Appendix A - Airport Safety Notification

1934 MAY 16 10:11:12  
 SOLID WASTE UNIT

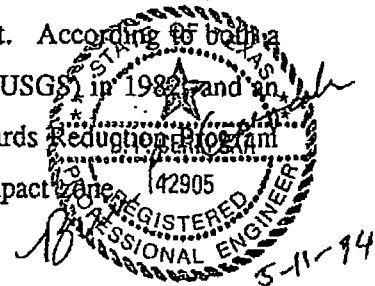
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years. Additionally, no active faults are known to exist within one-half mile of the site. The nearest fault identified during the review of published geological literature was located approximately two miles northeast of the site. However, this fault has not experienced displacement during the Holocene Epoch.

## 6.0 SEISMIC IMPACT ZONES

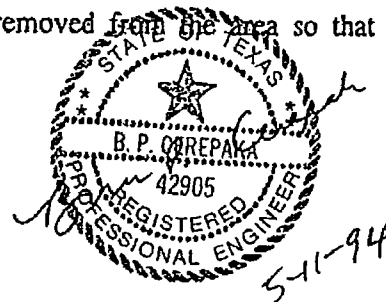
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## 7.0 UNSTABLE AREAS

According to geologic maps of the area, the site is located on the Laredo Formation. The Laredo Formation is composed mostly of sandstones and clays. The sandstones are described as being, in part, glauconitic, micaceous, ferruginous, cross bedded, and red and brown in color. The clays weather orange-yellow and contain abundant marine fossils. The thickness of the Laredo Formation in the vicinity of the site is approximately 620 feet. Karst terrain features such as sinkholes, dissolution cavities, and caverns are not common within the Laredo formation. Additionally, soil borings drilled at the site did not encounter any karst features. A review of published geologic information does not indicate that subsidence has occurred or that sufficient quantities of water or oil and gas have been removed from the area so that

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subsidence is likely to become a problem in the future. Based on the information outlined above, the site is not located in an unstable area.

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## BIBLIOGRAPHY

Fish and Wildlife Service, 1989, National Wetlands Inventory Map, Scale 1:24,000.

Geologic Atlas of Texas, 1976, Laredo Sheet, Texas Bureau of Economic Geology.

Sellards, E.H., 1981, The Geology of Texas, The University of Texas Bulletin No. 3232.

United States Geological Survey, 1982, Open File Report 82-1033, Probabilistic Estimates of Maximum Acceleration and Velocity in Rock in the Contiguous U.S.

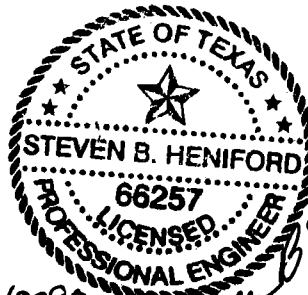
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LAREDO091-JARPER-MODUCTN-RES.DW



**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 14**  
**Groundwater Maps**



TX F-10098

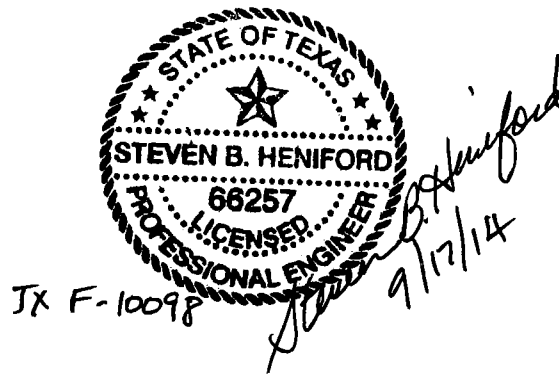
*Steven B. Heniford*  
9/17/14

**LAREDO LANDFILL  
PART II  
Attachment 14  
Groundwater Maps**

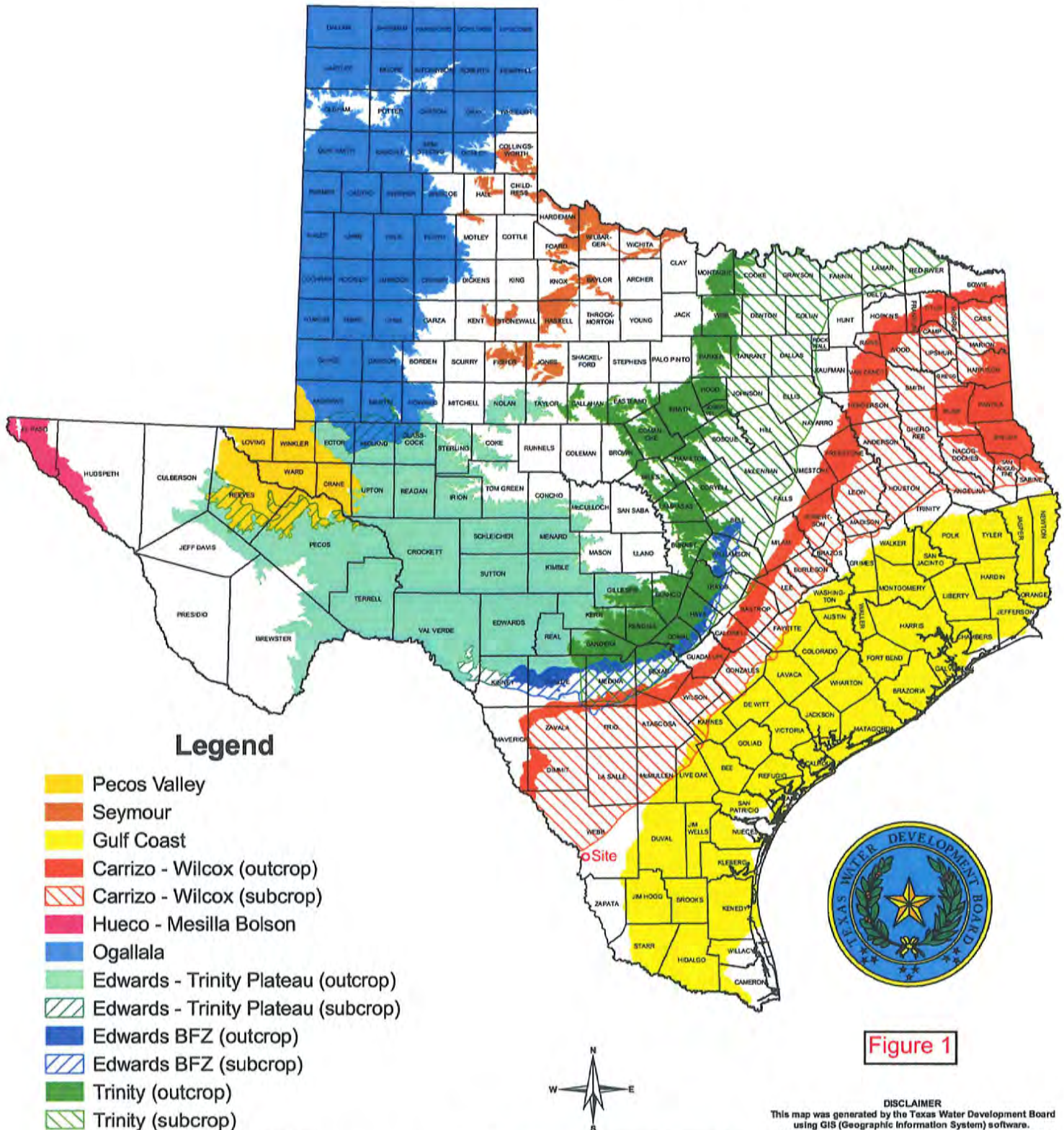
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Figure II.14.2 Minor Aquifers of Texas  
Figure II.14.3 Groundwater Flows – October 2004  
Figure II.14.4 Groundwater Flows – October 2006  
Figure II.14.5 Groundwater Flows – October 2007



# Major Aquifers of Texas



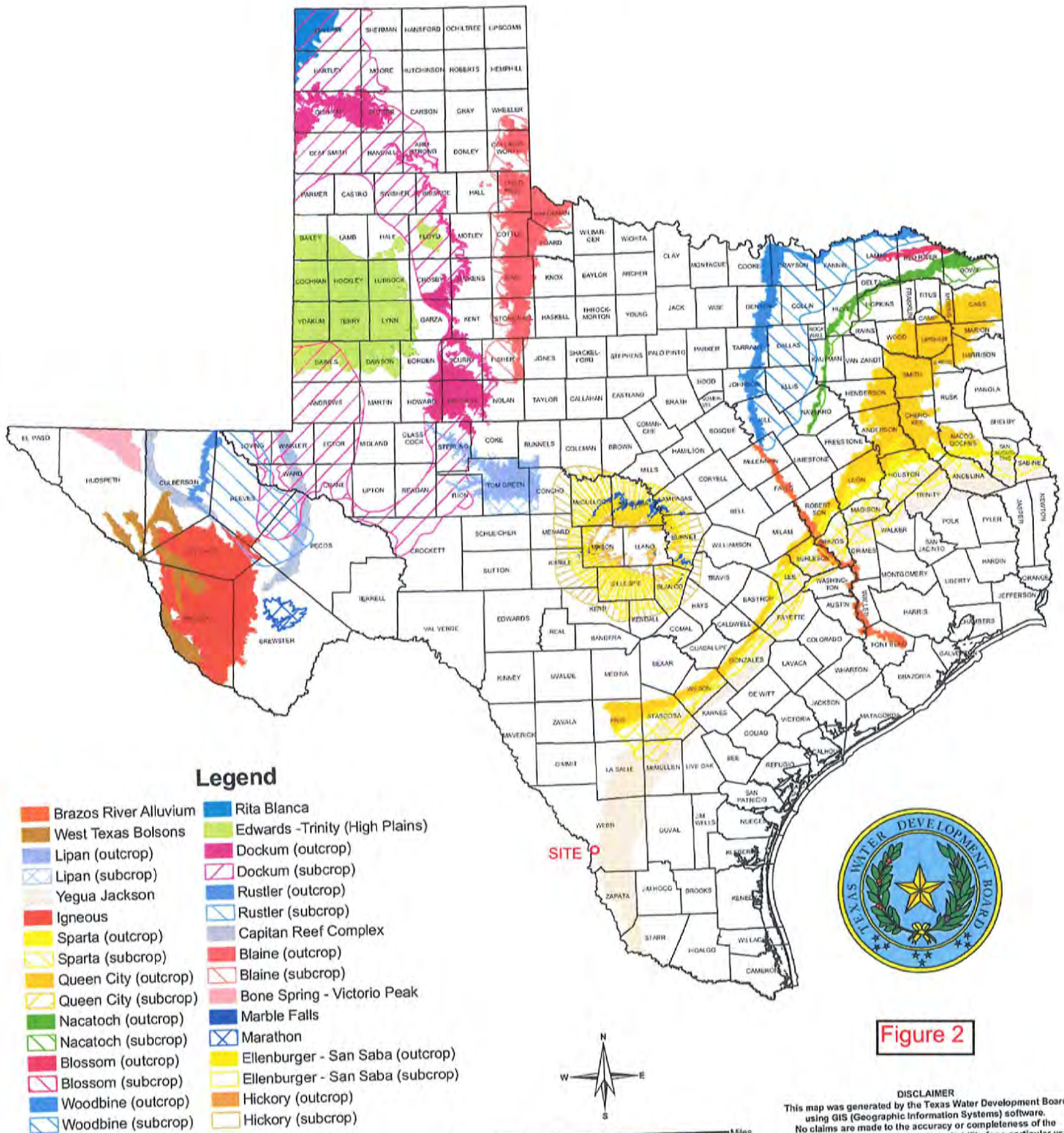
**Figure 1**

**DISCLAIMER**  
 This map was generated by the Texas Water Development Board using GIS (Geographic Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

Map updated December 2006 by Mark Hayes, GISP



# Minor Aquifers of Texas



**Figure 2**

**DISCLAIMER**  
This map was generated by the Texas Water Development Board using GIS (Geographic Information Systems) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate.

Map updated December 2006 by Mark Hayes, GISP



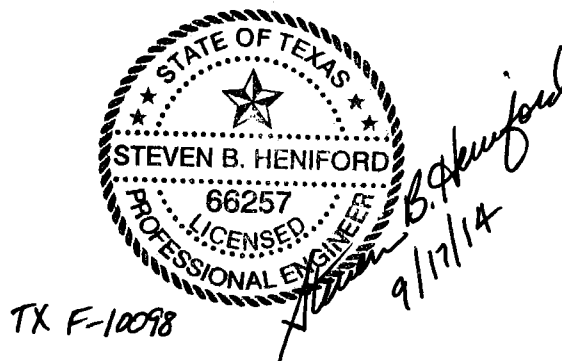






**City of Laredo Landfill Permit Amendment 1693B  
City of Laredo, Texas  
Permit Amendment MSW Permit 1693B  
Laredo, Texas  
Webb County, Texas  
August 2014**

**PART II  
Attachment 15  
Floodplain Location Restriction Documentation**



**LAREDO LANDFILL  
PART II  
Attachment 15  
Floodplain Location Restriction Documentation**

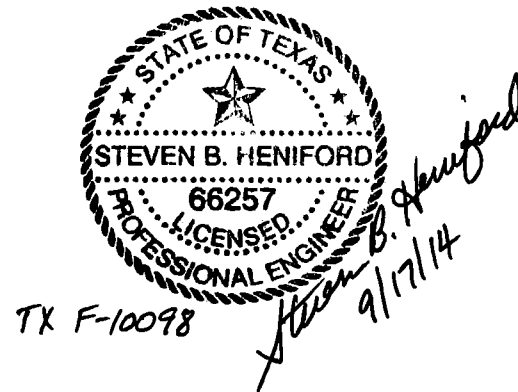
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**List of Attachments**

FEMA Letter Approving LOMR (07/03/2014)

Letter of Map Revision (01/06/2014)

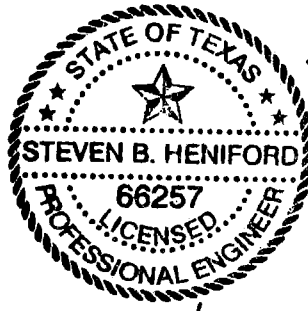


**Floodplains, 30 TAC 330.306**

In accordance with 30 TAC 330.306, I hereby certify that the waste storage units of the Laredo Sanitary Landfill as authorized by Permit No MSW -1693 or as proposed in this Permit Amendment Application, is not located within a 100 year floodplain.

*Steven B. Heniford*

Steve B Heniford, PE



TX F-10098

9/17/14





# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Laredo Webb County Texas	FILL	HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 480651		
IDENTIFIER	Laredo Landfill	APPROXIMATE LATITUDE AND LONGITUDE: 27.490, -99.403 SOURCE: Precision Mapping Streets      DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM*      NO.: 48479C1220 C      DATE: April 2, 2008 TYPE: FIRM*      NO.: 48479C1385 C      DATE: April 2, 2008		NO REVISION TO THE FLOOD INSURANCE STUDY REPORT	

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map

### FLOODING SOURCE AND REVISED REACH

Tex-Mex Tributary - Just upstream of Highway 359 to approximately 7,500 feet upstream of Highway 359

### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Tex-Mex Tributary	Zone A	Zone A	YES	YES

\* BFEs - Base Flood Elevations

### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/business/nfip>.

Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration

City of Laredo  
Landfill Permit Amendment

11.15.2

Arredondo & Brunz, LLC

102-I-A-C

Version 0



Federal Emergency Management Agency  
Washington, D.C. 20472

LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

CID Number: 481059 Name: Webb County, Texas

AFFECTED MAP PANELS

AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT

TYPE: NO.: 48479C1220 C DATE: April 2, 2008

NO REVISION TO THE FLOOD INSURANCE STUDY REPORT

TYPE: NO.: 48479C1385 C DATE: April 2, 2008

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/business/nfip>.

  
Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration

City of Laredo  
Landfill Permit Amendment

II 15.3

Arredondo, Zepeda & Brunz, LLC  
14-06-0556P  
Version 0

102-I-A-C



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### COMMUNITY INFORMATION

#### APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

#### COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that any permits required by Federal or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/business/nfip>.

Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration

14-06-0556P

102-I-A-C



## Federal Emergency Management Agency

Washington, D.C. 20472

### LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

#### COMMUNITY INFORMATION (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Frank Pagano  
Director, Mitigation Division  
Federal Emergency Management Agency, Region VI  
Federal Regional Center, Room 206  
800 North Loop 288  
Denton, TX 76209  
(940) 898-5127

#### STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional information about the NFIP is available on our Web site at <http://www.fema.gov/business/nfip>.

Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration

14-06-0556P

102-I-A-C



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the Federal Register. This information also will be published in your local newspaper on or about the dates listed below and through FEMA's Flood Hazard Mapping Web site at [https://www.floodmaps.fema.gov/fhm/Scripts/bfe\\_main.asp](https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp).

#### LOCAL NEWSPAPER

Name: *Laredo Morning Times*

Dates: 02/26/2014 and 03/05/2014

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90 day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised BFEs presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our Web site at <http://www.fema.gov/business/nfip>.

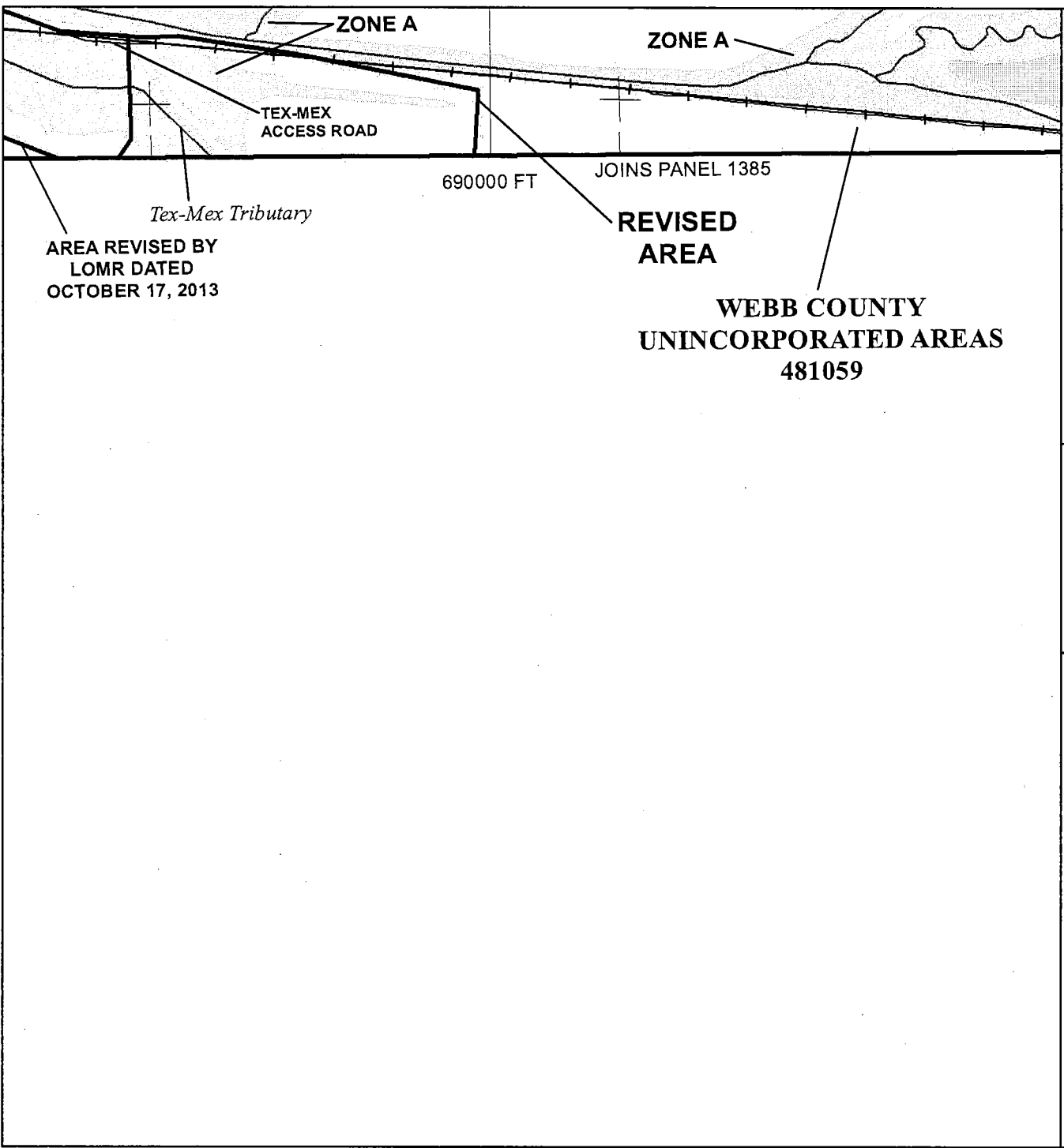
A handwritten signature in black ink, appearing to read "Luis Rodriguez".

Luis Rodriguez, P.E., Chief  
Engineering Management Branch  
Federal Insurance and Mitigation Administration

14-06-0556P

102-I-A-C



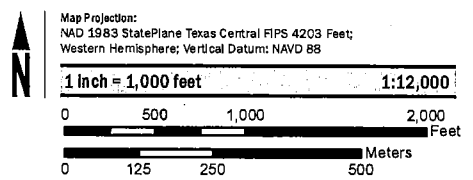


**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE)  
Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X

**OTHER AREAS OF FLOOD HAZARD**

**SCALE**



**FEMA**  
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM  
FLOOD INSURANCE RATE MAP**

**WEBB COUNTY, TEXAS**  
and Incorporated Areas

**PANEL 1220 OF 1700**

Panel Contains:

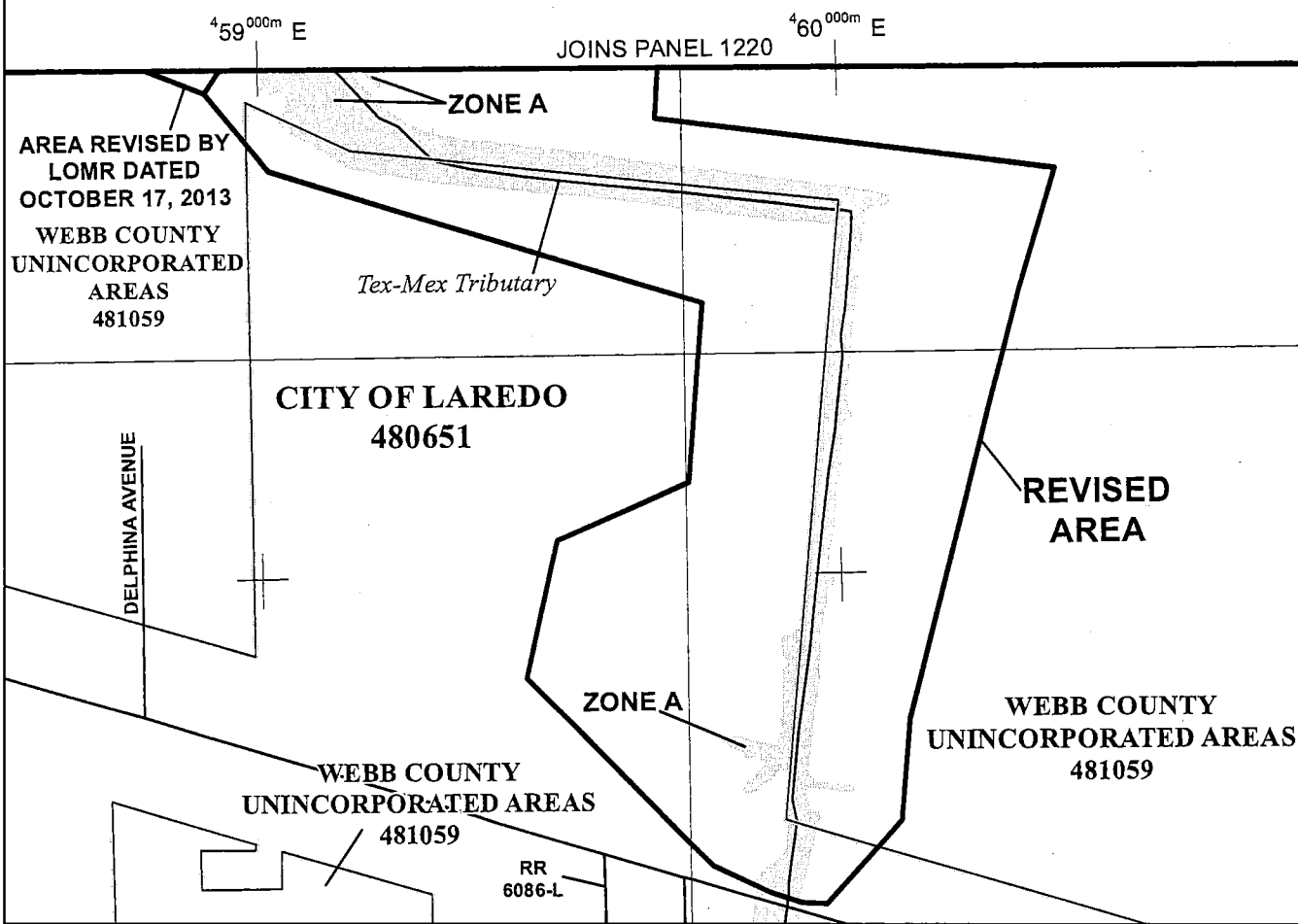
COMMUNITY	NUMBER	PANEL	SUFFIX
WEBB COUNTY	481059	1220	C
LAREDO, CITY OF	480651	1220	C

**REVISED TO REFLECT  
LOMR EFFECTIVE:  
July 3, 2014**

VERSION NUMBER  
2.3.2.0

MAP NUMBER  
48479C1220C

MAP REVISED  
APRIL 2, 2008



**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE)  
Zone A, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes. Zone X

**OTHER AREAS OF FLOOD HAZARD**

**SCALE**

Map Projection:  
NAD 1983 StatePlane Texas Central FIPS 4203 Feet;  
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 Feet

0 125 250 500 Meters

**FEMA**  
National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM  
FLOOD INSURANCE RATE MAP**

**WEBB COUNTY, TEXAS**  
and Incorporated Areas  
PANEL 1385 OF 1700

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
WEBB COUNTY	481059	1385	C
LAREDO, CITY OF	480651	1385	C

**REVISED TO REFLECT  
LOMR EFFECTIVE:  
July 3, 2014**

VERSION NUMBER  
2.3.2.0

MAP NUMBER  
48479C1385C

MAP REVISED  
APRIL 2, 2008

# LOMR "CASE 14-06-0556P"

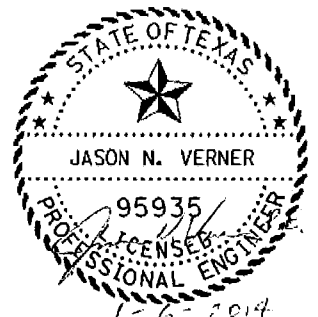
UNNAMED TRIBUTARY OF THE TEX MEX TRIBUTARY OF  
CHACON CREEK

City of Laredo  
Webb County, Texas



Prepared by:  
Arredondo, Zepeda & Brunz, LLC  
11355 McCree Road  
Dallas, Texas 75238  
214.341.9900

January 6, 2014



The seal appearing  
on this document  
was authorized by  
JASON N. VERNER,  
P.E. 95935



Providing Solutions - Improving the Community  
Serving Texas since 1981  
(TPBE Firm Reg. #F-10098)

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### EXHIBITS

I.	Existing Offsite Drainage Area Map
II.	Effective FEMA FIRM Map
III.	Floodplain Workmap

### APPENDICES

A.	Hydrologic Data & HEC-HMS Model of Existing Conditions
B.	HEC-RAS Model of Existing Conditions
C.	CD of HEC-HMS and HEC-RAS Digital Files

### REFERENCES

Literature/Manual/Specification References Used

City of Laredo and Webb County, Texas:  
Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
Hydrologic and Hydraulic Analyses Report

---

## **I. INTRODUCTION**

The subject tributary of the Tex-Mex Tributary of Chacon Creek is being studied to accurately map the 100-year floodplain as it relates to the City of Laredo's Landfill located on the south and west sides of the tributary. The study area of the subject tributary is located within Webb County, Texas, north of State Highway 359, south of the Tex-Mex Railroad approximately 2.5 miles east of Loop 20.

The tributary is currently shown on the Federal Emergency Management Agency's (FEMA) effective Flood Insurance Rate Map's (FIRM) Panels 48479C1220C and 48479C1385C, with a revised effective dated of October 17, 2013 as Zone A. The Zone A Floodplain shown indicates that flooding spreads significantly onto the landfill site, especially at the southeast corner, and onto the adjacent land to the east. The limits of flooding shown on the effective FIRM do not correspond to the existing contours currently surveyed and improvements made in the area.

This study will analyze approximately 7,200 linear feet of the tributary from the landfill's northwest corner to the landfill's southeast corner. This study will analyze the hydrology and hydraulics of the drainage feature by detailed methods and determine base flood elevations for the study area.

## **II. EXISTING CONDITIONS**

The unnamed tributary flows from south to north along the east boundary of the City of Laredo Landfill and then east to west along the landfill's northern boundary and south of the Tex-Mex railroad. Further to the west, this tributary flows into the Tex-Mex Tributary of Chacon Creek. There are no bridges or culverts along the reach being studied. The property to the west of the landfill is phased with light industrial development.

The area of the drainage basin fronting S.H. 359 is developed with light industrial or commercial sites. The majority of the basin which is located south of S.H. 359 is undeveloped and consists of brushy land with little ground cover. Slopes are generally moderate to flat.

The landfill itself is located within the city limits of Laredo as is the platted portion of the industrial park known as Las Lomas Industrial Park to the east. The undeveloped area east of the landfill and the railroad to the north lie within unincorporated areas of Webb County, Texas.

Within the past ten years, the unnamed tributary was improved to a trapezoidal earthen channel that runs in a variable width drainage easement to accommodate the light industrial development mentioned above. Adjacent to the northwestern corner of the landfill site the channel has standing water. As the water surface rises in this location, flow begins to exit the ponded area and continues flowing downstream to the west. The drainage easement has a minimum width of 100 feet and is located adjacent to and completely outside of the landfill's boundary. The City of Laredo has joint use rights of the easement and maintenance responsibility of the channel.

Since the time of the channel construction, it has become heavily silted up and partially overgrown with brush. The channel was designed with two drop structures along the landfill's eastern boundary. The upstream drop structure of the two was included so the channel could provide sufficient cover over an existing natural gas pipeline that was crossing the channel alignment. The gas pipeline has now been abandoned and removed through the area of the channel crossing.



City of Laredo and Webb County, Texas:  
Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
Hydrologic and Hydraulic Analyses Report

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### **III. DATA COLLECTION**

Existing topographical features of the studied reach of the subject tributary were obtained from photogrammetric survey data coordinated by AZ&B and performed by Aerometric, Inc. in October, 2012. Project survey control data consist of the following:

Horizontal:	NAD 83 in State Plane Coordinates – TX St. Plane South (4205)
Vertical:	NAVD88
Surface Adjustment Factor:	1.00003

In addition to the obtained survey, topographic maps developed by the United States Geological Service (USGS) 7.5 Minute Series Maps (Laredo East/Laredo South) were utilized to determine the drainage area boundaries.

A site investigation was performed by personnel from AZ&B including the examination of recent aerial photography to determine current land usage.

As-Built Plans for the channelized portion of the unnamed tributary were obtained from the City of Laredo.

### **IV. HYDROLOGY**

Hydrologic evaluations were performed in accordance with or combination of the Texas Commission on Environmental Quality (TCEQ) Requirements, City of Laredo Design Manual and Texas Department of Transportation (TxDOT) "Hydraulic Design Manual", October 2011.

The dominant soil types located within the drainage basins are Jimenez-Quemapo Complex (JQD), Catarina (CaB) and Maverick-Caterina Complex (MCE). The overall soil types for the project area are included in hydrologic soil group C. A map of the project's soil groups is included in **Appendix A**.

Sub-basins were developed for the project drainage areas and composite CN's were calculated for areas with multiple surface conditions utilizing the method described in Technical release 55 "Urban Hydrology for Small Watersheds. The "Climatic Adjustments of Natural Resource Conservation Services (NRCS) Runoff Curve Numbers, November 2003" technical report was used to develop the adjusted CN values for the hydrologic analyses. The following **Table 1** contains the data and results of the adjusted CN values. The appropriate tables and figures from Technical release 55 and the technical report are included in **Appendix A**.

City of Laredo and Webb County, Texas:  
 Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
 Hydrologic and Hydraulic Analyses Report

**Table 1**  
**SCS CURVE NUMBERS**  
**Existing Conditions**

DA ID	Total DA	Sub-Area1 DA	Cover Description	Area1 CN Value	Sub-Area2 DA	Cover Description	Area2 CN Value	Average CN Value	Texas Climatic Adjustment (Curve Number (CN) Adjustments)
	(Acres)	(Acres)	<i>Hydrologic Soils Group - C</i>		(Acres)	<i>Hydrologic Soils Group - C</i>			
A1	16.43	16.43	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A2	16.74	16.74	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A3	6.34	6.34	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A4	100.87	100.87	Pasture, grassland or range - Fair	79		--		79	62
A5	62.56	17.96	Pasture, grassland or range - Fair	79	44.60	Newly graded area	91	88	75
A6	79.19	31.59	Pasture, grassland or range - Fair	79	47.60	Newly graded area	91	86	72
A7	239.87	154.27	Pasture, grassland or range - Fair	79	85.60	Commercial & business	94	84	68
A8	447.84	447.84	Pasture, grassland or range - Fair	79		--		79	62
B1	20.00	20.00	Pasture, grassland or range - Fair	79		--		79	62
B2	23.08	8.18	Pasture, grassland or range - Fair	79	14.90	Commercial & business	94	89	76
C1	35.68	35.68	Newly graded area	91		--		91	80
C2	46.24	46.24	Newly graded area	91		--		91	80
C3	9.03	9.03	Newly graded area	91		--		91	80
C4	15.15	15.15	Newly graded area	91		--		91	80
D1	95.50	84.40	Newly graded area	91	11.10	Commercial & business	94	91	80
D2	29.66	14.26	Pasture, grassland or range - Fair	79	15.40	Commercial & business	94	87	73
D3	111.90	42.90	Pasture, grassland or range - Fair	79	69.00	Commercial & business	94	88	75

City of Laredo and Webb County, Texas:  
Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
Hydrologic and Hydraulic Analyses Report

---

Since this project consists of a complex drainage watershed, the United States Army Corps of Engineers (USACE) HEC-HMS computer program was used to calculate peak discharges for the 10-year, 25-year, 50-year, 100-year and 500-year events for a 24-hr storm duration. The Soil Conservation Service (SCS) Unit Hydrograph and Curve Number (CN) Methods were utilized to calculate the peak runoff values for these analyses. Routing of the runoff through the basin was accomplished using the Lag Routing Method for the project reaches. Rainfall depth/intensities were determined by utilizing the USGS Scientific Investigations Report 2004-5041 "Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas" while using a Type II rainfall distribution with the SCS Method. The Kirby-Kirpich approach from the report "Time-Parameter Estimation for Applicable Texas Watersheds, August 2005" and the "Climatic Adjustments of Natural Resource Conservation Services (NRCS) Runoff Curve Numbers, November 2003" are technical reports that were utilized to develop the Time of Concentration, Lag Time and Adjusted CN values.

