# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN AND SEWAGE COLLECTION SYSTEM

## **FOR**

## **GATEWAY 29**

## August 2023

## Prepared for:

## **Gateway 29 Real Estate, LLC**

5522 Jenolan Ridge Lane Sugarland, Texas 77479

Prepared by:

## LJA Engineering, Inc.

7500 Rialto Blvd Bldg II Suite 100 Austin, Texas 78735 512-439-4700 FRN F-1386



LJA Project No. A633-0401

## **Organized Sewage Collection System Plan Checklist**

- Edwards Aquifer Application Cover Page (TCEQ-20705)
- General Information Form (TCEQ-0587)

Attachment A - Road Map

Attachment B - USGS / Edwards Recharge Zone Map

Attachment C - Project Description

#### Geologic Assessment Form (TCEQ-0585)

Attachment A - Geologic Assessment Table (TCEQ-0585-Table)

Attachment B - Stratigraphic Column

Attachment C - Site Geology

Attachment D - Site Geologic Map(s)

## Organized Sewage Collection System Plan (TCEQ-0582)

Attachment A - SCS Engineering Design Report

Attachment B - Justification and Calculations for Deviation in Straight Alignment

Without Manholes

Attachment C - Justification for Variance from Maximum Manhole Spacing

Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet Per Second

Site Plan

Final Plan and Profile Sheets

#### Lift Station / Force Main System Application (TCEQ-0624) if applicable

Attachment A - Engineering Design Report

Site Plan

Final Plan and Profile Sheets

#### Temporary Stormwater Section (TCEQ-0602)

Attachment A - Spill Response Actions

Attachment B - Potential Sources of Contamination

Attachment C - Sequence of Major Activities

Attachment D - Temporary Best Management Practices and Measures

Attachment E - Request to Temporarily Seal a Feature (if requested)

Attachment F - Structural Practices

Attachment G - Drainage Area Map

Attachment H - Temporary Sediment Pond(s) Plans and Calculations

Attachment I - Inspection and Maintenance for BMPs

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

#### Agent Authorization Form (TCEQ-0599), if application submitted by agent

#### Application Fee Form (TCEQ-0574)

- Check Payable to the "Texas Commission on Environmental Quality"
- Core Data Form (TCEQ-10400)

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## **Texas Commission on Environmental Quality**

# **Edwards Aquifer Application Cover Page**

#### **Our Review of Your Application**

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

## **Administrative Review**

- Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.
  - To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: <a href="http://www.tceq.texas.gov/field/eapp">http://www.tceq.texas.gov/field/eapp</a>.
- 2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.
- 3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.
- 4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.
  - An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.
- 5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.
- 6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

#### **Technical Review**

- When an application is deemed administratively complete, the technical review period begins. The regional
  office will distribute copies of the application to the identified affected city, county, and groundwater
  conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days
  to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.
- 2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

- clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.
- 3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.
- 4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

#### **Mid-Review Modifications**

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Gateway 29			2. R	2. Regulated Entity No.: N/A		
3. Customer Name: Samir Maredia (Gateway 29 Real Estate, LLC)			4. C	4. Customer No.: N/A		
5. Project Type: (Please circle/check one)	New	Modification Extension		Exception		
6. Plan Type: (Please circle/check one)	WPAP CZP	SCS UST AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential (	Non-residential 8. Site		te (acres):	32.257	
9. Application Fee:	\$8702	10. Permanent BMP(s):		s):	Batch Detention with Stacked D	on Water quality Ponds Detention (2)
11. SCS (Linear Ft.):	4404	12. AST/UST (No. Tanks):		nks):	0	
13. County:	Williamson	14. Watershed:		South Fork San Gabriel River		

## **Application Distribution**

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field\_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region					
County:	Hays	Travis	Williamson		
Original (1 req.)	_		<u>X</u>		
Region (1 req.)	_	_	_ <u>X</u> _		
County(ies)	_		_ <u>X</u> _		
Groundwater Conservation District(s)	Edwards Aquifer AuthorityBarton Springs/ Edwards AquiferHays TrinityPlum Creek	Barton Springs/ Edwards Aquifer	NA		
City(ies) Jurisdiction	AustinBudaDripping SpringsKyleMountain CitySan MarcosWimberleyWoodcreek	AustinBee CavePflugervilleRollingwoodRound RockSunset ValleyWest Lake Hills	AustinCedar ParkFlorenceGeorgetownJerrell _X_LeanderLiberty HillPflugervilleRound Rock		

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	_		_	_	_
Region (1 req.)	_	_	_		_
County(ies)			_		
Groundwater Conservation District(s)	Edwards Aquifer Authority Trinity-Glen Rose	Edwards Aquifer Authority	Kinney	EAA Medina	EAA Uvalde
City(ies) Jurisdiction	Castle HillsFair Oaks RanchHelotesHill Country VillageHollywood ParkSan Antonio (SAWS)Shavano Park	Bulverde Fair Oaks Ranch Garden Ridge New Braunfels Schertz	NA	San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, the application is hereby submitted to TCEQ for		
Charles R. Hager, P.E.		
Print Name of Customer/Authorized Agent		
CRHagen	07/28/2023	
Signature of Customer/Authorized Agent	Date	

**FOR TCEQ INTERNAL USE ONL	.Y**			
Date(s)Reviewed:	Date	Date Administratively Complete:		
Received From:	Corr	rrect Number of Copies:		
Received By:	Dist	stribution Date:		
EAPP File Number:	Com	mplex:		
Admin. Review(s) (No.):	No. A	. AR Rounds:		
Delinquent Fees (Y/N):	Revi	view Time Spent:		
Lat./Long. Verified:	SOS	S Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):	Fee	Payable to TCEQ (Y/N):		
Core Data Form Complete (Y/N):	Chec			
Core Data Form Incomplete Nos.:		Less than 90 days old (Y/N):		

## **General Information Form**

**Texas Commission on Environmental Quality** 

Print Name of Customer/Agent: Charles R. Hager, P.E.

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

Date: <u>7/28/2023</u>

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Sig	Signature of Customer/Agent:	
	CRHagen	
Pi	Project Information	
1.	1. Regulated Entity Name: Gateway 29	
2.	2. County: Williamson	
3.	3. Stream Basin: South Fork San Gabriel River	
4.	4. Groundwater Conservation District (If applicable): N/A	
5.	5. Edwards Aquifer Zone:	
	Recharge Zone Transition Zone	
6.	6. Plan Type:	
	WPAP □ AST   SCS □ UST   Modification □ Exception Request	

7.	Customer (Applicant):	
	Contact Person: Samir Maredia Entity: Gateway 29 Real Estate, LLC Mailing Address: 5522 Jenolan Ridge Lane City, State: Sugarland, TX Telephone: 832-713-4985 Email Address: samirsmaredia@gmail.com	Zip: <u>77479</u> FAX:
8.	Agent/Representative (If any):	
	Contact Person: <u>Charles R. Hager, P.E.</u> Entity: <u>LJA Engineering, Inc.</u> Mailing Address: <u>7500 Rialto Boulevard, Buildi</u> City, State: <u>Austin, TX</u> Telephone: <u>512-439-4700</u> Email Address: <u>chager@lja.com</u>	ng II, Suite 100 Zip: <u>78735</u> FAX:
9.	Project Location:	
	<ul> <li>☐ The project site is located inside the city ling.</li> <li>☐ The project site is located outside the city ling.</li> <li>☐ Jurisdiction of</li> <li>☐ The project site is not located within any city.</li> </ul>	imits but inside the ETJ (extra-territorial
10.	The location of the project site is described detail and clarity so that the TCEQ's Region boundaries for a field investigation.	d below. The description provides sufficient nal staff can easily locate the project and site
	The property is located at the southwest co and is east of Kauffman Loop.	orner of SH-29 and Ronald Reagan Boulevard,
11.	Attachment A – Road Map. A road map she project site is attached. The project location the map.	nowing directions to and the location of the on and site boundaries are clearly shown on
12.	Attachment B - USGS / Edwards Recharge USGS Quadrangle Map (Scale: 1" = 2000') of The map(s) clearly show:	
	<ul> <li>☑ Project site boundaries.</li> <li>☑ USGS Quadrangle Name(s).</li> <li>☑ Boundaries of the Recharge Zone (and</li> <li>☑ Drainage path from the project site to the second se</li></ul>	· · · · · · · · · · · · · · · · · · ·
13.		e project to allow TCEQ regional staff to locate ated activities and the geologic or manmade

$\boxtimes$ Survey staking will be completed by this date: <u>TBD</u>
14. Attachment C – Project Description. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:
<ul> <li>✓ Area of the site</li> <li>✓ Offsite areas</li> <li>✓ Impervious cover</li> <li>✓ Permanent BMP(s)</li> <li>✓ Proposed site use</li> <li>✓ Site history</li> <li>✓ Previous development</li> <li>✓ Area(s) to be demolished</li> </ul>
15. Existing project site conditions are noted below:
<ul> <li>Existing commercial site</li> <li>Existing industrial site</li> <li>Existing residential site</li> <li>Existing paved and/or unpaved roads</li> <li>Undeveloped (Cleared)</li> <li>Undeveloped (Undisturbed/Uncleared)</li> <li>Other:</li> </ul>
Prohibited Activities
16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:
<ol> <li>Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);</li> </ol>
(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
(4) The use of sewage holding tanks as parts of organized collection systems; and
(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.
17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground

Injection Control);

- (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

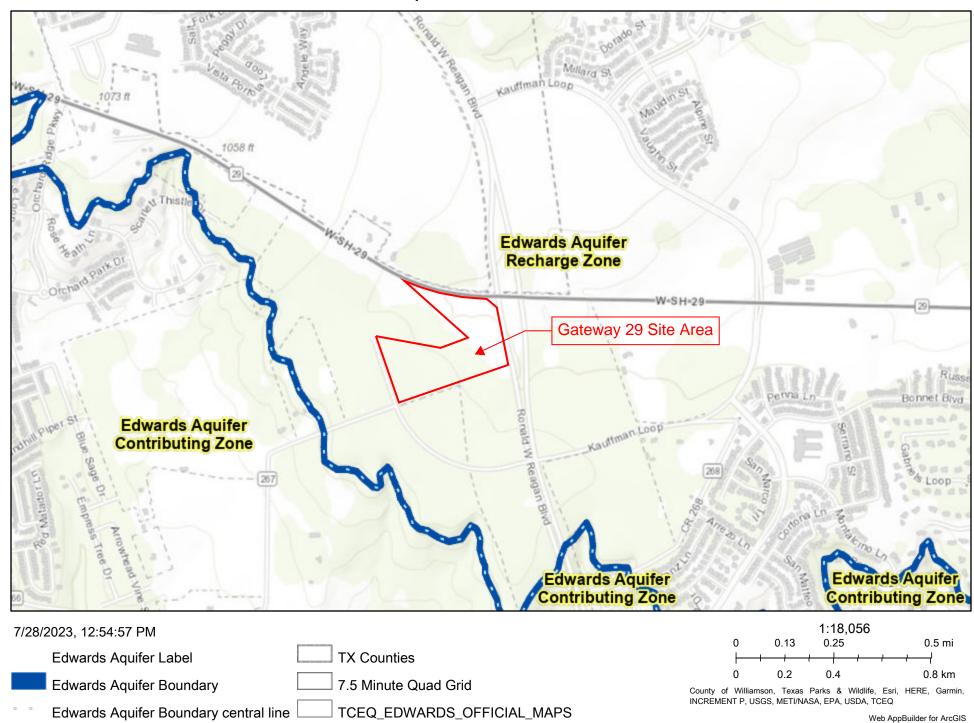
## **Administrative Information**

18.	The fee for the plan(s) is based on:
	<ul> <li>☑ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.</li> <li>☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.</li> <li>☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.</li> <li>☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.</li> <li>☐ A request for an extension to a previously approved plan.</li> </ul>
19.	Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:
	<ul> <li>☐ TCEQ cashier</li> <li>☐ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)</li> <li>☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)</li> </ul>
20.	Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
21.	No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

ATTACHMENT A - Road Map

ATTACHMENT B – USGS / Edwards Recharge Zone Map

# **Edwards Aquifer Viewer Custom Print**



#### **ATTACHMENT C – Project Description**

The proposed Gateway 29 Subdivision is a 32.257-acre development consisting of 10 lots and 0.667 acres of proposed Right of Way (R.O.W.) along State Highway 29 (SH 29). The project is located at the southwest corner of SH 29 and Ronald Reagan Boulevard and is east of Kauffman Loop. The project lies within the full-purpose jurisdiction of the City of Leander, Williamson County, and the South Fork San Gabriel River watershed. The site is currently undeveloped and consists of natural grasses, trees, brush, and underbrush.

The site consists of WCAD parcels R319215, R418530, R464196, R534764, R534765, R534766, and R620027. Gateway 29 Real Estate, LLC owns all listed parcels except R620027, which is owned by Zekelman Property Leander 53, LLC.

The site is located in the Edwards Aquifer Recharge Zone and is therefore required to meet TCEQ requirements for water quality treatment. Runoff resulting from the development of the proposed subdivision will be treated onsite with two batch detention water quality ponds with stacked detention. Additionally, one batch detention water quality pond with no detention and one batch detention water quality pond with stacked detention are proposed to treat runoff from the future development of Lot 10 and Lot 8, respectively, and are to be constructed in the future (not part of this application). The ponds are designed to provide adequate water quality to meet TCEQ requirements for the maximum allowable impervious cover for the site.

# Water Pollution Abatement Plan Application

**Texas Commission on Environmental Quality** 

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Water Pollution Abatement Plan Application Form** is hereby submitted for TCEQ review and Executive Director approval. The form was prepared by:

Print Name of Customer/Agent: <u>Charles R. Hager, P.E.</u>
Date: <u>7/28/2023</u>
Signature of Customer/Agent:

Regulated Entity Name: Gateway 29

## Regulated Entity Information

The type of project is:
Residential: Number of Lots:
Residential: Number of Living Unit Equivalents:
Commercial
Industrial
Other:

- 2. Total site acreage (size of property):32.257
- 3. Estimated projected population:N/A
- 4. The amount and type of impervious cover expected after construction are shown below:

**Table 1 - Impervious Cover Table** 

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	0	÷ 43,560 =	0
Parking	0	÷ 43,560 =	0
Other paved surfaces	180,272	÷ 43,560 =	4.14
Total Impervious Cover	180,272	÷ 43,560 =	4.14

Total Impervious Cover  $4.14 \div$  Total Acreage 32.257 X 100 = 12.8% Impervious Cover

- 5. Attachment A Factors Affecting Surface Water Quality. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.
- 6. Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

## For Road Projects Only

Complete questions 7 - 12 if this application is exclusively for a road project.

7.	Type of project:
	<ul> <li>TXDOT road project.</li> <li>County road or roads built to county specifications.</li> <li>City thoroughfare or roads to be dedicated to a municipality.</li> <li>Street or road providing access to private driveways.</li> </ul>
8.	Type of pavement or road surface to be used:
	Concrete Asphaltic concrete pavement Other:
9.	Length of Right of Way (R.O.W.): feet.
	Width of R.O.W.: feet. $L \times W = Ft^2 \div 43,560 Ft^2/Acre = acres.$
10.	Length of pavement area: feet.
	Width of pavement area: feet. L x W = $Ft^2 \div 43,560 Ft^2/Acre =$ acres. Pavement area acres $\div$ R.O.W. area acres x $100 =$ % impervious cover.
11.	A rest stop will be included in this project.
	A rest stop will not be included in this project.