The following **Table 2** contains the hydrologic analyses for the 25-year and 100-year storm frequencies. The drainage area maps can be found in **Exhibit I**, and the hydrologic data and model output for the existing conditions presented in **Appendix A**. The HEC-HMS files for **Table 2** can be found on a CD in **Appendix C**.

City of Laredo and Webb County, Texas:  
 Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
 Hydrologic and Hydraulic Analyses Report

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**Table 2**  
**SCS CURVE NUMBER METHOD**  
**(HEC-HMS v3.5)**  
**Existing Conditions**

HEC-HMS ID	TOTAL AREA (SQ MI)	CN ADJ	LAG TIME (MIN)	Q <sub>25</sub> (CFS)	Q <sub>100</sub> (CFS)
A8	0.7	62	38	583.3	1014.4
Reach A7-8	0.7	--	12	581.7	1013.0
Junction-A6-7	0.7	--	--	450.4	741.2
A7	0.375	68	40	1008.9	1719.7
Reach A6-7	1.075	--	7	1004.4	1705.2
A6	0.124	72	12	297.2	463.4
Junction-A5-6	1.199	--	--	1044.0	1769.5
Reach A5-6	1.199	--	9	1041.7	1768.4
D3	0.175	75	31	264.4	404.6
Reach D2-3	0.175	--	7	262.7	402.8
D2	0.046	73	20	85.6	132.7
Junction-D1-2	0.221	--	--	314.8	484.9
Reach D1-2	0.221	--	13	314.4	483.2
D1	0.149	80	16	378.5	555.5
A5	0.098	75	13	244.8	373.6
Junction-A4-5	1.667	--	--	1401.0	2310.9
Reach A4-5	1.667	--	13	1398.9	2305.4
A4	0.158	62	37	133.9	233.9
C4	0.024	80	15	62.0	91.3
Junction-A3-4	1.849	--	--	1481.2	2440.6
Reach A3-4	1.849	--	6	1479.3	2438.2
C3	0.014	80	7	49.9	73.0
A3	0.01	72	6	30.4	47.0
Junction-A2-3	1.873	--	--	1484.6	2445.9
Reach A2-3	1.873	--	15	1484.6	2445.9
C2	0.072	80	12	212.1	311.2
A2	0.026	72	15	54.9	85.4
Junction-A1-2	1.971	--	--	1505.6	2475.8
Reach A1-2	1.971	--	13	1496.6	2462.3
C1	0.056	80	18	134.4	197.9
B2	0.036	76	15	84.7	127.6
Reach B1-2	0.036	--	7	84.3	127.6
B1	0.031	62	24	34.9	60.6
A1	0.026	72	13	59.6	93.2
Outfall	2.12	--	--	1526.3	2506.1

## **V. HYDRAULIC MODELING**

The hydraulic analysis of the unnamed tributary was developed and modeled using the USACE's HEC-RAS computer program and is in geo-referenced format. The downstream water surface elevations used in this model is the normal depth elevations for the channel with the corresponding discharges.

### **Existing Conditions Model**

The Existing Conditions HEC-RAS model developed represents the surface conditions as surveyed in October of 2012 (shown in **Appendix B**). These conditions included heavy silt buildup within the channel previously constructed and surface water handling currently in operation within the boundary of the landfill. The flow data represents flow at key junctions contributed by the landfill and/or neighboring properties along the existing drainage channel which borders the landfill on the east and north boundaries.

The results of this model show a significant reduction in the width of the 100-year floodplain as compared to the effective FIRM. The modeled 100-year water surface shows that it is mostly contained within the current channel. There is still some spread of water onto the landfill's southeast and northeast corners, as well as onto the adjacent undeveloped property; however, the 100-year floodplain boundary is not located within any of the "Cells" in the landfill. See the following **Table 3** for the "Existing" 100-yr HEC-RAS Section/Water-Surface Elevations.



City of Laredo and Webb County, Texas:  
 Unnamed Tributary of the Tex-Mex Tributary of Chacon Creek  
 Hydrologic and Hydraulic Analyses Report

---

**Table 3: 100-YR HEC-RAS Section/Water-Surface Elevations**

HECRAS Section	Total Flow	Channel Velocity	100-Yr. Water Surface Elev.
	(cfs)	(fps)	(msl)
9895	1719.7	8.85	494.56
9463	1719.7	3.27	493.38
9313	1719.7	6.03	492.42
9113	1769.5	4.76	491.53
8763	1769.5	4.55	490.05
8513	1769.5	5.65	488.48
8413	1769.5	7.56	486.96
8313	1769.5	5.35	483.51
8013	1769.5	4.84	482.39
7613	2310.9	6.46	480.05
7213	2310.9	5.88	477.67
6813	2310.9	6.45	475.19
6713	2310.9	5.80	474.69
6513	2310.9	4.51	474.15
6113	2310.9	8.75	471.00
5974	2440.6	3.83	469.33
5650	2440.6	4.54	467.73
5400	2445.9	4.25	466.58
4700	2445.9	3.76	464.13
4000	2475.8	3.21	462.50
3300	2475.8	2.73	461.30
2850	2475.8	2.61	460.38
2630	2475.8	3.75	459.52
2600	2475.8	3.91	459.32
2400	2506.1	3.68	458.17
2250	2506.1	3.93	457.29

## **EXHIBITS**

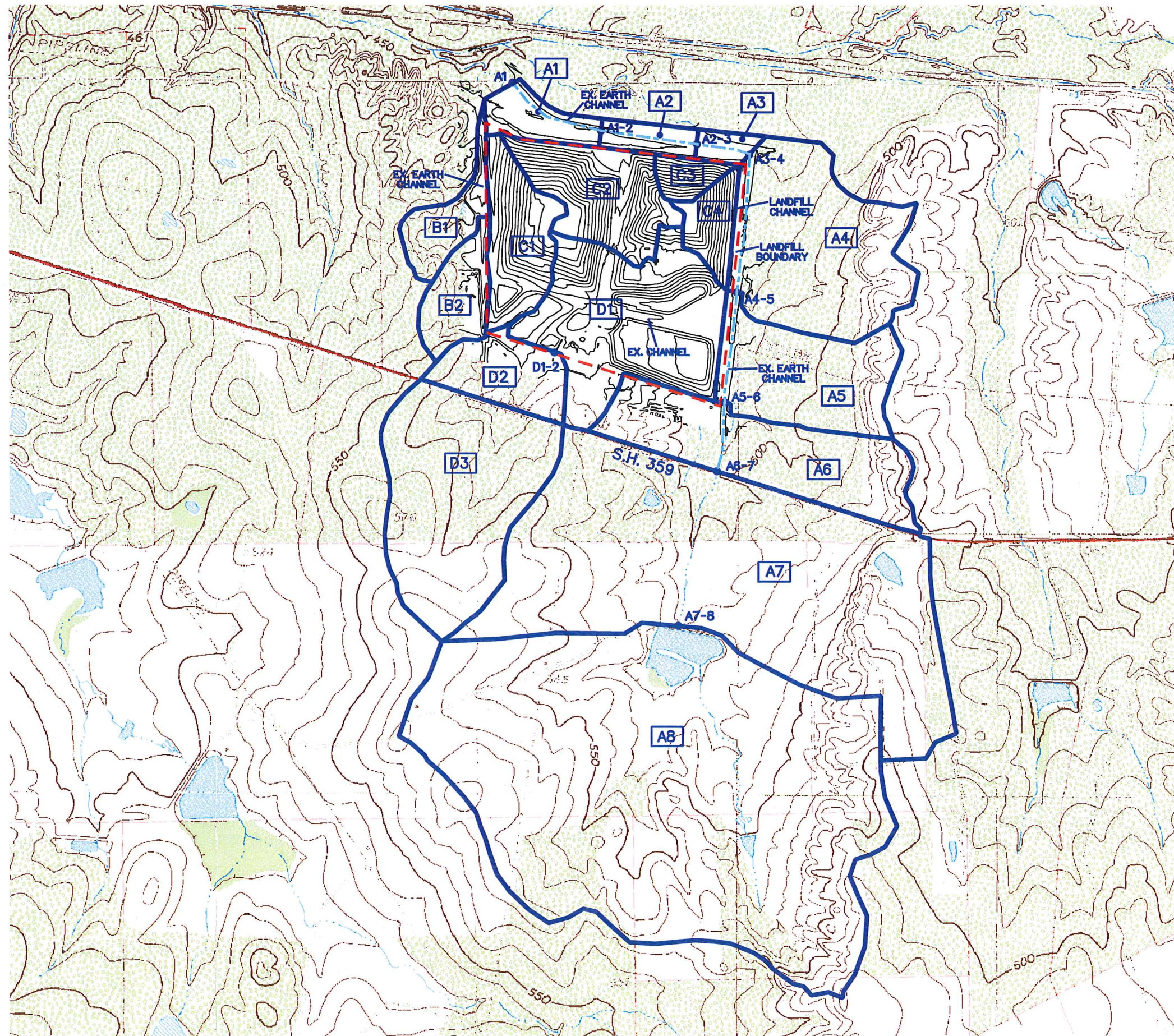
## VI. SUMMARY

The subject tributary of the Tex-Mex Tributary of Chacon Creek was studied to accurately map the 100-year floodplain as it relates to the City of Laredo's Landfill located on the south and west sides of the tributary.

The tributary is currently shown on the Federal Emergency Management Agency's (FEMA) effective Flood Insurance Rate Map's (FIRM) Panels 48479C1220C and 48479C1385C, revised dated October 17, 2013 as Zone A. The Zone A Floodplain shown in the "Effective FIRM" (See **Exhibit II**) indicates that flooding spreads significantly onto the landfill site, especially at the southeast corner, and onto the adjacent land to the east. The limits of flooding shown on the effective FIRM do not correspond to the existing contours currently surveyed and improvements made in the area.

As a result of the Hydrologic and Hydraulic Analyses for the project, the results show a significant reduction in the width of the 100-year floodplain as compared to the effective FIRM. The modeled 100-year water surface shows that it is mostly contained within the current channel. There is still some spread of water onto the landfill's southeast and northeast corners, as well as onto the adjacent undeveloped property, but none located within any of the landfill "Cell" locations. A Floodplain Workmap (**Exhibit III**) showing the effective and proposed 100-year floodplain, topography, cross-section locations, river stations and other surface features is included in this report.





# DRAINAGE AREA SUMMARY

AREA I.D.	AREA	AREA
	(Sq. Mi.)	(ACRES)
A1	0.026	16.4
A2	0.026	16.7
A3	0.010	6.4
A4	0.158	100.9
A5	0.098	62.6
A6	0.124	79.2
A7	0.458	293.0
A8	0.700	447.8
B1	0.031	20.0
B2	0.036	23.1
C1	0.056	35.7
C2	0.072	46.2
C3	0.014	9.0
C4	0.024	15.2
D1	0.149	95.5
D2	0.046	29.7
D3	0.175	111.9

## LEGEND

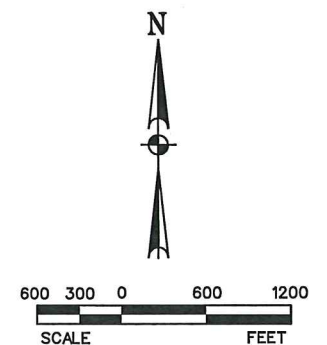
- A3 AREA I.D.
- A1-2 HEC-HMS JUNCTION POINT
- CHANNEL
- DRAINAGE AREA BOUNDARY

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JASON N. VERNER,  
P.E. 95935

on MARCH 14, 2013

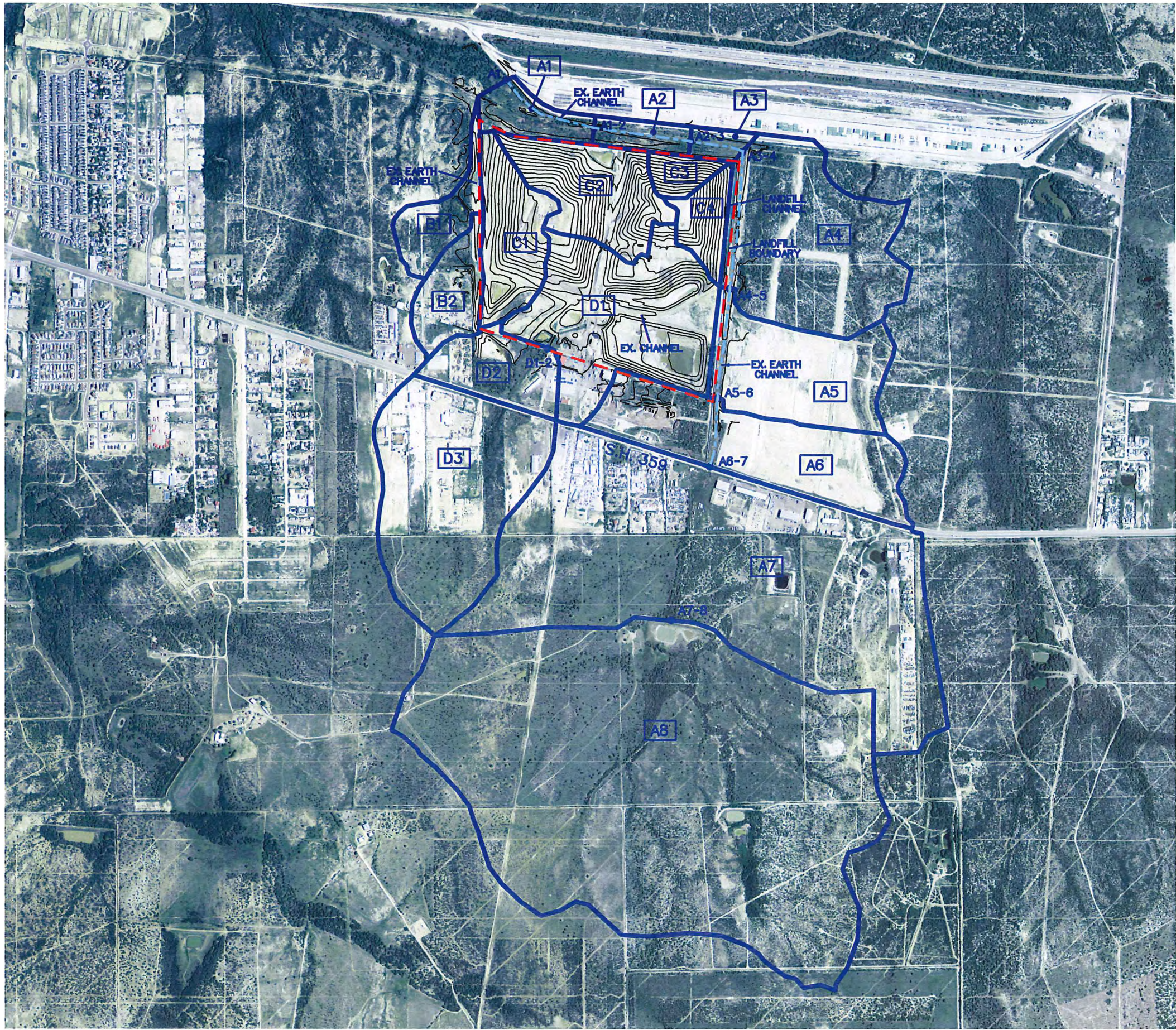
It is Not to be Used for Construction, Bidding, or Permit Purposes.



**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TSP# FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. XXX-XXXXX		
DATE:		WEBB COUNTY, TEXAS		
DES BY		<b>EXHIBIT I EXISTING DRAINAGE AREA MAP</b>		
DRN BY				
CHK BY				
APP BY				
<b>CITY OF LAREDO</b>		SHEET	OF	
		FILE:		
		ATTACHMENT:	XXX	





DRAINAGE AREA SUMMARY

AREA I.D.	AREA	AREA
	(Sq. Mi.)	(ACRES)
A1	0.026	16.4
A2	0.026	16.7
A3	0.010	6.4
A4	0.158	100.9
A5	0.098	62.6
A6	0.124	79.2
A7	0.458	293.0
A8	0.700	447.8
B1	0.031	20.0
B2	0.036	23.1
C1	0.056	35.7
C2	0.072	46.2
C3	0.014	9.0
C4	0.024	15.2
D1	0.149	95.5
D2	0.046	29.7
D3	0.175	111.9

LEGEND

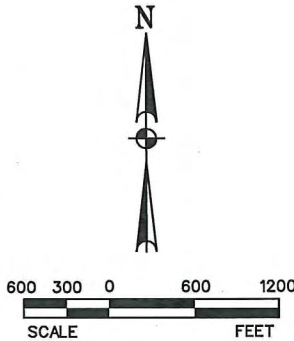
- A3 AREA I.D.
- A1-2 HEC-HMS JUNCTION POINT
- CHANNEL
- DRAINAGE AREA BOUNDARY

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JASON N. VERNER, P.E. 95935

on MARCH 14, 2013

It is Not to be Used for Construction, Bidding, or Permit Purposes.



**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

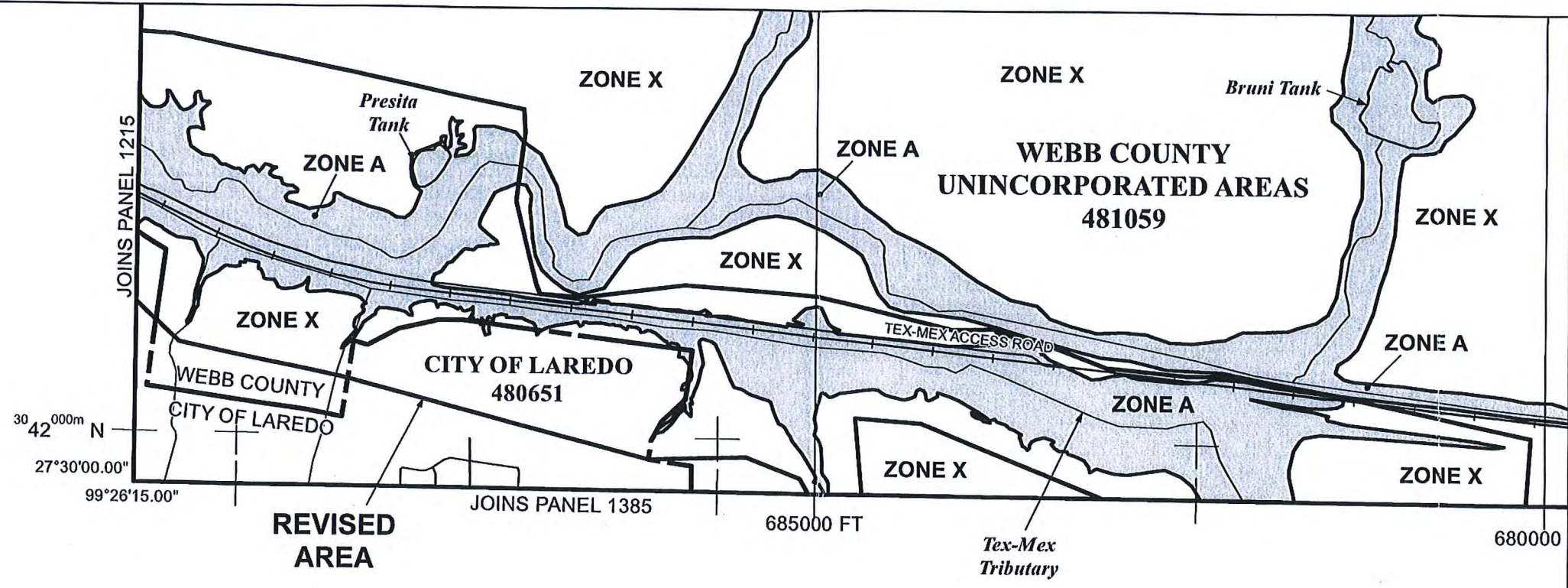
REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. XXX-XXXXX		
DATE:		WEBB COUNTY, TEXAS		
DES BY				
DRN BY				
CHK BY				
APP BY				
		EXHIBIT I EXISTING DRAINAGE AREA MAP		
		SHEET OF		
		FILE:		
		ATTACHMENT:		
		XXX		

CITY OF LAREDO

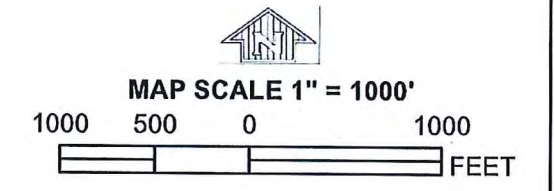
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- Legend**
- 1% Annual Chance (100-Year) Floodplain
  - 1% Annual Chance (100-Year) Floodway
  - 0.2% Annual Chance (500-Year) Floodplain



**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 1220C**

**FIRM**

**FLOOD INSURANCE RATE MAP**

**WEBB COUNTY, TEXAS**

**AND INCORPORATED AREAS**

**PANEL 1220 OF 1700**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	COMMUNITY	NUMBER	PANEL	SUFFIX
WEBB COUNTY	481059	1220	C	
LAREDO, CITY OF	480651	1220	C	

**REVISED TO REFLECT LOMR**

**EFFECTIVE: October 17, 2013**

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**

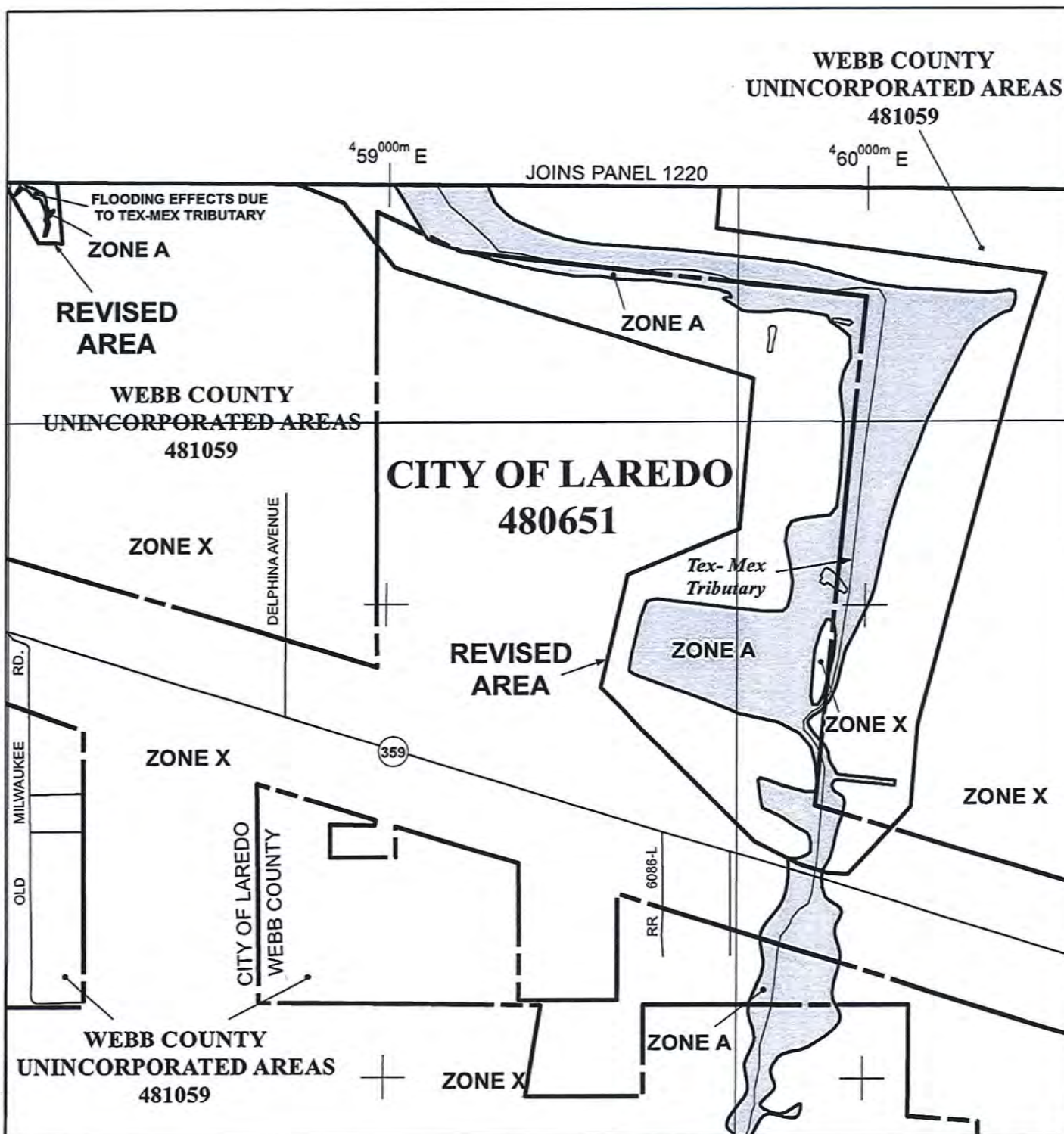
**48479C1220C**

**EFFECTIVE DATE**

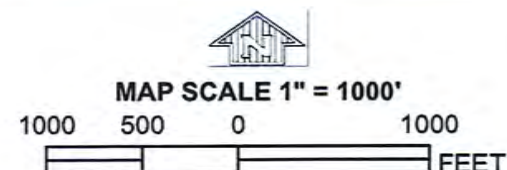
**APRIL 2, 2008**

Federal Emergency Management Agency





- Legend
- 1% Annual Chance (100-Year) Floodplain
  - 1% Annual Chance (100-Year) Floodway
  - 0.2% Annual Chance (500-Year) Floodplain



NFIP

PANEL 1385C

**FIRM**

**FLOOD INSURANCE RATE MAP**  
**WEBB COUNTY,**  
**TEXAS**  
**AND INCORPORATED AREAS**

**PANEL 1385 OF 1700**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

<u>COMMUNITY</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
WEBB COUNTY	481059	1385	C
LAREDO, CITY OF	480651	1385	C

**REVISED TO**  
**REFLECT LOMR**  
**EFFECTIVE: October 17, 2013**

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

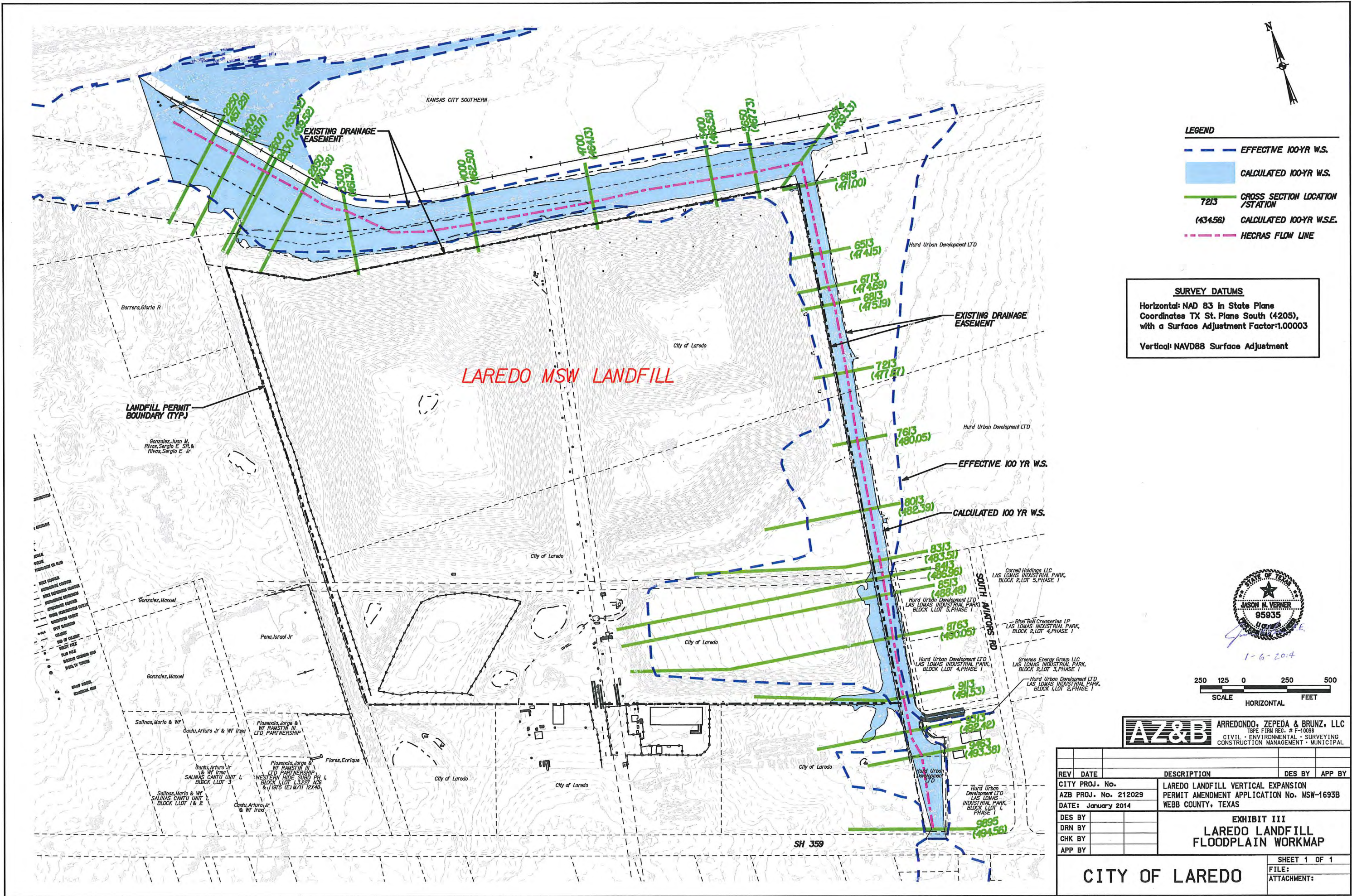


**MAP NUMBER**  
**48479C1385C**

**EFFECTIVE DATE**  
**APRIL 2, 2008**

Federal Emergency Management Agency





- LEGEND**
- EFFECTIVE 100-YR W.S.
  - CALCULATED 100-YR W.S.
  - 7213 CROSS SECTION LOCATION /STATION
  - (434.56) CALCULATED 100-YR W.S.E.
  - HECRAS FLOW LINE

**SURVEY DATUMS**  
Horizontal: NAD 83 in State Plane  
Coordinates TX St. Plane South (4205),  
with a Surface Adjustment Factor:1.00003  
Vertical: NAVD88 Surface Adjustment



**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TYPE FIRM REG. # F-10098  
CIVIL - ENVIRONMENTAL - SURVEYING  
CONSTRUCTION MANAGEMENT - MUNICIPAL

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE: January 2014		WEBB COUNTY, TEXAS		
DES BY		EXHIBIT III		
DRN BY		LAREDO LANDFILL		
CHK BY		FLOODPLAIN WORKMAP		
APP BY				
CITY OF LAREDO		SHEET 1 OF 1		
		FILE:		
		ATTACHMENT:		