12.	TCEQ Executive Director. Modifications	dways that do not require approval from the s to existing roadways such as widening than one-half (1/2) the width of one (1) existing CEQ.
Stor	mwater to be generated	by the Proposed Project
13.	volume (quantity) and character (quality occur from the proposed project is attaquality and quantity are based on the a	of Stormwater. A detailed description of the ty) of the stormwater runoff which is expected to eached. The estimates of stormwater runoff area and type of impervious cover. Include the re-construction and post-construction conditions
Was	tewater to be generated	by the Proposed Project
14. The	e character and volume of wastewater is	s shown below:
100	<u>0</u> % Domestic % Industrial % Commingled TOTAL gallons/day <u>698,400</u>	698,400 Gallons/dayGallons/dayGallons/day
15. Wa	stewater will be disposed of by:	
	On-Site Sewage Facility (OSSF/Septic Ta	ank):
	will be used to treat and dispose of licensing authority's (authorized ag the land is suitable for the use of protection that requirements for on-site sewage relating to On-site Sewage Facilities Each lot in this project/development size. The system will be designed by	om Authorized Agent. An on-site sewage facility the wastewater from this site. The appropriate ent) written approval is attached. It states that rivate sewage facilities and will meet or exceed ge facilities as specified under 30 TAC Chapter 285 s.  In it is at least one (1) acre (43,560 square feet) in by a licensed professional engineer or registered ed installer in compliance with 30 TAC Chapter
	Sewage Collection System (Sewer Lines	s):
	to an existing SCS.	stewater generating facilities will be connected stewater generating facilities will be connected
	☐ The SCS was previously submitted of The SCS was submitted with this ap ☐ The SCS will be submitted at a later be installed prior to Executive Direction.	plication.  date. The owner is aware that the SCS may not

	The sewage collection system will convey the wastewater to the <u>Liberty Hill Wastewater</u> (name) Treatment Plant. The treatment facility is:
	Existing. Proposed.
16.	$\!$
Sit	e Plan Requirements
Item	ns 17 – 28 must be included on the Site Plan.
17.	$\boxtimes$ The Site Plan must have a minimum scale of 1" = 400'.
S	Site Plan Scale: 1" = <u>100</u> '.
18. 1	100-year floodplain boundaries:
T	Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.  No part of the project site is located within the 100-year floodplain.  The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s):
_	The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.
	The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.
20. <i>A</i>	All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):
	There are (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)
	<ul> <li>The wells are not in use and have been properly abandoned.</li> <li>The wells are not in use and will be properly abandoned.</li> <li>The wells are in use and comply with 16 TAC §76.</li> </ul>
	$\overline{igstyle Z}$ There are no wells or test holes of any kind known to exist on the project site.
21. (	Geologic or manmade features which are on the site:
	<ul> <li>All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.</li> <li>No sensitive geologic or manmade features were identified in the Geologic</li> </ul>
	Assessment.  Attachment D - Exception to the Required Geologic Assessment. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. 🛭	$\!$
23. 🛭	Areas of soil disturbance and areas which will not be disturbed.
24. 🛭	Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. 🛭	Locations where soil stabilization practices are expected to occur.
26.	Surface waters (including wetlands).
	⊠ N/A
27. [	Locations where stormwater discharges to surface water or sensitive features are to occur.
	There will be no discharges to surface water or sensitive features.
28. 🛭	Legal boundaries of the site are shown.
Adı	ministrative Information
29. 🛭	Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
30. 🛭	Any modification of this WPAP will require Executive Director approval, prior to construction, and may require submission of a revised application, with appropriate fees.

#### ATTACHMENT A - Factors Affecting Water Quality

Potential factors that could affect water quality include sediment in stormwater runoff from clearing vegetative cover, grading, site excavation, vehicle tracking, topsoil stripping and stockpiling, and landscaping operations. Other sources that can affect water quality are small fueling activities, minor equipment maintenance, sanitary facilities, solvents, adhesives, paints, and paving materials. During the construction phase, these factors will be mitigated using silt fences, stabilized construction entrances, and other appropriate sediment/erosion control methods.

#### **ATTACHMENT B – Volume and Character of Stormwater**

During construction, the principal potential pollutant in stormwater will most likely be sediment caused by the disturbance of construction. Temporary BMPs will control sediment and other pollutants during construction. The composite curve numbers before construction are estimated to be about 80 for onsite drainage areas. The post construction curve numbers are estimated to be about 80 for the undeveloped areas onsite and 92 for the developed area.

After construction there will be runoff from building surfaces, paved areas, and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of batch detention water quality ponds with 91% removal efficiency. The storm water runoff from impervious areas and landscaped areas will be collected in storm drain inlets and storm drain pipes and conveyed to proposed batch detention water quality ponds. Stormwater runoff in excess of the Water Quality Volume will be detained above the water quality volume

# **Geologic Assessment**

**Texas Commission on Environmental Quality** 

For Regulated Activities on The Edwards Aquifer Recharge/transition Zones and Relating to 30 TAC §213.5(b)(3), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: Roman C. P.G.		e: <u>(210) 979-8444</u> 979-8441
Date: <u>December 5, 2019</u>	, <u></u>	
Representing: <u>KFW Engineers, TBPE</u> registration number)	Firm #9513 (Name of Con	npany and TBPG or TBPE
Signature of Geologist:  Regulated Entity Name: Ronald Real Project Information	gan Hwy 29 SW 33 Acres	Roman C. Pineda  Geology 10083  CENSE CONTAINED
1. Date(s) Geologic Assessment wa	s performed: <u>December 2</u>	, 2019
2. Type of Project:		
WPAP SCS  Location of Project:	☐ AS	
Recharge Zone		

Contributing Zone within the Transition Zone

- 4. Attachment A Geologic Assessment Table. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
- 5. Soil cover on the project site is summarized in the table below and uses the SCS Hydrologic Soil Groups\* (Urban Hydrology for Small Watersheds, Technical Release No. 55, Appendix A, Soil Conservation Service, 1986). If there is more than one soil type on the project site, show each soil type on the site Geologic Map or a separate soils map.

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness(feet)
Fairlie clay, 1 to 2 percent slopes (FaB)	D	0-4
Georgetown clay loam, 0 to 2 percent slopes (GeB)	С	0-4
Georgetown stony clay loam, 1 to 3 percent slopes (GsB)	С	0-4

Soil Name	Group*	Thickness(feet)

- \* Soil Group Definitions (Abbreviated)
  - A. Soils having a high infiltration rate when thoroughly wetted.
  - B. Soils having a moderate infiltration rate when thoroughly wetted.
  - C. Soils having a slow infiltration rate when thoroughly wetted.
  - D. Soils having a very slow infiltration rate when thoroughly wetted.
- 6. Attachment B Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
- 7. Attachment C Site Geology. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.
- 8. Attachment D Site Geologic Map(s). The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale:  $1'' = \underline{60}'$ Site Geologic Map Scale:  $1'' = \underline{60}'$ 

Site Soils Map Scale (if more than 1 soil type): 1" = 500'

9. Method of collecting positional data:

	$\boxtimes$	Global Positioning System (GPS) technology.  Other method(s). Please describe method of data collection:
10.		The project site and boundaries are clearly shown and labeled on the Site Geologic Map
11.		Surface geologic units are shown and labeled on the Site Geologic Map.
12.		Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
		Geologic or manmade features were not discovered on the project site during the field investigation.
13.	$\boxtimes$	The Recharge Zone boundary is shown and labeled, if appropriate.
14.		known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If olicable, the information must agree with Item No. 20 of the WPAP Application Section.
		There are (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)  The wells are not in use and have been properly abandoned.  The wells are not in use and will be properly abandoned.  The wells are in use and comply with 16 TAC Chapter 76.  There are no wells or test holes of any kind known to exist on the project site.
A	dm	inistrative Information
15	. 🖂	Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional

copies to these jurisdictions. The copies must be submitted to the appropriate regional

## 3 of 3

office.

LOCATION	7	OGIC /	GEOLOGIC ASSESSMENT T	SMENT	I TAB	ABLE		PRO	JEC	PROJECT NAME:	ME		RONAL	D REA	RONALD REAGAN HWY 29 SW 33 ACRES	7 29 S	W 3	3 ACF	RES		
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CATITUDE   LONGITUDE   Type   Points   Feature   Points   Feature   Points   Feature   Points   Points   Feature   Points   Poi		18.	ភ្	2A	2B	3		4		9	5A	9	7	8A	88	თ	180	10	11		12
30°38°14,77° 97°4845,47° CD 55 Ked 16 30 1,5 N45°0V 0 0,F 55 10 10 10 X 10 10 10 10 10 10 10 10 10 10 10 10 10	Ω	LATITUDE	LONGITUDE	FEATURE	POINTS	FORMATION	DIMEN	SIONS (FE	0500				APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENS		CATCHME (ACR	NT AREA ES)	TOPOGRAPHY
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* DATUM: NAD 83	: NAD 83		
2A TYPE		TYPE	2B POINTS
0	Cave		30
SC	Solution cavity	avity	20
SF	Solution-	Solution-enlarged fracture(s)	20
11	Fault		20
0	Other nat	Other natural bedrock features	ιΩ
MB	Manmade	Manmade feature in bedrock	30
SW	Swallow hole	ole	30
SH	Sinkhole		20
CD	Non-kars	Non-karst closed depression	2
Z	Zone, clu	Zone, clustered or aligned features	30

None, exposed bedrock
Coarse - cobbles, breakdown, sand, gravel
Loose or soft mud or soil, organics, leaves, sticks, dark colors
Fines, compacted clay-rich sediment, soil profile, gray or red colors
Vegetation. Give details in narrative description
Flowstone, cements, cave deposits
Other materials

ООГУД

8A INFILLING

Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

12 TOPOGRAPHY

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Sheet \_1\_ of \_1\_ Attachment A

Date

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TCEQ-0585-Table (Rev. 10-01-04)

## **RONALD REAGAN HWY 29 SW 33 ACRES**

## Stratigraphic Column

Sys	stem	Stratigraphic Unit	Hydrologic Unit	Approximate Maximum Thickness (ft)	Character of Rocks
	Edwards Aquifer	Edwards Limestone (Ked)	Edwards and	360	Massive, brittle, vulgar limestone and dolomite with nodular chert, gypsum, anhydrite, and solution-collapse features.
Lower Cretaceous	Edwards	Comanche Peak Limestone (Kc)	associated limestones	60	Fine-grained, fairly hard, nodular, fossiliferous, marly, extensively burrowed limestone.
Lower Cr		Walnut Formation (Kwa)		120	Hard and soft limestones, marls, clays, and shelf beds.
		Upper Member of Glen Rose Limestone (Kgru)		350	Yellowish tan, finely bedded limestone and marl

For Travis County, adjacent to county to the southwest Modified from Brune and Duffin, 1983

## **RONALD REAGAN HWY 29 SW 33 ACRES**

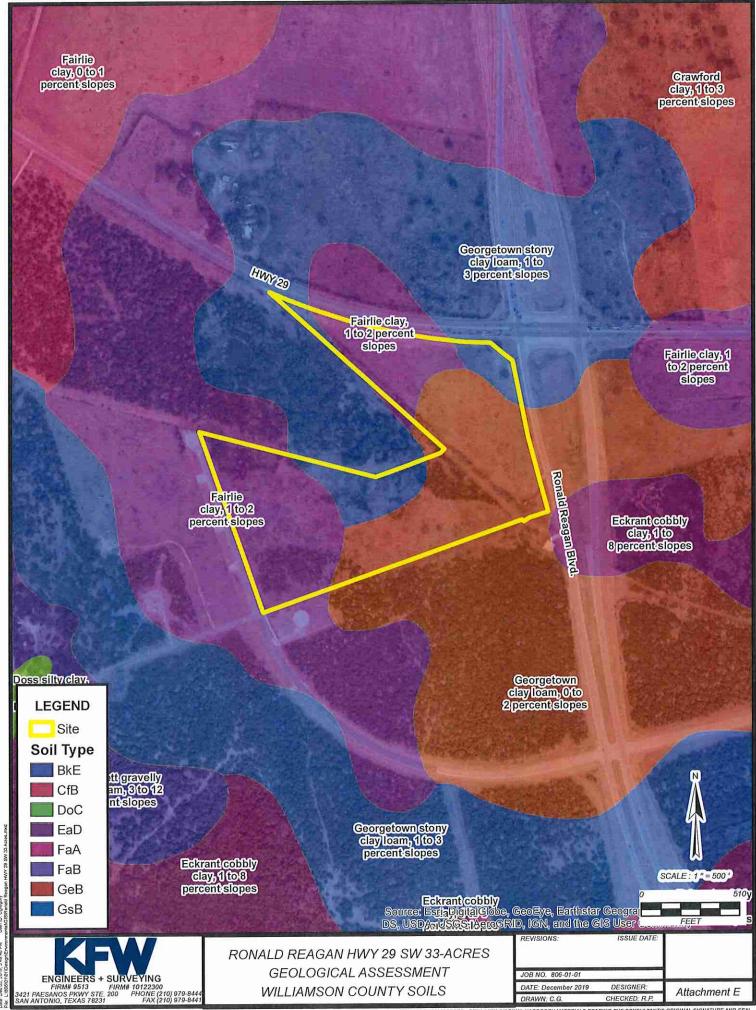
Narrative Description of Site Geology

The overall potential for fluid migration to the Edwards Aquifer on the site is intermediate. The dominant trend for the site is N57°E, based on an average of the trends of faults within the surrounding area and from published maps (V.E. Barnes, 1981). The site is located in the Edwards Limestone (Ked).

The Ked is characterized by massive, brittle, vugular limestone and dolomite with nodular chert. Karst development in the Ked is characterized by solution-collapse features. No caves or sinkholes were identified onsite.

#### Feature S-1

Feature is a non-karst closed depression in a drainage low created as a result of construction of Highway 29. Due to lack of evidence of karst development and standing water observed at the time of the site visit, the probability for rapid infiltration is low.



#### **RONALD REAGAN HWY 29 SW 33 ACRES**

References

- Ashworth, J.B., Jan 1983, <u>Ground-Water Availability of the Lower Cretaceous Formations in the Hill</u> Country of South-Central Texas, Texas Department of Water Resources, rept., 273, 12pp.
- Barnes, V.L., 1981, <u>Geologic Atlas of Texas</u>, <u>Austin Sheet</u>, Bureau of Economic Geology, The University of Texas at Austin, Texas.
- Collins, E.W., Woodruff, C.M., Jr., and Tremblay, Thomas A., 2002, <u>Geologic Framework of the Northern Edwards Aquifer, Central Texas</u>: Bur. Econ. Geol., Abstract, Figure 1.
- Collins, E.W., 1993, Geologic Map of the Bulverde Quadrangle, Texas: University of Texas at Austin, Bureau of Economic Geology, Open-File Map STATEMAP Study Area 5, scale 1:24,000.
- Federal Emergency Management Agency (FEMA), September 25, 2008, Williamson County, Texas and Incorporated areas, <u>Flood Insurance Rate Map (FIRM)</u>, <u>Panel 48491C0275 E</u>, FEMA, Washington, D.C.
- Jones, Ian C., 2006, <u>Defining Groundwater Flow Characteristics in the northern Segment of the Edwards</u>

  <u>Aquifer Based on Groundwater Chemistry</u>: Texas Water Development Board, Technical Paper
- Land, L.F. and Dorsey, M.E., 1988, <u>Reassessment of the Georgetown Limestone as a Hydrogeologic Unit of the Edwards Aquifer, Georgetown Area, Texas</u>: U.S. Geol. Survey, Water Resources Investigations 88-4190, 2 pp., 3 figs.
- Rose, P.R., 1972, Edwards Group, Surface and Subsurface, Central Texas: Bur. Econ. Geol., Rep of Invest. 74, 198 pp..
- Texas Natural Resource Conservation Commission, 1999, Edwards Aquifer Recharge Zone Map, <u>Leander Quadrangle</u>, TNRCC, Leander, Texas.
- United States Department of Agriculture, 1983, Soil Survey Williamson County, Texas, USDA.
- United States Geologic Survey, 2988, (USGS), Leander Quadrangle, USGS, Denver, Colorado.

# **Temporary Stormwater Section**

**Texas Commission on Environmental Quality** 

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

executive director approval. The application was prepared by:

Print Name of Customer/Agent: Charles R. Hager, P.E.

Date: 7/28/2023

CRHagen

Regulated Entity Name: Gateway 29

## **Project Information**

Signature of Customer/Agent:

## **Potential Sources of Contamination**

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1.	Fuels for construction equipment and hazardous substances which will be used during construction:
	The following fuels and/or hazardous substances will be stored on the site:
	These fuels and/or hazardous substances will be stored in:
	Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

	<ul> <li>Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.</li> <li>Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.</li> </ul>
	igstyle igstyle Fuels and hazardous substances will not be stored on the site.
2.	Attachment A - Spill Response Actions. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.
3.	Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.
4.	Attachment B - Potential Sources of Contamination. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.
S	equence of Construction
5.	Attachment C - Sequence of Major Activities. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.
	<ul> <li>For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.</li> <li>For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.</li> </ul>
6.	Name the receiving water(s) at or near the site which will be disturbed or which will

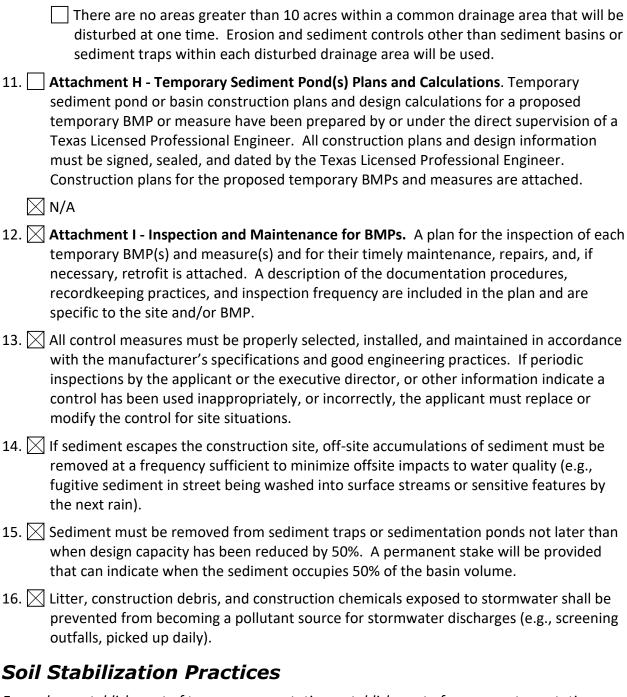
## Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

receive discharges from disturbed areas of the project: South Fork San Gabriel River

7. Attachment D – Temporary Best Management Practices and Measures. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

	A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.
	A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.
	A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.
	A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.
3.	 The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.
	Attachment E - Request to Temporarily Seal a Feature. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.
	There will be no temporary sealing of naturally-occurring sensitive features on the site.
€.	<b>Attachment F - Structural Practices</b> . A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10.	<b>Attachment G - Drainage Area Map</b> . A drainage area map supporting the following requirements is attached:
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
	For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
	There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.



Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices. A schedule of the interim and permanent soil stabilization practices for the site is attached.

- 18. Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
- 19. Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

### Administrative Information

- 20. All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.
- 21. If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.
- 22. Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

#### **ATTACHMENT A - Spill Response Actions**

The only possible source of a hydrocarbon or other hazardous substance spill would be from a construction vehicle leaking fuel, lubricants, coolants, etc. Any potential leakage is not likely to be significant and any soil that appears to be contaminated will be removed using a shovel stored onsite, and disposed of in a TCEQ certified landfill. Onsite personnel will be trained in spill prevention and spill cleanup.

If it is determined that a reportable spill has occurred as defined in 30 TAC Chapter 327, the TCEQ shall be notified by phone at the regional office (512) 339-2929 or at the State Emergency Response Center (800) 832-8224 as soon as possible. Requirements under 30 TAC Chapter 327 will be followed to ensure that the spill is contained and disposed of in an expedient and thorough manner and that proper authorities are kept informed throughout the process.

#### ATTACHMENT B - Potential Sources of Contamination

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping operations

Potential sources other than sediment:

- Small fueling activities
- Minor equipment maintenance
- Sanitary facilities
- Solvents, adhesives, paints, etc.
- Paving materials, concrete, mortar

#### **ATTACHMENT C – Sequence of Major Activities**

The sequencing of construction will generally take place in the following manner:

- 1. Temporary erosion and sedimentation controls are to be installed as indicated on the approved site plan or subdivision construction plan and in accordance with the Stormwater Pollution Prevention Plan (SWPPP) that is required to be posted on the site. Install tree protection and initiate tree mitigation measures.
- 2. The environmental project manager or site supervisor must contact the Watershed Protection department, environmental inspection, at 512-974-2278, 72 hours prior to the scheduled date of the required on-site preconstruction meeting.
- 3. The environmental project manager, and/or site supervisor, and/or designated responsible party, and the general contractor will follow the Storm Water Pollution Prevention Plan (SWPPP) posted on the site. Temporary erosion and sedimentation controls will be revised, if needed, to comply with city inspectors' directives, and revised construction schedule relative to the water quality plan requirements and the erosion plan.
- 4. Rough grade the pond(s) at 100% proposed capacity. Either the permanent outlet structure or a temporary outlet must be constructed prior to development of embankment or

excavation that leads to ponding conditions. The outlet system must consist of a sump pit outlet and an emergency spillway meeting the requirements of the drainage criteria manual and/or the environmental criteria manual, as required. The outlet system shall be protected from erosion and shall be maintained throughout the course of construction until installation of the permanent water quality pond(s).

- 5. Temporary erosion and sedimentation controls will be inspected and maintained in accordance with the Storm Water pollution Prevention Plan (SWPPP) posted on the site.
- 6. Begin site clearing/construction (or demolition) activities.
- 7. In the Barton Springs Zone, the environmental project manager or site supervisor will schedule a mid-construction conference to coordinate changes in the construction schedule and evaluate effectiveness of the erosion control plan after possible construction alterations to the site. Participants shall include the city inspector, project engineer, general contractor and environmental project manager or site supervisor. The anticipated completion date and final construction sequence and inspection schedule will be coordinated with the appropriate city inspector.
- 8. Permanent water quality ponds or controls will be cleaned out and filter media will be Installed prior to/concurrently with revegetation of site.
- 9. Complete construction and start revegetation of the site and installation of landscaping.
- 10. Upon completion of the site construction and revegetation of a project site, the design engineer shall submit an engineer's letter of concurrence to the Watershed Protection and Development Review Department indicating that construction, including revegetation, is complete and in substantial conformity with the approved plans. After receiving this letter, a final inspection will be scheduled by the appropriate city inspector.
- 11. Upon completion of landscape installation of a project site, the landscape architect shall submit a letter of concurrence to the Watershed Protection and Development Review Department indicating that the required landscaping is complete and in substantial conformity with the approved plans. After receiving this letter, a final inspection will be scheduled by the appropriate city inspector.
- 12. After a final inspection has been conducted by the city inspector and with approval from the city inspector, remove the temporary erosion and sedimentation controls and complete any necessary final revegetation resulting from removal of the controls. Conduct any maintenance and rehabilitation of the water quality ponds or controls.

#### **ATTACHMENT D – Temporary Best Management Practices and Measures**

- Silt fence is used throughout the project to prevent pollution of runoff. Silt fence is used for areas with sheet flow. Before construction begins, all silt fence and tree protection will be in place. The principal potential pollutant on site is sediment caused by disturbance during construction. The controls installed will be monitored on a regular basis and after any significant rainfall to ensure effective operation. Throughout construction, inspection forms will be used to record the condition of the controls after rainfall events.
- 2. The runoff leaving the site to enter creeks will have been treated through silt fence.

#### ATTACHMENT E - Request to Temporarily Seal a Feature

No request is anticipated for this project.

#### **ATTACHMENT F - Structural Practices**

Contractor will construct and maintain silt fence, inlet protection, concrete washout area, rock berms, a stabilized construction entrance, and other temporary and permanent erosion and sedimentation controls, including silt fence upstream of the Sensitive Feature, as appropriate to prevent pollutants from exiting the site during construction.

#### ATTACHMENT G – Drainage Area Map

The drainage area maps are included in the attached plan set.

#### **ATTACHMENT H – Temporary Sediment Pond(s) Plans and Calculations**

N/A

#### **ATTACHMENT I – Inspection and Maintenance for BMPs.**

Inspection and maintenance for Best Management Practices is taken from the TCEQ Manual, "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices", dated July 2005.

#### Silt Fence:

- 1. Inspect all fencing weekly, and after any rainfall.
- 2. Remove sediment when buildup reaches 6 inches.
- 3. Replace any torn fabric or install a second line of fencing parallel to the torn section.
- 4. Replace or repair any section crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicular access points.
- 5. When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

#### **Rock Berms:**

- 1. Inspection should be made weekly and after each rainfall by the responsible party. For installations in streambeds, additional daily inspections should be made.
- 2. Remove sediment and other debris when buildup reaches 6 inches and dispose of the accumulated silt in an approved manner that will not cause any additional siltation.

- 3. Repair any loose wire sheathing.
- 4. The berm should be reshaped as needed during inspection.
- 5. The berm should be replaced when the structure ceases to function as intended due to silt accumulation among the rocks, washout, construction traffic damage, etc.
- 6. The rock berm should be left in place until all upstream areas are stabilized and accumulated silt is removed.

#### **Stabilized Construction Entrance:**

- The entrance should be maintained in a condition, which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
- 2. All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
- 3. When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
- 4. When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.
- 5. All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

#### **Concrete Washout Area:**

- Routine inspection in accordance with section 1.4.18 of TCEQ Manual: RG-348 of the area to insure that sufficient quantity and volume remain to contain all liquid and concrete waste generated by washout operations.
- 2. Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- 3. Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.
- 4. When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and disposed of. Holes, depressions, or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

#### **Inlet Protection:**

- 1. Inspect all inlet protection weekly, and after any rainfall.
- 2. Remove sediment when buildup reaches 3 inches. Deposit removed sediment in suitable area in such a manner that it will not erode.
- 3. Check placement of device to prevent gaps between device and curb.
- 4. Inspect filter fabric and patch or replace if torn or missing.
- 5. Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

#### ATTACHMENT J - Schedule of Interim and Permanent Soil Stabilization Practices

The following are the proposed stabilization (temporary and permanent) practices:

#### **Temporary Vegetative Stabilization:**

- 1. From September 15 to March 1, seeding shall be with cool season cover crops (Wheat at 0.5 pounds per 1000 SF, Oats at 0.5 pounds per 1000 SF, Cereal Rye Grain at 0.5 pounds per 1000 SF) with a total rate of 1.5 pounds per 1000 SF. Cool season cover crops are not permanent erosion control.
- 2. From March 2 through September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1000 SF.
  - A. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1/2 pound per 1000 SF.
  - B. Hydromulch shall comply with Table 1, below.
  - C. Temporary erosion control shall be acceptable when the grass has grown at least 1-1/2 inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
  - D. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Material	Description	Longevity	Typical Applications	Application Rates
100 % or any blend of wood, cellulose, straw, and/or cotton plant material (except no mulch shall exceed 30% paper)	70% or greater Wood/Straw 30% or less Paper or Natural Fibers	0-3 months	Moderate slopes; from flat to 3:1	1500 to 2000 lbs per acre

#### Permanent Vegetative Stabilization:

1. From September 15 to March 1, seeding is considered to be temporary stabilization only. If cool season cover crops exist where permanent vegetative stabilization is desired, the grasses shall be mowed to a height of less than one-half (1/2) inch and the area shall be reseeded in accordance with 2, below.

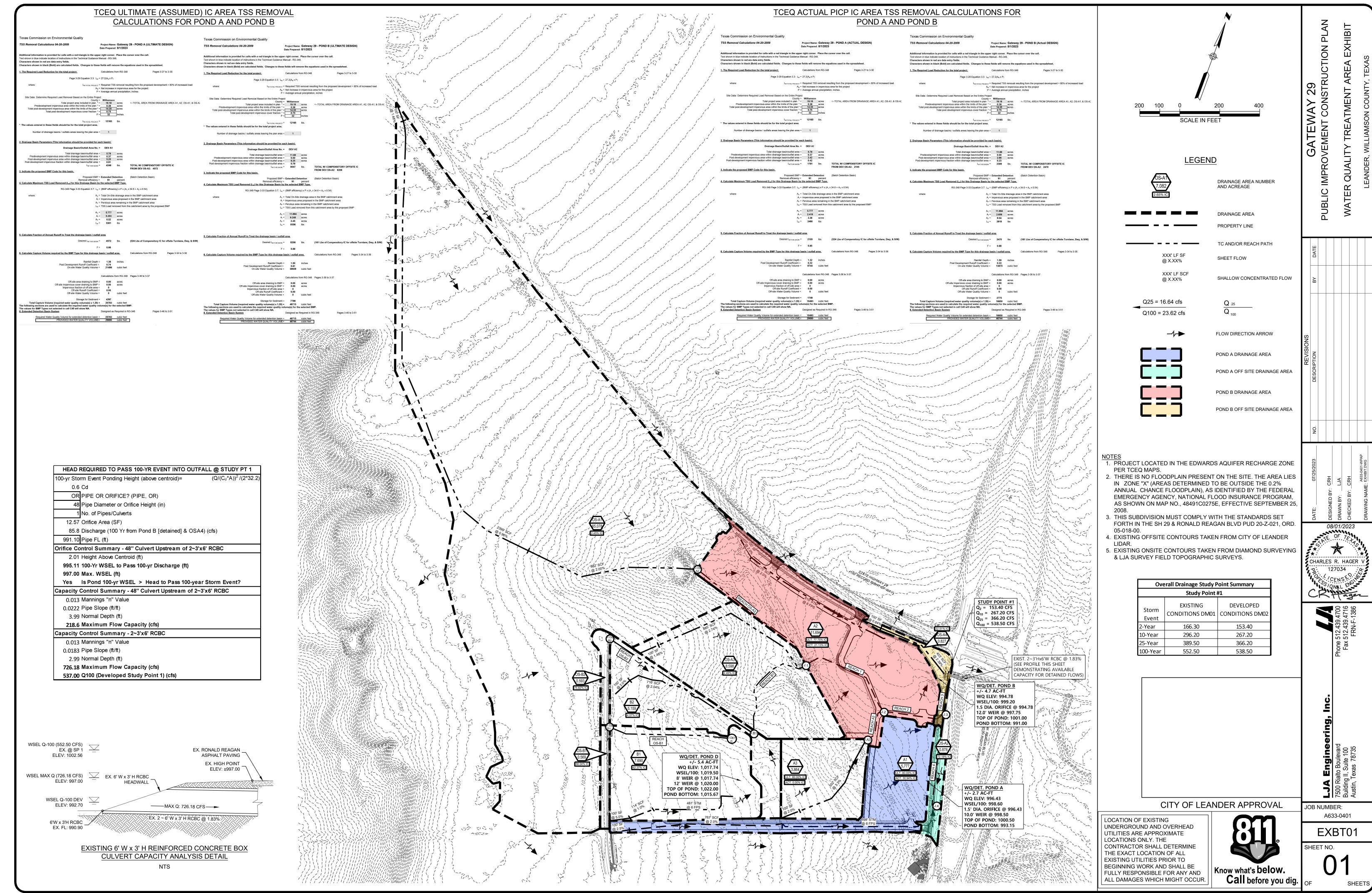
- 2. From March 2 to September 14, seeding shall be with hulled Bermuda at a rate of 1 pound per 1,000 square feet with a purity of 95% with 85% germination. Bermuda grass is a warm season grass and is considered permanent erosion control.
  - A. Fertilizer shall be water soluble with an analysis of 15-15-15 to be applied once at planting and once during the period of establishment at a rate of 1/2 pound per 1000 SF.
  - B. Hydromulch shall comply with Table 2, below.
  - C. The planted area shall be irrigated or sprinkled in a manner that will not erode the topsoil, but will sufficiently soak the soil to a depth of six inches. The irrigation shall occur at daily intervals (minimum) during the first two months. Rainfall occurrences of 1/2 inch or more shall postpone the watering schedule for one week.
  - D. Permanent erosion control shall be acceptable when the grass has grown at least 1-1/2 inches high with 95% coverage, provided no bare spots larger than 16 square feet exist.
  - E. When required, native grass seeding shall comply with requirements of the City of Austin Environmental Criteria Manual.