**APPENDIX A**

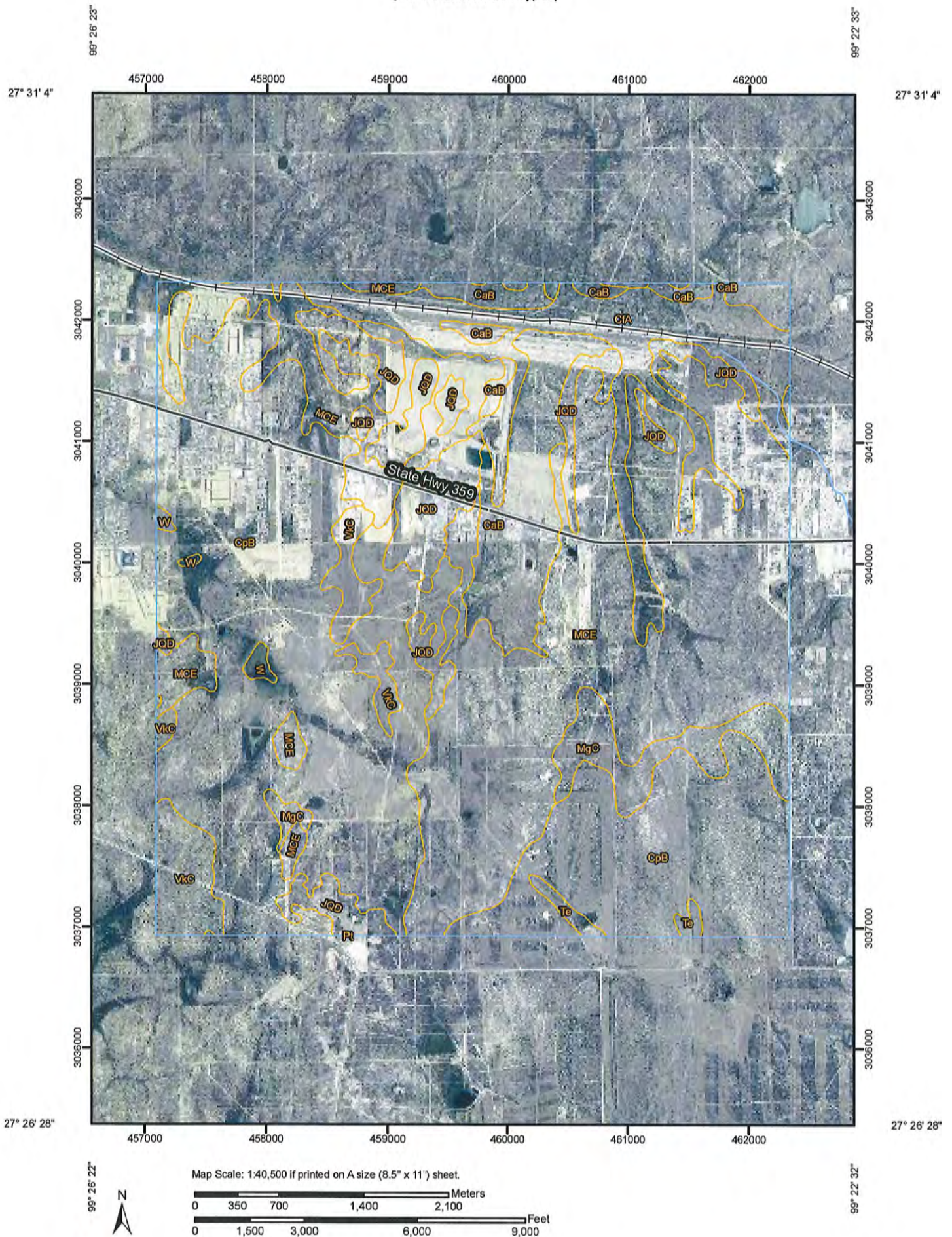
**HYDROLOGIC DATA &**

**HEC-HMS MODEL**

**OF**

**EXISTING CONDITIONS**

Soil Map—Webb County, Texas  
(Laredo Landfill Soil Types)






Soil Map-Webb County, Texas  
(Laredo Landfill Soil Types)

## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Units

### Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot



Very Stony Spot



Wet Spot



Other

### Special Line Features



Gully



Short Steep Slope



Other

### Political Features



Cities

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads

## MAP INFORMATION

Map Scale: 1:40,500 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:31,680.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Webb County, Texas  
Survey Area Data: Version 9, Sep 21, 2012

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

2/18/2013  
Page 2 of 3

## Map Unit Legend

Webb County, Texas (TX479)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CaB	Catarina clay, 0 to 2 percent slopes	445.0	6.4%
CfA	Catarina clay, occasionally flooded	583.8	8.4%
CpB	Copita fine sandy loam, 0 to 3 percent slopes	2,658.3	38.1%
JQD	Jimenez-Quemado complex, undulating	511.8	7.3%
MCE	Maverick-Catarina complex, gently rolling	2,305.4	33.0%
MgC	Moglia clay loam, 1 to 5 percent slopes	205.1	2.9%
Pt	Pits	0.3	0.0%
Te	Tela sandy clay loam, frequently flooded	30.3	0.4%
VkC	Verick fine sandy loam, 1 to 5 percent slopes	223.1	3.2%
W	Water	20.8	0.3%
Totals for Area of Interest		6,983.8	100.0%

Time of Concentration Data (Kirby-Kirpich)

DA ID	DA	DA	Overland Flow						Channel Flow					Total Tc	K-K Lag Time (Developed)	K-K Lag Time (Undeveloped)	Trad. Lag Time	Lag Time Used
			Length	Beg Elev	End Elev	Slope	N	Tc	Length	Beg Elev	End Elev	Slope	Tc					
	(Acres)	(Sq.Mi.)	(ft)	(ft)	(ft)	(ft/ft)		(min)	(ft)	(ft)	(ft)	(ft/ft)	(min)	(min)	(min)	(min)	(min)	(min)
A1	16.43	0.026		-	-	-		0	1312	459	455	0.003	18	18	7	13	11	13
A2	16.74	0.026		-	-	-		0	1278	461	459	0.002	21	21	8	15	13	15
A3	6.34	0.010		-	-	-		0	684	466	461	0.007	8	8	3	6	5	6
A4	100.87	0.158	1200	535	490	0.038	0.40	32	2620	490	466	0.009	21	52	21	37	31	37
A5	62.56	0.098	1200	550	502	0.040	0.10	17	2317	502	475	0.012	17	33	13	23	20	13
A6	79.19	0.124	1200	555	510	0.038	0.10	17	1876	510	487	0.012	14	31	12	22	19	12
A7	292.98	0.458	1200	573	553	0.017	0.40	39	3349	553	493	0.018	19	58	23	40	35	40
A8	447.84	0.700	1200	640	570	0.058	0.40	29	4380	570	510	0.014	26	55	22	38	33	38
B1	20.00	0.031	1200	540	495	0.038	0.40	32	1426	495	460	0.025	9	41	16	28	24	24
B2	23.08	0.036	1200	553	530	0.019	0.10	20	916	530	493	0.040	5	25	10	17	15	15
C1	35.68	0.056	1136	607	508	0.087	0.15	16	1901	508	480	0.015	13	29	12	21	18	18
C2	46.24	0.072	769	607	508	0.129	0.15	12	1280	508	470	0.030	7	20	8	14	12	12
C3	9.03	0.014	755	598	471	0.168	0.15	11		-	-	-	0	11	5	8	7	7
C4	15.15	0.024	828	596	480	0.140	0.15	12	1165	480	473	0.006	13	25	10	18	15	15
D1	95.50	0.149	1200	540	505	0.029	0.02	8	2222	505	485	0.009	18	26	11	19	16	16
D2	29.66	0.046	1200	555	520	0.029	0.20	25	827	520	513	0.008	9	33	13	23	20	20
D3	111.90	0.175	1200	573	550	0.019	0.40	38	1974	550	520	0.015	14	51	20	36	31	31

Time of Concentration Data (Kirby-Kirpich)

Reach ID	Reach Length	Beg Elev	End Elev	Slope	Tc	K-K Lag Time	Trad. Lag Time
	(ft)	(ft)	(ft)	(ft/ft)	(min)	(min)	(min)
Reach A1-2	1312	459	455	0.003	18	13	11
Reach A2-3	1278	461	459	0.002	21	15	13
Reach A3-4	684	466	461	0.007	8	6	5
Reach A4-5	1745	475	466	0.005	19	13	11
Reach A5-6	1400	487	475	0.009	13	9	8
Reach A6-7	867	493	487	0.007	10	7	6
Reach A7-8	1996	510	493	0.009	17	12	10
Reach B1-2	1477	493	460	0.022	9	7	6
Reach D1-2	2642	513	485	0.011	19	13	11
Reach D2-3	897	520	513	0.008	9	7	6



DA ID	Total DA	Sub-Area1 DA	Cover Description	Area1 CN Value	Sub-Area2 DA	Cover Description	Area2 CN Value	Average CN Value	Texas Climatic Adjustment (Curve Number (CN) Adjustments)
	(Acres)	(Acres)	Hydrologic Soils Group - C		(Acres)	Hydrologic Soils Group - C			
A1	16.43	16.43	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A2	16.74	16.74	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A3	6.34	6.34	Open space (Lawns, parks, etc) - Poor	86		--		86	72
A4	100.87	100.87	Pasture, grassland or range - Fair	79		--		79	62
A5	62.56	17.96	Pasture, grassland or range - Fair	79	44.60	Newly graded area	91	88	75
A6	79.19	31.59	Pasture, grassland or range - Fair	79	47.60	Newly graded area	91	86	72
A7	292.98	207.38	Pasture, grassland or range - Fair	79	85.60	Commercial & business	94	83	67
A8	447.84	447.84	Pasture, grassland or range - Fair	79		--		79	62
B1	20.00	20.00	Pasture, grassland or range - Fair	79		--		79	62
B2	23.08	8.18	Pasture, grassland or range - Fair	79	14.90	Commercial & business	94	89	76
C1	35.68	35.68	Newly graded area	91		--		91	80
C2	46.24	46.24	Newly graded area	91		--		91	80
C3	9.03	9.03	Newly graded area	91		--		91	80
C4	15.15	15.15	Newly graded area	91		--		91	80
D1	95.50	84.40	Newly graded area	91	11.10	Commercial & business	94	91	80
D2	29.66	14.26	Pasture, grassland or range - Fair	79	15.40	Commercial & business	94	87	73
D3	111.90	42.90	Pasture, grassland or range - Fair	79	69.00	Commercial & business	94	88	75



## Example Formulas for the Kerby-Kirpich Method:

Stream: \_\_\_\_\_  
County: \_\_\_\_\_

### Overland Flow

#### The Kerby Method

For small watersheds where overland flow is an important component of overall travel time, the Kerby (1959) method can be used. The Kerby equation is

$$T_c = K(L \times N)^{0.467} S^{-0.235}$$

where  $T_c$  is the overland flow time of concentration, in minutes;  $K$  is a units conversion coefficient, in which  $K = 0.828$  for traditional units and  $K = 1.44$  for SI units;  $L$  is the overland-flow length, in feet or meters as dictated by  $K$ ;  $N$  is a dimensionless retardance coefficient; and  $S$  is the dimensionless slope of terrain conveying the overland flow. In the development of the Kerby equation, the length of overland flow was as much as about 1,200 feet (366 meters).

Generalized terrain description	Dimensionless retardance coefficient ( $N$ )
Pavement	0.02
Smooth, bare, packed soil	.10
Poor grass, cultivated row crops, or moderately rough packed surfaces	.20
Pasture, average grass	.40
Deciduous forest	.60
Dense grass, coniferous forest, or deciduous forest with deep litter	.80

#### Tc for Overland Flow

<b>Known:</b>	
Length (ft)	1,200
$N$	0.30
Slope (ft/ft)	0.017
<b>Find</b>	
<b>Tc (min)</b>	<b>34</b>

### Channel Flow

#### The Kirpich Method

For channel-flow component of runoff, the Kirpich (1940) equation is

$$T_c = KL^{0.770} S^{-0.385}$$

where  $T_c$  is the time of concentration, in minutes;  $K$  is a units conversion coefficient, in which  $K = 0.0078$  for traditional units and  $K = 0.0195$  for SI units;  $L$  is the channel-flow length, in feet or meters as dictated by  $K$ ; and  $S$  is the dimensionless main-channel slope.

#### Tc for Channel Flow

<b>Known:</b>	
Length (ft)	2,554
Slope (ft/ft)	0.0086
<b>Find</b>	
<b>Tc (min)</b>	<b>20</b>

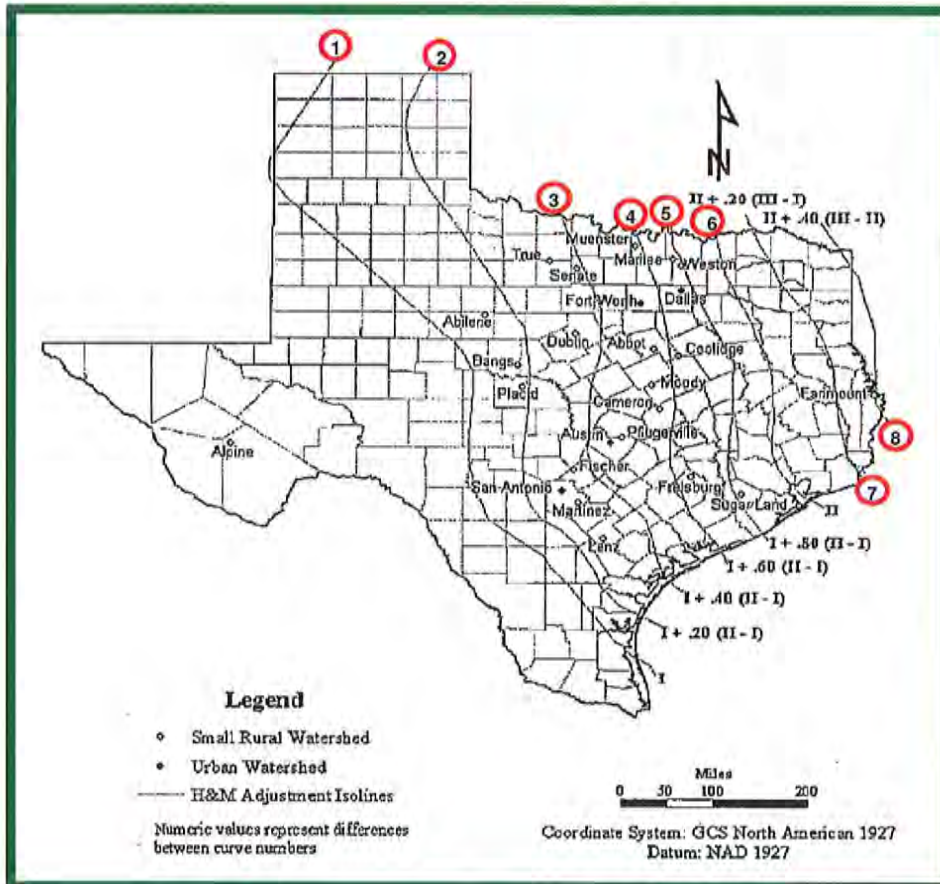
**Total Tc (min)** **54**

Kerby-Kirpich Lag Time (min) for Developed Areas =  $0.4 \times T_c =$  **22**  
Kerby-Kirpich Lag Time (min) for Undeveloped Areas =  $0.7 \times T_c =$  **38**  
Traditional Lag Time (min) =  $0.6 \times T_c =$  **33**

**Used:** Kerby-Kirpich Lag Time (min) for Undeveloped Areas =  $0.7 \times T_c =$  **38**

**TEXAS CLIMATIC ADJUSTMENT  
(Curve Number (CN) Adjustments)**

Stream: \_\_\_\_\_  
County: \_\_\_\_\_

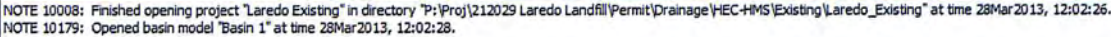


Line No.	Equation	Curve Numbers (CN)			Adjusted CN
		No. to Adjust	I	III	
1	I	73	54	87	60
2	I+.20(II-I)	73	54	87	60
3	I+.40(II-I)	73	54	87	62
4	I+.60(II-I)	73	54	87	65
5	I+.80(II-I)	73	54	87	69
6	II	73	54	87	73
7	II+.20(III-I)	73	54	87	80
8	II+.40(III-II)	73	54	87	79

Curver Number used: 60

\* Enter whole number only

Climatic Adjustments of Natural Resource Conservation Service (NRCS) Runoff Curve Numbers:  
Project TX -00/0-2104-2  
November 1, 2003





## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	51.2	01Jan2013, 12:40	0.36
Reach A7-8	0.700	51.1	01Jan2013, 12:55	0.36
A7	0.458	59.8	01Jan2013, 12:40	0.53
Junction-A6-7	1.158	107.6	01Jan2013, 12:50	0.43
Reach A6-7	1.158	107.4	01Jan2013, 12:55	0.43
A6	0.124	54.9	01Jan2013, 12:05	0.75
Junction-A5-6	1.282	116.4	01Jan2013, 12:55	0.46
Reach A5-6	1.282	116.0	01Jan2013, 13:05	0.46
D3	0.175	55.2	01Jan2013, 12:25	0.89
Reach D2-3	0.175	54.8	01Jan2013, 12:35	0.89
D2	0.046	16.7	01Jan2013, 12:15	0.80
Junction-D1-2	0.221	65.2	01Jan2013, 12:30	0.87
Reach D1-2	0.221	64.7	01Jan2013, 12:45	0.87
D1	0.149	99.1	01Jan2013, 12:10	1.18
A5	0.098	51.6	01Jan2013, 12:05	0.90
Junction-A4-5	1.750	207.9	01Jan2013, 12:15	0.59
Reach A4-5	1.750	206.8	01Jan2013, 12:25	0.59
A4	0.158	11.8	01Jan2013, 12:40	0.36
C4	0.024	16.4	01Jan2013, 12:10	1.18
Junction-A3-4	1.932	224.6	01Jan2013, 12:25	0.58
Reach A3-4	1.932	220.8	01Jan2013, 12:30	0.58
C3	0.014	13.2	01Jan2013, 12:00	1.18
A3	0.010	5.9	01Jan2013, 12:00	0.75
Junction-A2-3	1.956	224.0	01Jan2013, 12:30	0.58
Reach A2-3	1.956	224.0	01Jan2013, 12:45	0.58
C2	0.072	55.5	01Jan2013, 12:05	1.18
A2	0.026	10.3	01Jan2013, 12:10	0.75
Junction-A1-2	2.054	236.0	01Jan2013, 12:45	0.60
Reach A1-2	2.054	234.9	01Jan2013, 13:00	0.60
C1	0.056	34.6	01Jan2013, 12:10	1.18
B2	0.036	19.2	01Jan2013, 12:10	0.95
Reach B1-2	0.036	18.7	01Jan2013, 12:15	0.95
B1	0.031	3.0	01Jan2013, 12:25	0.36
A1	0.026	10.8	01Jan2013, 12:10	0.75
Outfall	2.203	248.7	01Jan2013, 13:00	0.62

## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	202.2	01Jan2013, 12:35	1.02
Reach A7-8	0.700	201.2	01Jan2013, 12:50	1.02
A7	0.458	180.3	01Jan2013, 12:35	1.33
Junction-A6-7	1.158	372.7	01Jan2013, 12:45	1.14
Reach A6-7	1.158	371.2	01Jan2013, 12:50	1.14
A6	0.124	135.5	01Jan2013, 12:05	1.67
Junction-A5-6	1.282	391.5	01Jan2013, 12:50	1.19
Reach A5-6	1.282	390.3	01Jan2013, 13:00	1.19
D3	0.175	125.9	01Jan2013, 12:25	1.89
Reach D2-3	0.175	124.5	01Jan2013, 12:30	1.89
D2	0.046	39.7	01Jan2013, 12:15	1.75
Junction-D1-2	0.221	149.2	01Jan2013, 12:30	1.86
Reach D1-2	0.221	148.3	01Jan2013, 12:40	1.86
D1	0.149	197.5	01Jan2013, 12:10	2.29
A5	0.098	117.1	01Jan2013, 12:05	1.89
Junction-A4-5	1.750	563.9	01Jan2013, 12:55	1.41
Reach A4-5	1.750	563.8	01Jan2013, 13:05	1.40
A4	0.158	46.5	01Jan2013, 12:35	1.02
C4	0.024	32.5	01Jan2013, 12:10	2.29
Junction-A3-4	1.932	597.1	01Jan2013, 13:05	1.38
Reach A3-4	1.932	596.0	01Jan2013, 13:10	1.38
C3	0.014	26.1	01Jan2013, 12:00	2.29
A3	0.010	14.1	01Jan2013, 12:00	1.67
Junction-A2-3	1.956	598.9	01Jan2013, 13:10	1.39
Reach A2-3	1.956	598.9	01Jan2013, 13:25	1.38
C2	0.072	110.7	01Jan2013, 12:05	2.29
A2	0.026	25.2	01Jan2013, 12:10	1.67
Junction-A1-2	2.054	610.7	01Jan2013, 13:25	1.42
Reach A1-2	2.054	608.1	01Jan2013, 13:40	1.41
C1	0.056	69.6	01Jan2013, 12:10	2.29
B2	0.036	41.7	01Jan2013, 12:10	1.97
Reach B1-2	0.036	41.1	01Jan2013, 12:15	1.97
B1	0.031	12.2	01Jan2013, 12:20	1.03
A1	0.026	27.0	01Jan2013, 12:05	1.67
Outfall	2.203	623.4	01Jan2013, 13:40	1.44



## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	348.9	01Jan2013, 12:35	1.62
Reach A7-8	0.700	346.4	01Jan2013, 12:45	1.62
A7	0.458	286.6	01Jan2013, 12:35	2.01
Junction-A6-7	1.158	617.0	01Jan2013, 12:45	1.77
Reach A6-7	1.158	617.0	01Jan2013, 12:50	1.77
A6	0.124	200.5	01Jan2013, 12:05	2.43
Junction-A5-6	1.282	645.2	01Jan2013, 12:50	1.83
Reach A5-6	1.282	642.2	01Jan2013, 13:00	1.83
D3	0.175	182.0	01Jan2013, 12:25	2.69
Reach D2-3	0.175	180.3	01Jan2013, 12:30	2.69
D2	0.046	58.2	01Jan2013, 12:15	2.52
Junction-D1-2	0.221	215.8	01Jan2013, 12:30	2.65
Reach D1-2	0.221	215.5	01Jan2013, 12:40	2.65
D1	0.149	271.9	01Jan2013, 12:10	3.16
A5	0.098	168.9	01Jan2013, 12:05	2.69
Junction-A4-5	1.750	891.6	01Jan2013, 12:50	2.10
Reach A4-5	1.750	891.0	01Jan2013, 13:05	2.09
A4	0.158	80.0	01Jan2013, 12:35	1.62
C4	0.024	44.6	01Jan2013, 12:10	3.16
Junction-A3-4	1.932	943.6	01Jan2013, 13:05	2.06
Reach A3-4	1.932	942.0	01Jan2013, 13:10	2.06
C3	0.014	35.9	01Jan2013, 12:00	3.16
A3	0.010	20.7	01Jan2013, 12:00	2.43
Junction-A2-3	1.956	946.0	01Jan2013, 13:10	2.07
Reach A2-3	1.956	946.0	01Jan2013, 13:25	2.06
C2	0.072	152.4	01Jan2013, 12:05	3.16
A2	0.026	37.1	01Jan2013, 12:10	2.43
Junction-A1-2	2.054	961.6	01Jan2013, 13:25	2.11
Reach A1-2	2.054	956.6	01Jan2013, 13:40	2.10
C1	0.056	96.2	01Jan2013, 12:10	3.16
B2	0.036	59.2	01Jan2013, 12:10	2.78
Reach B1-2	0.036	58.7	01Jan2013, 12:15	2.78
B1	0.031	21.0	01Jan2013, 12:20	1.63
A1	0.026	40.1	01Jan2013, 12:05	2.43
Outfall	2.203	977.4	01Jan2013, 13:40	2.13

## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	583.3	01Jan2013, 12:35	2.58
Reach A7-8	0.700	581.7	01Jan2013, 12:45	2.57
A7	0.458	450.4	01Jan2013, 12:35	3.06
Junction-A6-7	1.158	1008.9	01Jan2013, 12:40	2.76
Reach A6-7	1.158	1004.4	01Jan2013, 12:50	2.76
A6	0.124	297.2	01Jan2013, 12:05	3.57
Junction-A5-6	1.282	1044.0	01Jan2013, 12:50	2.84
Reach A5-6	1.282	1041.7	01Jan2013, 12:55	2.83
D3	0.175	264.4	01Jan2013, 12:25	3.88
Reach D2-3	0.175	262.7	01Jan2013, 12:30	3.88
D2	0.046	85.6	01Jan2013, 12:15	3.68
Junction-D1-2	0.221	314.8	01Jan2013, 12:25	3.84
Reach D1-2	0.221	314.4	01Jan2013, 12:40	3.83
D1	0.149	378.5	01Jan2013, 12:10	4.42
A5	0.098	244.8	01Jan2013, 12:05	3.89
Junction-A4-5	1.750	1401.0	01Jan2013, 12:50	3.15
Reach A4-5	1.750	1398.9	01Jan2013, 13:05	3.15
A4	0.158	133.9	01Jan2013, 12:30	2.58
C4	0.024	62.0	01Jan2013, 12:10	4.42
Junction-A3-4	1.932	1481.2	01Jan2013, 13:05	3.12
Reach A3-4	1.932	1479.3	01Jan2013, 13:10	3.11
C3	0.014	49.9	01Jan2013, 12:00	4.42
A3	0.010	30.4	01Jan2013, 12:00	3.57
Junction-A2-3	1.956	1484.6	01Jan2013, 13:10	3.12
Reach A2-3	1.956	1484.6	01Jan2013, 13:25	3.11
C2	0.072	212.1	01Jan2013, 12:05	4.42
A2	0.026	54.9	01Jan2013, 12:10	3.57
Junction-A1-2	2.054	1505.6	01Jan2013, 13:25	3.16
Reach A1-2	2.054	1496.6	01Jan2013, 13:40	3.15
C1	0.056	134.4	01Jan2013, 12:10	4.42
B2	0.036	84.7	01Jan2013, 12:10	3.99
Reach B1-2	0.036	84.3	01Jan2013, 12:15	3.99
B1	0.031	34.9	01Jan2013, 12:20	2.58
A1	0.026	59.6	01Jan2013, 12:05	3.57
Outfall	2.203	1526.3	01Jan2013, 13:35	3.20



## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	783.2	01Jan2013, 12:35	3.39
Reach A7-8	0.700	782.7	01Jan2013, 12:45	3.39
A7	0.458	587.0	01Jan2013, 12:35	3.94
Junction-A6-7	1.158	1341.0	01Jan2013, 12:40	3.61
Reach A6-7	1.158	1332.0	01Jan2013, 12:50	3.60
A6	0.124	376.0	01Jan2013, 12:05	4.52
Junction-A5-6	1.282	1381.6	01Jan2013, 12:45	3.69
Reach A5-6	1.282	1381.4	01Jan2013, 12:55	3.69
D3	0.175	331.0	01Jan2013, 12:25	4.86
Reach D2-3	0.175	329.2	01Jan2013, 12:30	4.85
D2	0.046	107.8	01Jan2013, 12:15	4.63
Junction-D1-2	0.221	395.5	01Jan2013, 12:25	4.81
Reach D1-2	0.221	394.5	01Jan2013, 12:40	4.80
D1	0.149	463.1	01Jan2013, 12:10	5.44
A5	0.098	306.0	01Jan2013, 12:05	4.86
Junction-A4-5	1.750	1827.7	01Jan2013, 12:50	4.04
Reach A4-5	1.750	1824.1	01Jan2013, 13:05	4.03
A4	0.158	180.4	01Jan2013, 12:30	3.39
C4	0.024	75.9	01Jan2013, 12:05	5.44
Junction-A3-4	1.932	1931.3	01Jan2013, 13:05	4.00
Reach A3-4	1.932	1929.0	01Jan2013, 13:10	3.99
C3	0.014	61.0	01Jan2013, 12:00	5.44
A3	0.010	38.3	01Jan2013, 12:00	4.52
Junction-A2-3	1.956	1935.5	01Jan2013, 13:10	4.01
Reach A2-3	1.956	1935.5	01Jan2013, 13:25	3.99
C2	0.072	259.5	01Jan2013, 12:05	5.44
A2	0.026	69.3	01Jan2013, 12:10	4.52
Junction-A1-2	2.054	1960.8	01Jan2013, 13:25	4.05
Reach A1-2	2.054	1949.3	01Jan2013, 13:35	4.04
C1	0.056	164.7	01Jan2013, 12:10	5.44
B2	0.036	105.1	01Jan2013, 12:10	4.98
Reach B1-2	0.036	104.9	01Jan2013, 12:15	4.98
B1	0.031	46.7	01Jan2013, 12:15	3.40
A1	0.026	75.5	01Jan2013, 12:05	4.52
Outfall	2.203	1986.0	01Jan2013, 13:35	4.08

## Existing HEC-HMS Output

Hydrologic Element	DA (Sq Mi)	Peak Discharge (cfs)	Time of Peak	Volume (in)
A8	0.700	1014.4	01Jan2013, 12:30	4.34
Reach A7-8	0.700	1013.0	01Jan2013, 12:45	4.33
A7	0.458	741.2	01Jan2013, 12:35	4.95
Junction-A6-7	1.158	1719.7	01Jan2013, 12:40	4.57
Reach A6-7	1.158	1705.2	01Jan2013, 12:50	4.57
A6	0.124	463.4	01Jan2013, 12:05	5.58
Junction-A5-6	1.282	1769.5	01Jan2013, 12:45	4.67
Reach A5-6	1.282	1768.4	01Jan2013, 12:55	4.66
D3	0.175	404.6	01Jan2013, 12:25	5.95
Reach D2-3	0.175	402.8	01Jan2013, 12:30	5.94
D2	0.046	132.7	01Jan2013, 12:10	5.70
Junction-D1-2	0.221	484.9	01Jan2013, 12:25	5.89
Reach D1-2	0.221	483.2	01Jan2013, 12:40	5.89
D1	0.149	555.5	01Jan2013, 12:10	6.57
A5	0.098	373.6	01Jan2013, 12:05	5.95
Junction-A4-5	1.750	2310.9	01Jan2013, 12:50	5.05
Reach A4-5	1.750	2305.4	01Jan2013, 13:05	5.04
A4	0.158	233.9	01Jan2013, 12:30	4.34
C4	0.024	91.3	01Jan2013, 12:05	6.57
Junction-A3-4	1.932	2440.6	01Jan2013, 13:05	5.00
Reach A3-4	1.932	2438.2	01Jan2013, 13:10	4.99
C3	0.014	73.0	01Jan2013, 12:00	6.57
A3	0.010	47.0	01Jan2013, 12:00	5.58
Junction-A2-3	1.956	2445.9	01Jan2013, 13:10	5.01
Reach A2-3	1.956	2445.9	01Jan2013, 13:25	4.99
C2	0.072	311.2	01Jan2013, 12:05	6.57
A2	0.026	85.4	01Jan2013, 12:10	5.58
Junction-A1-2	2.054	2475.8	01Jan2013, 13:25	5.05
Reach A1-2	2.054	2462.3	01Jan2013, 13:35	5.04
C1	0.056	197.9	01Jan2013, 12:10	6.57
B2	0.036	127.6	01Jan2013, 12:10	6.08
Reach B1-2	0.036	127.6	01Jan2013, 12:15	6.08
B1	0.031	60.6	01Jan2013, 12:15	4.35
A1	0.026	93.2	01Jan2013, 12:05	5.58
Outfall	2.203	2506.1	01Jan2013, 13:35	5.09