Material	Description	Longevity	Typical Applications	Application Rates
Bonded Fiber Matrix (BFM)	80% Organic defibrated fibers 10% Tackifier	6 months	On slopes up to 2:1 and erosive soil conditions	2500 to 4000 lbs per acre (see manufacturers recommendations)
Fiber Reinforced Matrix (FRM)	65% Organic defibrated fibers 25% Reinforcing Fibers or less 10% Tackifier	Up to 12 months	On slopes up to 1:1 and erosive soil conditions	3000 to 4500 lbs per acre (see manufacturers recommendations)

3. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity temporarily or permanently cease is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of the site. In areas experiencing droughts where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity has temporarily or permanently cease is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

ATTACHMENT G – Drainage Area Map

SECTION 5 – TEMPORARY STORMWATER (FORM 0602)



## **Permanent Stormwater Section**

**Texas Commission on Environmental Quality** 

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(C), (D)(Ii), (E), and (5), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Permanent Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Charles R. Hager, P.E.

Date: 7/28/2023

Signature of Customer/Agent

RHager

Regulated Entity Name: Gateway 29

## Permanent Best Management Practices (BMPs)

Permanent best management practices and measures that will be used during and after construction is completed.

1.	Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
	□ N/A
2.	These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.
	The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

	A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is:
	□ N/A
3.	Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.
	□ N/A
4.	Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.
	The site will be used for low density single-family residential development and has
	20% or less impervious cover.  ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.  ☐ The site will not be used for low density single-family residential development.
5.	The executive director may waive the requirement for other permanent BMPs for multifamily residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.
	<ul> <li>Attachment A - 20% or Less Impervious Cover Waiver. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.</li> <li>☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.</li> <li>☐ The site will not be used for multi-family residential developments, schools, or small</li> </ul>
	business sites.
6.	Attachment B - BMPs for Upgradient Stormwater.

	<ul> <li>A description of the BMPs and measures that will be used to prevent po surface water, groundwater, or stormwater that originates upgradient f and flows across the site is attached.</li> <li>No surface water, groundwater or stormwater originates upgradient fro</li> </ul>	rom the site
	and flows across the site, and an explanation is attached.  Permanent BMPs or measures are not required to prevent pollution of s water, groundwater, or stormwater that originates upgradient from the flows across the site, and an explanation is attached.	surface
7.	Attachment C - BMPs for On-site Stormwater.	
	A description of the BMPs and measures that will be used to prevent posurface water or groundwater that originates on-site or flows off the site pollution caused by contaminated stormwater runoff from the site is attained. Permanent BMPs or measures are not required to prevent pollution of sor groundwater that originates on-site or flows off the site, including posured by contaminated stormwater runoff, and an explanation is attached.	e, including tached. surface water Illution
8.	Attachment D - BMPs for Surface Streams. A description of the BMPs and restricted that prevent pollutants from entering surface streams, sensitive features, of is attached. Each feature identified in the Geologic Assessment as sensitive addressed.	r the aquifer
	□ N/A	
9.	The applicant understands that to the extent practicable, BMPs and measur maintain flow to naturally occurring sensitive features identified in either the assessment, executive director review, or during excavation, blasting, or continuous continuous director review.	ne geologic
	<ul> <li>The permanent sealing of or diversion of flow from a naturally-occurring feature that accepts recharge to the Edwards Aquifer as a permanent postabetement measure has not been proposed.</li> <li>Attachment E - Request to Seal Features. A request to seal a naturally-sensitive feature, that includes, for each feature, a justification as to whe reasonable and practicable alternative exists, is attached.</li> </ul>	ollution occurring
10.	Attachment F - Construction Plans. All construction plans and design calculated the proposed permanent BMP(s) and measures have been prepared by or undirect supervision of a Texas Licensed Professional Engineer, and are signed dated. The plans are attached and, if applicable include:	ınder the
	<ul> <li>✓ Design calculations (TSS removal calculations)</li> <li>✓ TCEQ construction notes</li> <li>✓ All geologic features</li> <li>✓ All proposed structural BMP(s) plans and specifications</li> </ul>	
	□ N/A	

11. Attachment G - Inspection, Maintenance, Repair and Retrofit Plan. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:
<ul> <li>✓ Prepared and certified by the engineer designing the permanent BMPs and measures</li> <li>✓ Signed by the owner or responsible party</li> <li>✓ Procedures for documenting inspections, maintenance, repairs, and, if necessary</li> </ul>
retrofit  A discussion of record keeping procedures
□ N/A
12. Attachment H - Pilot-Scale Field Testing Plan. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.
⊠ N/A
13. Attachment I -Measures for Minimizing Surface Stream Contamination. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.
□ N/A
Responsibility for Maintenance of Permanent BMP(s)
Responsibility for maintenance of best management practices and measures after construction is complete.
14. The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.
□ N/A
15. A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.
□ N/A

#### ATTACHMENT A – 20% or Less Impervious Cover Waiver

Not applicable.

#### **ATTACHMENT B – BMPs for Upgradient Stormwater**

The proposed development is located in the South Fork San Gabriel River watershed. There is approximately 75 acres of upgradient storm water originating offsite. Proposed drainage improvements will collect and convey the offsite runoff through the site to mitigate the impacts of the offsite drainage area.

#### **ATTACHMENT C – BMPs for On-Site Stormwater**

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. The water quality basins will act as a sediment trap for the project. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of four batch detention water quality ponds. The storm water runoff from impervious areas and landscaped areas will be collected in storm drain inlets and storm drain pipes and conveyed to proposed batch detention water quality ponds.

#### ATTACHMENT D - BMPs for Surface Streams

Temporary Controls: Prior to site clearing, grading and excavation, the stabilized construction entrance will be installed, tree protection/limit of construction fencing will be installed, and silt fencing will be installed at the downstream edge of disturbed areas where shallow sheet runoff occurs. The water quality basins will act as a sediment trap for the project. A dewatering skimmer will be used to collect and discharge the highest quality water, allowing the sediment to settle. During all aspects of construction, the contractor shall maintain these controls. The contractor will be responsible for stabilization practices (revegetation). The contractor will be responsible for removing the temporary controls once the revegetation is established.

Permanent Controls: After construction there will be runoff from building surfaces, paved areas and managed lawn/landscape areas. These areas will be mitigated by permanent revegetation of disturbed areas and through use of four batch detention water quality ponds. The storm water runoff from impervious areas and landscaped areas will be collected in storm drain inlets and storm drain pipes and conveyed to four proposed batch detention water quality ponds.

#### **ATTACHMENT E– Request to Seal Features**

Not Applicable.

#### **ATTACHMENT F - Construction Plans**

Construction plans for the proposed Gateway 29 project are submitted in conjunction with this Water Pollution Abatement Plan (WPAP) application. TSS Removal Calculations are attached to this section.

#### **ATTACHMENT G – Inspection, Maintenance, Repair, and Retrofit Plan**

See attached document labeled "Maintenance Plan for Permanent Best Management Practices for Gateway 29."

#### **ATTACHMENT H – Pilot Scale Field Testing Plan**

Not Applicable.

#### **ATTACHMENT I – Measures for Minimizing Surface Stream Contamination**

The subdivision is located in the South Fork San Gabriel River watershed. The batch detention water quality ponds will provide approximately 94 cfs of stormwater runoff that will be released through two existing 3'x6' reinforced concrete box culverts to an existing offsite pond.

As a result of these measures, the volume and character of the stormwater runoff from the site will be effectively unchanged from predevelopment levels. Consequently there will not be increased stream flashing, in-stream velocities and flow strength will remain similar, and stream erosion will not increase.

ATTACHMENT F – TSS Removal Calculations
PLEASE NOTE THAT LJA IS PROVIDING TWO SETS OF TSS CALCULATIONS:
1) FULL / ULTIMATE BUILD OUT OF THE DRAINAGE AREAS ATTACHED IN THE TEMPORARY STORMWATER SECTION.
2) ACTUAL DESIGN FOR THE INITIAL PICP IMPROVEMENTS ASSOCIATED WITH THE INITIAL WPAP APPROVAL.

SECTION 6 – PERMANENT STORMWATER (FORM 0600)

Project Name: Gateway 29 - POND A (ULTIMATE DESIGN)

Date Prepared: 8/1/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

<--TOTAL AREA FROM DRAINAGE AREA A1, A2, OS-A1, & OS-A2

Page 3-29 Equation 3.3: L<sub>M</sub> = 27.2(A<sub>N</sub> x P)

 $L_{\text{M TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load  $A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

nches

Site Data: Determine Required Load Removal Based on the Entire Project

County = Williamson
Total project area included in plan \*= 19.18
Predevelopment impervious area within the limits of the plan \*= 0.38 19.18 acres acres Total post-development impervious area within the limits of the plan \* =

Total post-development impervious cover fraction \* =

P = 14.35 acres

> $L_{M TOTAL PROJECT} =$ 12165

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

#### 2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = DEV A1

Total drainage basin/outfall area = 5.78 acres Predevelopment impervious area within drainage basin/outfall area = Post-development impervious area within drainage basin/outfall area = 5.25 acres Post-development impervious fraction within drainage basin/outfall area =

L<sub>M THIS BASIN</sub> = 4248 lbs. TOTAL W/ COMPENSITORY OFFSITE IC

FROM DEV OS-A2: 4572

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention

Removal efficiency = 4. Calculate Maximum TSS Load Removed (Lp) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:  $L_R$  = (BMP efficiency) x P x (A<sub>1</sub> x 34.6 + A<sub>P</sub> x 0.54)

where: A<sub>C</sub> = Total On-Site drainage area in the BMP catchment area

A<sub>I</sub> = Impervious area proposed in the BMP catchment area A<sub>P</sub> = Pervious area remaining in the BMP catchment area

L<sub>R</sub> = TSS Load removed from this catchment area by the proposed BMP

5.777 acres A<sub>I</sub> = 5.253 acres A<sub>P</sub> = 0.52 acres 5301 lbs

#### 5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired L<sub>M THIS BASIN</sub> = 4572 lbs. (324 Lbs of Compensitory IC for offsite Turnlane, Dwy, & S/W)

0.86

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348

Pages 3-34 to 3-36

Rainfall Depth = 1.38 0.74 Post Development Runoff Coefficient = On-site Water Quality Volume = 21486 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres Off-site Impervious cover draining to BMP = acres Impervious fraction of off-site area = Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = cubic feet

> Storage for Sediment = 4297

Total Capture Volume (required water quality volume(s) x 1.20) = 25783 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP. The values for BMP Types not selected in cell C45 will show NA.

8. Extended Detention Basin System

Designed as Required in RG-3

Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 25783 cubic feet PROVIDED WATER QUALITY VOLUME= 29690 cubic feet

Project Name: Gateway 29 - POND A (ACTUAL DESIGN)

Date Prepared: 8/1/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

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Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

<--TOTAL AREA FROM DRAINAGE AREA A1, A2, OS-A1, & OS-A2

Page 3-29 Equation 3.3: L<sub>M</sub> = 27.2(A<sub>N</sub> x P)

 $L_{\text{M TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load  $A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County = Williamson
Total project area included in plan \*= 19.18
Predevelopment impervious area within the limits of the plan \*= 0.38 19.18 acres acres Total post-development impervious area within the limits of the plan \* =

Total post-development impervious cover fraction \* =

P = 14.35 acres nches

> $L_{M TOTAL PROJECT} =$ 12165

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

#### 2. Drainage Basin Parameters (This information should be provided for each basin):

Total drainage basin/outfall area =	5.78	acres
Predevelopment impervious area within drainage basin/outfall area =	0.37	acres
Post-development impervious area within drainage basin/outfall area =	2.42	acres
Post-development impervious fraction within drainage basin/outfall area =	0.42	

L<sub>M THIS BASIN</sub> = 1781 lbs.

TOTAL W/ COMPENSITORY OFFSITE IC

FROM DEV OS-A2: 2105

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention

Removal efficiency = 91 4. Calculate Maximum TSS Load Removed (L<sub>B</sub>) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:  $L_R$  = (BMP efficiency) x P x (A<sub>1</sub> x 34.6 + A<sub>P</sub> x 0.54)

A<sub>C</sub> = Total On-Site drainage area in the BMP catchment area where:

Drainage Basin/Outfall Area No. = DEV A1

A<sub>I</sub> = Impervious area proposed in the BMP catchment area A<sub>P</sub> = Pervious area remaining in the BMP catchment area

L<sub>R</sub> = TSS Load removed from this catchment area by the proposed BMP

5.777 acres A<sub>I</sub> = 2.419 acres A<sub>P</sub> = 3.36 acres 2490

#### 5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired L<sub>M THIS BASIN</sub> = 2105 lbs. (324 Lbs of Compensitory IC for offsite Turnlane, Dwy, & S/W)

Calculations from RG-348

0.85

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Pages 3-34 to 3-36

Rainfall Depth = inches Post Development Runoff Coefficient = 0.32 8744 On-site Water Quality Volume = cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres Off-site Impervious cover draining to BMP = acres Impervious fraction of off-site area = Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = cubic feet

> Storage for Sediment = 1749

Total Capture Volume (required water quality volume(s) x 1.20) = 10493 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP. The values for BMP Types not selected in cell C45 will show NA.

8. Extended Detention Basin System

Designed as Required in RG-3

Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 10493 cubic feet PROVIDED WATER QUALITY VOLUME= 29690 cubic feet

Project Name: Gateway 29 - POND B (ULTIMATE DESIGN)

Date Prepared: 8/1/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

<--TOTAL AREA FROM DRAINAGE AREA A1, A2, OS-A1, & OS-A2

Page 3-29 Equation 3.3: L<sub>M</sub> = 27.2(A<sub>N</sub> x P)

 $L_{\text{M TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load  $A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County = Williamson
Total project area included in plan \*= 19.18
Predevelopment impervious area within the limits of the plan \*= 0.38 19.18 acres acres Total post-development impervious area within the limits of the plan \* =

Total post-development impervious cover fraction \* =

P = 14.35 acres nches

 $L_{M TOTAL PROJECT} =$ \* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

#### 2. Drainage Basin Parameters (This information should be provided for each basin):

	DEV A2	Drainage Basin/Outfall Area No. =
acre	11.69	Total drainage basin/outfall area =

Predevelopment impervious area within drainage basin/outfall area = acres Post-development impervious area within drainage basin/outfall area = 9.25 acres Post-development impervious fraction within drainage basin/outfall area = 0.79

L<sub>M THIS BASIN</sub> = 8047 lbs. TOTAL W/ COMPENSITORY OFFSITE IC FROM DEV OS-A2: 8208

12165

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention

Removal efficiency = 91 4. Calculate Maximum TSS Load Removed (Lp) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:  $L_R$  = (BMP efficiency) x P x (A<sub>1</sub> x 34.6 + A<sub>P</sub> x 0.54)

where:

A<sub>C</sub> = Total On-Site drainage area in the BMP catchment area A<sub>I</sub> = Impervious area proposed in the BMP catchment area A<sub>P</sub> = Pervious area remaining in the BMP catchment area

L<sub>R</sub> = TSS Load removed from this catchment area by the proposed BMP

A <sub>C</sub> =	11.694	acres
A <sub>i</sub> =	9.248	acres
A <sub>P</sub> =	2.45	acres
L <sub>P</sub> =	9356	lbs

#### 5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired L<sub>M THIS BASIN</sub> = 8208 lbs. (161 Lbs of Compensitory IC for offsite Turnlane, Dwy, & S/W)

Calculations from RG-348

0.88

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Pages 3-34 to 3-36

Rainfall Depth = Post Development Runoff Coefficient = 0.61 On-site Water Quality Volume = 38929 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres Off-site Impervious cover draining to BMP = acres Impervious fraction of off-site area = Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = cubic feet

> Storage for Sediment = 7786

Total Capture Volume (required water quality volume(s) x 1.20) = 46715 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP. The values for BMP Types not selected in cell C45 will show NA.

8. Extended Detention Basin System

Designed as Required in RG-3 Designed as Required in RG-348 Pages 3-46 to 3-51

> Required Water Quality Volume for extended detention basin = 46715 cubic feet PROVIDED WATER QUALITY VOLUME= 46744 cubic feet

Project Name: Gateway 29 - POND B (Actual DESIGN)

Date Prepared: 8/1/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.

Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.

Characters shown in red are data entry fields.

Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project:

Calculations from RG-348

Pages 3-27 to 3-30

<--TOTAL AREA FROM DRAINAGE AREA A1, A2, OS-A1, & OS-A2

Page 3-29 Equation 3.3: L<sub>M</sub> = 27.2(A<sub>N</sub> x P)

 $L_{\text{M TOTAL PROJECT}}$  = Required TSS removal resulting from the proposed development = 80% of increased load

 $A_N$  = Net increase in impervious area for the project

P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County = Williamson
Total project area included in plan \*= 19.18
Predevelopment impervious area within the limits of the plan \*= 0.38 19.18 acres acres Total post-development impervious area within the limits of the plan \* =

Total post-development impervious cover fraction \* =

P = 14.35 acres nches

> $L_{M TOTAL PROJECT} =$ 12165

\* The values entered in these fields should be for the total project area.

Number of drainage basins / outfalls areas leaving the plan area = 1

#### 2. Drainage Basin Parameters (This information should be provided for each basin):

<b>g</b>		
Total drainage basin/outfall area =	11.69	acres
nent impervious area within drainage basin/outfall area =	0.00	acres
and the control of th		

Drainage Basin/Outfall Area No. = DEV A2

Post-development impervious area within drainage basin/outfall area = 2.66 acres Post-development impervious fraction within drainage basin/outfall area = 0.23 L<sub>M THIS BASIN</sub> = 2309

lbs.

TOTAL W/ COMPENSITORY OFFSITE IC

FROM DEV OS-A2: 2470

#### 3. Indicate the proposed BMP Code for this basin.

where:

Proposed BMP = Extended Detention

Removal efficiency = 91 4. Calculate Maximum TSS Load Removed (Lp) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:  $L_R$  = (BMP efficiency) x P x (A<sub>1</sub> x 34.6 + A<sub>P</sub> x 0.54)

A<sub>C</sub> = Total On-Site drainage area in the BMP catchment area A<sub>I</sub> = Impervious area proposed in the BMP catchment area

A<sub>P</sub> = Pervious area remaining in the BMP catchment area L<sub>R</sub> = TSS Load removed from this catchment area by the proposed BMP

11.694 acres A<sub>I</sub> = 2.656 acres 9.04 acres A<sub>P</sub> = 2818 lbs

#### 5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired L<sub>M THIS BASIN</sub> = 2470 lbs. (161 Lbs of Compensitory IC for offsite Turnlane, Dwy, & S/W)

0.88

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area.

Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth = 1.50 0.22 inches Post Development Runoff Coefficient = On-site Water Quality Volume = 13875 cubic feet

Calculations from RG-348 Pages 3-36 to 3-37

Off-site area draining to BMP = 0.00 acres Off-site Impervious cover draining to BMP = acres Impervious fraction of off-site area = Off-site Runoff Coefficient = 0.00 Off-site Water Quality Volume = cubic feet

> Storage for Sediment = 2775

Total Capture Volume (required water quality volume(s) x 1.20) = 16650 cubic feet

The following sections are used to calculate the required water quality volume(s) for the selected BMP. The values for BMP Types not selected in cell C45 will show NA.

8. Extended Detention Basin System

Designed as Required in RG-3

Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 16650 cubic feet PROVIDED WATER QUALITY VOLUME= cubic feet

#### **ATTACHMENT G**

### Maintenance Plan For Permanent Best Management Practices for Gateway 29

PROJECT NAME Gateway 29

ADDRESS <u>W State Hwy 29 & Ronald Reagan Blvd</u>

CITY, STATE, ZIP *Leander, Texas 78628* 

RESPONSIBLE PARTY FOR MAINTENANCE: Gateway 29 Real Estate, LLC

#### A) PROJECT DESCRIPTION

The proposed Gateway 29 Subdivision project is a 32.257-acre development consisting of 10 lots and 0.667 acres of proposed Right Of Way (R.O.W.) along State Highway 29 (SH 29). The project is located at the southwest corner of SH 29 and Ronald Reagan Boulevard and is east of Kauffman Loop. The project lies within the full-purpose jurisdiction of the City of Leander, Williamson County, and the South Fork San Gabriel River watershed. The site is currently undeveloped and consists of natural grasses, trees, brush, and underbrush.

The site is located in the Edwards Aquifer Recharge Zone and is therefore required to meet TCEQ requirements for water quality treatment. Runoff resulting from the development of the proposed subdivision will be treated onsite with two batch detention water quality ponds with stacked detention. Additionally, one batch detention water quality pond with no detention and one batch detention water quality pond with stacked detention are proposed to treat runoff from the future development of Lot 10 and Lot 8, respectively, and are to be constructed in the future (not part of this application). The ponds are designed to provide adequate water quality to meet TCEQ requirements for the maximum allowable impervious cover for the site.

No portion of the proposed development is located within the 100-year floodplain based on FEMA FIRM Panel 484910275E, effective September 26, 2008.

#### B) MAINTENANCE SCHEDULE AND DETAILS

The Best Management Practices (BMP) associated with Water Quality for this project includes the use of four BMPs: two (2) Batch Detention Water Quality Ponds.

BMP facilities must be inspected at least twice a year (once during or immediately following wet weather) to evaluate facility operation.

The inspection should include a review of the structural elements for cracks / voids, the inlet and outlet fir clogging, the adequacy of both upstream and downstream erosion protection measures, and the embankment for subsidence or erosion / damage.

## C) INSPECTION / MAINTENANCE FOR STRUCTURAL ELEMENTS Routine Maintenance for All Structural Systems

Water quality ponds of all types have similar routine maintenance requirements, although most ponds have some unique maintenance need, as detailed in this section. The following general maintenance requirements apply to all pond BMPs.

During each inspection, erosion areas inside and downstream of the BMP must be identified and repaired pr revegetated immediately.

Grass areas in and around earthen ponds must be mowed at least twice annually to limit vegetation height to 18 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. When mowing of grass is performed, a mulching mower must be used, or grass clippings must be caught and removed, as with all water quality BMPs.

Debris and litter accumulated in the facility must be removed during each inspection.

Excessive sediment must be removed and properly disposed of in an approved offsite disposal area. Excessive sediment is when accumulations reach 6 inches in depth.

Design drawdown times must not exceed by more than 24 hours. The design drawdown time is 72 hours from the first accumulation of stormwater or when the pond reaches full capacity. If drawdown times are excessive, repairs should occur immediately.

With each inspection, any damage to the structural elements of the system (pipes, concrete drainage structures, gabions, retaining walls, etc.) must be identified and repaired immediately

A maintenance access route shall extend to the pond from the parking lot. The maintenance access shall have a slope of no greater than 4:1.

Inlet and outlet structures should be inspected and cleaned out of any debris or sediment. If there is major damage to either the unlet or outlet, the damaged areas should be repaired.

Structural integrity of basins shall be maintained at all times. Woody vegetation should be controlled / removed to prevent basin leakage.

# D) <u>OPERATING GUIDELINES -- MAINTENANCE REQUIREMENTS FOR SPECIFIC BMPS</u> <u>Extended Detention Basins</u>

Standing water (not desired in an extended detention basin) or soggy conditions within the lower stage of the basin can create nuisance conditions for nearby residents. Odors, mosquitoes, weeds, and litter are all occasionally perceived to be problems. Most of these problems are generally a sign that regular inspections and maintenance are not being performed. Rake the sand bed area to break up any crust that has formed. Remove all grass from the sand bed area. If sand bed area has any accumulation of sediment on surface, the sediment must be removed. This procedure is performed by hand operations. No mechanized machinery should be allowed on top of the sand bed area. Remove sediment from under-drains at least every 5 years.

# RECORD KEEPING INSPECTIONS, MAINTENANCE, AND REPAIRS SHALL BE MAINTAINED BY THE REPONSIBLE PARTY

An amended copy of this document will be provided to the Texas Commission of Environmental Quality within thirty (30) days of any changes in the following information.

Responsible Party for Maintenance:

Gateway 29 Real Estate, LLC

Address:

5522 Jenolan Ridge Ln

City, State, Address:

Sugarland, Texas 77479

Telephone Number:

(832) 713-4985

Signature of Responsible Party

## **Organized Sewage Collection System Application**

#### **Texas Commission on Environmental Quality**

For Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: Gateway 29

1. Attachment A – SCS Engineering Design Report. This Engineering Design Report is provided to fulfill the requirements of 30 TAC Chapter 217, including 217.10 of Subchapter A, §§217.51 – 217.70 of Subchapter C, and Subchapter D as applicable, and is required to be submitted with this SCS Application Form.

## **Customer Information**

2. The entity and contact person responsible for providing the required engineering certification of testing for this sewage collection system upon completion (including private service connections) and every five years thereafter to the appropriate TCEQ region office pursuant to 30 TAC §213.5(c) is:

Contact Person: Samir Maredia Entity: Gateway 29 Real Estate, LLC

Mailing Address: 5522 Jenolan Ridge Lane

City, State: Sugarland, TX Zip: 77479 Fax: \_\_ Telephone: 832-713-4985

Email Address: samirsmaredia@gmail.com

The appropriate regional office must be informed of any changes in this information within 30 days of the change.

3. The engineer responsible for the design of this sewage collection system is:

Contact Person: Charles R. Hager, P.E.

Texas Licensed Professional Engineer's Number: 127034

Entity: LJA Engineering, Inc.

Mailing Address: 7500 Rialto Boulevard, Building II, Suite 100 City, State:Austin, TX Zip: 78735 Fax:\_\_\_\_ Telephone:512-439-4700

Email Address:chager@lja.com

## **Project Information**

4.	Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):	
	Residential: Number of single-family lots:  Multi-family: Number of residential units:  Commercial Industrial Off-site system (not associated with any devel Other:	
5.	. The character and volume of wastewater is shown be	elow:
	% Industrial	9 <u>8,400</u> gallons/day gallons/day gallons/day
6.	<ul> <li>Existing and anticipated infiltration/inflow is 63,504 g</li> <li>All gravity lines will be SDR-26 PVC to minimize infiltration and all manholes will be hydrostatically tested.</li> </ul>	
7.	. A Water Pollution Abatement Plan (WPAP) is required commercial, industrial or residential project located of	•
	<ul> <li>The WPAP application for this development was a copy of the approval letter is attached.</li> <li>The WPAP application for this development was s but has not been approved.</li> <li>A WPAP application is required for an associated project requiring a WPAP and a second project requirement was a constant.</li> </ul>	ubmitted to the TCEQ on <u>8/1/2023</u> , project, but it has not been submitted.

## 8. Pipe description:

**Table 1 - Pipe Description** 

Pipe Diameter(Inches)	Linear Feet (1)	Pipe Material (2)	Specifications (3)
8	1975	PVC SDR-26	ASTM D3034
12	320	PVC SDR-26	ASTM D3034
6	1920	YELOMINE FM	ASTM D2241
6	189	PVC SDR-26	ASTM D3034

**Total Linear Feet**: 4404

- (1) Linear feet Include stub-outs and double service connections. Do not include private service laterals.
- (2) Pipe Material If PVC, state SDR value.

(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included. 9. The sewage collection system will convey the wastewater to the Liberty Hill Wastewater (name) Treatment Plant. The treatment facility is: X Existing **Proposed** 10. All components of this sewage collection system will comply with: The City of Leander standard specifications. Other. Specifications are attached. 11. No force main(s) and/or lift station(s) are associated with this sewage collection system. A force main(s) and/or lift station(s) is associated with this sewage collection system and the Lift Station/Force Main System Application form (TCEQ-0624) is included with this application. **Alignment** 12. There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction. 13. There are no deviations from straight alignment in this sewage collection system without manholes. Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached. For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system. Manholes and Cleanouts 14. Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed

#### Table 2 - Manholes and Cleanouts

below: (Please attach additional sheet if necessary)

Table 2 - Mailloles and Cleanouts					
Line	Shown on Sheet	Station	Manhole or Clean- out?		
WWL 'A'	46 Of 108	1+18.88	Manhole		
WWL 'A'	47 Of 108	15+15.28	Clean-out		
WWL 'B'	47 Of 108	1+00.00	Manhole		
WWL 'B'	48 Of 108	6+78.93	Clean-out		
WWFM 'A'	54 Of 108	23+21.53	Manhole		
	Of				

Line	Shown on Sheet	Station	Manhole or Clean- out?
	Of		

15.	Manholes are installed at all Points of Curvature and Points of Termination of a sewe	er
	ine.	

16. The maximum spacing between manholes on this project for each pipe diameter is no greater than:

Pipe Diameter (inches)	Max. Manhole Spacing (feet)
6 - 15	500
16 - 30	800
36 - 48	1000
>54	2000

Attachment C – Justification for Variance from Maximum Manhole Spacing. The
maximum spacing between manholes on this project (for each pipe diameter used) is
greater than listed in the table above. A justification for any variance from the
maximum spacing is attached, and must include a letter from the entity which will
operate and maintain the system stating that it has the capability to maintain lines with
manhole spacing greater than the allowed spacing.

17. All manholes will be monolithic, cast-in-place concrete.

The use of pre-cast manholes is requested for this project. The manufacturer's specifications and construction drawings, showing the method of sealing the joints, are attached.

## Site Plan Requirements

#### Items 18 - 25 must be included on the Site Plan.

18.  $\square$  The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1'' = 40'.

- 19. The Site Plan must include the sewage collection system general layout, including manholes with station numbers, and sewer pipe stub outs (if any). Site plan must be overlain by topographic contour lines, using a contour interval of not greater than ten feet and showing the area within both the five-year floodplain and the 100-year floodplain of any drainage way.
- 20. Lateral stub-outs:

The location of all lateral stub-outs are shown and labeled.