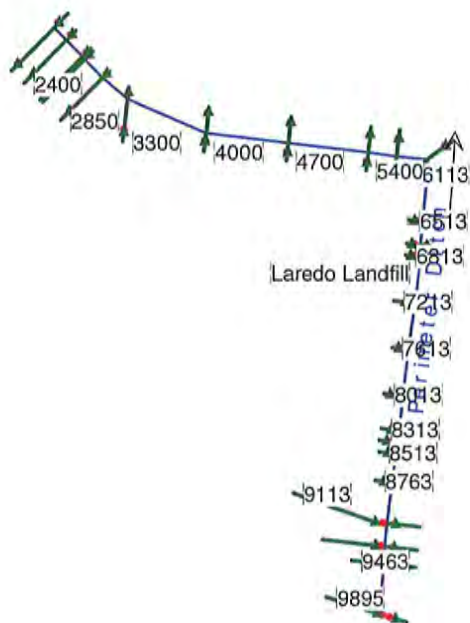
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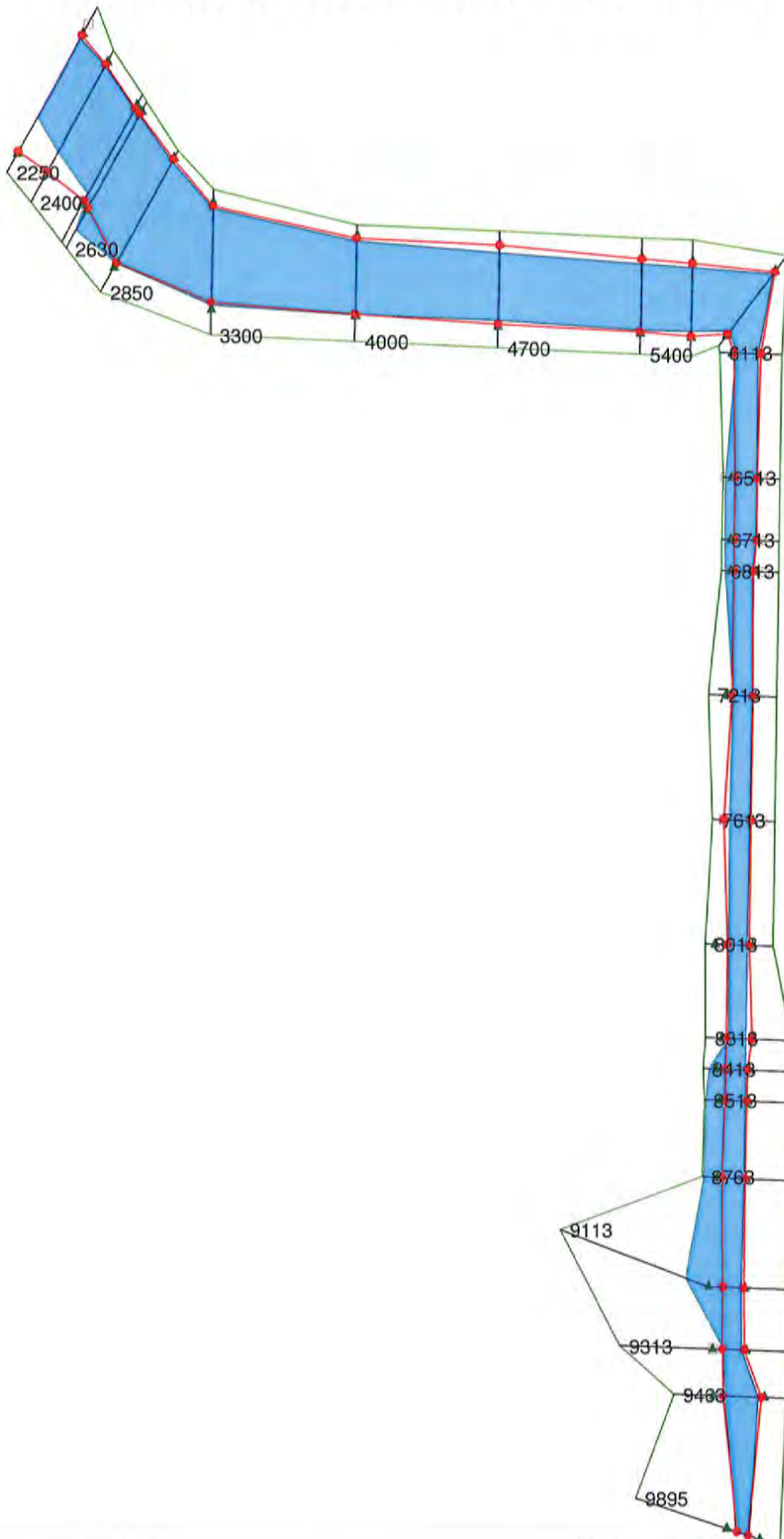
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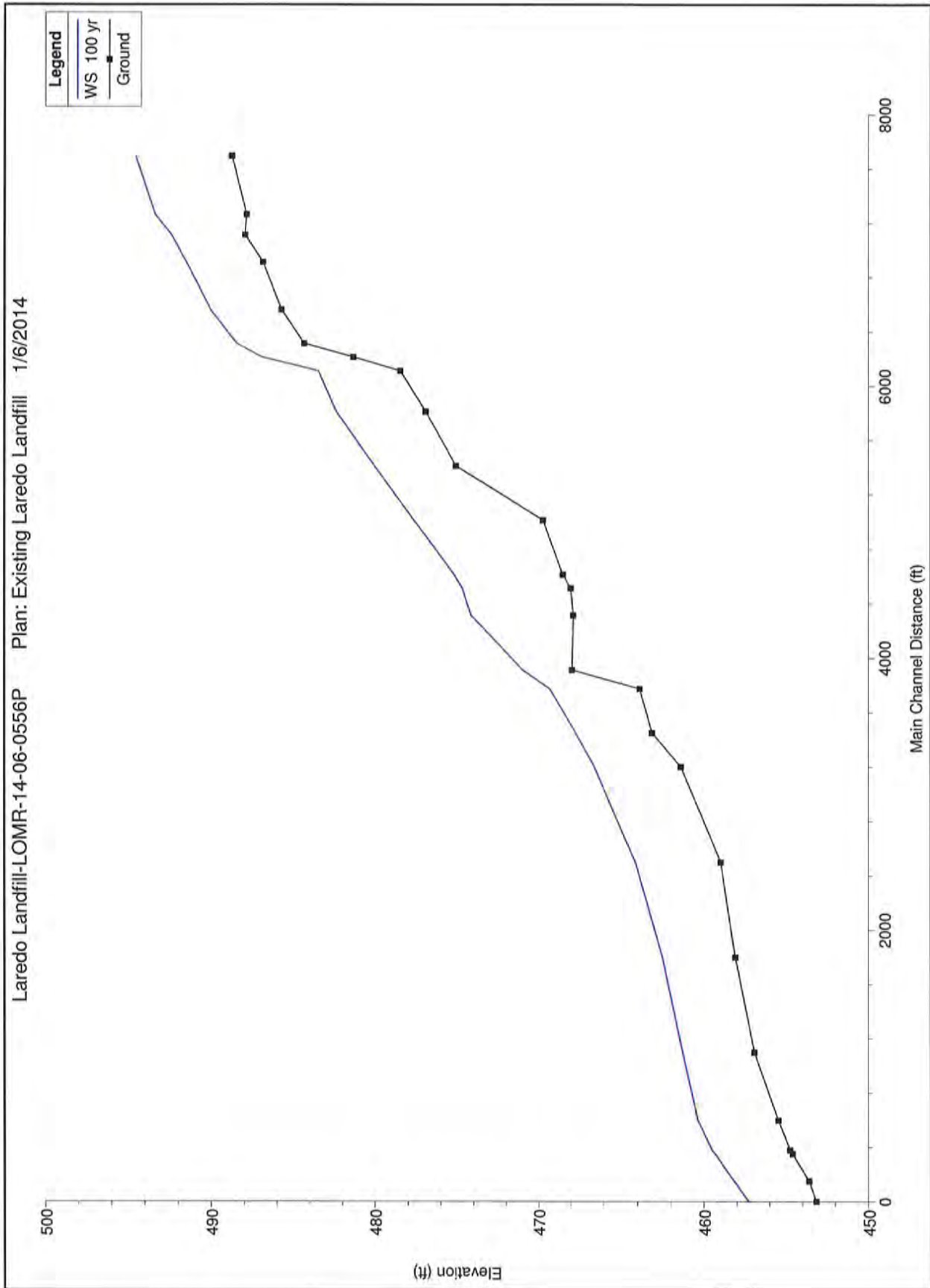
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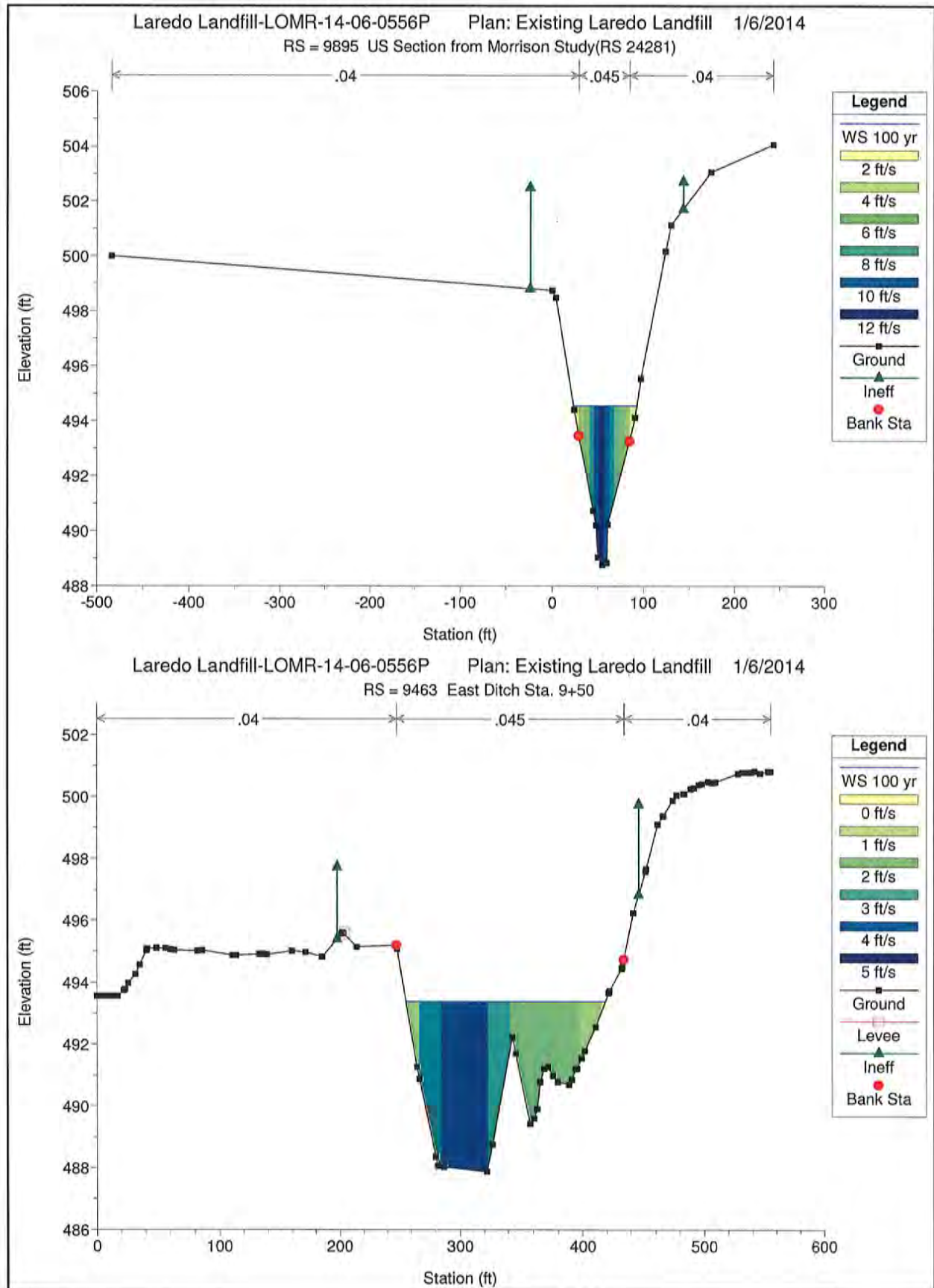
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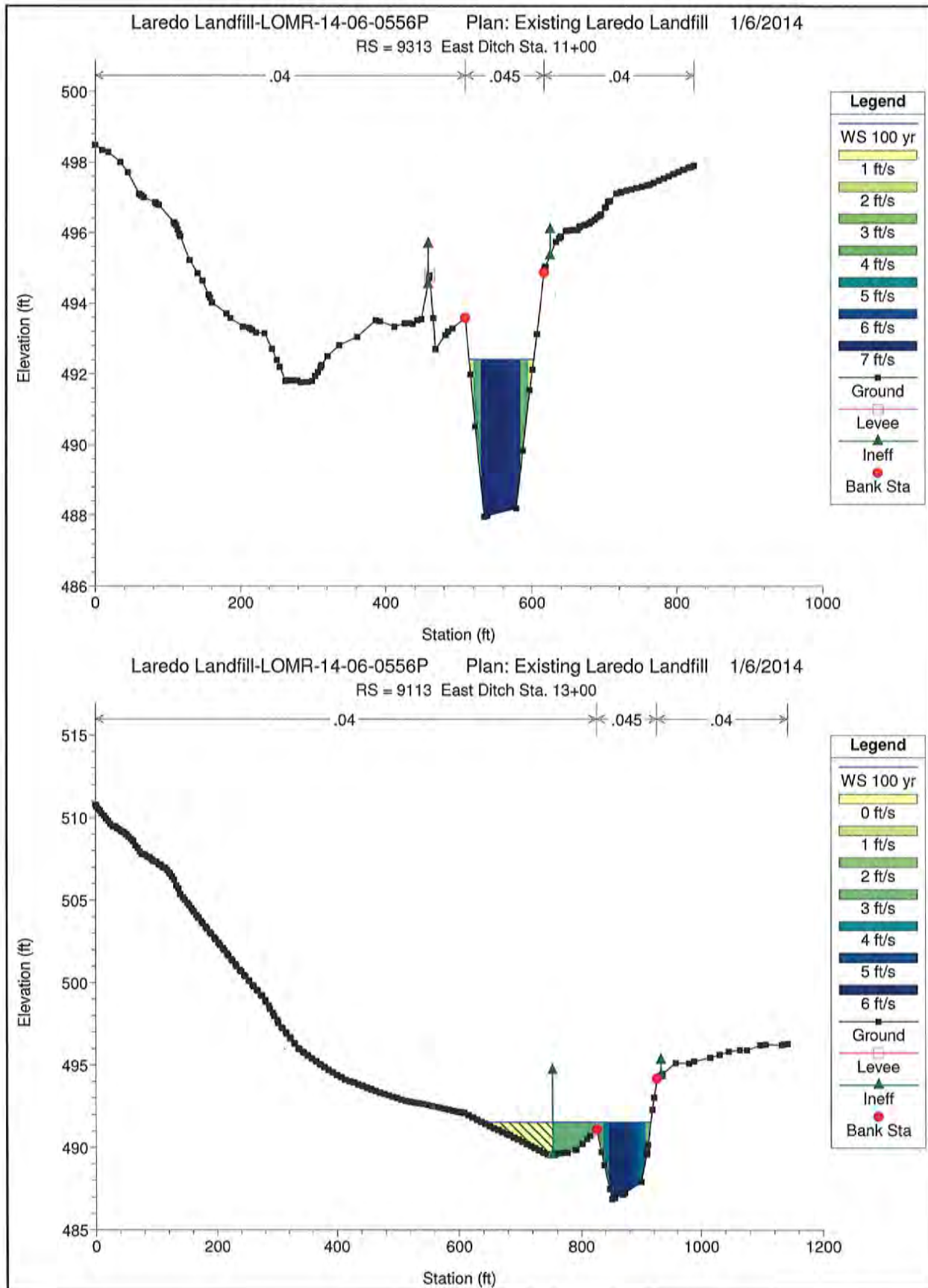