No lateral stub-outs will system.	be installed during the constructi	on of this sewer collection		
21. Location of existing and pro	posed water lines:			
<ul> <li>☐ The entire water distribution system for this project is shown and labeled.</li> <li>☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.</li> <li>☐ There will be no water lines associated with this project.</li> </ul>				
22. 100-year floodplain:				
After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)  After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)				
Table 3 - 100-Year Floodpla  Line	in Sheet	Station		
Line	of	to		
	of	to		
	of			
		to		
of to  23. 5-year floodplain:				
floodplain, either natura lined channels construct After construction is con encased in concrete or c below and are shown an lined channels construct	nplete, all sections located within apped with concrete. These locand labeled on the Site Plan. (Do n	the 5-year floodplain will be tions are listed in the table		
floodplain, either natura lined channels construct After construction is con encased in concrete or construction and are shown an	Ily occurring or man-made. (Do red above sewer lines.) Inplete, all sections located within apped with concrete. These located labeled on the Site Plan. (Do need)	the 5-year floodplain will be tions are listed in the table		
floodplain, either natura lined channels construct After construction is comencased in concrete or construction and lined channels construct  Table 4 - 5-Year Floodplain	Ily occurring or man-made. (Do red above sewer lines.) Inplete, all sections located within apped with concrete. These located labeled on the Site Plan. (Do ned above sewer lines.)	not include streets or concrete- the 5-year floodplain will be tions are listed in the table ot include streets or concrete-		

of

of

to

to

s	The <i>final plans and technical specifications</i> are submitted for the TCEQ's review. Each heet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
Items 26	5 - 33 must be included on the Plan and Profile sheets.
so ra v	all existing or proposed water line crossings and any parallel water lines within 9 feet of ewer lines are listed in the table below. These lines must have the type of pressure ated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.
	here will be no water line crossings. There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Table 5 - Water	Line Crossings		Horizontal	Vertical
Line	Station or Closest Point	Crossing or Parallel	Separation Distance	Separation Distance
WWL 'A'	4+21.21	Crossing	-	2.59'
WWL 'A'	6+10.56	Crossing	-	2.00'
WWL 'A'	7+01.89	Crossing	-	3.26'
WWL 'A'	7+44.22	Crossing	-	3.29'
WWL 'A'	7+94.41	Crossing	-	2.83'
WWL 'A'	10+67.85	Crossing	-	4.41'
WWL 'A'	11+78.76	Crossing	-	4.88'
WWL 'B'	1+14.62	Crossing	-	9.49'
WWL 'B'	1+68.05	Crossing	-	9.00'
WWL 'B'	1+94.81	Crossing	-	9.00'
WWL 'B'	2+68.41	Crossing	-	8.50'
WWL 'B'	4+19.83	Crossing	-	7.76'
WWL 'B'	6+05.23	Crossing	-	6.27'
WWFM 'A'	10+08.98	Crossing	-	2.69'

## 27. Vented Manholes:

No part of this sewer line is within the 100-year floodplain and vented manholes are no	)t
required by 30 TAC Chapter 217.	
A portion of this sewer line is within the 100-year floodplain and vented manholes will	
be provided at less than 1500 foot intervals. These water-tight manholes are listed in	
the table below and labeled on the appropriate profile sheets.	

venting shall be	sewer line is within the provided at less than 150 as is described on the fol	00 feet intervals. A desc	
_	sewer line is within the	J. J	wever, there is no
_	han 1500 feet located wi	thin. No vented manho	les will be used.
Table 6 - Vented Mar		Charlia	Chast
Line	Manhole	Station	Sheet
28. Drop manholes:			
Sewer lines whic 24 inches above		manholes or "manhole s isted in the table below	and labeled on the
Line	Manhole	Station	Sheet
29. Sewer line stub-outs	; (For proposed extension	ns):	
The placement a	s (For proposed extension and markings of all sewer ub-outs are to be installe m.	line stub-outs are show	
The placement a  No sewer line sto  collection syster	and markings of all sewer ub-outs are to be installe m.	line stub-outs are showed during the construction	
The placement a  No sewer line str collection system  30. Lateral stub-outs (Fo	and markings of all sewer ub-outs are to be installe	line stub-outs are showed during the constructions ice connections:	on of this sewage and labeled.

	•	ring full; all slopes are de r second for this system	_	o produce flo	ws equal to or
32. Maximum f	low velocity/slop	oes (From Appendix A)			
Assumir less tha Attachn Assumir feet per	ng pipes are flow n or equal to 10 nent D – Calcula ng pipes are flow r second. These	ring full, all slopes are defect per second for this tions for Slopes for Flowing full, some slopes prolocations are listed in the	system/l ws Greate oduce flo e table b	ine. <b>er Than 10.0 I</b> ws which are	Feet per Second. greater than 10
Table 8 - Flov	ws Greater Tha	n 10 Feet per Secon	<b>d</b>		Erosion/Shock
Line	Profile Sheet	Station to Station	FPS	% Slope	Protection
<ul> <li>33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(I)(2)(B).</li> <li>□ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.</li> <li>□ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.</li> <li>□ N/A</li> </ul>					
Administrative Information					
34. The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.					
the Tex	as Licensed Profe	wn on the detail sheets essional Engineer, as list	•		•
Standard Deta	ndard Details ils				Shown on Sheet
Lateral stub-out marking [Required]			N/A of		
Manhole, showing inverts comply with 30 TAC §217.55(I)(2) [Required]			69 of 108		

Standard Details	Shown on Sheet
Lateral stub-out marking [Required]	N/A of
Manhole, showing inverts comply with 30 TAC §217.55(I)(2) [Required]	69 of 108
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	N/A of
Typical trench cross-sections [Required]	66 of 108
Bolted manholes [Required]	69 of 108

Standard Details	Shown on Sheet
Sewer Service lateral standard details [Required]	66 of 108
Clean-out at end of line [Required, if used]	70 of 108
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	N/A of
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	46 of 108
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	N/A of
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	N/A of

36. $igotimes$ All organized sewage collection system general construction notes (TCEQ-05	596) are
included on the construction plans for this sewage collection system.	

37. 🔀	All proposed sewer lines will be sufficiently	surveyed/staked to allow	an assessment
	prior to TCEQ executive director approval.	If the alignments of the p	roposed sewer lines
	are not walkable on that date, the applicat	ion will be deemed incom	plete and returned.

Survey staking was completed on this date:		nis date:	taking was completed on th	
--	--	-----------	----------------------------	--

- 38. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 39. Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Organized Sewage Collection System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c) and 30 TAC §217 and prepared by:

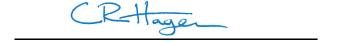
Print Name of Licensed Professional Engineer: Charles R. Hager, P.E.

Date: <u>7/31/2023</u>

Place engineer's seal here:



Signature of Licensed Professional Engineer:



## Appendix A-Flow Velocity Table

**Flow Velocity (Flowing Full)** All gravity sewer lines on the Edwards Aquifer Recharge Zone shall be designed and constructed with hydraulic slopes sufficient to give a velocity when flowing full of not less than 2.0 feet per second, and not greater than 10 feet per second. The grades shown in the following table are based on Manning's formula and an n factor of 0.013 and shall be the minimum and maximum acceptable slopes unless provisions are made otherwise.

Table 10 - Slope Velocity

Pipe Diameter(Inches)	% Slope required for minimum flow velocity of 2.0 fps	% Slope which produces flow velocity of 10.0 fps
6	0.50	12.35
8	0.33	8.40
10	0.25	6.23
12	0.20	4.88
15	0.15	3.62
18	0.11	2.83
21	0.09	2.30
24	0.08	1.93
27	0.06	1.65
30	0.055	1.43
33	0.05	1.26
36	0.045	1.12
39	0.04	1.01
>39	*	*

<sup>\*</sup>For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.

$$v = \frac{1.49}{n} \times R_h^{0.67} \times \sqrt{S}$$

Figure 1 - Manning's Formula

#### Where:

v = velocity (ft/sec)
n = Manning's roughness coefficient
(0.013)
Rh = hydraulic radius (ft)
S = slope (ft/ft)

# ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) ENGINEERING DESIGN REPORT

**FOR** 

**GATEWAY 29** 

**AUGUST 2023** 

PREPARED FOR

GATEWAY 29 REAL ESTATE, LLC 5522 JENOLAN RIDGE LANE SUGAR LAND, TEXAS 77479

PREPARED BY

LJA ENGINEERING, INC. BLDG II, SUITE 100 AUSTIN, TEXAS 78735 (512) 439-4700 FIRM NO. F-1386



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## **APPENDIX**

A. Wastewater Flow Calculations

#### Gateway 29

#### **SCS Engineering Design Report**

#### A. SITE DESCRIPTION

1. Project Name: Gateway 29

2. Location: The project site is on 32.257 acres of land, located at the

intersection of W State Hwy 29 and Ronald Reagan Blvd, East of

Kauffman Loop, in Leander, Texas 78628.

3. Treatment Facility: The Liberty Hill Wastewater treatment plant will receive

and treat flows from this project and has capacity to adequately

treat the proposed peak flow.

#### 4. Project Summary:

The project proposes to install the public improvements required to build out the 10 lots associated with the 32.257-acre project site. Proposed public improvements include driveways, utilities, drainage improvements, water quality and detention ponds, and a privately maintained lift station. In order to provide the site with wastewater service, the installation of approximately 4404 LF of 6"-12" gravity wastewater and wastewater force main pipe is proposed.

#### B. CAPACITY DESIGN

#### 1. Basis for Average Flow:

A drainage fixture unit method, based on the Uniform Plumbing Code, was utilized to determine the average daily flow for all proposed buildings and facilities. One drainage fixture unit was determined to be equivalent to 1.5 gpm.

#### 2. Flow/Capacity Analysis:

#### 8" Wastewater Pipe

 $Q_{max}$  (from WWL 'B' in Appendix A) = 240.34 gpm Pipe Size = 8 in., n = 0.013 For the specified pipe at the design slope of 1.00%, the Line Capacity ( $Q_{full}$ ) = (1.49/n) \* A \*  $R^{2/3}$  \*  $S^{1/2}$  = 542.34 gpm  $Q_{max}$  = 240.34 gpm <  $Q_{full}$  = 542.34 gpm Therefore, the line is of sufficient size to carry the peak flows.

#### 12" Wastewater Pipe

 $Q_{max}$  (from WWL 'A' in Appendix A) = 478.44 gpm Pipe Size = 12 in., n = 0.013 For the specified pipe at the design slope of 0.50%, the Line Capacity ( $Q_{full}$ ) = (1.49/n) \* A \* R<sup>2/3</sup> \* S<sup>1/2</sup> = 1130.67 gpm  $Q_{max}$  = 478.44 gpm <  $Q_{full}$  = 1130.67 gpm Therefore, the line is of sufficient size to carry the peak flows.

#### 3. Minimum/Maximum Slopes:

All pipe must be designed with a slope that will provide a minimum velocity of at least 2 fps and a maximum velocity of at least 10 fps when flowing full. All gravity pipes are 6, 8, or 12 inch.

8" Pipe, S = 1.00%, n = 0.013, V = 3.46 fps 2 fps < 3.46 fps < 10 fps 12" Pipe, S = 0.50%, n = 0.013, V = 3.21 fps 2 fps < 3.21 fps < 10 fps

#### C. STRUCTURAL COMPONENTS

#### 1. Type of Pipe:

#### 6" SDR-26 ASTM D3034 Polyvinyl Chloride (PVC)

Product Standard: ASTM 3034

Pipe Compound: ASTM D1784 Cell Class 12454

Gasket: ASTM F477 Integral Bell Joint: ASTM D3212

Pipe Stiffness: ASTM D2412,  $F/\Delta Y = 115 \text{ psi}$ 

Installation: ASTM D2321
Tensile Strength: 7000 psi
Modulus of Elasticity: 400,000 psi
Nominal Inside Diameter: 5.793 inches
Average Outside Diameter: 6.275 inches
Wall Thickness: 0.241 inches
Approximate Weight: 3.11 lbs/ft

#### 8" SDR-26 ASTM D3034 Polyvinyl Chloride (PVC)

Product Standard: ASTM 3034

Pipe Compound: ASTM D1784 Cell Class 12454

Gasket: ASTM F477 Integral Bell Joint: ASTM D3212

Pipe Stiffness: ASTM D2412,  $F/\Delta Y = 115 \text{ psi}$ 

Installation: ASTM D2321
Tensile Strength: 7000 psi
Modulus of Elasticity: 400,000 psi

Nominal Inside Diameter: 7.754 inches Average Outside Diameter: 8.400 inches Wall Thickness: 0.323 inches Approximate Weight: 5.63 lbs/ft

#### 12" SDR-26 ASTM D3034 Polyvinyl Chloride (PVC)

Product Standard: ASTM 3034

Pipe Compound: ASTM D1784 Cell Class 12454

Gasket: ASTM F477 Integral Bell Joint: ASTM D3212

Pipe Stiffness: ASTM D2412 ,  $F/\Delta Y = 115 \text{ psi}$ 

Installation: ASTM D2321
Tensile Strength: 7000 psi
Modulus of Elasticity: 400,000 psi
Nominal Inside Diameter: 11.538 inches
Average Outside Diameter: 12.500 inches
Wall Thickness: 0.481 inches
Approximate Weight: 12.41 lbs/ft

#### 2. Pipe Bedding Class:

The pipe bedding class must comply with ASTM D2321 class IA, IB, II, or III for materials and densification. No sand bedding will be allowed. A class III material is assumed to be used, since it has the most conservative value for the Modulus of Soil Reaction, E'.

From Table 7.3, Pg. 207 of the UNI-BELL Handbook of PVC PIPE, 3rd Edition Coarse-grained Soils with Fines (Bedding Class III) and 85% to 95% Compaction  $E_b = 1000 \text{ psi}$ 

#### 3. Manholes:

Manholes and/or cleanouts are provided at all changes in size, grade and alignment of pipe at all feasible locations. The maximum distance between manholes is less than the maximum spacing requirement of 500 feet allowed for all pipe sizes less than 15 inches in diameter. All manholes will be coated per the City of Austin standard specifications. Item number WW-511 from the City's Standard Products list includes several products which will achieve the design life and corrosion protection required. The site plan process took into account the existing topography, trees, and the natural aesthetics of the site, thus attempting to limit the use of large construction equipment in areas with trees and other natural areas.

### 4. Buckling Analysis:

a) Allowable buckling pressure

$$R_w = 1 - 0.33 * (h_w/h)$$
  
 $B' = \frac{1}{1 + 4 * e^{-0.065H}}$ 

$$I = (t^3/12)*(inches^4/Linch)$$

$$q_a = 0.4*\sqrt[2]{32*R_w*B'*E_b*(E*I/D^3)}$$

= Allowable buckling pressure (psi)  $q_a$ 

h = Height of soil surface above top of pipe (in)

= Height of water surface above top of pipe (in) (groundwater elevation)  $h_w$ 

= Water buoyancy factor. If  $h_w = 0$ ,  $R_w = 1$ . If  $0 \le h_w \le h$  (groundwater elevation is  $R_w$ between the top of the pipe and the ground surface), calculate Rw with Equation 2

Н = Depth of burial (ft) from ground surface to crown of pipe

В' = Empirical coefficient of elastic support

= Modulus of soil reaction for the bedding material (psi)  $\mathsf{E}_\mathsf{b}$ 

Ε = Modulus of elasticity of the pipe material (psi)

= Moment of inertia of the pipe wall cross section per linear inch of pipe, inch4/linear inch = inch<sup>3</sup>. For solid wall pipe, it can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.

t = Pipe structural wall thickness (in)

D = Mean pipe diameter (in)

#### 8" SDR-26 ASTM D3034 PVC

Η = Deepest bury depth will not exceed 15' and is thus assumed for this calculation

= 0 (no ground water)

 $= t^3/12 = (0.323)^3/12 = 0.00281 \text{ in}^4/\text{in}$ 

Rw

=  $1+0.33(h_w/H) = 1$ =  $1/(1+4e^{-0.065H}) = 1/(1+4e^{-0.065(15)}) = 0.399$ 

 $= 0.4*[32*1*0.399*1000*(400000*.00281/7.754^3)]^{0.5}$  $q_a$ 

= 70.12 psi $\mathbf{q}_{\mathsf{a}}$ 

b) Calculate pressure applied to pipe under installed conditions:

$$W_c = \gamma_s * H * (D+t)/144$$
  
 $q_p = \gamma_w * h_w + R_w * (W_c/D) + L_l$ 

= Pressure applied to pipe under installed conditions (psi)  $q_{p}$ 

= Specific Weight of water = 0.0361 pounds per cubic inch (pci). ٧w

= Specific Weight of soil (pcf) γs

 $\dot{W}_{c}$ = vertical soil load on the pipe per unit length (lb/in)

= Live load = 0 (All bury depths are greater than 3 feet)

#### 8" SDR-26 ASTM D3034 PVC

Wc = 120 \* 15 \* (7.754 + 0.323)/144 = 100.96 lb/in = (0.0361\*0) + (1\*(100.96/7.754)) + (0) $q_p$ = 13.02 psi

 $q_p < q_a$  The buckling pressure under installed conditions is less than the allowable

13.02 < 70.12, buckling pressure of the specified pipe.

#### 5. Wall Crushing:

Wall crushing due to compressive stress can be calculated from the compressive stress formula, as referenced in *Plastic Pipe Design Manual*, page 14 published by Vylon Pipe.

#### 8" SDR-26 ASTM D3034 PVC

D<sub>o</sub> = Outside Pipe Diameter, in = 8.400 in.

P<sub>c</sub> = Compressive Stress, lb/in<sup>2</sup> = T / A, for typical PVC pipe assume 4,000 psi

A = Surface Area of the pipe wall,  $in^2/ft = 0.323 in^2/ft$ 

 $\gamma_s$  = Specific Weight of soil, pcf = 120 pcf

P<sub>v</sub> = Vertical Soil Pressure, lb/in<sup>2</sup> = y<sub>s</sub> \* H / 144

T = Wall Thrust =  $P_y * D_o / 2$ 

H = Depth of burial from ground surface to crown of pipe (ft)

Substituting the Thrust equation into the compressive strength equation:

$$P_c = P_v D_o / 2A$$

Substitute the equation for P<sub>y</sub> shown above:

$$P_c = [(y_s * H / 144) * D_o] / 2A$$

Solving for H, the equation becomes:

 $H = (288 * P_c * A) / (y_s * D_o)$ 

H = (288 \* 4000 \* 0.323) / (120 \* 8.4)

#### $H_a = 369.14$

15.0 < 369.14,  $H_p$  <  $H_a$ , the proposed maximum depth ( $H_p$ ) is less than the maximum allowable depth ( $H_a$ ) before wall crushing would occur.

#### 6. Deflection Analysis: Zeta Factor

Leonhard's Zeta Factor can be calculated using Equation 7.37 of the *UNI-BELL Handbook* of *PVC PIPE*. 3rd Edition.

zeta=
$$\frac{1.44}{f + (1.44 - f)*(E_b / E_{n'})}$$
$$f = \frac{b/d_a - 1}{1.154 + 0.444*(b/d_a - 1)}$$

- f = Pipe/trench width coefficient
- b = Trench width = 2.70 ft = 32.4 in for 8" Wastewater Pipe
- b = Trench width = 2.52 ft = 30.3 in for 6" Wastewater Pipe
- b = Trench width = 2.35 ft = 32.4 in for 4" Wastewater Pipe
- d<sub>a</sub> = Pipe diameter = 8.40 in for 8" Wastewater Pipe

d<sub>a</sub> = Pipe diameter = 6.28 in for 6" Wastewater Pipe

d<sub>a</sub> = Pipe diameter = 4.22 in for 4" Wastewater Pipe

 $E_b$  = Modulus of soil reaction for the bedding material (psi) = 1000

 $E'_n$  = Modulus of soil reaction for the in-situ soil (psi) = 1000

#### 8" Wastewater Pipe

#### 7. Pipe Stiffness:

Using equation 7.1, from the Uni-Bell Handbook of PVC Pipe, 3rd Edition

$$P_s = \frac{EI}{0.149 * r^3}$$

P<sub>s</sub> = Pipe Stiffness (psi)

E = Modulus of elasticity of the pipe material (psi)

I = Moment of inertia of the pipe wall cross section per linear inch of pipe, inch<sup>4</sup>/linear inch = inch<sup>3</sup>. For solid wall pipe, I can be calculated with equation 4. If the pipe used is not solid wall pipe (for example a pipe with a ribbed cross section), the proper moment of inertia formula must be obtained from the manufacturer.

r = Mean radius (in)

## $P_s = (400000^*0.00281) / (0.149^*3.877^3) = 129.36 psi (8" SDR-26 ASTM D3034)$

#### 8. Pipe Stiffness to Soil Stiffness Factor Ration (P<sub>s</sub> / SSF):

The Pipe Stiffness to Soil Stiffness Factor must be greater than 0.15

Ps = Pipe Stiffness (psi)

E<sub>b</sub> = Modulus of soil reaction for the bedding material = 1,000 psi

zeta = 1.0

SSF = Soil Stiffness Factor = (0.061\*zeta \*E<sub>b</sub>) = 61

#### $P_s/SSF = 129.36/61 = 2.12 (8" SDR-26 ASTM D3034)$

### 9. Predicted Pipe Deflection:

Using equation 7.1, from the Uni-Bell Handbook of PVC Pipe, 3rd Edition

$$\frac{\%\Delta Y}{D} = \frac{D_L KP(100)}{0.149P_S + 0.061E'}$$

P = Prism Load (psi) =  $y_S*H / 144$ 

 $%\Delta Y/D$ = Predicted % vertical deflection under load K = Bedding angle constant. Assumed to be 0.1

E' = Modulus of soil reaction = 1000 psi

```
D_L = Deflection lag factor = 1.5
y<sub>s</sub> = Unit weight of soil = 120 pcf
```

H = Depth of burial (ft) from ground surface to crown of pipe

```
P = 120*15.0/144 = 12.50 psi (8" SDR-26 ASTM D3034 PVC)
P = 120*15.0/144 = 12.50 psi (6" SDR-26 ASTM D3034 PVC)
P = 120*15.0/144 = 12.50 psi (4" SDR-26 ASTM D3034 PVC)
```

#### 8" SDR-26 ASTM D3034 PVC

 $\%\Delta Y/D = (1.5)(0.1)(12.50)(100) / [(.149)(129.36) + (0.061)(1000)] = 2.34\%$ 

## **APPENDIX A - WASTEWATER FLOW CALCULATIONS**

#### PUBLIC WWL 'A' GRAVITY SEWER MAIN CALCULATION SUMMARY

PEAK FLOW FACTOR (>= 4) PEAK DRY WEATHER FLOW (qpm) PEAK DRY WEATHER VELOCITY (ft/s)

PFF =  $[(18+0.0206(F)^{0.5})/(4+0.0206(F)^{0.5})]$ Vpdwf > 2ft/s Qpdwf = PFF X F

INFLOW / INFILTRATION PEAK WET WEATHER FLOW (gpm) PEAK WET WEATHER VELOCITY (ft/s)

(1/1) = 7500.521 gpm/acre Qpwwf = Qpdwf + I/I

Vpwwf < 10 ft/s

WWL A STATION FROM	WWL A STATION TO	CONTIBUTING AREA (AC)	Manning's "n"	AVERAGE DRY WEATHER FLOW F (gpm)	PEAK FLOW FACTOR PFF	PEAK DRY WEATHER FLOW Qpdwf (gpm)	PEAK DRY WEATHER FLOW Qpdwf (cfs)	INFLOW / INFLITRATION I/I (gpm)	PEAK WET WEATHER FLOW Qpwwf (gpm)	PEAK WET WEATHER FLOW Qpwwf (cfs)	PIPE SIZE (IN)	PIPE SLOPE (%)	FULL FLOW CAPACITY (cfs)	PEAK DRY WEATHER VELOCITY Vpdwf (ft/s)	PEAK DRY WEATHER DEPTH d <sub>pdwf</sub> (ft)	PEAK WET WEATHER VELOCITY Vpwwf (ft/s)	PEAK WET WEATHER DEPTH d <sub>pwwf</sub> (ft)
5+15.28	12+14.30	7.00	0.013	40.93	4.00	163.71	0.365	3.65	167.36	0.373	8	0.95	1.18	2.98	0.25	3.00	0.26
12+14.30	7+76.36	8.00	0.013	50.93	4.00	203.71	0.454	4.17	207.88	0.463	8	1.62	1.54	3.84	0.25	3.86	0.25
7+76.36	4+83.32	12.00	0.013	54.33	4.00	217.31	0.484	6.25	223.56	0.498	8	1.64	1.55	3.92	0.26	3.95	0.26
4+83.32	2+08.40	14.00	0.013	56.21	4.00	224.83	0.501	7.29	232.12	0.517	8	1.64	1.55	3.94	0.26	3.99	0.27
2+08.40	1+18.88	15.00	0.013	56.21	4.00	224.83	0.501	7.81	232.65	0.518	8	2.33	1.84	4.49	0.24	4.53	0.24
1+18.88	1+00	84.58	0.013	124.09	3.50	434.39	0.968	44.05	478.44	1.066	12	1.00	3.56	3.86	0.36	3.96	0.37

#### PUBLIC WWL 'B' GRAVITY SEWER MAIN CALCULATION SUMMARY

PEAK DRY WEATHER VELOCITY (ft/s) PEAK FLOW FACTOR (>= 4) PEAK DRY WEATHER FLOW (gpm)

PFF =  $[(18+0.0206(F)^{0.5})/(4+0.0206(F)^{0.5})]$ Qpdwf = PFF X F Vpdwf > 2ft/s

INFLOW / INFILTRATION PEAK WET WEATHER FLOW (gpm) PEAK WET WEATHER VELOCITY (ft/s)

(1/1) = 7500.521 gpm/acre Qpwwf = Qpdwf + I/IVpwwf < 10 ft/s

AVERAGE PEAK DRY PEAK WET PEAK DRY **PEAK WET** PEAK WET PEAK WET PEAK PEAK DRY FULL PEAK DRY DRY INFLOW / PIPE WEATHER WEATHER WWL A WWL A WEATHER WEATHER CONTIBUTING Manning's FLOW WEATHER WEATHER PIPE SIZE FLOW WEATHER WEATHER STATION STATION FLOW NFLITRATION FLOW WEATHER SLOPE DEPTH DEPTH FACTOR FLOW FLOW CAPACITY VELOCITY VELOCITY AREA (AC) (IN) FROM TO Qpdwf Qpwwf FLOW (%) I/I (gpm) Qpdwf (cfs) Qpwwf (cfs) (cfs) Vpdwf (ft/s) dpdwf (ft) Vpwwf (ft/s) d<sub>pwwf</sub> (ft) (gpm) (gpm) F (gpm) 5+93.74 17.16 6+78.93 1.33 0.013 4.12 4.00 16.47 0.037 0.69 0.038 8 1.00 1.21 1.56 0.08 1.57 0.08 5+93.74 2+21.91 6.33 0.013 59.13 4.00 236.52 0.527 3.30 239.82 0.534 8 1.00 1.21 3.34 0.31 3.36 0.31 0.013 236.52 0.527 240.34 0.535 3.34 0.31 3.36 0.31 2+21.91 1+00 7.33 59.13 4.00 3.82 8 1.00 1.21

#### PUBLIC WWL FM 'A' GRAVITY SEWER MAIN CALCULATION SUMMARY

AVERAGE DRY WEATHER FLOW (gpm) PEAK WET WEATHER FLOW (gpm)

F = 124.09 GPM F = 478.44 GPM

PEAK FLOW FACTOR (>= 4) PEAK DRY WEATHER FLOW (gpm) PEAK DRY WEATHER VELOCITY (ft/s)

PFF =  $[(18+0.0206(F)^{0.5})/(4+0.0206(F)^{0.5})]$ Qpdwf = PFF X F Vpdwf > 2ft/s

INFLOW / INFILTRATION PEAK WET WEATHER FLOW (gpm) PEAK WET WEATHER VELOCITY (ft/s)

Vpwwf < 10 ft/s (1/1) = 7500.521 gpm/acre Qpwwf = Qpdwf + I/I

AVERAGE ADD. INFLOW PEAK WET PEAK DRY PEAK DRY PEAK WET PEAK DRY PEAK WET PEAK DRY PEAK WET PEAK FULL ADDITIONAL DRY PIPE WWL A WEATHER WEATHER WWL A Manning's FLOW WEATHER WEATHER PIPE SIZE FLOW WEATHER WEATHER WEATHER WEATHER STATION CONTIBUTING STATION WEATHER FLOW FLOW SLOPE FACTOR FLOW FLOW CAPACITY VELOCITY DEPTH VELOCITY DEPTH INFLITRATION (IN) FROM TO Qpdwf Qpwwf AREA (AC) FLOW (%) Qpdwf (cfs) Qpwwf (cfs) (cfs) Vpdwf (ft/s) d<sub>pdwf</sub> (ft) Vpwwf (ft/s) d<sub>pwwf</sub> (ft) I/I (gpm) (gpm) (gpm) F (gpm) 44.05 20+13.42 23+21.53 84.58 0.013 124.09 3.50 434.39 0.968 478.44 1.066 12 1.00 3.56 3.86 0.36 3.96 0.38

# Lift Station/Force Main System Application

**Texas Commission on Environmental Quality** 

for Regulated Activities On the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(c)(3)(B)and(c), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Regulated Entity Name: Gateway 29

### **Customer Information**

(If different than customer information provided on core data form)

1. The person(s) responsible for providing the engineering certification to the TCEQ pursuant to 30 TAC §213.5(f)(2)(C) during construction and 30 TAC §213.5 (c)(3)(D) upon completion of construction is:

Contact Person: <u>Samir Maredia</u> Entity: <u>Gateway 29 Real Estate, LLC</u>

Mailing Address: 5522 Jenolan Ridge Lane

City, State: Sugarland, TX Zip: 77479
Telephone: 832-713-4985 Fax:

Email Address: samirsmaredia@gmail.com

2. The engineer responsible for the design of this lift station and force main:

Contact Person: Charles R. Hager, P.E.

Entity: LJA Engineering

Mailing Address: 7500 Rialto Boulevard, Building II, Suite 100 City, State: Austin, TX Zip: 78735
Telephone: 512-439-4700 Fax:

Email Address: <a href="mailto:chager@lja.com">chager@lja.com</a>

Texas Licensed Professional Engineer's Serial Number: 127034

## **Project Information**

3.	This project is for the construction or replacement of:
	Lift Station only.

	☐ Lift Station and Force Main system. ☐ Lift Station, Force Main, and Gravity system.
l.	The sewage collection system will convey the wastewater to the <u>Liberty Hill Wastewater</u> (name) Treatment Plant. The treatment facility is:
	Existing Proposed
5.	All components of this lift station/force main system will comply with:
	The City of <u>Leander</u> standard specifications.  Other. Specifications are attached.
Si	ite Plan Requirements
te	rms 6-14 must be included on the Site Plan.
õ.	$\square$ The Site Plan must have a minimum scale of 1" = 400'.
	Site Plan Scale: $1'' = 40'$ .
7.	igstyle Lift station/force main system layout meets all requirements of 30 TAC Chapter 217.
3.	Geologic or Manmade Features:
	No geologic or manmade features were identified in the Geologic Assessment.  All geologic or manmade features identified in the Geologic Assessment (caves, solution openings, sinkholes, fractures, joints, porous zones, etc.) which exist at the site of the proposed lift station and along the path(s) or within <b>50 feet of each side</b> of a proposed force main line are shown on the Site Plan and are listed in the table below. Designs used to protect the integrity of the sewer line crossing each feature are described and labeled on the attached page. A detailed design drawing for each feature is shown on Plan Sheet of
	No Geologic Assessment is required for this project.