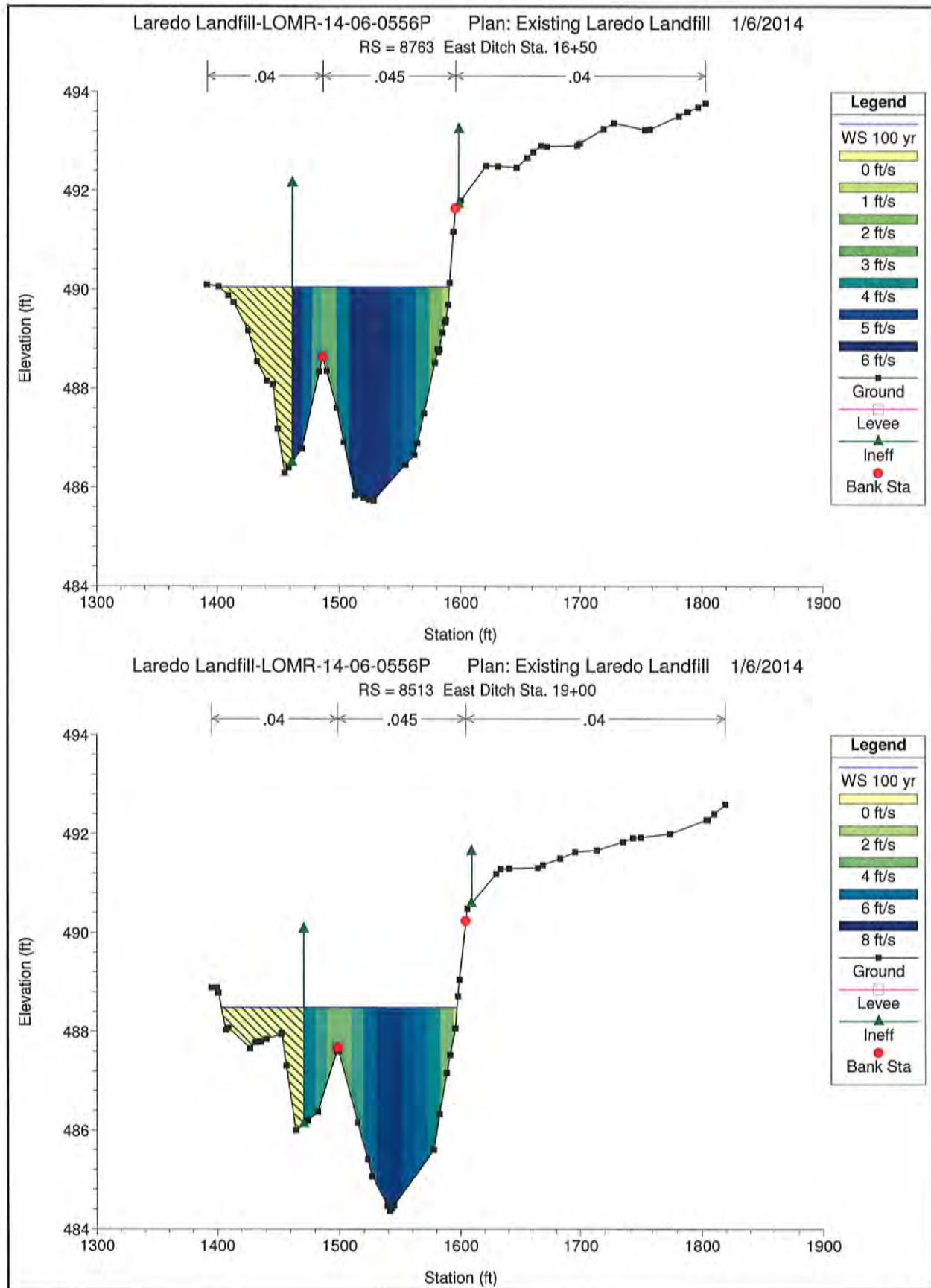


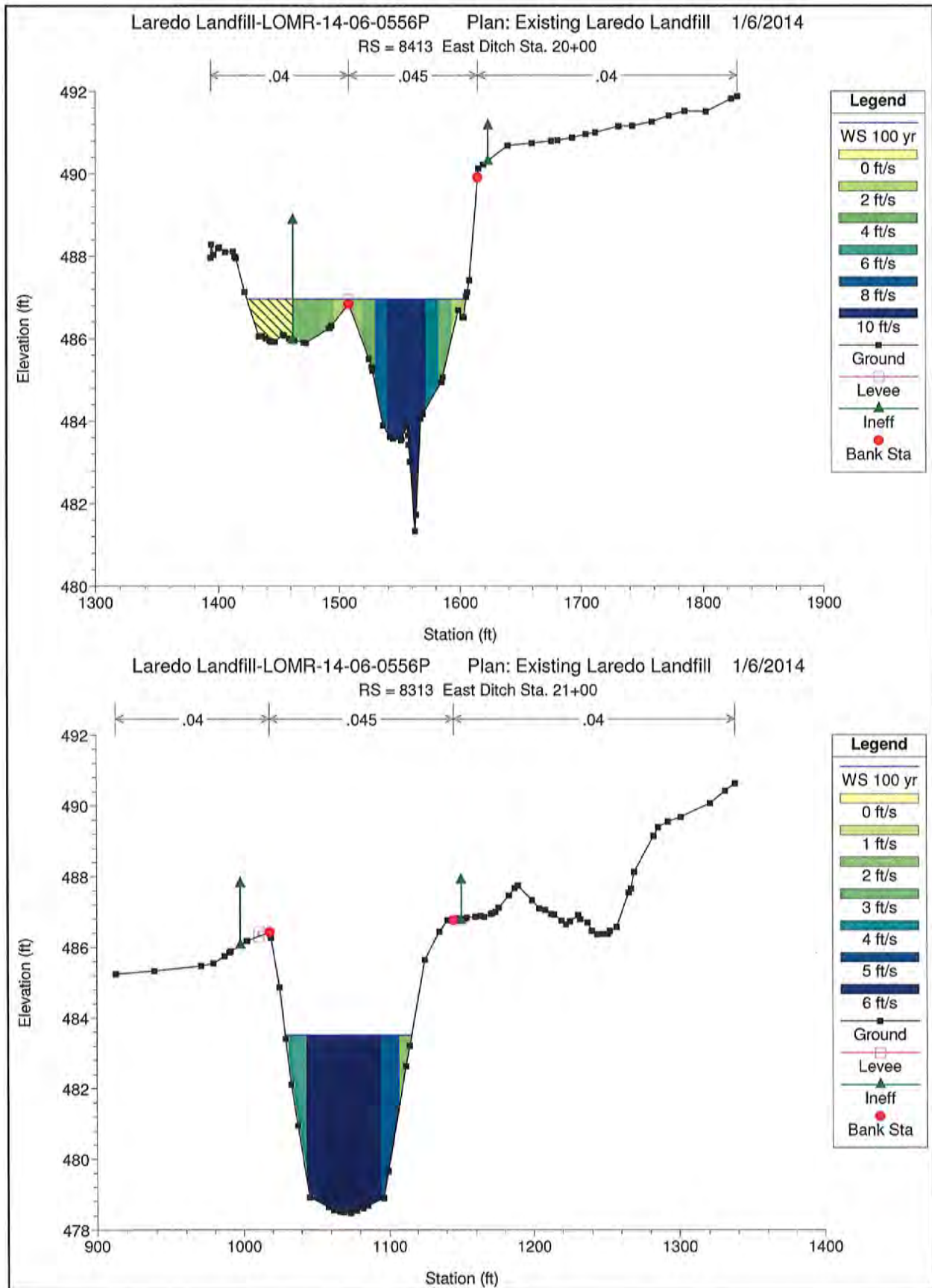


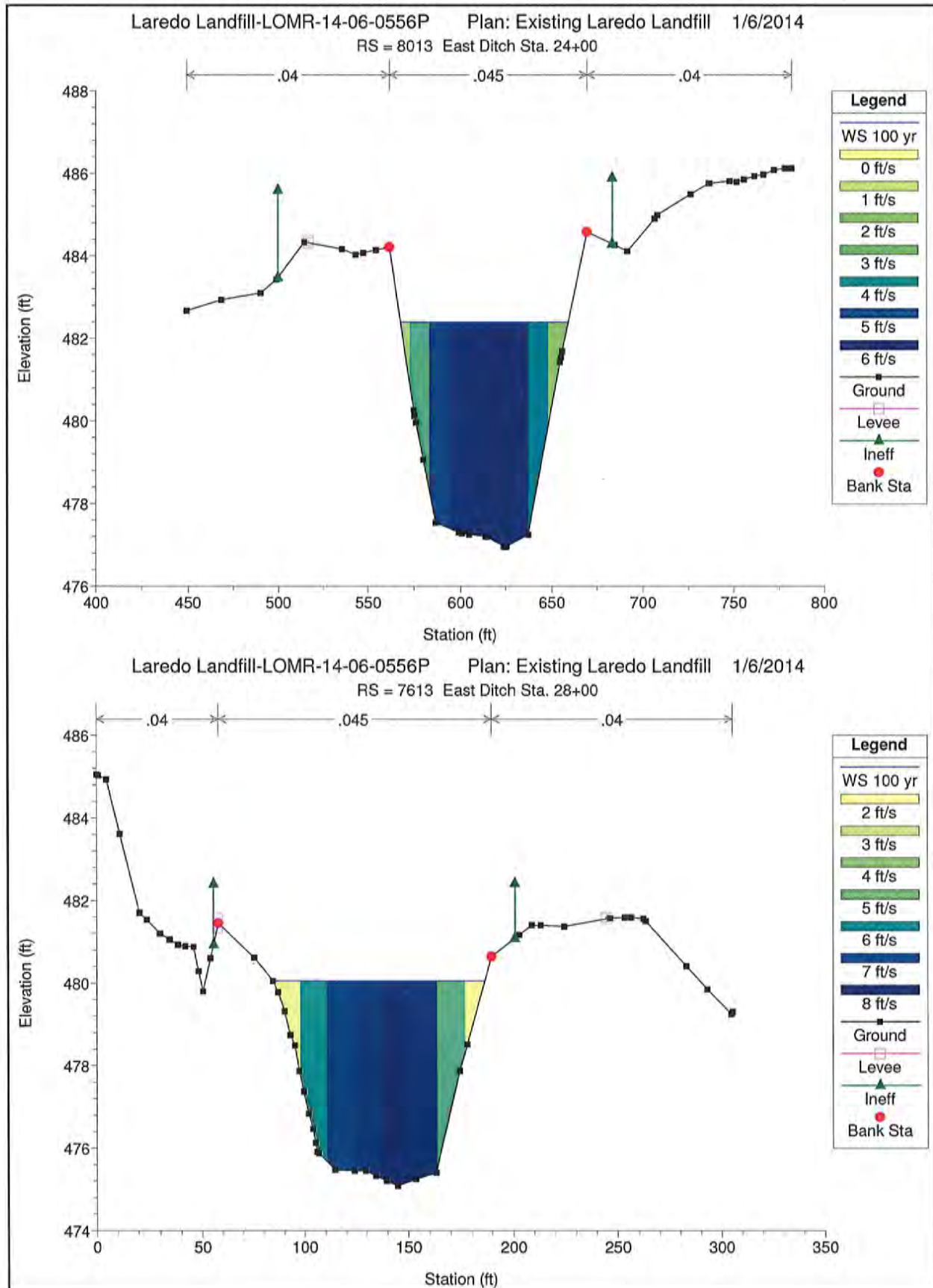






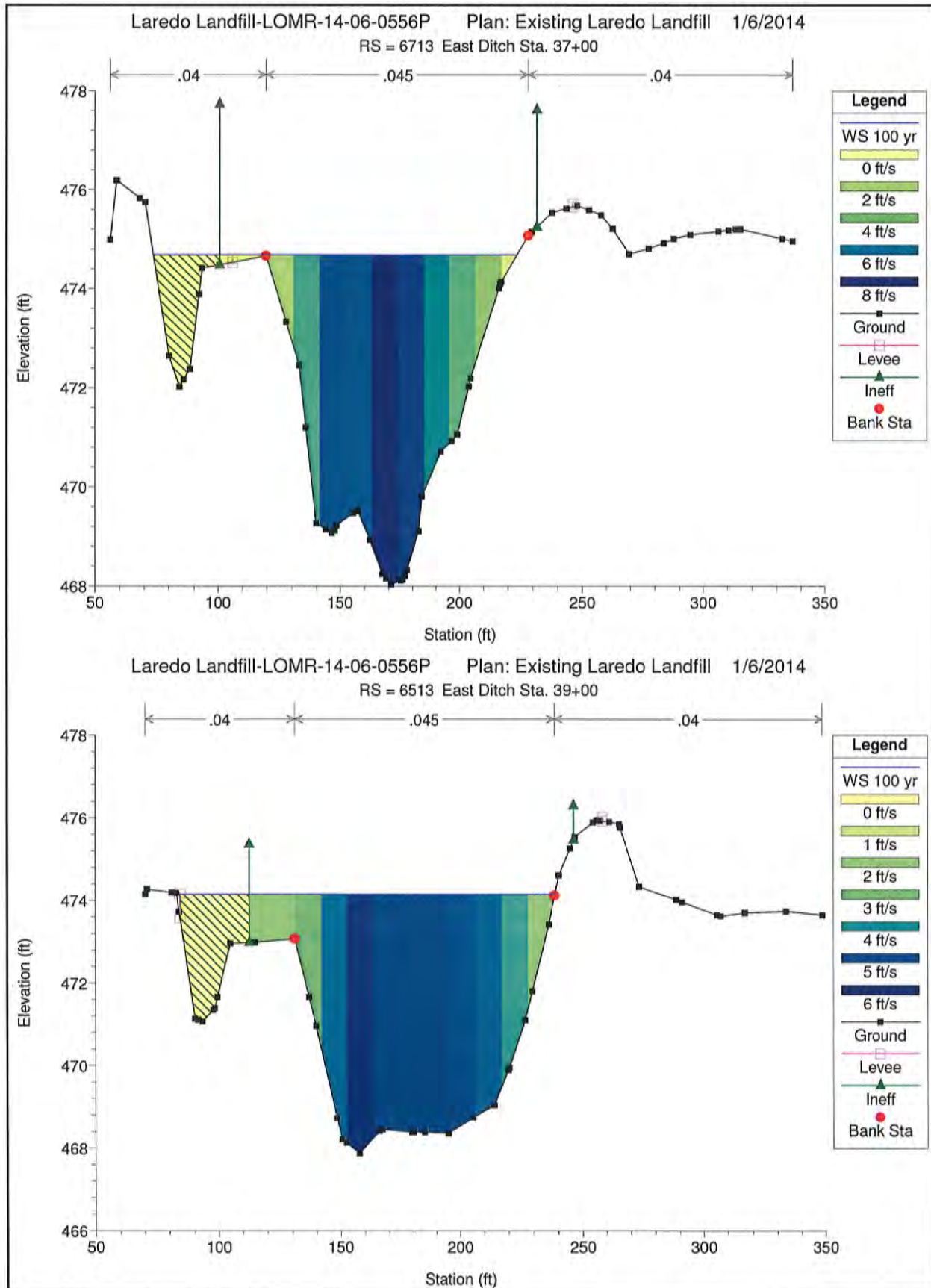




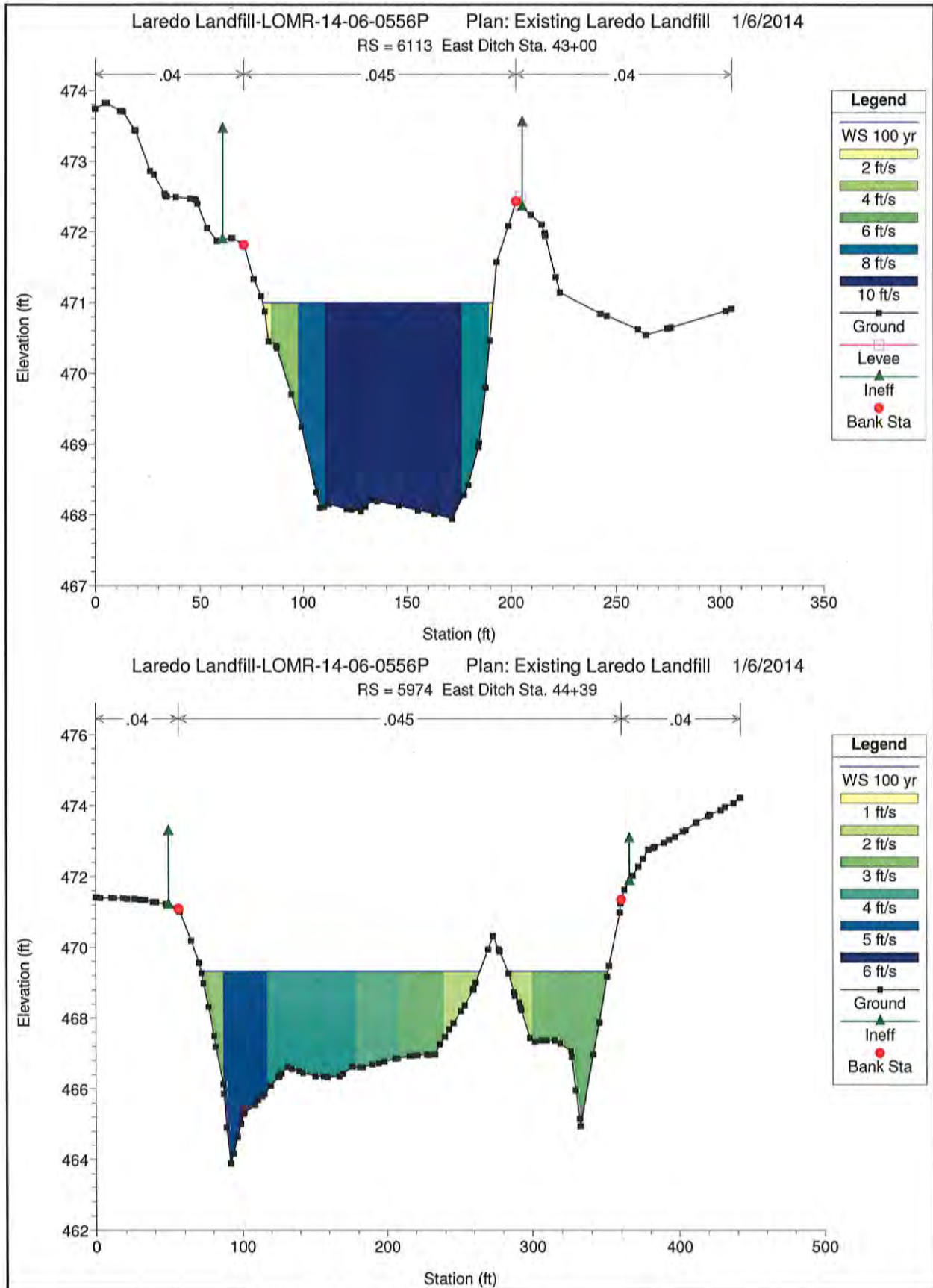


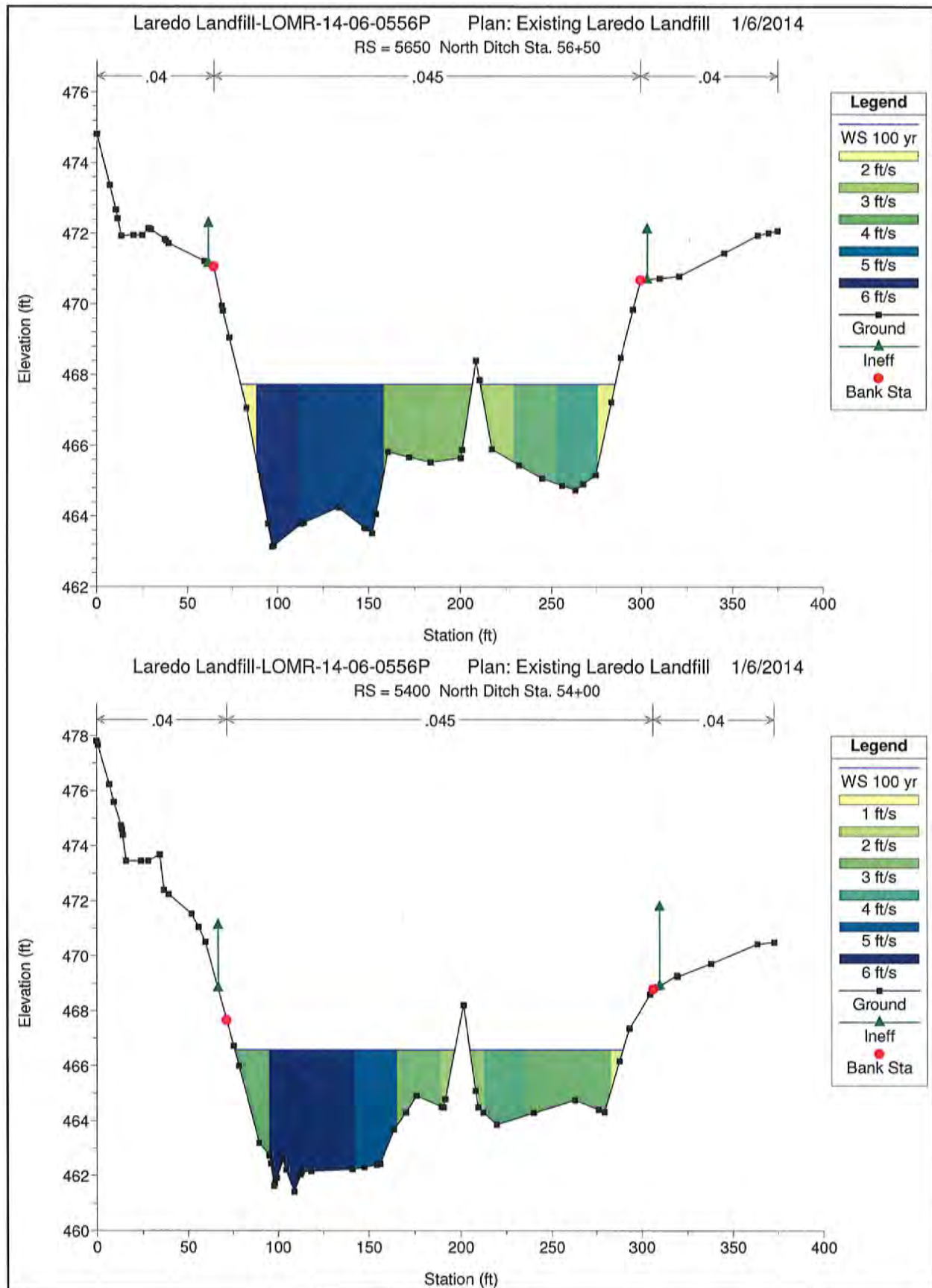


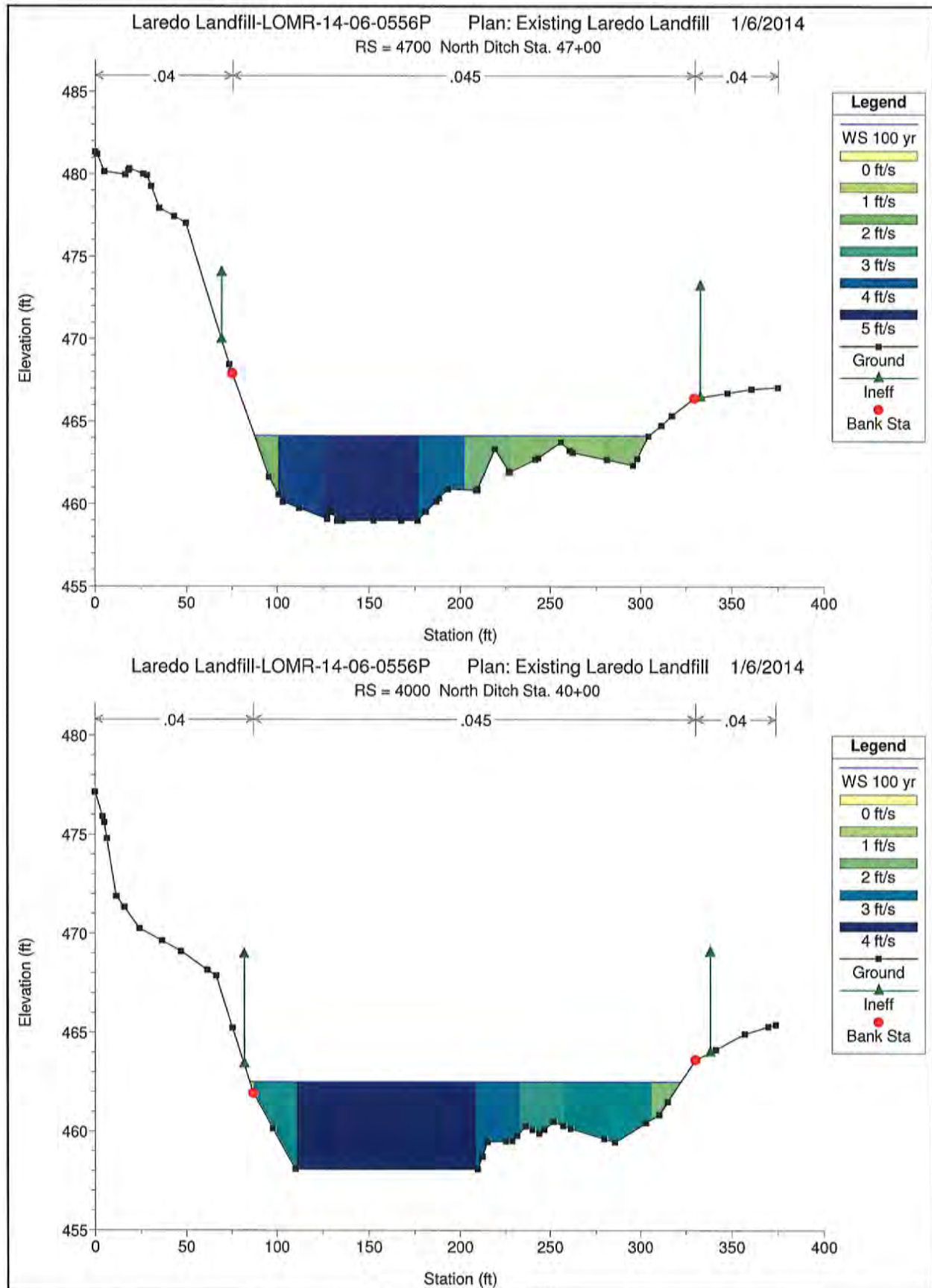


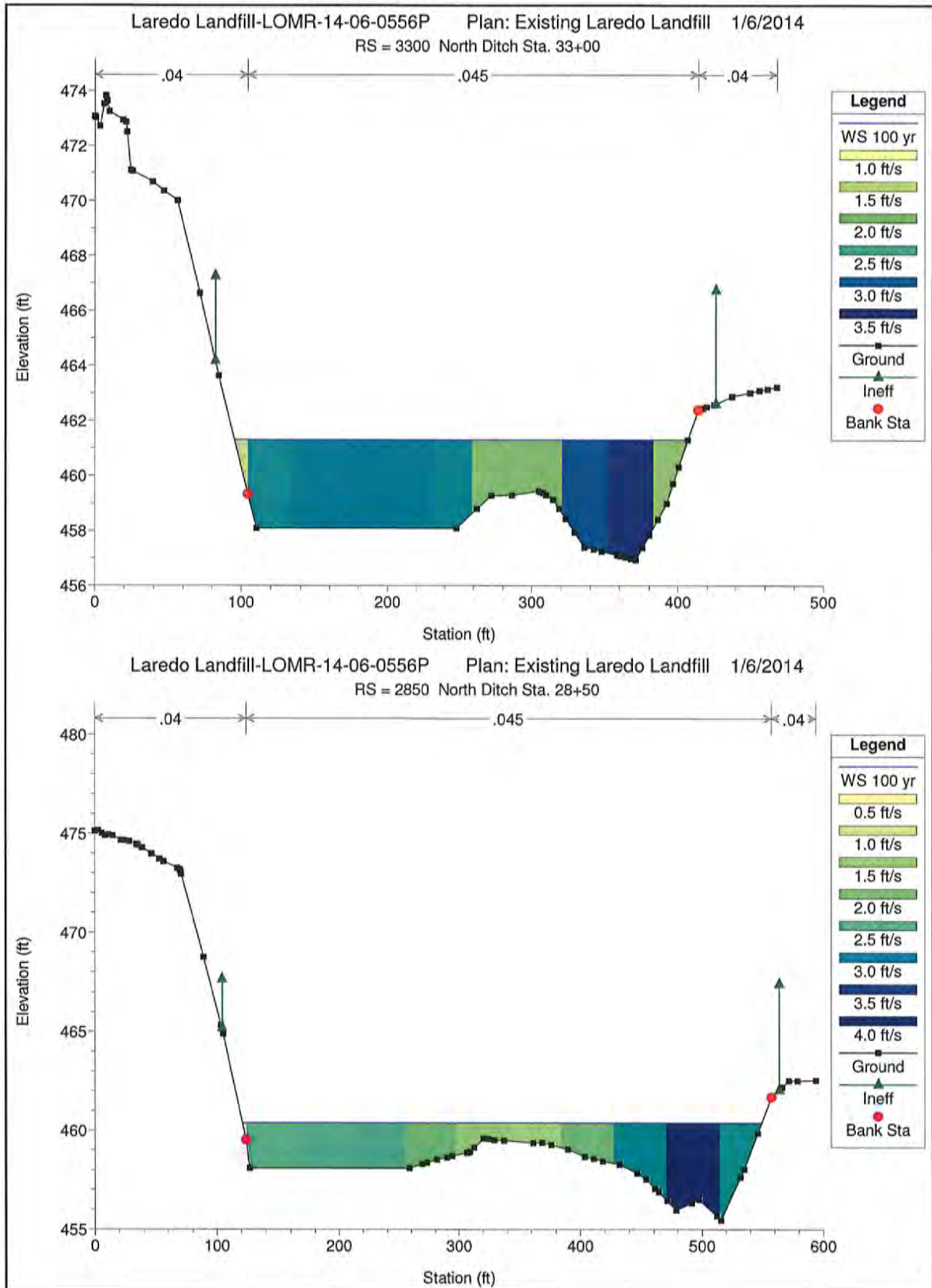




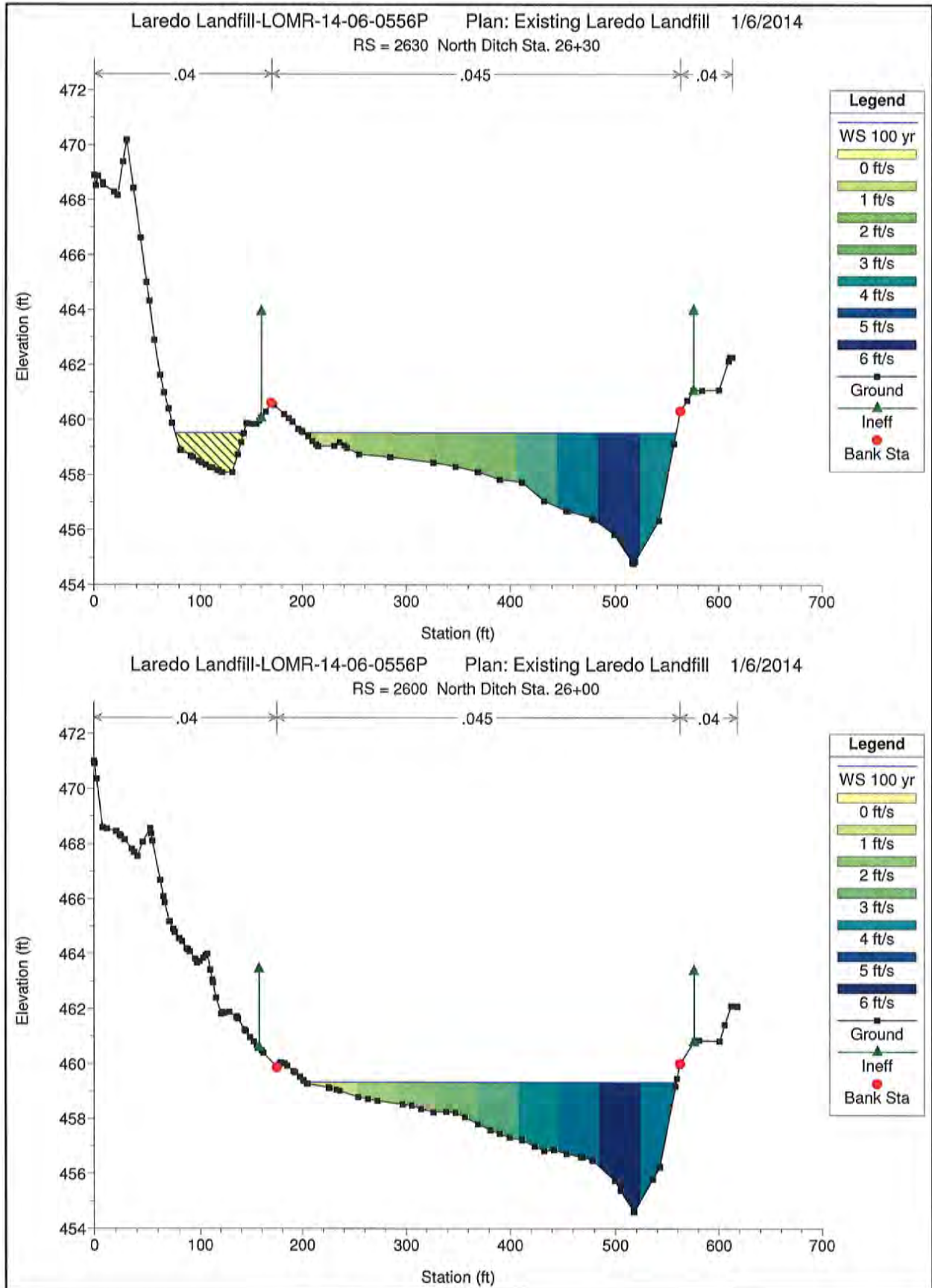




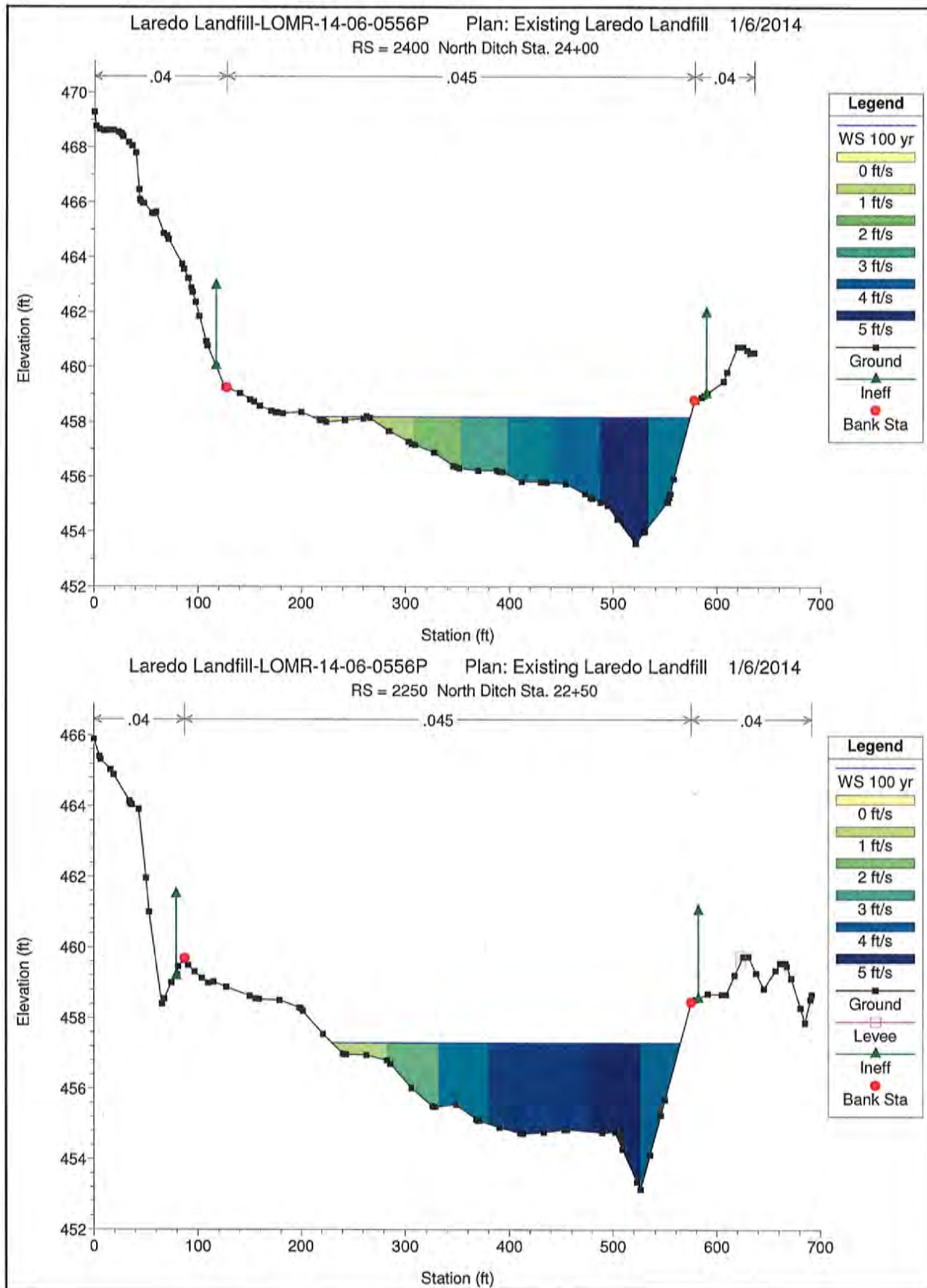












HEC-RAS Plan: Exist River: Perimeter Ditch Reach: Laredo Landfill Profile: 100 yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Laredo Landfill	9895	100 yr	1719.70	488.76	494.56	494.31	495.76	0.014515	8.85	199.69	69.53	0.84
Laredo Landfill	9463	100 yr	1719.70	487.87	493.38	491.31	493.55	0.002094	3.27	525.77	163.48	0.32
Laredo Landfill	9313	100 yr	1719.70	487.96	492.42	491.27	492.98	0.007055	6.03	285.15	88.09	0.59
Laredo Landfill	9113	100 yr	1769.50	486.86	491.53	490.35	491.84	0.004155	4.76	410.04	277.73	0.46
Laredo Landfill	8763	100 yr	1769.50	485.73	490.05	488.79	490.37	0.004256	4.55	388.02	189.22	0.46
Laredo Landfill	8513	100 yr	1769.50	484.37	488.48	487.78	488.96	0.007665	5.65	320.59	193.70	0.60
Laredo Landfill	8413	100 yr	1769.50	481.33	486.96	486.96	487.79	0.018520	7.56	249.72	180.71	0.89
Laredo Landfill	8313	100 yr	1769.50	478.47	483.51	481.81	483.96	0.004503	5.35	330.54	86.85	0.48
Laredo Landfill	8013	100 yr	1769.50	476.94	482.39	480.33	482.76	0.003445	4.84	365.28	91.20	0.43
Laredo Landfill	7613	100 yr	2310.90	475.08	480.05	478.84	480.70	0.007268	6.46	357.90	102.12	0.61
Laredo Landfill	7213	100 yr	2310.90	469.74	477.67	475.93	478.21	0.005270	5.88	392.95	98.49	0.52
Laredo Landfill	6813	100 yr	2310.90	468.52	475.19	473.94	475.83	0.006660	6.45	365.25	141.20	0.58
Laredo Landfill	6713	100 yr	2310.90	468.03	474.69	472.88	475.21	0.005238	5.80	400.56	149.93	0.52
Laredo Landfill	6513	100 yr	2310.90	467.87	474.15	471.62	474.46	0.002414	4.51	524.19	154.54	0.37
Laredo Landfill	6113	100 yr	2310.90	467.94	471.00	471.00	472.19	0.022300	8.75	264.04	111.14	1.00
Laredo Landfill	5974	100 yr	2440.60	463.88	469.33	468.13	469.55	0.004139	3.83	636.46	260.37	0.43
Laredo Landfill	5650	100 yr	2440.60	463.13	467.73	466.62	468.05	0.005188	4.54	537.25	201.67	0.49
Laredo Landfill	5400	100 yr	2445.90	461.41	466.58	465.32	466.86	0.004256	4.25	575.61	205.55	0.45
Laredo Landfill	4700	100 yr	2445.90	458.98	464.13	462.14	464.35	0.003026	3.76	651.14	217.47	0.38
Laredo Landfill	4000	100 yr	2475.80	458.08	462.50	460.60	462.66	0.001953	3.21	771.75	237.64	0.31
Laredo Landfill	3300	100 yr	2475.80	456.93	461.30	459.55	461.41	0.001590	2.73	911.88	311.44	0.28
Laredo Landfill	2850	100 yr	2475.80	455.46	460.38	459.01	460.49	0.002154	2.61	949.08	428.44	0.31
Laredo Landfill	2630	100 yr	2475.80	454.76	459.52	458.66	459.74	0.005720	3.75	659.70	424.22	0.49
Laredo Landfill	2600	100 yr	2475.80	454.60	459.32	458.42	459.56	0.006515	3.91	632.97	355.63	0.52
Laredo Landfill	2400	100 yr	2506.10	453.57	458.17	457.07	458.38	0.005330	3.68	680.95	360.67	0.47
Laredo Landfill	2250	100 yr	2506.10	453.13	457.29	456.38	457.53	0.006002	3.93	637.44	334.27	0.50

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HEC-RAS Version 4.1.0 Jan 2010  
U.S. Army Corps of Engineers  
Hydrologic Engineering Center  
609 Second Street  
Davis, California

```

X      X  XXXXXX      XXXX      XXXX      XX      XXXX
X      X  X          X      X      X      X      X
X      X  X          X      X      X      X      X
XXXXXXXX XXXX      X      XXX XXXX      XXXXXX      XXXX
X      X  X          X      X      X      X      X
X      X  X          X      X      X      X      X
X      X  XXXXXX      XXXX      X      X      X      XXXXX

```

PROJECT DATA

Project Title: Laredo Landfill-LOMR-14-06-0556P  
Project File : LL-LOMR.prj  
Run Date and Time: 1/6/2014 1:33:41 PM

Project in English units

PLAN DATA

Plan Title: Existing Laredo Landfill  
Plan File : P:\Proj\212029 Laredo Landfill\Permit\Drainage\FEMA\LOMR\_Jan2014\LL-LOMR.p01

Geometry Title: Existing Laredo Landfill GeoReferenced  
Geometry File : P:\Proj\212029 Laredo  
Landfill\Permit\Drainage\FEMA\LOMR\_Jan2014\LL-LOMR.g01

Flow Title : Existing Laredo Landfill Flow Data  
Flow File : P:\Proj\212029 Laredo  
Landfill\Permit\Drainage\FEMA\LOMR\_Jan2014\LL-LOMR.f01

Plan Summary Information:

Number of:	Cross Sections =	26	Multiple Openings =	0
	Culverts =	0	Inline Structures =	0
	Bridges =	0	Lateral Structures =	0

Computational Information

water surface calculation tolerance	=	0.01
critical depth calculation tolerance	=	0.01
Maximum number of iterations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

Computation Options

Critical depth computed only where necessary  
Conveyance Calculation Method: At breaks in n values only  
Friction Slope Method: Average Conveyance  
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Existing Laredo Landfill Flow Data  
Flow File : P:\Proj\212029 Laredo Landfill\Permit\Drainage\FEMA\LOMR\_Jan2014\LL-LOMR.f01

## Flow Data (cfs)

River	Reach	RS	10 yr	25 yr	50 yr
Perimeter Ditch Laredo Landfill	100 yr	9895	617	1008.9	
1341	1719.7				
Perimeter Ditch Laredo Landfill		9113	645.2	1044	
1381.6	1769.5				
Perimeter Ditch Laredo Landfill		7613	891.6	1401	
1827.7	2310.9				
Perimeter Ditch Laredo Landfill		5974	943.6	1481.2	
1931.3	2440.6				
Perimeter Ditch Laredo Landfill		5400	946	1484.6	
1935.5	2445.9				
Perimeter Ditch Laredo Landfill		4000	961.6	1505.6	
1960.8	2475.8				
Perimeter Ditch Laredo Landfill		2400	977.4	1526.3	
1986	2506.1				

## Boundary Conditions

River	Reach	Profile	Upstream
Downstream			

Perimeter Ditch Laredo Landfill 10 yr  
Normal S = 0.006  
Perimeter Ditch Laredo Landfill 25 yr  
Normal S = 0.006  
Perimeter Ditch Laredo Landfill 50 yr  
Normal S = 0.006  
Perimeter Ditch Laredo Landfill 100 yr  
Normal S = 0.006

## GEOMETRY DATA

Geometry Title: Existing Laredo Landfill GeoReferenced  
Geometry File : P:\Proj\212029 Laredo  
Landfill\Permit\Drainage\FEMA\LOMR\_Jan2014\LL-LOMR.g01

## CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 9895

## INPUT

Description: US Section from Morrison Study(RS 24281)

Station Elevation Data		num=		18					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-484	500	0	498.75	4	498.49	24	494.42	29	493.46
45	490.74	48	490.21	50	489.04	55	488.76	60	488.84
61	490.24	85	493.26	91	494.12	97	495.54	124	500.17
130	501.13	174	503.06	243	504.07				

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val

-484 .04 29 .045 85 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 29 85 420 432 440 .1 .3

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 -484 -23.81 502.5 F  
 143.39 243 502.71 F

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 9463

## INPUT

Description: East Ditch Sta. 9+50

Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	493.55	3.61	493.55	4.75	493.55	9.26	493.55	13.4	493.55
15.21	493.55	16.92	493.55	21.85	493.74	22.94	493.78	25.73	493.98
31.59	494.26	35.06	494.57	40.56	495.04	41.06	495.09	48.56	495.11
56.07	495.1	59.75	495.07	63.15	495.05	81.68	495.02	84.41	495.03
85.93	495.04	110.45	494.88	110.93	494.88	113.59	494.88	132.84	494.92
133.59	494.92	134.54	494.92	135.4	494.93	139.02	494.9	159.86	495.02
171.22	494.98	184.93	494.83	185.45	494.83	200.94	495.57	201.94	495.61
202.66	495.59	213.41	495.15	246.18	495.2	247.54	495.2	248.09	495.08
264.71	491.27	266.86	490.87	280.41	488.36	282.04	488.06	286.88	488.03
321.98	487.87	326.56	488.75	343.1	492.22	346.07	491.7	357.53	489.42
360.48	489.59	363.02	489.9	365.5	490.78	368.6	491.21	371.72	491.26
375.66	490.98	379.77	490.78	388.99	490.69	391.1	490.85	394.39	491.2
395.29	491.22	399.02	491.55	401.6	491.79	410.92	492.56	421.63	493.65
422.01	493.69	422.4	493.73	432.32	494.45	433.09	494.51	434.26	494.74
441.68	496.24	451.54	497.58	452.11	497.67	461.52	499.11	465.67	499.37
466.08	499.39	473.93	499.88	477.24	500.06	482.81	500.1	483.42	500.1
488.84	500.26	491.32	500.29	495.26	500.39	497.7	500.42	502.87	500.49
506.42	500.46	507.67	500.47	508.88	500.48	527.89	500.75	531.19	500.79
535.35	500.79	537.45	500.79	538.72	500.8	541.7	500.83	546.08	500.76
546.39	500.76	553.1	500.82	553.91	500.81	555.09	500.82		

Manning's n values num= 3

Sta	n val	Sta	n val	Sta	n val
0	.04	247.54	.045	434.26	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 247.54 434.26 150 150 150 .1 .3

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 197.39 497.73 F  
 445.99 555.09 499.75 F

Left Levee Station= 203.26 Elevation= 495.62

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 9313

## INPUT

Description: East Ditch Sta. 11+00

Station Elevation Data num= 141

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	498.49	9	498.34	17.55	498.28	34.33	498	44.6	497.71
59.66	497.1	60.36	497.09	62.94	497.05	66.08	497	81.45	496.86
83.04	496.83	85.28	496.8	86.82	496.78	107.53	496.29	108.07	496.28
109.03	496.25	110.25	496.21	110.74	496.2	112.71	496.09	114.93	495.97



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116.41	495.89	129.68	495.22	140.61	494.85	147.26	494.64	155.66	494.24
157.62	494.15	160.27	494.02	180.17	493.71	185.24	493.58	202.65	493.34
210.74	493.31	212.89	493.28	216.06	493.24	221.15	493.17	233.16	493.15
243.6	492.71	250.03	492.39	254.29	492.2	261.97	491.8	264.76	491.82
265.74	491.81	273.59	491.82	277.45	491.81	279.18	491.81	283.66	491.76
290.13	491.77	292.02	491.77	293.22	491.77	299.31	491.8	303.97	491.94
307.29	492.05	310.55	492.18	311.25	492.21	312.73	492.25	320.97	492.5
336.94	492.81	361.13	493.05	386.5	493.52	392.03	493.49	411.76	493.34
425.94	493.43	431.92	493.44	436.76	493.42	443.04	493.52	448.68	493.55
459.66	494.71	460.31	494.78	464.92	493.58	468.39	492.7	482.16	493.1
485.46	493.2	491.29	493.29	508.93	493.59	515.97	491.99	522.44	490.52
534.97	487.96	539.5	487.99	578.34	488.2	587.45	489.83	596.74	491.54
600.48	492.12	606.31	493.13	615.76	494.87	616.4	494.99	617.67	495.04
632.4	495.74	636.84	495.84	638.55	495.88	639.44	495.89	646.2	496.05
647.82	496.06	653.18	496.07	657.11	496.08	662.26	496.07	664.05	496.15
664.42	496.16	665.56	496.18	671.37	496.21	673.03	496.23	678.3	496.26
678.81	496.27	681.36	496.32	685.95	496.37	689.17	496.44	692.91	496.48
694.6	496.52	699.66	496.71	701.16	496.73	704.03	496.88	706.73	496.9
715.27	497.11	721.5	497.14	722.33	497.16	722.87	497.16	729.2	497.19
729.82	497.2	736.3	497.23	736.77	497.23	743.4	497.27	743.74	497.27
750.51	497.3	757.62	497.34	760.1	497.35	762.04	497.36	767.07	497.41
773.99	497.48	780.9	497.54	781.35	497.54	787.82	497.6	788.43	497.6
794.73	497.66	795.52	497.67	801.64	497.72	802.59	497.73	808.57	497.78
809.67	497.79	815.48	497.84	816.76	497.85	818.6	497.86	819.96	497.87
823.44	497.9								

Manning's n Values  
 Sta n Val Sta num= 3  
 0 .04 508.93 .045 615.76 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 508.93 615.76 200 200 200 .1 .3  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 457.98 495.68 F  
 624.1 823.44 496.09 F  
 Left Levee Station= 459.93 Elevation= 494.83

CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 9113

INPUT

Description: East Ditch Sta. 13+00

Station	Elevation	Data	num=	269					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	510.76	1.4	510.67	4.45	510.51	6.87	510.42	9.98	510.25
13.86	510.12	17.03	509.94	20.84	509.81	24.08	509.63	27.83	509.5
28.32	509.47	31.96	509.46	35.16	509.35	39.21	509.28	42.32	509.17
42.68	509.16	46.63	509.12	49.66	509.01	51.14	508.96	54.21	508.85
58.09	508.71	61.25	508.6	61.88	508.55	65.57	508.29	68.9	508.17
72.43	507.93	75.92	507.81	77.86	507.79	81.42	507.75	84.85	507.63
88.44	507.59	91.85	507.47	94.42	507.37	98	507.34	99.89	507.32
103.25	507.17	106.91	507.14	110.21	507	113.93	506.97	117.18	506.82
120.5	506.68	121.91	506.6	125.3	506.41	128.98	506.25	132.24	505.88
136.15	505.71	139.1	505.38	139.47	505.36	143.59	505.18	146.42	505.03
150.64	504.84	153.38	504.7	157.7	504.51	160.34	504.37	161.79	504.3
166.2	504.1	168.78	503.96	169.43	503.93	173.93	503.73	176.42	503.6
180.94	503.4	183.41	503.27	187.96	503.07	190.4	502.95	194.99	502.74
197.38	502.62	202.01	502.41	204.38	502.29	209.03	502.08	211.37	501.96
216.04	501.75	218.35	501.63	223.07	501.42	225.34	501.31	229.72	501.11
231.96	501	236.75	500.77	237.84	500.74	240.01	500.68	244.85	500.44
246.96	500.38	251.85	500.15	253.92	500.09	258.86	499.85	260.87	499.79
265.88	499.55	267.82	499.5	272.89	499.25	274.77	499.2	279.9	498.95

280.82	498.85	285.99	498.6	287.78	498.41	293.02	498.16	294.76	497.98
300.05	497.73	301.72	497.55	307.19	497.29	308.82	497.23	314.19	496.98
315.81	496.91	321.19	496.66	322.8	496.6	328.19	496.34	329.78	496.28
335.2	496.02	336.76	495.96	337.25	495.94	342.71	495.81	343.4	495.78
344.89	495.73	350.41	495.6	351.84	495.55	357.43	495.42	358.8	495.37
364.45	495.24	365.75	495.2	371.47	495.06	372.71	495.02	378.49	494.89
379.66	494.85	385.51	494.71	386.24	494.7	392.15	494.56	393.22	494.55
399.19	494.41	400.21	494.4	406.22	494.26	407.19	494.25	412.97	494.11
413.89	494.1	420	494.02	420.88	494.01	427.04	493.94	427.86	493.93
434.07	493.85	434.83	493.82	441.1	493.74	441.82	493.72	448.14	493.64
448.8	493.61	455.17	493.54	455.78	493.51	462.2	493.44	462.77	493.42
463.07	493.41	469.52	493.34	470.05	493.33	476.53	493.25	477.01	493.25
483.53	493.17	483.98	493.16	490.53	493.08	490.95	493.08	497.68	493
498.07	492.99	504.66	492.91	505.01	492.91	511.64	492.83	511.96	492.82
513.14	492.81	519.83	492.77	526.83	492.72	533.83	492.68	541	492.63
547.85	492.58	554.85	492.52	561.84	492.46	568.84	492.41	575.83	492.35
576.2	492.35	582.82	492.29	583.26	492.29	589.82	492.24	590.34	492.23
596.84	492.18	597.41	492.17	603.83	492.12	607.72	492.09	608.41	492.08
614.66	491.95	615.44	491.95	621.6	491.82	622.45	491.81	628.54	491.69
629.48	491.68	635.48	491.56	636.51	491.55	642.42	491.43	643.54	491.42
649.36	491.3	650.57	491.29	656.31	491.17	657.59	491.16	663.27	491.05
664.64	491.04	670.21	490.93	671.65	490.92	677.17	490.82	678.68	490.81
681.62	490.75	683.18	490.74	688.61	490.61	690.22	490.6	695.61	490.48
697.26	490.47	702.6	490.34	704.3	490.33	709.59	490.21	711.34	490.2
716.59	490.08	717.32	490.08	722.49	489.96	724.33	489.94	729.46	489.82
731.34	489.81	736.42	489.69	738.36	489.67	738.76	489.67	743.8	489.56
745.78	489.59	747.88	489.54	748.19	489.54	750.14	489.56	755.31	489.58
757.08	489.6	762.43	489.63	764.03	489.64	769.56	489.67	770.5	489.68
776.21	489.7	777.53	489.68	790.25	489.84	791.33	489.86	801.63	490.22
809.5	490.49	814.51	490.69	825.85	491.08	833.43	489.72	837.97	488.91
847.32	487.47	851.17	486.86	855.74	486.94	868.31	487.14	869.44	487.16
872.64	487.24	899.51	487.91	908.14	489.57	909.12	489.75	910.44	490.14
917.65	492.29	920.74	493.02	925.56	494.18	930.42	494.34	934.91	494.46
957.11	495.13	957.49	495.13	979.97	495.1	987.95	495.21	1014.73	495.46
1029.62	495.63	1044.92	495.82	1063.56	495.91	1075.1	495.9	1097.49	496.21
1105.28	496.25	1131.43	496.23	1135.46	496.26	1141.8	496.29		

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	825.85	.045	925.56	.04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
825.85	925.56	350	350	350		.1	.3
Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	752.05	494.67	F				
931.86	1141.8	495.3	F				
Left Levee	Station=	823.19	Elevation=	491.11			

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 8763

Description: East Ditch Sta. 16+50  
Station Elevation Data num=

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1391.5	490.1	1400.91	490.06	1408.82	489.88	1413.26	489.74	1425.27	489.17
1432.71	488.54	1440.91	488.15	1446.09	488.08	1449.99	487.18	1455.44	486.29
1458.54	486.4	1469.33	486.78	1483.55	488.34	1486.18	488.63	1489.38	488.35
1497.65	487.6	1503.41	486.91	1512.41	485.83	1519.77	485.78	1524.35	485.75
1528.05	485.73	1554.24	486.45	1561.57	486.65	1563.96	486.89	1569.58	487.49
1578.82	488.52	1581.16	488.79	1581.81	488.73	1582.61	488.79	1584.89	489.12
1587.16	489.33	1587.64	489.38	1589.57	489.69	1590.79	490.13	1593.76	491.17

LL-LOMR.rep

1595.41	491.64	1599.88	491.8	1620.47	492.5	1630.57	492.49	1646.5	492.47
1654.94	492.66	1660.38	492.78	1666.96	492.91	1672.11	492.89	1697.15	492.91
1699.29	492.96	1718.62	493.25	1727.33	493.37	1753.59	493.23	1757.46	493.24
1780.81	493.51	1787.7	493.6	1796.31	493.69	1802.55	493.78		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1391.5	.04	1486.18	.045	1595.41	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1486.18	1595.41	250	250	250	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1391.5	1461.38	492.15	F
1598	1802.55	493.24	F

Left Levee Station= 1485.35 Elevation= 488.73

CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 8513

INPUT

Description: East Ditch Sta. 19+00

Station	Elevation	Data	num=	53	Sta	Elev	Sta	Elev	Sta	Elev
1395.21	488.89	1399.78	488.89	1400.54	488.78	1401.1	488.78	1406.86	488.03	
1409.21	488.07	1427.06	487.66	1431.39	487.78	1434.55	487.79	1435.11	487.8	
1436.04	487.79	1440.51	487.85	1452.72	487.94	1453.06	487.98	1456.82	487.31	
1464.56	486	1473.85	486.19	1482.56	486.37	1497.78	487.61	1498.61	487.67	
1499.41	487.6	1514.82	486.16	1523.29	485.41	1527.01	485.07	1539.41	484.47	
1541.39	484.37	1543.12	484.43	1544.8	484.48	1577.81	485.6	1582.82	486.32	
1588.62	487.16	1591.38	487.52	1595.6	488.06	1597.88	488.71	1599.06	489.05	
1604.37	490.24	1605.55	490.49	1629.4	491.19	1633.32	491.29	1640.25	491.3	
1664.59	491.31	1668.7	491.37	1683.46	491.5	1696.05	491.63	1713.65	491.67	
1735.61	491.84	1743.83	491.92	1750.41	491.93	1774.01	492	1803.48	492.28	
1804.19	492.28	1809.94	492.4	1819.21	492.6					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1395.21	.04	1498.61	.045	1604.37	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1498.61	1604.37	100	100	100	.1	.3
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1395.21	1470.83	490.07	F
1608.88	1819.21	491.64	F

Left Levee Station= 1498.83 Elevation= 487.75

CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 8413

INPUT

Description: East Ditch Sta. 20+00

Station	Elevation	Data	num=	70	Sta	Elev	Sta	Elev	Sta	Elev
1393.59	487.96	1394	488.28	1395.89	488.03	1399.87	488.19	1400.79	488.21	
1405.96	488.1	1412.31	488.11	1413.74	487.99	1414.68	487.95	1422.07	487.13	
1433.47	486.05	1436.35	486.06	1439.29	486	1442.18	485.95	1443.59	485.93	
1443.97	485.92	1446.77	485.92	1453.81	486.09	1454.7	486.07	1459.1	486	
1462.68	485.95	1463.32	485.95	1470.99	485.9	1472.72	485.89	1491.99	486.25	

LL-LOMR.rep

1492.38	486.26	1493.71	486.31	1507.73	486.84	1524.2	485.5	1526.57	485.31
1527.22	485.22	1535.8	483.89	1541.46	483.61	1543.94	483.57	1550.64	483.53
1551.18	483.57	1556	483.86	1556.55	483.65	1557.15	483.42	1558.26	483.01
1562.31	481.33	1563.46	481.73	1567.28	484.06	1569.34	484.17	1584.74	484.94
1585.64	485.06	1598.41	486.69	1602.04	486.52	1602.81	486.51	1604.85	487.02
1605.63	487.12	1607.44	487.41	1614.21	489.91	1614.82	490.13	1618.71	490.22
1639.19	490.68	1659.35	490.74	1675.39	490.79	1680.62	490.81	1692.76	490.87
1703.74	490.96	1711.7	491	1730.92	491.15	1741.92	491.16	1758.11	491.26
1772.1	491.41	1785.29	491.52	1802.28	491.51	1823.5	491.82	1828.35	491.88

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 1393.59 .04 1507.73 .045 1614.21 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 1507.73 1614.21 100 100 100 .1 .3  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 1393.59 1461.71 488.87 F  
 1622.63 1828.35 491.16 F  
 Left Levee Station= 1507.29 Elevation= 486.94

CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 8313

INPUT

Description: East Ditch Sta. 21+00

Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
913.01	485.24	938.7	485.33	970.73	485.47	978.92	485.54	986.91	485.75
990.21	485.85	991.23	485.88	1002.11	486.18	1002.61	486.18	1018.03	486.42
1018.73	486.26	1024.86	484.86	1029.13	483.41	1032.99	482.11	1037.56	480.95
1045.59	478.92	1058.29	478.64	1061.85	478.56	1065.98	478.52	1068.81	478.5
1073.24	478.47	1077.59	478.54	1081.99	478.61	1085.22	478.69	1096.19	478.9
1099.33	479.66	1111.65	482.63	1114.35	483.21	1125.01	485.65	1135.24	486.44
1140.79	486.77	1144.89	486.77	1145.28	486.82	1148.77	486.81	1149.66	486.76
1152.67	486.8	1153.7	486.84	1159.58	486.86	1159.88	486.87	1163.19	486.88
1163.59	486.88	1165.89	486.86	1170.39	486.94	1171.46	486.96	1173.74	487
1175.74	487.12	1182.81	487.46	1186.72	487.67	1188.97	487.74	1198.85	487.33
1203.88	487.1	1207.95	487.05	1212.07	486.94	1213.97	486.92	1214.35	486.92
1219.34	486.75	1222.44	486.65	1225.21	486.73	1230.79	486.9	1232.23	486.79
1236.96	486.7	1239.9	486.46	1243.64	486.36	1244.64	486.37	1247.5	486.37
1250.95	486.37	1252.29	486.46	1257.01	486.57	1265.24	487.54	1266.74	487.65
1268.86	488.13	1282.33	489.15	1285.49	489.39	1292.12	489.55	1300.91	489.68
1320.7	490.07	1331.09	490.42	1338.03	490.63				

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 913.01 .04 1018.03 .045 1144.89 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 1018.03 1144.89 300 300 300 .1 .3  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 913.01 997.77 487.8 F  
 1149.88 1338.03 487.89 F  
 Left Levee Station= 1010.55 Elevation= 486.42

CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 8013

## INPUT

Description: East Ditch Sta. 24+00

Station Elevation Data		num= 44							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
449.33	482.67	468.6	482.93	490.23	483.1	499.1	483.43	514.58	484.33
535.38	484.16	543.26	484.03	547.45	484.07	554.3	484.14	561.77	484.21
574.9	480.26	575.36	480.12	576.05	479.96	580	479.06	586.66	477.53
599.02	477.3	600.75	477.27	604.54	477.25	613.88	477.2	614.65	477.19
623.88	476.96	624.56	476.94	625.34	476.96	637.01	477.24	654.4	481.42
654.93	481.54	655.61	481.68	669.44	484.58	684.73	484.26	691.53	484.11
706.42	484.9	707.88	484.99	726.13	485.49	736.16	485.76	736.69	485.76
747.79	485.81	751.75	485.79	755.65	485.85	761.38	485.93	766.27	485.97
772.33	486.08	778.46	486.12	779.93	486.12	782.17	486.12		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
449.33	.04	561.77	.045	669.44	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	561.77	669.44		400	400		.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
449.33	499.8	485.59	F
683.26	782.17	485.89	F

Left Levee Station= 517 Elevation= 484.37

## CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 7613

## INPUT

Description: East Ditch Sta. 28+00

Station Elevation Data		num= 52							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	485.05	.75	485.03	4.75	484.93	11.22	483.61	20.52	481.7
23.96	481.53	30.11	481.2	34.59	481.05	38.54	480.93	41.89	480.89
45.91	480.88	48.37	480.29	50.48	479.8	54.17	480.6	57.98	481.45
75.44	480.61	84.36	480.05	86.92	479.78	90.12	479.32	92.9	478.74
95.12	478.49	97.37	477.86	99.52	477.37	101.95	476.83	103.93	476.46
105.16	476.12	105.89	475.9	106.76	475.87	114.44	475.47	124.01	475.45
129.54	475.45	134.59	475.32	139.61	475.2	144.8	475.08	153.51	475.24
163.03	475.4	174.24	477.87	177.84	478.51	189.78	480.64	202.91	481.17
208.84	481.4	213.07	481.4	224.33	481.37	246.47	481.57	253.52	481.59
256.45	481.59	262.2	481.56	263.25	481.5	282.91	480.41	293	479.85
304.79	479.25	305.31	479.3						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	57.98	.045	189.78	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	57.98	189.78		400	400		.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	55.64	482.4	F
200.65	305.31	482.41	F

Left Levee Station= 57.46 Elevation= 481.56

Right Levee Station= 244.66 Elevation= 481.6

## CROSS SECTION

RIVER: Perimeter Ditch



REACH: Laredo Landfill RS: 7213

## INPUT

Description: East Ditch Sta. 32+00

Station Elevation Data		num= 61							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	483.25	7.34	481.94	24.74	479.21	28.75	478.57	34.3	478.5
49.52	478.3	51.35	478.94	52.69	479.4	55.66	480.17	56.62	480.42
58.61	480.31	70.99	479.61	77.87	477.05	79.58	476.42	81.27	476.37
88.31	476.17	90.38	476.81	91.32	477.11	107.79	477.75	118.25	478.15
120.55	477.63	129.05	475.69	134.4	474.51	140.91	473.09	144.84	472.95
147.17	472.85	150.7	472.96	158.22	473.2	162.64	473.09	170.5	472.91
172.13	472.4	177.59	470.49	179.1	470.24	180.99	469.91	184.55	469.81
186.21	469.76	186.75	469.74	189.27	469.98	190.16	471.76	190.43	473.34
190.86	473.34	191.66	473.29	196.12	473.82	197.81	474.03	202.77	474.88
207.06	475.63	212.49	476.58	221.22	478.07	229.96	478.14	236.92	477.9
240.42	477.77	244.33	477.97	256.19	478.53	272.74	478.35	275.96	478.32
277.22	478.32	292.87	478.38	293.8	478.38	307.22	478.4	321.42	478.53
335.46	478.69								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	118.25	.045	221.22	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	118.25	221.22		400	400		.1	.3
Ineffective Flow	num=		2					
Sta L	Sta R	Elev	Permanent					
0	98.5	479.87	F					
232.35	335.46	480.05	F					
Left Levee	Station=		116.29	Elevation=	478.19			

## CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 6813

## INPUT

Description: East Ditch Sta. 36+00

Station Elevation Data		num= 67							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
52.07	476.07	55.33	477.21	56.59	477.18	59.1	477.1	63.9	476.96
67.24	476.86	76.3	473.62	76.64	473.5	77.85	473.4	80.16	473.2
80.69	473.2	84.4	473.14	86.85	473.97	88.55	474.56	106.95	474.67
115.39	474.71	125.22	473.06	128.84	472.44	130.57	472.26	141.7	471.06
146.72	471.1	154.12	471.15	161.23	471.03	166.65	470.91	176.46	470.58
179.18	470.42	180.28	469.97	182.81	468.52	186.04	468.56	189.56	468.6
190.47	468.61	191.61	468.86	195.39	469.63	196.04	470.45	197.6	472.29
199.8	472.68	202.66	473.19	204.98	473.8	208.96	474.83	217.42	475.57
219.23	475.75	221.98	475.89	228.83	476.21	238.59	476.32	245.38	476.38
256.84	476.54	260.28	476.56	262.14	476.59	266.1	477.07	266.75	476.87
269.03	476.86	270.66	476.97	273.59	476.72	274.36	476.64	276.55	476.45
279.85	476.15	283.23	475.7	283.76	475.62	285	475.5	287.07	475.29
289.64	475.43	291.27	475.53	307.66	475.57	310.86	475.55	319.62	475.46
329.26	475.52	331.71	475.55						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
52.07	.04	115.39	.045	208.96	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	115.39	208.96		100	100		.1	.3
Ineffective Flow		num=	2					
Sta L	Sta R	Elev	Permanent					
52.07	98.05	477.09	F					

## LL-LOMR.rep

221.17 331.71 477.14 F  
 Left Levee Station= 102.61 Elevation= 474.71  
 Right Levee Station= 264.5 Elevation= 477

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 6713

## INPUT

Description: East Ditch Sta. 37+00

Station	Elevation	Data	num=	60	Sta	Elev	Sta	Elev	Sta	Elev
56.23	474.99	58.87	476.19	68.26	475.83	70.47	475.75	80.04	472.65	
84.14	472.02	85.84	472.17	88.36	472.38	92.07	473.89	93.37	474.42	
100.65	474.48	119.84	474.66	127.84	473.33	133.08	472.45	135.81	471.2	
139.94	469.26	143.96	469.14	146.45	469.07	147.69	469.12	148.43	469.22	
155.42	469.47	157.1	469.52	157.29	469.51	162.27	468.93	167.42	468.24	
168.96	468.15	171.03	468.03	175.01	468.11	175.87	468.13	176.82	468.2	
177.64	468.32	182.6	469.11	183.97	469.81	192.18	470.71	196.82	470.93	
199.12	471.06	203.87	472.03	204.73	472.19	216.26	474.01	216.76	474.1	
217.26	474.14	228.17	475.07	229.7	475.15	237.84	475.54	243.53	475.62	
247.93	475.68	252.84	475.59	257.85	475.49	262.67	475.21	269.52	474.7	
277.49	474.81	283.6	474.92	287.59	475.01	294.63	475.09	306.28	475.16	
310.46	475.18	313.42	475.2	315.3	475.2	332.35	475.01	336.57	474.96	

Manning's n Values num= 3  

Sta	n Val	Sta	n Val	Sta	n Val
56.23	.04	119.84	.045	228.17	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 119.84 228.17 200 200 200 .1 .3

Ineffective Flow num= 2  

Sta L	Sta R	Elev	Permanent
56.23	100.78	477.73	F
231.66	336.57	477.61	F

Left Levee Station= 106.25 Elevation= 474.6  
 Right Levee Station= 246.25 Elevation= 475.71

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 6513

## INPUT

Description: East Ditch Sta. 39+00

Station	Elevation	Data	num=	52	Sta	Elev	Sta	Elev	Sta	Elev
70.25	474.15	70.94	474.27	80.98	474.19	82.7	474.18	83.79	473.73	
90.11	471.14	91.56	471.11	93.3	471.07	97.78	471.35	98.46	471.39	
99.57	471.66	104.91	472.96	114.89	472.99	131.11	473.07	136.82	471.66	
139.67	470.96	148.52	468.73	150.58	468.21	152.37	468.12	157.74	467.87	
165.88	468.41	166.54	468.45	167.07	468.45	179.51	468.39	180.29	468.39	
184.81	468.38	195.12	468.36	205.51	468.74	214.11	469.04	219.89	469.89	
220.24	469.94	226.76	471.1	229.57	471.8	236.31	473.42	238.57	474.12	
240.35	474.61	244.84	475.26	246.79	475.54	254.36	475.89	255.82	475.94	
257.27	475.93	261.07	475.9	265.08	475.85	265.49	475.77	273.37	474.33	
288.45	474.02	290.85	473.96	305.44	473.65	306.94	473.62	316.83	473.7	
333.53	473.74	348.61	473.65							

Manning's n Values num= 3  

Sta	n Val	Sta	n Val	Sta	n Val
70.25	.04	131.11	.045	238.57	.04

LL-LOMR.rep  
 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
           131.11 238.57           400       400       400       .1       .3  
 Ineffective Flow num= 2  
   Sta L Sta R Elev Permanent  
     70.25 112.64 475.36 F  
    246.25 348.61 476.29 F  
 Left Levee Station= 84.14 Elevation= 474.16  
 Right Levee Station= 258.11 Elevation= 476.01

CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 6113

INPUT

Description: East Ditch Sta. 43+00

Station	Elevation	Data	num=	70
Sta	Elev	Sta	Elev	Sta Elev Sta Elev
0	473.74	4.37	473.82	5.43 473.82 11.74 473.71 12.41 473.71
12.93	473.7	18.52	473.44	19.01 473.43 25.8 472.86 27.72 472.81
32.92	472.54	33.23	472.52	33.94 472.5 38.27 472.49 45.12 472.47
47.3	472.46	47.83	472.45	48.61 472.4 53.41 472.05 58.21 471.87
64.95	471.91	65.4	471.91	70.08 471.83 71.09 471.81 75.78 471.33
79.42	471.09	81.24	470.87	83.03 470.45 86.84 470.39 87.17 470.35
94.12	469.7	99.05	469.24	106.38 468.32 108.15 468.1 109.91 468.11
112.24	468.15	120.57	468.08	123.08 468.07 127.51 468.05 129.73 468.11
133.33	468.21	135.5	468.19	145.93 468.13 155.23 468.06 163.14 468.01
171.51	467.94	177.17	468.28	179.4 468.42 184.25 468.95 184.57 469.02
187.8	469.8	189.74	470.46	193.02 471.57 198.78 472.08 202.4 472.43
209.45	472.24	214.68	472.1	216 471.98 216.36 471.94 221.3 471.36
223.36	471.14	242.49	470.84	245.52 470.81 260.37 470.62 264.16 470.54
274.4	470.63	275.26	470.64	276.19 470.65 302.56 470.88 305.31 470.91

Manning's n Values num= 3  
   Sta n Val Sta n Val Sta n Val  
     0 .04 71.09 .045 202.4 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
           71.09 202.4           110       139       200       .1       .3  
 Ineffective Flow num= 2  
   Sta L Sta R Elev Permanent  
     0 60.77 473.45 F  
    205.24 305.31 473.54 F  
 Right Levee Station= 204.64 Elevation= 472.5

CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 5974

INPUT

Description: East Ditch Sta. 44+39

Station	Elevation	Data	num=	124
Sta	Elev	Sta	Elev	Sta Elev Sta Elev
0	471.41	3.14	471.39	10.38 471.39 12.11 471.38 18.07 471.38
21.09	471.37	25.76	471.37	29.65 471.34 33.09 471.33 38.49 471.28
40.75	471.27	47.34	471.21	48.08 471.2 55.72 471.12 56.17 471.08
56.78	471.01	64.63	470.19	70.25 469.56 71.91 469.27 73.35 468.98
76.82	468.31	80.62	467.49	81.83 467.18 86.92 466.13 87.36 465.86
89.03	464.89	91.78	463.88	93.62 464.16 96.42 464.63 98.7 465
100.34	465.29	100.94	465.31	108.56 465.54 110.7 465.68 113.62 465.78
115.18	465.86	119.4	466.08	125.02 466.32 125.46 466.35 126.91 466.43
131.46	466.61	133.75	466.57	134.52 466.56 139.4 466.49 141.9 466.45
150.75	466.35	156.13	466.35	158.86 466.32 166.9 466.35 169.26 466.42

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176.15	466.62	180.88	466.6	182.88	466.6	189.63	466.68	193.97	466.72
198.06	466.77	205.41	466.85	206.68	466.86	207.28	466.86	215.4	466.92
217.35	466.93	220.85	466.95	227.34	466.97	228.87	466.96	232.67	466.98
236.05	467.25	239.6	467.47	242.55	467.68	245.61	467.85	250.45	468.19
253.4	468.35	259.1	468.8	259.42	468.83	260.88	469	269.44	469.94
272.9	470.31	276.81	469.94	277.47	469.88	283.63	469.26	287.2	468.73
287.9	468.63	291.04	468.44	291.92	468.29	292.64	468.22	298.32	467.43
301.53	467.33	305.81	467.37	307.37	467.36	309.56	467.37	315.08	467.36
318.78	467.28	326.23	467.06	326.65	466.9	329.51	465.95	332.07	465.14
332.52	464.94	341.12	466.97	345.2	467.87	350.44	469.17	351.66	469.47
359.09	470.97	359.63	471.23	360.36	471.34	362.32	471.62	367.99	472.02
371.88	472.28	374.93	472.49	378.79	472.75	381.99	472.8	383.01	472.83
389.44	472.95	392.74	473.03	396.92	473.12	402.47	473.27	404.46	473.31
411.43	473.52	412.11	473.53	419.69	473.7	421.06	473.74	428.41	473.87
431.29	473.96	437.14	474.07	441.52	474.21	441.99	474.22		

Manning's n Values num= 3  
Sta n Val Sta n Val  
0 .04 56.17 .045 360.36 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
56.17 360.36 190 324 380 .1 .3  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 49.14 473.27 F  
365.68 441.99 473.05 F

CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 5650

INPUT

Description: North Ditch Sta. 56+50

Station Elevation Data		num= 53							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	474.81	7.01	473.36	10.26	472.67	11.21	472.42	13.17	471.93
19.86	471.95	24.48	471.95	27.93	472.13	28.29	472.14	29.4	472.11
36.92	471.84	37.85	471.79	39.11	471.72	59.28	471.21	64.67	471.06
69.07	469.95	69.63	469.81	73.23	469.05	82.78	467.05	94.66	463.78
97.06	463.13	97.93	463.16	112.82	463.78	114.27	463.81	133.28	464.24
147.71	463.67	148.26	463.65	151.96	463.51	154.16	464.06	160.67	465.82
172.08	465.66	183.71	465.52	200.19	465.64	200.87	465.87	208.45	468.39
210.38	467.85	217.2	465.89	232.09	465.43	244.64	465.06	256	464.86
263.46	464.73	267.92	464.9	274.77	465.16	283.4	467.22	288.73	468.48
295.31	469.84	299.29	470.67	309.79	470.72	320.49	470.78	345.27	471.44
363.87	471.94	369.78	472.01	374.96	472.07				

Manning's n Values num= 3  
Sta n Val Sta n Val  
0 .04 64.67 .045 299.29 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
64.67 299.29 250 250 250 .1 .3  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 61.59 472.27 F  
302.7 374.96 472.1 F

CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 5400

## INPUT

Description: North Ditch Sta. 54+00

Station Elevation Data		num= 61							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	477.81	.63	477.66	6.76	476.23	9.33	475.59	12.99	474.74
13.59	474.6	14.01	474.39	15.82	473.45	23.93	473.45	27.8	473.45
34.14	473.68	36.52	472.39	39.17	472.24	52.12	471.52	55.96	471.05
59.89	470.51	71.66	467.66	75.47	466.73	78.46	465.99	89.61	463.18
95	462.75	95.34	462.72	95.93	462.44	97.66	461.62	98.22	461.73
99.27	461.91	102.49	462.55	104.31	462.2	108.71	461.41	112.26	462.04
112.85	462.13	118	462.16	140.82	462.23	147.46	462.3	154.37	462.39
156.3	462.42	163.83	463.68	170.17	464.3	175.99	464.91	189.46	464.51
190.62	464.47	191.53	464.79	201.54	468.21	208.13	465.09	209.52	464.48
212.38	464.3	219.63	463.86	239.85	464.28	263.1	464.75	276.25	464.4
279.41	464.32	287.9	466.17	293.38	467.36	304.45	468.59	306.1	468.78
308.81	468.87	319	469.29	319.46	469.24	337.94	469.72	363.58	470.43
372.9	470.5								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	71.66	.045	306.1	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	71.66	306.1		700	700		.1	.3
Ineffective Flow		num=	2					
Sta L	Sta R	Elev	Permanent					
0	66.83	471.1	F					
309.58	372.9	471.77	F					

## CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 4700

## INPUT

Description: North Ditch Sta. 47+00

Station Elevation Data		num= 54							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	481.35	.91	481.22	4.94	480.14	16.24	479.96	17.73	480.22
18.23	480.32	25.83	480	27.91	479.91	30.25	479.26	34.85	477.93
43.01	477.43	49.29	477.03	73.38	468.45	74.53	468.04	75.03	467.89
95.19	461.64	100.78	460.56	103.16	460.12	112.09	459.74	127.19	459.09
129.38	459.49	129.75	459.56	132.64	458.98	134.64	459	135.63	458.98
152.31	458.99	167.61	458.99	176.56	458.99	180.95	459.52	186.63	460.15
188.23	460.34	193.15	460.89	208.48	460.82	209.04	460.82	209.42	460.89
218.83	463.33	226.61	461.98	227	461.91	241.7	462.69	243.31	462.78
255.69	463.75	260.42	463.24	262.08	463.1	280.84	462.68	295.47	462.34
297.73	462.74	304.36	464.11	311.53	464.75	317.31	465.35	329.14	466.37
329.53	466.4	347.51	466.72	360.38	466.97	374.99	467.07		

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	75.03	.045	329.53	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	75.03	329.53		700	700		.1	.3
Ineffective Flow		num=	2					
Sta L	Sta R	Elev	Permanent					
0	69.12	474	F					
332.51	374.99	473.2	F					

## CROSS SECTION

RIVER: Perimeter Ditch



REACH: Laredo Landfill RS: 4000

## INPUT

Description: North Ditch Sta. 40+00

Station Elevation Data				num= 38					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	477.14	4.08	475.9	5.05	475.61	6.45	474.79	11.46	471.88
15.79	471.32	24.02	470.25	36.61	469.63	47.05	469.1	61.67	468.15
66.4	467.86	75.35	465.23	86.67	461.92	97.59	460.14	110.13	458.08
209.58	458.08	212.06	458.73	214.9	459.47	225.05	459.5	228.63	459.51
231.47	459.78	236.43	460.26	240.13	460.08	243.81	459.89	246.79	460.09
251.89	460.48	257.1	460.29	261.06	460.14	279.41	459.62	285.4	459.44
303.19	460.43	310.54	460.84	315.1	461.49	330.35	463.62	341.31	464.13
357.06	464.94	369.7	465.3	373.9	465.41				

Manning's n Values				num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	86.67	.045	330.35	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	86.67	330.35		700	700		.1	.3

Ineffective Flow				num= 2	
Sta L	Sta R	Elev	Permanent		
0	81.57	468.93	F		
338.08	373.9	469.04	F		

## CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 3300

## INPUT

Description: North Ditch Sta. 33+00

Station Elevation Data				num= 56					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	473.07	.41	473.03	3.37	472.72	6.32	473.52	7.49	473.83
8.29	473.64	9.86	473.25	19.12	472.93	21.14	472.86	21.82	472.51
24.47	471.11	25.59	471.08	39.33	470.69	46.9	470.36	56.19	470
71.42	466.63	84.75	463.63	104.56	459.32	110.29	458.08	248.28	458.08
262.46	458.79	272.38	459.27	286.27	459.28	304.83	459.43	306.15	459.4
307.94	459.36	309.91	459.29	314.8	459.12	318.85	458.79	323.38	458.42
329.45	457.93	336.17	457.39	342.54	457.32	347.87	457.24	358.65	457.1
360.81	457.07	364.32	457.02	367.54	456.97	370.69	456.93	375.39	457.37
380.23	457.83	386.16	458.39	392.29	458.98	396.73	459.7	400.68	460.31
406.87	461.29	413.84	462.37	417.07	462.44	419.55	462.49	424.73	462.57
437.26	462.87	437.58	462.88	449.84	463.01	456.21	463.09	461.84	463.14
468.1	463.21								

Manning's n Values				num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	104.56	.045	413.84	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	104.56	413.84		510	500		.1	.3

Ineffective Flow				num= 2	
Sta L	Sta R	Elev	Permanent		
0	82.31	467.25	F		
425.88	468.1	466.73	F		

## CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 2850

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INPUT

Description: North Ditch Sta. 28+50

Station Elevation Data		num= 66							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	475.12	2.7	475.16	5.61	475.02	8.42	474.91	10.97	474.94
14.59	474.89	21.42	474.67	21.85	474.67	24.75	474.64	28.29	474.6
34.16	474.47	35.09	474.43	38.5	474.29	46.2	473.98	52.67	473.72
56.1	473.59	67.22	473.26	69.41	473.18	69.89	473.07	70.41	472.95
88.91	468.75	103.49	465.34	104.41	465.12	105.39	464.89	123.87	459.51
126.93	458.08	258.69	458.08	269.22	458.3	273.16	458.36	281.66	458.52
289.96	458.63	294.19	458.71	306.64	458.86	307.5	458.87	309.3	458.92
312.74	459.12	320.55	459.59	324.53	459.56	329.45	459.52	337.16	459.49
361.3	459.37	368.78	459.38	376.24	459.26	389.99	459.05	403.78	458.66
411.2	458.58	418.61	458.44	432.42	458.27	446.26	457.83	453.63	457.53
461.06	457.06	464.07	456.88	471.08	456.45	478.88	455.96	491.28	456.33
497.14	456.5	512.02	455.66	515.66	455.46	531.93	457.62	534.94	458.04
546.07	459.85	557.29	461.68	566.08	462.19	571.51	462.51	578.58	462.52
593.64	462.54								

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	123.87	.045	557.29	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	123.87	557.29		220	220		.1	.3
Ineffective Flow	num= 2							
Sta L	Sta R	Elev	Permanent					
0	104.18	467.65	F					
563.64	593.64	467.4	F					

CROSS SECTION

RIVER: Perimeter Ditch

REACH: Laredo Landfill RS: 2630

INPUT

Description: North Ditch Sta. 26+30

Station Elevation Data		num= 97							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	468.9	1.63	468.52	3.5	468.87	8	468.63	8.3	468.55
18.98	468.29	22.12	468.17	26.93	469.39	30.4	470.19	36.79	468.43
43.3	466.62	49.13	465	51.85	464.32	56.61	462.9	62.05	461.62
65.87	460.99	70.14	460.4	73.44	459.88	81.03	458.9	81.89	458.88
90.83	458.69	93.12	458.64	98.32	458.51	101.26	458.44	105.28	458.36
109.53	458.27	112.03	458.26	116.79	458.16	118.02	458.16	120.76	458.08
121.74	458.08	131.37	458.08	136.78	458.73	140.06	459.18	142.58	459.5
145.12	459.87	145.76	459.85	146.56	459.85	151.42	459.84	154.81	459.84
157.55	459.96	159.53	460.07	164.05	460.29	169.47	460.61	170.99	460.56
171.98	460.53	181.95	460.2	186.41	460.05	190.03	459.92	195.83	459.66
198.92	459.59	199.8	459.55	205.62	459.39	209.46	459.22	213.16	459.1
215.32	459.03	230.72	459.05	236.08	459.18	240.39	459.06	243.15	458.97
254.64	458.73	283.92	458.64	284.5	458.64	326.29	458.44	326.63	458.43
326.97	458.44	347.85	458.29	368.66	458.11	369.06	458.1	369.46	458.09
390.27	457.82	411.03	457.73	411.49	457.72	411.94	457.71	432.7	457.04
453.41	456.69	453.91	456.69	454.49	456.68	455.6	456.67	478	456.43
479.99	456.37	499.17	455.82	516.21	454.82	516.58	454.79	517.19	454.76
518.51	454.84	541.84	456.33	556.36	459.12	562.53	460.31	569.16	460.7
575.35	461.07	583.59	461.07	599.92	461.08	609.55	462.14	610.76	462.27
611.15	462.27	612.93	462.27						

Manning's n Values		num= 3			
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	169.47	.045	562.53	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
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169.47 562.53 30 30 30 .1 .3  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 159.38 463.92 F  
 575.02 612.93 463.96 F

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 2600

## INPUT

Description: North Ditch Sta. 26+00

Station	Elevation	Data	num=	114	Sta	Elev	Sta	Elev	Sta	Elev
0	471.01	.44	470.92	2.47	470.36	8.27	468.59	12.06	468.55	
21.07	468.45	24.24	468.33	25.29	468.28	28.8	468.15	35.68	467.81	
37.77	467.69	40.91	467.55	45.91	468.06	52.84	468.56	53.62	468.37	
54.79	468.11	62.43	466.68	65.32	466.08	66.55	465.85	71.11	465.18	
74.53	464.89	75.81	464.78	79.99	464.55	82.67	464.45	87.23	464.19	
88.09	464.16	90.33	464.08	95	463.81	96.92	463.67	99.42	463.73	
102.74	463.85	105.03	463.93	106.89	464	109.64	463.42	111.65	463.05	
112.32	462.96	115.28	462.39	120.51	461.82	121.92	461.86	123.45	461.84	
128.49	461.88	135.16	461.71	135.82	461.72	136.71	461.65	137.15	461.63	
143.56	461.23	144.7	461.18	148.41	460.96	152.4	460.81	155.01	460.67	
160.03	460.48	161.84	460.39	174.45	459.87	174.84	459.85	175.07	459.85	
177.12	459.97	178.46	460.04	179.65	460.02	182.64	460	184.93	459.91	
190.91	459.73	192.68	459.67	197.32	459.52	200.52	459.4	201.12	459.38	
204.26	459.28	204.79	459.26	225	459.13	225.39	459.11	226.1	459.11	
232.53	459.05	235.93	459.01	253.85	458.79	263.03	458.71	272.09	458.65	
296.37	458.52	305.46	458.47	314.57	458.35	326.67	458.23	338.74	458.25	
347.88	458.21	357.05	458.05	369.1	457.8	381.11	457.58	390.31	457.45	
399.53	457.3	411.52	457.22	423.49	456.98	432.74	456.83	442.01	456.85	
453.95	456.72	467.47	456.6	469.36	456.59	478.05	456.5	479.09	456.46	
499.6	455.73	505.2	455.38	517.2	454.63	517.65	454.6	535.65	455.79	
542.54	456.24	557.87	459.18	559.31	459.45	561.83	459.94	562.18	460	
576.26	460.82	576.83	460.85	580.85	460.85	600.54	460.82	605.76	461.41	
611.95	462.11	616.32	462.11	617.33	462.11	617.92	462.08			

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .04 174.84 .045 562.18 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 174.84 562.18 200 200 200 .1 .3  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 157.08 463.44 F  
 575.59 617.92 463.37 F

## CROSS SECTION

RIVER: Perimeter Ditch  
 REACH: Laredo Landfill RS: 2400

## INPUT

Description: North Ditch Sta. 24+00

Station	Elevation	Data	num=	99	Sta	Elev	Sta	Elev	Sta	Elev
0	469.28	1.58	468.77	4.9	468.66	9.16	468.6	11	468.61	
12.44	468.62	14.42	468.61	18.21	468.61	23.57	468.55	25.75	468.51	
26.71	468.46	27.97	468.39	33.26	468.18	36.66	468.06	40.2	467.8	
43.35	466.45	43.97	466.1	44.77	466.03	47.09	465.96	47.89	465.96	
55.9	465.6	57.65	465.58	59.94	465.64	67.27	464.86	70.46	464.78	

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71.84	464.65	84.59	463.74	86.3	463.56	90.44	463.22	93.43	462.87
94.48	462.72	97.47	462.35	100.88	461.84	107.61	460.92	108.68	460.77
117.17	460.01	125.42	459.26	126.61	459.24	127.39	459.23	140.33	459.03
150.21	458.8	153.98	458.73	159.54	458.57	170.46	458.39	174.63	458.33
176.24	458.34	181.62	458.3	199.64	458.35	217.71	458.05	220.86	458.05
223.99	457.99	242.07	458.05	260.19	458.11	263.28	458.2	266.37	458.14
284.5	457.66	302.68	457.28	305.71	457.19	308.74	457.16	326.92	456.88
345.16	456.4	348.14	456.35	351.11	456.31	369.35	456.22	387.64	456.22
390.56	456.19	393.48	456.17	411.78	455.82	430.12	455.81	432.99	455.81
435.85	455.79	454.2	455.74	472.6	455.37	478.1	455.24	479.98	455.21
487.97	455.07	494.54	454.95	504.3	454.45	521.32	453.57	529.1	453.99
529.75	454.02	551.74	455.1	552.07	455.08	553.1	455.24	554.14	455.38
557.48	455.92	577.76	458.79	579.43	458.76	584.66	458.89	586.93	458.95
590.23	459.04	606.32	459.47	609.83	459.81	619.78	460.73	621.86	460.73
624.91	460.73	628.87	460.61	631.62	460.51	635.56	460.52		

Manning's n Values num= 3  
Sta n Val Sta n Val  
0 .04 127.39 .045 577.76 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
127.39 577.76 150 150 150 .1 .3  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 116.95 462.95 F  
589.35 635.56 461.96 F

CROSS SECTION

RIVER: Perimeter Ditch  
REACH: Laredo Landfill RS: 2250

INPUT

Description: North Ditch Sta. 22+50

Station Elevation Data		num= 83							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	465.89	5.56	465.4	6.69	465.32	16.21	465.03	19.21	464.89
34.45	464.14	35.23	464.07	36.82	464.04	43.46	463.91	50.57	461.96
53.5	461	65.73	458.4	68.12	458.54	74.73	459	80.29	459.23
81.17	459.45	86.39	459.62	87.54	459.69	90.63	459.49	96.94	459.31
103.63	459.12	109.62	458.99	114.95	459.02	127.31	458.87	149.91	458.62
155.69	458.55	159.12	458.53	178.62	458.5	198.17	458.29	199.84	458.26
201.49	458.19	221.05	457.54	240.66	456.99	242.26	456.97	243.87	456.97
263.48	456.95	283.14	456.8	286.24	456.7	305.9	456.01	325.62	455.5
327.12	455.48	328.61	455.48	348.33	455.55	368.1	455.13	369.54	455.09
370.98	455.08	390.75	454.89	410.58	454.73	411.97	454.73	413.35	454.72
433.18	454.76	453.06	454.83	454.39	454.82	455.72	454.84	489.78	454.75
502.22	454.76	509.37	454.28	522.83	453.35	526.07	453.13	535.05	454.12
545.38	455.24	549.48	455.68	574.71	458.45	579.42	458.52	591.11	458.68
604.68	458.67	609.09	458.67	617.38	459.21	625.53	459.74	626.78	459.74
630.49	459.74	638.15	459.27	645.5	458.84	656.87	459.35	661.23	459.55
665.79	459.55	666.53	459.55	667.53	459.47	672.01	459.13	680.74	458.29
685.19	457.87	690.36	458.52	691.48	458.67				

Manning's n Values num= 3  
Sta n Val Sta n Val  
0 .04 87.54 .045 574.71 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
87.54 574.71 0 0 0 .1 .3  
Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 79.12 461.5 F  
581.9 691.48 461.04 F  
Right Levee Station= 623.18 Elevation= 459.75

## SUMMARY OF MANNING'S N VALUES

River: Perimeter Ditch

Reach	River Sta.	n1	n2	n3
Laredo Landfill	9895	.04	.045	.04
Laredo Landfill	9463	.04	.045	.04
Laredo Landfill	9313	.04	.045	.04
Laredo Landfill	9113	.04	.045	.04
Laredo Landfill	8763	.04	.045	.04
Laredo Landfill	8513	.04	.045	.04
Laredo Landfill	8413	.04	.045	.04
Laredo Landfill	8313	.04	.045	.04
Laredo Landfill	8013	.04	.045	.04
Laredo Landfill	7613	.04	.045	.04
Laredo Landfill	7213	.04	.045	.04
Laredo Landfill	6813	.04	.045	.04
Laredo Landfill	6713	.04	.045	.04
Laredo Landfill	6513	.04	.045	.04
Laredo Landfill	6113	.04	.045	.04
Laredo Landfill	5974	.04	.045	.04
Laredo Landfill	5650	.04	.045	.04
Laredo Landfill	5400	.04	.045	.04
Laredo Landfill	4700	.04	.045	.04
Laredo Landfill	4000	.04	.045	.04
Laredo Landfill	3300	.04	.045	.04
Laredo Landfill	2850	.04	.045	.04
Laredo Landfill	2630	.04	.045	.04
Laredo Landfill	2600	.04	.045	.04
Laredo Landfill	2400	.04	.045	.04
Laredo Landfill	2250	.04	.045	.04

## SUMMARY OF REACH LENGTHS

River: Perimeter Ditch

Reach	River Sta.	Left	Channel	Right
Laredo Landfill	9895	420	432	440
Laredo Landfill	9463	150	150	150
Laredo Landfill	9313	200	200	200
Laredo Landfill	9113	350	350	350
Laredo Landfill	8763	250	250	250
Laredo Landfill	8513	100	100	100
Laredo Landfill	8413	100	100	100
Laredo Landfill	8313	300	300	300
Laredo Landfill	8013	400	400	400
Laredo Landfill	7613	400	400	400
Laredo Landfill	7213	400	400	400
Laredo Landfill	6813	100	100	100
Laredo Landfill	6713	200	200	200
Laredo Landfill	6513	400	400	400
Laredo Landfill	6113	110	139	200
Laredo Landfill	5974	190	324	380
Laredo Landfill	5650	250	250	250
Laredo Landfill	5400	700	700	700
Laredo Landfill	4700	700	700	700
Laredo Landfill	4000	700	700	700
Laredo Landfill	3300	510	500	370



			LL-LOMR.rep		
Laredo Landfill	2850	220	220	220	220
Laredo Landfill	2630	30	30	30	30
Laredo Landfill	2600	200	200	200	200
Laredo Landfill	2400	150	150	150	150
Laredo Landfill	2250	0	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS  
River: Perimeter Ditch

Reach	River Sta.	Contr.	Expan.
Laredo Landfill	9895	.1	.3
Laredo Landfill	9463	.1	.3
Laredo Landfill	9313	.1	.3
Laredo Landfill	9113	.1	.3
Laredo Landfill	8763	.1	.3
Laredo Landfill	8513	.1	.3
Laredo Landfill	8413	.1	.3
Laredo Landfill	8313	.1	.3
Laredo Landfill	8013	.1	.3
Laredo Landfill	7613	.1	.3
Laredo Landfill	7213	.1	.3
Laredo Landfill	6813	.1	.3
Laredo Landfill	6713	.1	.3
Laredo Landfill	6513	.1	.3
Laredo Landfill	6113	.1	.3
Laredo Landfill	5974	.1	.3
Laredo Landfill	5650	.1	.3
Laredo Landfill	5400	.1	.3
Laredo Landfill	4700	.1	.3
Laredo Landfill	4000	.1	.3
Laredo Landfill	3300	.1	.3
Laredo Landfill	2850	.1	.3
Laredo Landfill	2630	.1	.3
Laredo Landfill	2600	.1	.3
Laredo Landfill	2400	.1	.3
Laredo Landfill	2250	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.
E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top width	Froude # Chl	
(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	(ft)	(ft)
Laredo Landfill	9895	100 yr	1719.70	488.76	494.56	494.31
495.76	0.014515	8.85	199.69	69.53	0.84	
Laredo Landfill	9463	100 yr	1719.70	487.87	493.38	491.31
493.55	0.002094	3.27	525.77	163.48	0.32	
Laredo Landfill	9313	100 yr	1719.70	487.96	492.42	491.27
492.98	0.007055	6.03	285.15	88.09	0.59	
Laredo Landfill	9113	100 yr	1769.50	486.86	491.53	490.35
491.84	0.004155	4.76	410.04	277.73	0.46	
Laredo Landfill	8763	100 yr	1769.50	485.73	490.05	488.79
490.37	0.004256	4.55	388.02	189.22	0.46	
Laredo Landfill	8513	100 yr	1769.50	484.37	488.48	487.78
488.96	0.007665	5.65	320.59	193.70	0.60	
Laredo Landfill	8413	100 yr	1769.50	481.33	486.96	486.96
487.79	0.018520	7.56	249.72	180.71	0.89	

			LL-LOMR.rep				
Laredo Landfill	8313		100 yr	1769.50	478.47	483.51	481.81
483.96	0.004503	5.35		330.54	86.85	0.48	
Laredo Landfill	8013		100 yr	1769.50	476.94	482.39	480.33
482.76	0.003445	4.84		365.28	91.20	0.43	
Laredo Landfill	7613		100 yr	2310.90	475.08	480.05	478.84
480.70	0.007268	6.46		357.90	102.12	0.61	
Laredo Landfill	7213		100 yr	2310.90	469.74	477.67	475.93
478.21	0.005270	5.88		392.95	98.49	0.52	
Laredo Landfill	6813		100 yr	2310.90	468.52	475.19	473.94
475.83	0.006660	6.45		365.25	141.20	0.58	
Laredo Landfill	6713		100 yr	2310.90	468.03	474.69	472.88
475.21	0.005238	5.80		400.56	149.93	0.52	
Laredo Landfill	6513		100 yr	2310.90	467.87	474.15	471.62
474.46	0.002414	4.51		524.19	154.54	0.37	
Laredo Landfill	6113		100 yr	2310.90	467.94	471.00	471.00
472.19	0.022300	8.75		264.04	111.14	1.00	
Laredo Landfill	5974		100 yr	2440.60	463.88	469.33	468.13
469.55	0.004139	3.83		636.46	260.37	0.43	
Laredo Landfill	5650		100 yr	2440.60	463.13	467.73	466.62
468.05	0.005188	4.54		537.25	201.67	0.49	
Laredo Landfill	5400		100 yr	2445.90	461.41	466.58	465.32
466.86	0.004256	4.25		575.61	205.55	0.45	
Laredo Landfill	4700		100 yr	2445.90	458.98	464.13	462.14
464.35	0.003026	3.76		651.14	217.47	0.38	
Laredo Landfill	4000		100 yr	2475.80	458.08	462.50	460.60
462.66	0.001953	3.21		771.75	237.64	0.31	
Laredo Landfill	3300		100 yr	2475.80	456.93	461.30	459.55
461.41	0.001590	2.73		911.88	311.44	0.28	
Laredo Landfill	2850		100 yr	2475.80	455.46	460.38	459.01
460.49	0.002154	2.61		949.08	428.44	0.31	
Laredo Landfill	2630		100 yr	2475.80	454.76	459.52	458.66
459.74	0.005720	3.75		659.70	424.22	0.49	
Laredo Landfill	2600		100 yr	2475.80	454.60	459.32	458.42
459.56	0.006515	3.91		632.97	355.63	0.52	
Laredo Landfill	2400		100 yr	2506.10	453.57	458.17	457.07
458.38	0.005330	3.68		680.95	360.67	0.47	
Laredo Landfill	2250		100 yr	2506.10	453.13	457.29	456.38
457.53	0.006002	3.93		637.44	334.27	0.50	

## **APPENDIX C**

### **CD of HEC-HMS and HEC-RAS Digital Files**

## References

## **Literature/Manual/Specification References Used**

William A. Scharffenberg and Mathew J. Flemming; "Hydrologic Modeling System, HEC-HMS User's Manual Version 3.5" US Army Corps of Engineers, Hydrologic Engineering Center. August 2010

Arlen D. Feldman; "Hydrologic Modeling System, HEC-HMS Technical Reference Manual" US Army Corps of Engineers, Hydrologic Engineering Center. March 2000

Brunner, Gary W; "HEC-RAS, River Analysis System User's Manual Version 4.1" US Army Corps of Engineers, Hydrologic Engineering Center. January 2010

Brunner, Gary W; "HEC-RAS, River Analysis System Reference Manual Version 4.1" US Army Corps of Engineers, Hydrologic Engineering Center. January 2010

Texas Department of Transportation; "Hydraulic Design Manual". October 2011

Federal Emergency Management Agency; "Flood Insurance Study" Webb County, Texas and Incorporated Areas. April 2, 2008

U.S. Department of the Interior, U.S. Geological Survey; "Atlas of Depth-Duration Frequency of Precipitation Annual Maxima for Texas", Scientific Investigations Report 2004-5041

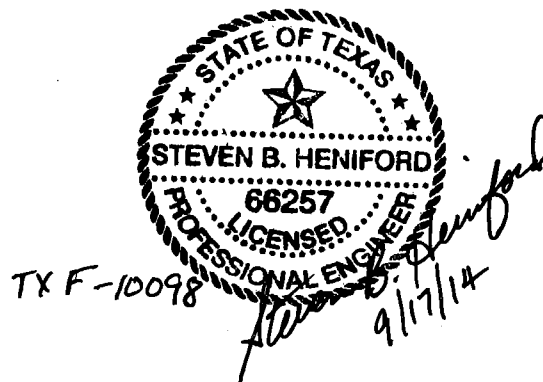
U.S. Department of the Interior, U.S. Geological Survey; "Time-Parameter Estimation for Applicable Texas Watersheds", Research Report 0-4696-2. August 2005

Texas Department of Transportation; "Climatic Adjustments of Natural Resource Conservation Service (NRCS) Runoff Curve Numbers", Research Report Number 0-2104-2. October 2003



**City of Laredo Landfill Permit Amendment 1693B**  
**City of Laredo, Texas**  
**Permit Amendment MSW Permit 1693B**  
**Laredo, Texas**  
**Webb County, Texas**  
**August 2014**

**PART II**  
**Attachment 16**  
**Wetlands & Endangered Species**



**LAREDO LANDFILL  
PART II  
Attachment 16  
Wetlands & Endangered Species**

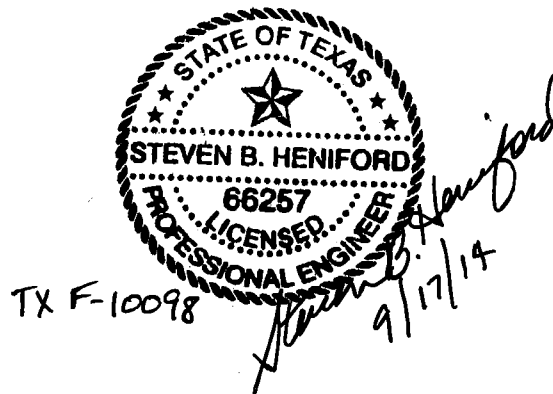
**TABLE OF CONTENTS**

**List of Attachments**

Correspondence with Texas Parks & Wildlife (10/07/2013)

Correspondence with US Fish & Wildlife Service (10/07/2013)

A Report Titled “Endangered Species, Wetlands & Waters of the US” – Prepared for the Laredo Landfill Permit Amendment





Office Address:

11355 McCree Road  
Dallas, TX 75238  
Tel 214.341.9900  
Fax 214.341.9925  
[www.azb-engrs.com](http://www.azb-engrs.com)

TBPE Registration #  
F-10098  
TBPLS Registration #  
10088700

Contact:

Michael Carleton

Phone:

214.341.9900 (office)  
214.797.6450 (cell)

Email:

[mcarleton@azb-engrs.com](mailto:mcarleton@azb-engrs.com)

Services:

Civil Engineering

Surveying

Environmental

Construction Support  
Services

Inspections

October 7, 2013

Ms. Karen B. Hardin  
Texas Parks and Wildlife  
Wildlife Habitat Assessment Program  
Wildlife Division  
4200 Smith School Road  
Austin, Texas 76744

Dear Ms. Hardin

Arredondo, Zepeda & Brunz LLC is preparing a permit amendment for the City of Laredo's Municipal Solid Waste Landfill (Landfill). The permit amendment is to increase the height of the Landfill and to fill in areas that were previously used for a natural gas pipeline. The permit amendment process requires coordination with the Texas Parks and Wildlife as it relates to threatened and endangered species. This letter is to notify Texas Parks and Wildlife of the City's planned permit amendment and to provide supporting information related to endangered species.

The Landfill is located in Webb County and has been in operation since 1986. The majority of the land at the site has already been developed per the original permit and the 1999 amendment. The City intends to add only 3.5 acres to the existing 200-acre permit boundary.

Attached is a copy of the site evaluation performed by Margaret Forbes, PhD that was conducted in March 2013. We have included site maps, aerial imagery and photographs for additional background.

The purpose of this letter is to confirm the unlikely use of the 3.5-acre expansion area by any endangered or threatened species or within the currently permitted landfill area..

If you have any questions, please feel free to contact me at 214 341-9900.

Sincerely,

Michael E. Carleton  
Project Manager



Providing Solutions -- Improving Community  
Serving Texas Since 1981

Arredondo, Zepeda & Brunz, LLC

Texas Parks & Wildlife Dept.

OCT 09 2013

Wildlife Habitat Assessment Program

October 7, 2013

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Ms. Karen B. Hardin  
Texas Parks and Wildlife  
Wildlife Habitat Assessment Program  
Wildlife Division  
4200 Smith School Road  
Austin, Texas 76744

Dear Ms. Hardin

Contact:  
Michael Carleton  
Phone:  
214.341.9900 (office)  
214.797.6450 (cell)  
Email:  
[mcarleton@azb-engrs.com](mailto:mcarleton@azb-engrs.com)

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Services:

Civil Engineering

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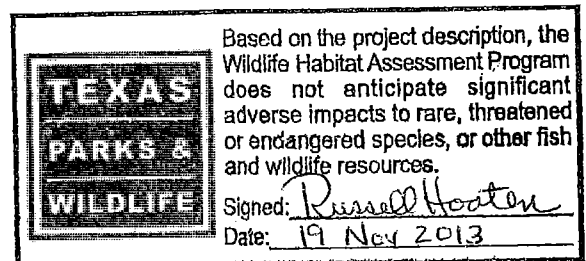
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If you have any questions, please feel free to contact me at 214 341-9900.

Sincerely,

Michael E. Carleton  
Project Manager





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Services:

Civil Engineering

Surveying

Environmental

Construction Support  
Services

Inspections

October 7, 2013

U.S. Fish & Wildlife Service  
c/o TAMU-CC  
6300 Ocean Drive, Unit 5837  
Corpus Christ, TX 78412-5837

Dear Sir/Madam:

The City of Laredo, Texas has retained the services of Arredondo, Zepeda and Brunz, LLC to prepare a permit amendment for the City of Laredo's municipal solid waste landfill (Landfill). The Landfill is located in Webb County, Texas as illustrated in the attached figures.

A site visit was conducted by Margaret Forbes, PhD in March 2013 and the findings of this site visit are also included in this correspondence.

This letter is to confirm the unlikely utilization of any endangered or threatened species within the 3.5-acre expansion area in the permit amendment and the area encompassing the existing permitted area.

If you have any questions or comments concerning this request, please feel free to contact me at 214 341-9900.

Sincerely,

Michael E. Carleton  
Project Manager

cc: Mr. Steve Geiss, City of Laredo



# **Endangered Species, Wetlands & Waters of the US Report Laredo Landfill Permit Amendment**

## **1.0 Purpose**

The following report is presented to the Texas Parks and Wildlife Department and to the US Fish and Wildlife Service for consideration and comment with respect to the City of Laredo's Landfill Permit Amendment. The Permit Amendment is to be submitted to the Texas Commission on Environmental Quality (TCEQ). One of the requirements of a major permit amendment is that the applicant (City of Laredo) coordinate and seeks comments from the Texas Parks and Wildlife Department (TPWD) and the US Fish and Wildlife Service (USFWS). The following report provides a summary of site conditions and a discussion of issues related to endangered species, wetlands and waters of the US.

## **2.0 Landfill Location**

The facility is located on the north side of Texas State Highway 359 (SH 359) approximately 2.5 miles east of downtown Laredo. The site is a total of 203.5 acres. The permitted area is located approximately 800 feet north of SH 359. Figure 1 illustrates the location of the Landfill. Figure 2 presents a topographic map of the site. Figure 3 illustrates an aerial view of the Landfill as of 2012. The City owns the land that is between SH 359 and the permitted area and uses this space for administrative facilities and fleet parking and other non-regulated purposes.

The mailing address for the Landfill is:

City of Laredo  
Steve Geiss, Solid Waste Manager  
6912 Texas Highway 359  
Laredo, Texas 78044

The City of Laredo has owned and operated the City's landfill since it was permitted in 1986. The initial permit 1693 was amended in 1999 to increase the height of the facility and is now permitted as 1693A. During this period, the City has maintained a good record of maintaining the facility and compliance with TCEQ requirements. The City has been the only owner and operator of the Landfill since it was permitted.

## **3.0 1999 Permit Amendment Conditions**

A wetlands field investigation of the Landfill site, as proposed in the permit amendment application, was conducted on March 11, 1997. Results of this wetlands field investigation were forwarded to the US Army Corps of Engineers (USACE). On October 23, 1997, the USACE requested additional information regarding the wetlands located on the Landfill property. A second site visit was conducted on November 11, 1997, and the requested supplemental information was forwarded to the USACE in correspondence dated April 17, 1998. Information forwarded with this correspondence included additional wetland data points, additional site photographs, additional vegetation data and average rainfall data for the City of Laredo.

In a telephone conversations on May 18, 1998, the USACE requested additional information regarding the total acreage of wetlands which exist on the Landfill property. The requested information was provided to the USACE in correspondence dated June 2, 1998.

Ultimately, the City and the USACE negotiated a wetland mitigation program for the Landfill. The City has implemented this plan to mitigate the wetlands that were identified in the 1998 analysis. No other wetlands were located at the site.

In correspondence with the USFWS, the USFWS stated that based on their “review of the project, activity as proposed, it is not likely that federally listed species or other important fish and wildlife resources will be impacted.”

In correspondence with the Habitat Assessment Branch of the TPWD, Austin, Texas, they indicated that no negative impacts to sensitive species, natural communities or wildlife habitat are anticipated for the project.

#### **4.0 Current Conditions**

Development of the Landfill has progressed since it was permitted in 1986. In accordance with permit provisions, the City has continued to develop the site. The aerial photograph of the site shows that the majority of the Landfill has been cleared, excavated and filled. Construction of Phase III of the landfill is anticipated to begin in early 2014. The City is now in the process of preparing a permit amendment for the Landfill. The purpose of this amendment is to increase capacity by filling in areas that were previously unused due to the existence of a natural gas pipeline that intersected the site in an east/west direction. This pipeline easement has since been abandoned. The City intends to increase the height of the landfill by approximately 20 feet.

In addition to the current permit boundary, the City will be expanding the Landfill permit boundary by approximately 3.5 acres. This expansion area is shown in Figure 3. The City initially considered adding 4.23 acres of land located adjacent to the Landfill Permit Boundary, in the southeast corner. This land will be used for locating a Leachate Storage Tank and other site infrastructure. Based on the October 7<sup>th</sup>, 2013 site visit by Dr. Forbes described below, the City has reduced the amount of land to be included in the permit amendment to 3.5 acres, thereby avoiding jurisdictional waters.

#### **5.0 Site Visit by Dr. Forbes**

On March 7<sup>th</sup>, 2013 Dr. Forbes visited the Laredo Landfill site and expansion areas to determine whether potential issues exist for listed species or waters of the U.S. Dr. Forbes focused on the areas listed below:

- 1) Phase 4 cell
- 2) Abandoned gas pipeline easement
- 3) Electric line easement
- 4) 4.23-acre parcel

These four areas were evaluated because they are being added to the Landfill permit as part of the expansion. Any waters of the U.S. present within the permitted areas (Phase 1, Phase 2, and Phase 3) were addressed in a previous expansion and fully mitigated through the USACE.

#### Waters of the U.S.

No waters of the U.S. (jurisdictional streams, wetlands, etc.) were present within Phase 4 cell, or the two utility easements.

Within the 4.23-acre parcel, a first-order stream runs from near the southeast corner in an approximately north direction where it continues north within the landfill area and discharges to the drainage easement to the east and north of the landfill. According to aerial imagery, the drainage easement is part of a drainage system that eventually discharges into the Rio Grande River. Therefore, this section of stream is jurisdictional and excavating or placing fill in the stream channel would require a Section 404 permit.

The jurisdictional area within the 4.23-acre parcel is approximately 156 feet long and 10 feet wide, for a total area of 0.04 acres. The attached areal image shows the location of the stream with points where latitude and longitude were recorded. Pink pin flags were placed at the ordinary high water marks of the stream (see attached photos). If construction, placement of fill, or excavation in the stream channel is avoided, no 404 permit would be necessary.

#### Listed Species

There are four federally listed species that are believed to occur in Webb County. During the site visit, none of the species were encountered. The following is a list of the species, a brief description of their preferred habitat, and a comparison of that habitat to habitat observed at the landfill.

##### Ashy Dogweed (*Thymophylla tephroleuca*) – federal endangered

Ashy dogweed is a perennial wildflower restricted to unique soils found in South Texas. Known populations of ashy dogweed are located on sandy pockets of Maverick-Catarina, Copita-Zapata, and Nueces-Comita soils of southern Webb and northern Zapata counties. It occurs on both disturbed and undisturbed sites.

Maverick-Catarina soils are mapped within the center area of the landfill, where no vegetation is present, and just south of the 4.23-acre area. Copita-Zapata and Neces-Comita are not present. It is very unlikely that Ashy dogweed is present at the site in vegetated areas.

##### Johnston's Frankenia (*Frankenia johnstonii*) – federal endangered

Johnston's frankenia is a salt-loving shrub that produces salt crystals on the underside of the leaves. Its leaves turn crimson red from November through February, making it easy to identify. It has small white flowers and, like ashy dogweed, blooms following rain events. It occurs within openings in the blackbrush dominated brushlands on pockets of highly saline soils, often in

association with saladillo (*Varilla texana*), another salt-loving plant. It is restricted to specific soil types in the Maverick series.

This shrub was not observed during the site visit and is unlikely to be present on site due to the limited occurrence of Maverick soils in vegetated areas. Some Maverick soils are mapped just south of the 4.23-acre parcel.

Least tern (*Sterna antillarum*) – federal endangered

Least terns are small white terns with black markings and a forked tail. They nest along sand and gravel bars within braided streams and rivers. They may also nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc). They eat small fish and crustaceans.

The length of stream within the 4.23-acre did not contain sand or gravel bars, or appropriate food for the Least tern. No other potential habitat suitable for this species was observed within the Landfill. Therefore it is extremely unlikely that this species utilizes the site.

Texas hornshell (*Popenaias popeii*) – federal candidate species

The Texas hornshell is a freshwater mussel that occurs where fine substrata collect in undercut riverbanks, crevices, shelves, and at the base of large boulders. This type of habitat was not present onsite; therefore it is extremely unlikely that this species utilizes the site.

## **Appendices**

Appendix 1 – Site Figures

Appendix 2 – Site Photos

Appendix 3 – Previous Permit Correspondence

Appendix 4 – Dr. Forbes Resumes



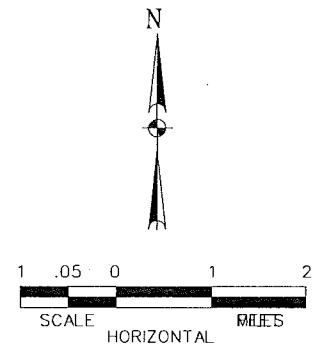
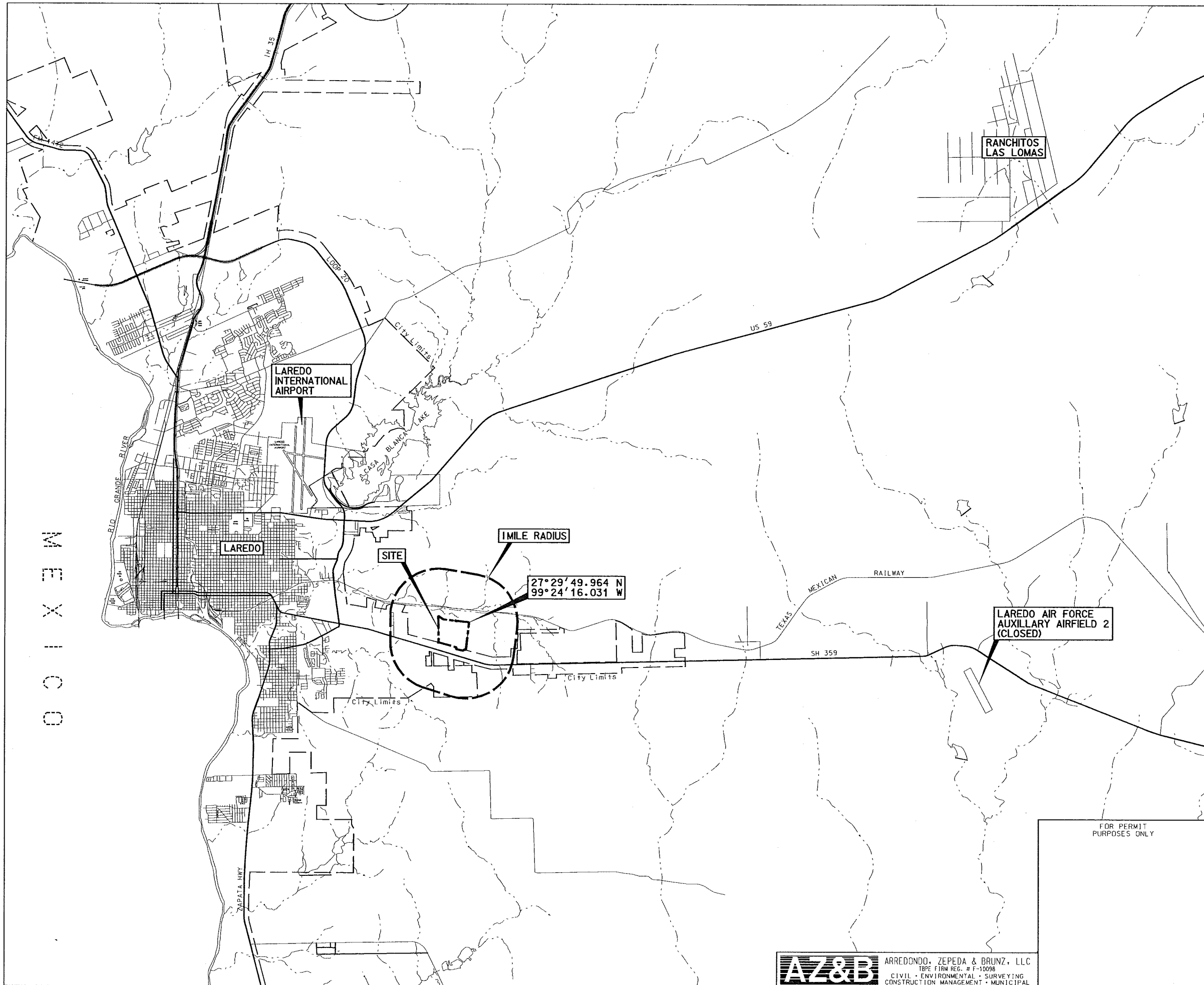
## Appendix 1 - Site Figures

Figure 1 Site Location

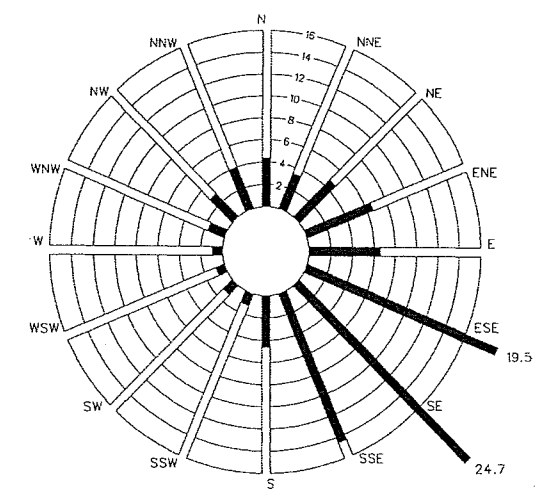
Figure 2 Aerial Photo of the Site

Figure 3 Topographic Map

Figure 4 Aerial Photo of Landfill Footprint



WIND ROSE FOR LAREDO MUNICIPAL AIRPORT  
1961-1964



0-3	7-10	17-21
3.5	22.1	33.6
4-6	11-16	21-
		6.6
		0.7

SOURCE: TCEQ DEPARTMENT OF AIR QUALITY

MAPPING IMAGES ARE COUNTY MAPS FROM  
1999 TxDOT RAW DATA.

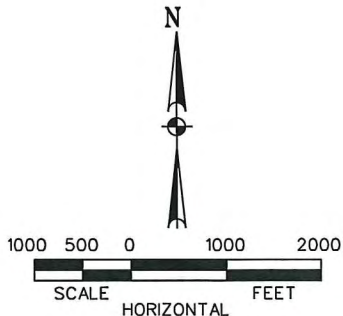
FOR PERMIT  
PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE:		WEBB COUNTY, TEXAS		
DES BY		GENERAL LOCATION MAP		
DRN BY				
CHK BY				
APP BY				
		FIGURE 1		

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TPE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL

CITY OF LAREDO	SHEET OF
	FILE:
	ATTACHMENT:





**LEGEND**

--- PERMIT BOUNDARY

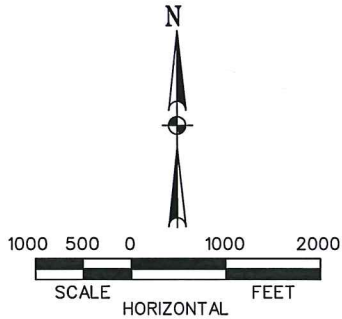
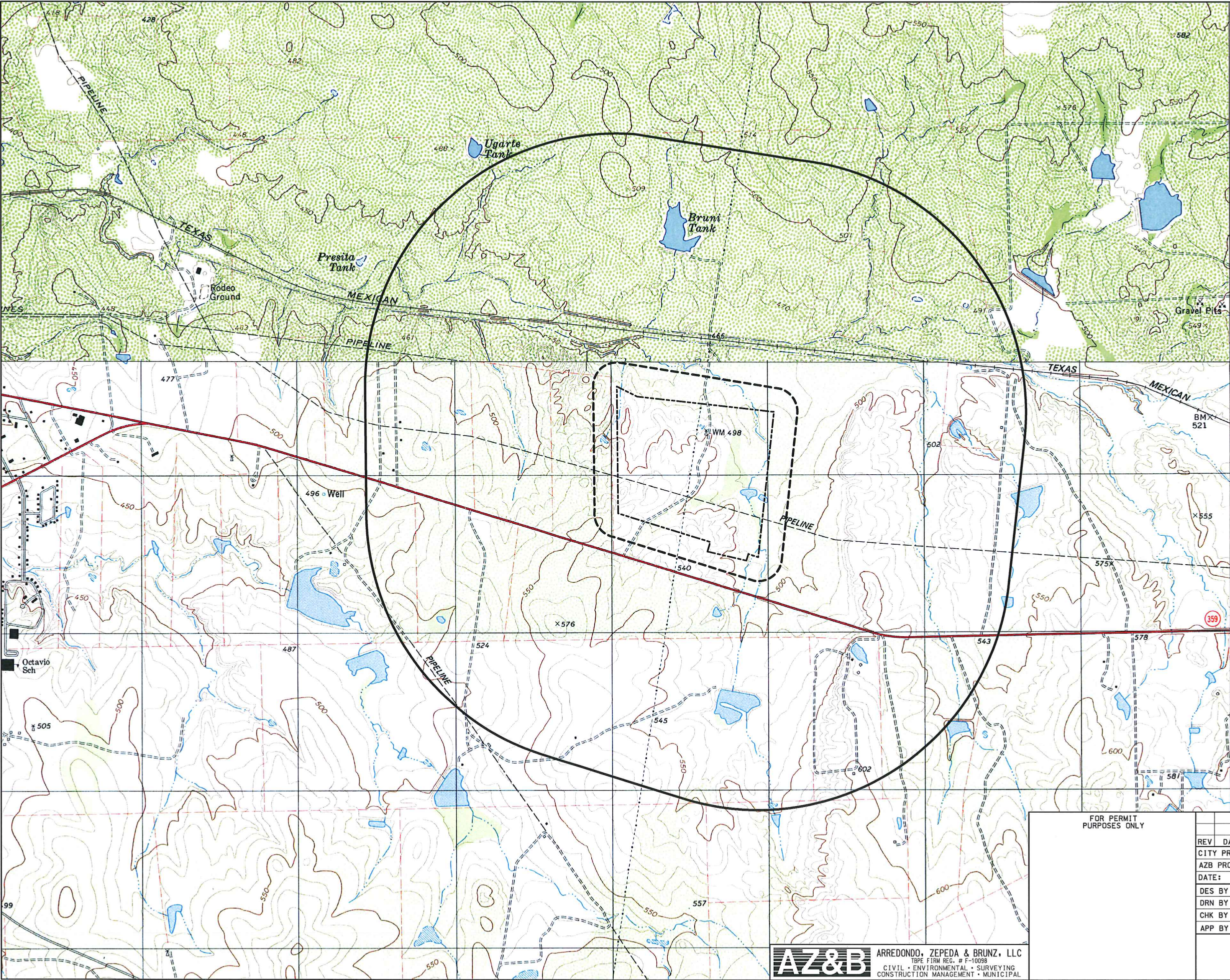
SOURCE: TEXAS NATURAL RESOURCES INFORMATION SYSTEM (TNRIS)

FOR PERMIT  
PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE:		WEBB COUNTY, TEXAS		
DES BY		AERIAL PHOTOGRAPH FIGURE 4		
DRN BY				
CHK BY				
APP BY				
CITY OF LAREDO			SHEET OF	
			FILE:	
			ATTACHMENT:	

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
T&PE FIRM REG. # F-10098  
CIVIL • ENVIRONMENTAL • SURVEYING  
CONSTRUCTION MANAGEMENT • MUNICIPAL





**LEGEND**

- PERMIT BOUNDARY
- 500' RADIUS FROM PERMIT BOUNDARY
- 1 MILE RADIUS FROM PERMIT BOUNDARY

FOR BASE MAP LEGEND REFER TO THE TOPOGRAPHICAL MAP SYMBOLS, DEPARTMENT OF THE INTERIOR, U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION.

NOTES:  
THE TWO STREAMS WITHIN THE PERMIT BOUNDARY FLOW INTO AN UNNAMED TRIBUTARY OF CHACON CREEK, WHICH LIES APPROXIMATELY 2.5 MILES WEST OF THE LANDFILL'S NORTHWEST CORNER.

THE PIPELINE INTERSECTING THE LANDFILL, WHICH RUNS EAST/WEST, HAS BEEN ABANDONED.

SOURCES:  
BASE MAP SOURCE IS LAREDO EAST, 1980 AND LAREDO SOUTH, 1979. USGS 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE MAPS.  
TEXAS WATER DEVELOPMENT BOARD, WATER WELL REPORTS 2012.  
RAILROAD COMMISSION OF TEXAS PUBLIC GIS MAP VIEWER, 2013.

FOR PERMIT PURPOSES ONLY

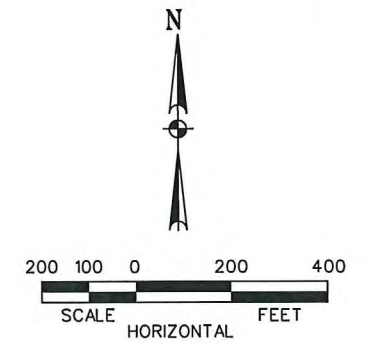
REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. MSW-1693B		
DATE:		WEBB COUNTY, TEXAS		
DES BY		TOPOGRAPHIC MAP FIGURE 5		
DRN BY				
CHK BY				
APP BY				

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
TBPCE FIRM REG. # F-10098  
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CONSTRUCTION MANAGEMENT • MUNICIPAL

CITY OF LAREDO

SHEET	OF
FILE:	
ATTACHMENT:	





### LEGEND

- PROPOSED PERMIT BOUNDARY
- PROPOSED TOE OF SLOPE
- LATERAL EXPANSION AREA FOR TIRE CHIPPING & LEACHATE STORAGE TANK
- MONITORING WELL

FOR PERMIT PURPOSES ONLY

REV	DATE	DESCRIPTION	DES BY	APP BY
CITY PROJ. No.		LAREDO LANDFILL VERTICAL EXPANSION		
AZB PROJ. No. 212029		PERMIT AMENDMENT APPLICATION No. XXX-XXXX		
DATE:		WEBB COUNTY, TEXAS		
DES BY		<b>FIGURE 2.4</b> <b>LANDFILL FOOTPRINT</b>		
DRN BY				
CHK BY				
APP BY				

**AZ&B** ARREDONDO, ZEPEDA & BRUNZ, LLC  
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 CONSTRUCTION MANAGEMENT • MUNICIPAL

**CITY OF LAREDO**

SHEET 1 OF 1  
 FILE:  
 ATTACHMENT:



## Appendix 2 – Site Photos

## LAREDO LANDFILL SITE PHOTOS



Western Boundary



Looking NW from SE Boundary



Flare and Electric Power Line Easement





Eastern Boundary



Looking NW from SW Boundary





Southern Boundary-Four Additional Acres on Other Side of Fence



Tire Chipping Operation





Looking South-Center of Site



Above Ground Storage Tank





Land Characteristics of Four Additional Acres



Aerial View of Four Additional Acres

## Appendix 3 – Previous Permit Correspondence

6. Endangered Species Demonstration §330.51(b)(8) & §330.53(b)(13)

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LETTER FROM RUST TO TEXAS PARKS AND WILDLIFE DEPARTMENT, HABITAT ASSESSMENT BRANCH; DATED JULY 7, 1997 .....	7
PERSONAL COMMUNICATION WITH TEXAS PARKS AND WILDLIFE DEPARTMENT, HABITAT ASSESSMENT BRANCH; DATED OCTOBER 7, 1997 .....	9
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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company  
2929 Briarpark Drive, Suite 600  
Houston, TX 77042-3703

Phone 713.785.9800  
Fax 713.785.9779

July 7, 1997

Mr. William Seawell  
Field Supervisor  
U.S. Fish and Wildlife Service  
Ecological Services  
c/o Texas A & M University - Corpus Christi  
Campus Box 338  
6300 Ocean Drive  
Corpus Christi, Texas 78412

Re: Sensitive Species and Natural Communities Review  
City of Laredo Sanitary Landfill; Permit No. MSW-1693  
Vertical Expansion Project; Laredo, Webb County, Texas

Dear Mr. Seawell:

On behalf of our client, the City of Laredo, Rust Environment & Infrastructure (Rust E & I) is in the process of preparing a Municipal Solid Waste (MSW) Permit Amendment Application to be submitted to the Texas Natural Resource Conservation Commission (TNRCC), Municipal Solid Waste Division, Permits Section, for the vertical expansion (height increase) of the existing City of Laredo Sanitary Landfill. The purpose of this vertical expansion is to obtain additional landfill capacity within the currently permitted landfill boundary.

This approximately 200 acre facility is located roughly 2.5 miles east of downtown Laredo and is approximately 800 feet north of Highway 359. The area surrounding the landfill consists primarily of undeveloped rangeland; some commercial development is however located south and southwest of the facility. The southeastern quadrant of the landfill property is primarily undeveloped; shrubs and cacti dominate this area. A drainage pathway and man-made stock tank do however exist along the eastern boundary of this area. Aside from the undeveloped area of this site, the remainder of this property is utilized for the operational activities of the landfill facility.

At this time, Rust E & I would like to request a review of the currently permitted landfill property for available information on sensitive species and/or natural communities which may exist on or near the landfill property. This request is necessary to fulfill the requirements of the protection of endangered species criterion as stated in 30 TAC §330.51 (b)(8) and 30 TAC §330.53 (b) (13).

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Quality through teamwork

Mr. William Seawell  
U.S. Fish and Wildlife Service  
July 7, 1997  
Page 2

A copy of the U.S. Geological Survey 7.5-minute topographic quadrangles (Laredo East and Laredo South) depicting the landfill and adjacent property as well as a copy of a December 7, 1996 color aerial photograph are enclosed to assist you in your evaluation of this property.

If you have any questions, or if you require any additional information regarding this project, please phone me at (713) 953-5185 or Ms. Barbara Lemm Castille, Environmental Scientist, at (713) 953-5157. As always, we sincerely appreciate your assistance with this information.

Sincerely,

Rust E & I



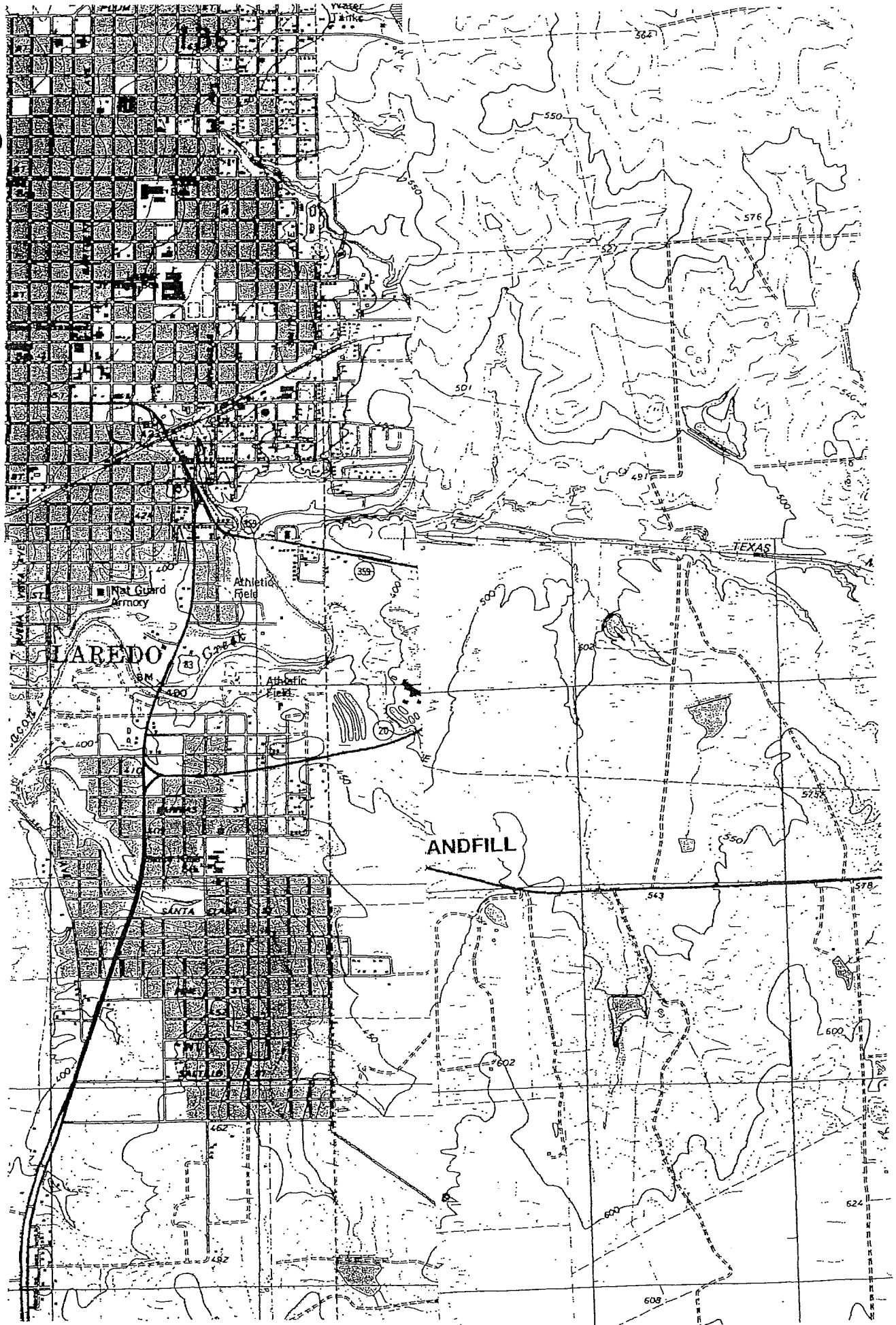
Kimberly A. Chesler  
Environmental Scientist  
Life Sciences Department

KAC/kac

Attachments: USGS 7.5-Minute Topographic Map (Laredo South and Laredo East quadrangles)  
Aerial Photograph (December 7, 1996)

cc: Mr. Randall Kippenbrock, P.E., City of Laredo, Department of Public Works, Laredo, Texas  
Mr. Brian Dudley, P.E., Rust Environment & Infrastructure, Austin, Texas  
Project File #69396.10300

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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company  
2925 Briarpark Drive, Suite 600  
Houston, TX 77042-3703

Phone 713.785.9800  
Fax 713.795.9779

**RECEIVED**

JUL 15 1997

FISH & WILDLIFE SERVICE  
CORPUS CHRISTI, TX

July 7, 1997

Mr. William Seawell  
Field Supervisor  
U.S. Fish and Wildlife Service  
Ecological Services  
c/o Texas A & M University - Corpus Christi  
Campus Box 338  
6300 Ocean Drive  
Corpus Christi, Texas 78412

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City of Laredo Sanitary Landfill; Permit No. MSW-1693  
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July 18, 1997  
211-97-F-212  
William Seawell

2-11-97-F-212


Mr. William Seawell  
U.S. Fish and Wildlife Service  
July 7, 1997  
Page 2

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Sincerely,

Rust E & I

  
Kimberly A. Chesler  
Environmental Scientist  
Life Sciences Department

KAC/kac

Attachments: USGS 7.5-Minute Topographic Map (Laredo South and Laredo East quadrangles)  
Aerial Photograph (December 7, 1996)

cc: Mr. Randall Kippenbrock, P.E., City of Laredo, Department of Public Works, Laredo, Texas  
Mr. Brian Dudley, P.E., Rust Environment & Infrastructure, Austin, Texas  
Project File #69396.10300

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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company      Phone 713.785.9800  
 2929 Briarpark Drive, Suite 600      Fax 713.785.9779  
 Houston, TX 77042-3703

July 7, 1997

Mr. Robert W. Spain, Chief  
 Habitat Assessment Branch  
 Resource Protection Division  
 Texas Parks and Wildlife Department  
 4200 Smith School Road  
 Austin, Texas 78744

Re: Sensitive Species and Natural Communities Review  
 City of Laredo Sanitary Landfill; Permit No. MSW-1693  
 Vertical Expansion Project; Laredo, Webb County, Texas

Dear Mr. Spain:

On behalf of our client, the City of Laredo, Rust Environment & Infrastructure (Rust E & I) is in the process of preparing a Municipal Solid Waste (MSW) Permit Amendment Application to be submitted to the Texas Natural Resource Conservation Commission (TNRCC), Municipal Solid Waste Division, Permits Section, for the vertical expansion (height increase) of the existing City of Laredo Sanitary Landfill. The purpose of this vertical expansion is to obtain additional landfill capacity within the currently permitted landfill boundary.

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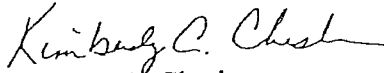
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Mr. Robert W. Spain  
Texas Parks and Wildlife Department  
July 7, 1997  
Page 2

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Sincerely,

Rust E & I



Kimberly A. Chesler  
Environmental Scientist  
Life Sciences Department

KAC/kac

Attachments: USGS 7.5-Minute Topographic Map (Laredo South and Laredo East quadrangles)  
Aerial Photograph (December 7, 1996)

cc: Mr. Randall Kippenbrock, P.E., City of Laredo, Department of Public Works, Laredo, Texas  
Mr. Brian Dudley, P.E., Rust Environment & Infrastructure, Austin, Texas  
Project File #69396.10300

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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company  
2929 Briarpark Drive, Suite 600  
Houston, TX 77042-3703

Phone 713.785.9800  
Fax 713.785.9779

**PERSONAL COMMUNICATION**

From: Ms. Kimberly Chesler  
Life Sciences Department

To: Ms. Debbie Borrego  
Habitat Assessment Branch  
Resource Protection Division  
Texas Parks and Wildlife Department  
4200 Smith School Road  
Austin, Texas 78744

Date: October 7, 1997

Re: Sensitive Species and Natural Communities Review  
City of Laredo Sanitary Landfill; Permit No. MSW-1693  
Vertical Expansion Project; Laredo, Webb County, Texas

**Conversation:**

Ms. Borrego was contacted to follow up on the July 7, 1997 correspondence addressed to Mr. Robert Spain which requested information on sensitive species and/or natural communities which may exist on or near the Laredo Sanitary Landfill. According to Ms. Borrego, this correspondence was reviewed by Mr. Roy Frye of the Habitat Assessment Branch, and the proposed vertical expansion project was determined to have no anticipated negative impact to sensitive species, natural communities, or wildlife habitat which may exist on or near the Laredo Sanitary Landfill. Because no negative impacts to sensitive species, natural communities, or wildlife habitat are anticipated from this project, no correspondence addressing these issues was sent from the Habitat Assessment Branch.

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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company  
2929 Briarpark Drive, Suite 600  
Houston, TX 77042-3703

Phone 713.785.9800  
Fax 713.785.9779

July 7, 1997

Ms. Shannon Breslin  
Texas Biological and Conservation Data System  
Texas Parks and Wildlife Department, Resource Protection Division  
3000 S. IH-35, Suite 100  
Austin, Texas 78704

Re: Sensitive Species and Natural Communities Review  
City of Laredo Sanitary Landfill; Permit No. MSW-1693  
Vertical Expansion Project; Laredo, Webb County, Texas

Dear Ms. Breslin:

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Ms. Shannon Breslin  
Texas Parks and Wildlife Department  
July 7, 1997  
Page 2

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Sincerely,

Rust E & I



Kimberly A. Chesier  
Environmental Scientist  
Life Sciences Department

KAC/kac

Attachments: USGS 7.5-Minute Topographic Map (Laredo South and Laredo East quadrangles)  
Aerial Photograph (December 7, 1996)

cc: Mr. Randall Kippenbrock, P.E., City of Laredo, Department of Public Works, Laredo, Texas  
Mr. Brian Dudley, P.E., Rust Environment & Infrastructure, Austin, Texas  
Project File #69396.10300

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**RUST Rust Environment & Infrastructure Inc.**

A Rust International Company  
2929 Briarpark Drive, Suite 600  
Houston, TX 77042-3703

Phone 713.785.9800  
Fax 713.55.5775

July 7, 1997

Ms. Shannon Breslin

Texas Biological and Conservation Data System  
Texas Parks and Wildlife Department, Resource Protection Division  
3000 S. IH-35, Suite 100  
Austin, Texas 78704

**TEXAS  
PARKS &  
WILDLIFE**

Currently available data and  
Endangered Resources Branch  
review of the activity as proposed  
indicate no anticipated negative  
impacts to rare species or natural  
communities.

Reviewed: 12/27/97

Re: Sensitive Species and Natural Communities Review  
City of Laredo Sanitary Landfill; Permit No. MSW-1693  
Vertical Expansion Project; Laredo, Webb County, Texas

Dear Ms. Breslin:

On behalf of our client, the City of Laredo, Rust Environment & Infrastructure (Rust E & I) is in the process of preparing a Municipal Solid Waste (MSW) Permit Amendment Application to be submitted to the Texas Natural Resource Conservation Commission (TNRCC), Municipal Solid Waste Division, Permits Section, for the vertical expansion (height increase) of the existing City of Laredo Sanitary Landfill. The purpose of this vertical expansion is to obtain additional landfill capacity within the currently permitted landfill boundary.

This approximately 200 acre facility is located roughly 2.5 miles east of downtown Laredo and is approximately 800 feet north of Highway 359. The area surrounding the landfill consists primarily of undeveloped rangeland; some commercial development is however located south and southwest of the facility. The southeastern quadrant of the landfill property is primarily undeveloped; shrubs and cacti dominate this area. A drainage pathway and man-made stock tank do however exist along the eastern boundary of this area. Aside from the undeveloped area of this site, the remainder of this property is utilized for the operational activities of the landfill facility.

At this time, Rust E & I would like to request a review of the currently permitted landfill property for available information on sensitive species and/or natural communities which may exist on or near the landfill property. This request is necessary to fulfill the requirements of the protection of endangered species criterion as stated in 30 TAC §330.51 (b)(8) and 30 TAC §330.53 (b) (13).

A copy of the U.S. Geological Survey 7.5-minute topographic quadrangles (Laredo East and Laredo South) depicting the landfill and adjacent property as well as a copy of a December 7, 1996 color aerial photograph are enclosed to assist you in your evaluation of this property.

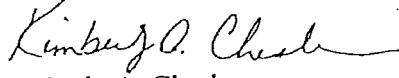
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Ms. Shannon Breslin  
Texas Parks and Wildlife Department  
July 7, 1997  
Page 2

If you have any questions, or if you require any additional information regarding this project, please phone me at (713) 953-5185 or Ms. Barbara Lemm Castille, Environmental Scientist, at (713) 953-5157. As always, we sincerely appreciate your assistance with this information.

Sincerely,

Rust E & I



Kimberly A. Chesler  
Environmental Scientist  
Life Sciences Department

KAC/kac

Attachments: USGS 7.5-Minute Topographic Map (Laredo South and Laredo East quadrangles)  
Aerial Photograph (December 7, 1996)

cc: Mr. Randall Kippenbrock, P.E., City of Laredo, Department of Public Works, Laredo, Texas  
Mr. Brian Dudley, P.E., Rust Environment & Infrastructure, Austin, Texas  
Project File #69396.10300

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## Appendix 4 – Dr. Forbes Resume



**MARGARET GEORGE FORBES, Ph.D.**

2120 Pearl Street, Nacogdoches, Texas 75965  
361 332-1364 mforbes04@gmail.com

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**EDUCATION**

Ph.D. in Environmental Science, University of North Texas, Denton, Texas, 2002  
M.S. in Environmental Systems, Humboldt State University, Arcata, California, 1997  
B.S. in Environmental Engineering, Humboldt State University, Arcata, California, 1994

**WORK EXPERIENCE**

**KBA EnviroScience, Inc., Lewisville, Texas**

*Senior Scientist* – Designed stream and wetland restoration projects, conducted wetland delineations, prepared permit applications under Section 404 Clean Water Act activities, monitored mitigation wetlands in Louisiana, performed habitat assessments for threatened and endangered species, and ecological risk assessments according to Texas Risk Reduction Program rules, and prepared environmental assessments according to National Environmental Policy Act. (2000-2004 and 2010-present).

**Baylor University, Waco Texas**

*Research Associate, Postdoctoral Fellow* – Research aspects of freshwater science within Texas streams, reservoirs, and wetlands. Research focus on functional assessment, plant ecology, hydrology, productivity and water quality. Co-principal investigator on research projects including study on coastal prairie wetlands (\$360,000 funded by Galveston Bay Estuary Program). Write proposals, give oral presentations, and prepare publications for the Center for Reservoir and Aquatic Systems Research (2006-2010).

**The University of Texas at Austin, Marine Science Institute, Port Aransas, Texas**

*Postdoctoral Fellow* – Obtain, analyze, and interpret water quality, salt marsh soils, and vegetative data within the Nueces Delta. Evaluate effects of climate and hydrology on adjacent salt marsh ecology and community structure including the effects of using treated wastewater to restore degraded salt marshes. Disseminate results via published articles and technical presentations to general public and educators (2004-2006).

**The University of North Texas, Denton, Texas**

**Adjunct Professor & Teaching Fellow** – Developed course curriculum and laboratory/field activities, and taught 4-unit undergraduate/graduate level course titled “Wetland Ecology and Management”. Curriculum covered plant ecology, hydrology, biogeochemistry, soils, energy cycling, regulation and management of wetlands. Taught course two semesters (2001-2002).

**Research Assistant** - Wrote grant proposals, designed and managed wetland and bottomland forest restoration projects within the Lewisville Lake Environmental Learning Area. Performed public outreach and coordinated community and student participation in restoration and research activities. Designed and built multiple-use wetland utilizing reclaimed wastewater and community volunteers. Analyzed effects of different planting techniques on survival of aquatic plants in regional reservoirs (1997-2000).

#### **Lower Rogue Watershed Council, Gold Beach, Oregon**

**Coordinator** –Worked with individual landowners and appropriate agency personnel to design watershed restoration projects. Obtained grant funding, implemented, monitored, and reported on these projects. Organized public education activities and landowner outreach, coordinated environmentally related activities with local schools. Provided training for volunteers for a water quality monitoring program, coordinated volunteers and contractors for stream restoration and wetland enhancement projects (1996-1997).

### **SELECTED PUBLICATIONS**

- Forbes MG, Back J, and Doyle RD. Nutrient transformation and retention by coastal prairie wetlands, Upper Gulf Coast, Texas. Accepted March 2012 *Wetlands*.
- Enwright NE, Forbes MG, Doyle RD, Hunter B, Forbes W. 2011. Using Geographic Information Systems to Inventory Coastal Prairie Wetlands along the Upper Gulf Coast, Texas. *Wetlands* 31:687-697.
- Forbes MG, Doyle RD, Scott JT, Stanley JK, Huang H, Fulton B and Brooks BW. 2012. Carbon sink to source: Longitudinal gradients of planktonic P:R ratios in subtropical reservoirs, *Biogeochemistry* 107:81–93.
- Forbes MG, Yelderman JC, Nichols T and Doyle RD. 2010. Effects of intermittent loading on nitrogen removal in horizontal subsurface flow wetlands. *Water Science & Technology* 62(8):1865-1871.
- Doyle RD, Scott JT, Forbes MG, and Conry T. 2008. Hot spots and hot moments of planktonic nitrogen fixation in a eutrophic southern reservoir. *Lake and Reservoir Management* 26(2): 95-103. (Nominated Best Paper 2010 LRM)
- Brooks BW, Scott JT, Forbes MG, Valenti Jr TW, Stanley JK, Doyle RD, Dean K, Patek J, Palachek R, Taylor RD and Koenig L 2008. Reservoir zonation, management and water quality standards. *LakeLine, Journal of the North American Lake Management Society* 28: 39-43.
- Scott JT, Stanley JK, Forbes MG, Doyle RD and Brooks BW. 2009. Common spatial patterns in N fixation among reservoirs of varying trophic state. *Hydrobiologia* 625: 61–68.



- Forbes MG, Doyle RD, Scott JT, Stanley JK, Huang H and Brooks BW. 2009. Physical factors control phytoplankton production and nitrogen fixation in eight Texas reservoirs. *Ecosystems* 11: 1181-1197.
- Forbes MG, Alexander HD and Dunton KH. 2008. Effects of pulsed riverine versus non-pulsed wastewater inputs of freshwater on plant community structure in a semi-arid salt marsh. *Wetlands* 28(4): 984-994.
- Forbes M. G. and K. H. Dunton. 2006. Response of a subtropical estuarine marsh to local climatic change in the southwestern Gulf of Mexico. *Estuaries and Coasts* 29(6B): 1-13.
- Forbes MG, Dickson KR, Saleh F, Doyle RD, Hudak P, Waller WT. 2005. Recovery and fractionation of phosphorus retained by light weight expanded shale and masonry sand used as media in subsurface flow treatment wetlands. *Env. Sci. Tech.* 39: 4621-4627.
- Forbes MG., Dickson KR, Golden TD, Hudak P, Doyle RD. 2004. Dissolved phosphorus retention of light weight expanded shale and masonry sand used in subsurface flow treatment wetlands, *Environ. Sci. Tech.* 38: 892-898.
- Forbes MG, Sartoris J and Sisneros D. 1998. *Selected Water Quality Dynamics and Horizontal Zonation of Water Quality in Hanks Marsh, Upper Klamath Lake, Oregon*. Bureau of Reclamation, Technical Memorandum No. 8220-98-11.
- Forbes W and Forbes MG. 1995. "Nature Walks: A Guide to Habitats - Wetlands", a chapter in *The Walker's Companion*. Time-Life Books. Editor, David Rains Wallace.
- Gearheart RG, Finney B, Anderson J, Forbes MG and Olson M. 1995. *Watershed Strategies for Improving Water Quality, Upper Klamath Lake, Oregon*. Bureau of Reclamation Report.

### HONORS & AWARDS

- Homer Arnold Award for Scientific Research in Environmental Engineering, Humboldt State University (1994).
- Doctoral Fellowship, University of North Texas (1997-2001).

### COMMUNITY AND PROFESSIONAL SERVICE

- Reviewer, European Science Foundation, Journal of Experimental Botany, Wetlands, Water Res.
- Lecturer, Master Naturalist Program, Waco, Texas.
- Volunteer, Mountainview Community Garden.
- Texas Bays and Estuaries Meeting, program organizer and session chair, Port Aransas, Texas

Keep Lewisville Beautiful, Board Member, Lewisville, Texas.

### **CERTIFICATIONS**

Professional Wetland Scientist, Society of Wetland Scientists, January 2004.

Engineer-in-Training License No. XEO85319, State of California, June 1992.

### **REFERENCES**

Dr. Robert Doyle, Biology Department Chair, Baylor University, 101 Bagby, Waco, Texas 75706 (254) 710-2922.

Dr. Teresa Golden, Department of Chemistry, University of North Texas, P.O. Box 305070, Denton, Texas 76203-5070. (940) 565-2888.

Dr. Joe Yelderman, Geology Department, Baylor University, 101 Bagby, Waco, Texas 75706 (254) 710-2361.