**Table 1 - Geologic or Manmade Features** 

Line	Station to Station	Type of Feature
	to	

· · · · · · · · · · · · · · · · · · ·	ntours are shown and labeled. Th not be greater than 5 feet).	e contour interval is <u>1</u> feet.				
	ntours are shown and labeled. The not be greater than 5 feet).	ne contour interval is <u>1</u> feet.				
Finished topographic co and are not shown.	ntours will not differ from the exi	sting topographic configuration				
11. 100-year floodplain bounda	ries					
floodplain is shown	<ul> <li>Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.</li> <li>No part of the project site is located within the 100-year floodplain.</li> </ul>					
The 100-year floodplain boumaterial) sources(s):	undaries are based on the following	ng specific (including date of				
12. 5-year floodplain:						
concrete-lined channels constructed above sewer lines.)  After construction is complete, all sections of the force main located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)						
After construction is year floodplain will be are listed in the table	complete, all sections of the forcome encased in concrete or capped e below and are shown and labele oncrete-lined channels constructed	we main located within the 5- with concrete. These locations and on the Site Plan. (Do not				
After construction is year floodplain will be are listed in the table include streets or co	complete, all sections of the forcome encased in concrete or capped e below and are shown and labele oncrete-lined channels constructed	we main located within the 5- with concrete. These locations and on the Site Plan. (Do not				
After construction is year floodplain will be are listed in the table include streets or co	complete, all sections of the forcome encased in concrete or capped e below and are shown and labele ncrete-lined channels constructed	re main located within the 5- with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)				
After construction is year floodplain will be are listed in the table include streets or co	complete, all sections of the force encased in concrete or capped e below and are shown and labele increte-lined channels constructed.  Sheet	with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)  Station to Station				
After construction is year floodplain will be are listed in the table include streets or co	complete, all sections of the force encased in concrete or capped e below and are shown and labele increte-lined channels constructed.  Sheet  of	with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)  Station to Station				
After construction is year floodplain will be are listed in the table include streets or co	complete, all sections of the force encased in concrete or capped e below and are shown and labele encrete-lined channels constructed.  Sheet  of  of	with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)  Station to Station  to				
After construction is year floodplain will be are listed in the table include streets or contable 2 - 5-Year Floodplain Line	complete, all sections of the force encased in concrete or capped e below and are shown and labele encrete-lined channels constructed.  Sheet  of  of  of	with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)  Station to Station  to  to  to  to				
After construction is year floodplain will ke are listed in the table include streets or contable 2 - 5-Year Floodplain Line  13. All known wells (oil, water, lf applicable, this must agreen	complete, all sections of the force of encased in concrete or capped be below and are shown and labele increte-lined channels constructed.  Sheet  of  of  of  of  unplugged, capped and/or aband see with Item No. 15 on the Geolo is present on the project site and	se main located within the 5- with concrete. These locations ed on the Site Plan. (Do not d above sewer lines.)  Station to Station to to to oned, test holes, etc.): egic Assessment Form.				

There are no wells or test holes of any kind known to exist on the project site.

14. 🔀 Legal boundaries of the site are shown.

## Plan and Profile Sheets

The construction drawings and technical specifications will not be considered for review unless they are the **final plans and technical specifications** which will be used by the contractor for bidding and construction.

#### Items 15 – 18 must be included on the Plan and Profile sheets.

- 15. The equipment installation construction plans must have a minimum scale of 1" = 10'. Plan sheet scale: 1" = 0.03125 '.
- 16. \( \sum \) Locations, descriptions and elevations of all required equipment and piping for the lift station and force main are shown and labeled.
- 17. Air Release/Vacuum Valves will be provided at all peaks in elevation of the proposed force main. These locations are listed in the table below and labeled on the appropriate plan and profile sheets.

Table 3 - Air Release/Vacuum Valves

Line	Station	Sheet
WWFM 'A'	3+38.86	52 of 108
		of

18. The final plans and technical specifications are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.
 19. Attachment A - Engineering Design Report. An engineering design report with the following required items is attached:

The report is dated, signed, and sealed by a Texas Licensed Professional Engineer.
 Calculations for sizing system.
 Pump head calculations, including, but not limited to, system head and pump capacity curves, head loss calculations, and minimum and maximum static head C values for normal and peak operational conditions.

100-year and 25-year flood considerations.

 $\overline{igwedge}$  Total lift station pumping capacity with the largest pump out of service.

Type of pumps, including standby units.

Type of pump controllers, including standby air supply for bubbler controllers, as applicable.

$\times$	Pump cycle time.
$\times$	Type of wet well ventilation; include number of air changes for mechanical
	ventilation.
$\times$	Minimum and maximum flow velocities for the force main.
$\times$	Lift station security.
$\times$	Lift station emergency provisions and reliability.

## Administrative Information

20.	$\boxtimes$	Upon completion of the wet well excavation, a geologist must certify that the excavation
		was inspected for the presence of sensitive features and submit the signed, sealed, and
		dated certification to the appropriate regional office.

- 21. The TCEQ Lift Stations and Force Mains General Construction Notes (TCEQ-0591) are included on the General Notes Sheet of the Final Construction Plans for this lift station and/or force main system.
- 22. Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.
- 23. Any modification of this lift station/force main system application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

## Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Lift Station/Force Main System Application** is hereby submitted for TCEQ review and executive director approval. The system was designed in accordance with the requirements of 30 TAC §213.5(c)(3)(C) and 30 TAC Chapter 217, and prepared by:

Print Name of Licensed Professional Engineer: Charles R. Hager, P.E.

Place engineer's seal here:

Date: <u>7/31/2023</u>

Signature of Licensed Professional Engineer:

## LIFT STATION CAPACITY ANALYSIS REPORT (PRIVATE)

**FOR** 

**GATEWAY 29 SUBDIVISION** 

**LEANDER, WILLIAMSON COUNTY, TEXAS** 

**JULY 25, 2023** 

**Prepared For:** 

GATEWAY 29 REAL ESTATE LLC 5522 JENOLAN RIDGE LANE SUGAR LAND, TEXAS 77479 & ZEKELMAN PROPERTY, LLC 227 W. MONROE ST. SUITE 2600 CHICAGO, ILLINOIS 60606

**Prepared By:** 

LJA ENGINEERING, INC.

7500 Rialto Boulevard Building II, Suite 100 Austin, TX 78735 Phone (512) 439-4700 Fax (512) 439-4716



LJA FILE No. A633-0401

#### **TABLE OF CONTENTS**

1.0	INTRODUCTION	.1
2.0	PROPOSED LIFT STATION IMPROVEMENTS	1
2.1	PROPOSED & FUTURE LIFT STATION CAPACITY ANALYSIS	.1
3.0	CONCLUSION	.8

#### **EXHIBITS**

EXHIBIT 1 LOCATION MAP

EXHIBIT 2 LJA LIFT STATION SEWERSHED MAP EXHIBIT EXHIBIT 3 LJA LIFT STATION AND FORCEMAIN PLANS

**DISCLAIMER:** LIA Engineering, Inc. has prepared this report based upon our experience in working with the City of Leander and other reviewing agencies, on similar projects. In preparing this report and stating conclusions, we have relied on information provided by others, both verbally and written, as well as information contained in printed documents available by these agencies, some information provided to LIA, and the conclusions made by LIA based upon this information, is subject to interpretation by the reviewing agency, and therefore such interpretations may contradict information contained within this report.

#### 1.0 INTRODUCTION

The following report is being submitted to analyze wastewater service capacity of the proposed privately-owned and maintained lift station located on the 31.932 acre site located within the City of Leander. A location map is included as *Exhibit 1*. The proposed subdivision is comprised of four (4) unplatted lots (R403523, R620027, R418530, R319215, & R464196). Gateway 29 Subdivision is located along on the southwest corner of SH-29 and Ronald Reagan Boulevard and east of Kauffman Loop.

The subject Subdivision is within the City of Leander Wastewater service area. The proposed lift station and 6" force main is designed for 730 LUEs with an assumed 485 gpm capacity. This includes the anticipated demands for the subject Subdivision and the future demands of the adjacent tract to the northeast. This report summarizes an analysis of the capacity demand within the anticipated service area (as shown on the Wastewater Sewershed Map, included as *Exhibit 2*).

#### 2.0 PROPOSED LIFT STATION ANALYSIS

#### 2.1 PROPOSED & FUTURE LIFT STATION CAPACITY ANALYSIS

LJA performed an analysis of the proposed privately-owned and maintained lift station's future service area to determine the anticipated flows that will be generated from the subject mixed-use commercial and multi-family development as well as future/ultimate flows that are anticipated to drain to the lift station. This analysis was performed to determine the design peak wet weather flows required for the proposed lift station to serve the subject development and future service area development. The analysis was performed using public maps, GIS Data, reports, as well as assumptions for future developments within the lift station service area using City of Leander wastewater criteria. The proposed analysis was performed by determining projected project (full-build out assumed) peak wet weather flows. The future/ultimate analysis was performed by determining projected peak wet weather flows from future projects that are within the lift station's service area and adding them to the proposed project flows to determine the maximum capacity required for the lift station. Based on the analysis, the lift station is anticipated to provide service to approximately 31.6-acres of developments when the subject project is built and approximately 85-acres of developments at the time of the future/ultimate service area build-out.

Based on this information, the lift station is calculated to require capacity for approximately 485 gpm design peak wet weather flow to serve the subject development and the ultimate service area development. A 6" forcemain with privately maintenance is proposed within the subject Subdivision that will transfer to a fully-public (with City maintenance) 6" forcemain that will convey flows from the subject subdivision within the Ronald Reagan ROW to a proposed 12" gravity wastewater line and then to an existing 15" City gravity wastewater line at the intersection of Kauffman Loop and Ronald Reagan Boulevard. The offsite gravity sewer line is oversized to allow future connections.

A summary of the proposed and future/ultimate lift station analysis is included below and an exhibit showing the proposed and future service areas is included as *Exhibit 2*.

	Gateway 29 - Leander					
Water / Wastewater Demand Summary						
Description	Quantity	LUE Conversion	Land Use	LUE's	Area (AC)	
Lot 1	4,000	200	Restaurant (SF)	20.0	1.03	
l at 3	11,840	1,660	Retail (SF)	7.1	2.00	
Lot 2	9,700	200	Restaurant (SF)	48.5	2.68	
l ot 3	5,830	1,660	Retail (SF)	3.5	2.45	
Lot 3	2,470	200	Restaurant (SF)	12.4	2.45	
Lot 4	4,000	200	Restaurant (SF)	20.0	0.98	
lotΓ	9,100	1,660	Retail (SF)	5.5	1.04	
Lot 5	4,900	200	Restaurant (SF)	24.5	1.84	
1-1-6	4,000	200	Restaurant (SF)	20.0	4.22	
Lot 6	7,000	1,660	Retail (SF)	4.2	1.33	
1 -1 7	12,500	3,000	Office (SF)	4.2	2.40	
Lot 7	12,500	1,660	Retail (SF)	7.5	2.18	
1 1 0	30,000	3,000	Office (SF)	10.0	F 44	
Lot 8	110	0.5	Hotel (Rooms)	55.0	5.11	
Lot 9	N/A	N/A	PARK	0.0	6.17	
Lot 10	321	0.75	Multi-Family (Units)	240.8	7.81	
	•	•	TOTAL	483	31.58	
Average Dry Weather Flow	Q :	ter Flow Calcula = 245 GPD * LUE = 0.170 GPM * LUE =	118,369.3	GPD GPM		
Peak Dry Weather $Q = ((18 + (0.0206* F)^0.5) / (4 + (0.0206* F)^0.5) * F = 299.3   GPM$ Inflow/Infiltration $Q = AREA * 750 GPD/1440 = 119.19 acres * 0.5208 = 16.4   GPM$						
Peak Wet Weather  Peak Dry Weather + Inflow/Infiltration = 315.8 GPM						

Table 2.1.1: Proposed Lift Station Wastewater Demand Summary Table

Water / Wastewater Demand Summary (Ultimate)					
Description	Quantity	LUE Conversion	Land Use	LUE's	Area (AC)
Lot 1	4,000	200	Restaurant (SF)	20.0	1.03
Lot 2	11,840	1,660	Retail (SF)	7.1	2.68
LOL 2	9,700	200	Restaurant (SF)	48.5	2.00
Lot 3	5,830	1,660	Retail (SF)	3.5	2.45
LOI 3	2,470	200	Restaurant (SF)	12.4	2.45
Lot 4	4,000	200	Restaurant (SF)	20.0	0.98
Lot 5	9,100	1,660	Retail (SF)	5.5	1.84
LOI 5	4,900	200	Restaurant (SF)	24.5	1.04
Lot 6	4,000	200	Restaurant (SF)	20.0	3.33
LOUG	7,000	1,660	Retail (SF)	4.2	5.55
Lot 7	12,500	3,000	Office (SF)	4.2	2.18
LOL 7	12,500	1,660	Retail (SF)	7.5	2.10
Lot 8	30,000	3,000	Office (SF)	10.0	5.11
LUI 8	110	0.5	Hotel (Rooms)	55.0	5.11
Lot 9	N/A	N/A	PARK	0.0	6.17
Lot 10	321	0.75	Multi-Family (Units)	240.8	7.81
			SUBTOTAL	483.1	33.6
	173	0.75	Multi-Family (Units)	129.8	19.00
Future Development	78,000	1,660	Retail (SF)	47.0	19.00
(Adjacent +/- 53-ac)	28,000	3,000	Office (SF)	9.3	7.00
	120	0.50	Hotel (Rooms)	60.0	6.00
			SUBTOTAL	246.1	51.0
			TOTAL	729	84.58

Table 2.1.2: Ultimate Lift Station Wastewater Demand Summary Table

Lift Station Wastewater Flow Calculations				
<u>Assumptions</u>				
Average Flow per LUE =	245 gpd			
I/I for Wet Peak	750 gpd/Ac			
LUEs	730			
Average Daily Flow	178,850 gpd			
	124 gpm			
Dry Peaking Factor	3.50			
Peak Dry Flow	435_gpm			
Service Area	85 acres			
I/I for Peak Wet	63,750 gpd			
	44 gpm			
Total Peak Wet Flow	479 gpm			
Total Peak Wet Flow Assumed	485 gpm			
Minimum Flow Factor	0.22			
Minimum Flow	28 gpm			

Table 2.1.3: Flow Calculations

Wet Well Cald	culations	
Max Well Elevation	1003.00	ft
Min Well Elevation	976.50	ft
High Point in Force Main	1020	ft
Equiv. Length of Line	2,012	ft
Force Main Diameter	6	in
Roughness Coefficient (C)	120	
Area of Pipe	0.196	ft^2
Wetted Perimeter (full)	1.571	ft
Hydraulic Radius (full)	0.125	ft
Wet Well Diameter	8	ft
Volume per Foot Depth	375.99	gallons
Pump Control Elevations		
Ground Elevation	1003.00	
Inflow Pipe Flowline	986.00	
High Level Alarm	986.00	
Lag Pump on	984.00	
Lead Pump on	983.00	
All Pumps off	981.50	
Low Level alarm	980.50	
Top of Pump casing	978.50	
Bottom of Wet Well	976.50	
Firm Capacity	485	gpm
Total Wet Well Capacity	3572	gallons

Table 2.1.2: Wet Well Calculations

CALCULATION OF EQUIVALENT LENGTH					
(	quantity	lo	ss per unit		
Total length				1,920	feet (Per PICP)
90 deg Short Radius		2	5.17	10.3	feet
45 deg Short Radius or Long Radius 90			2.76	19.3	feet
22.5 deg Short Radius or Mitre 45			2.58	5.2	feet
Swing Check Valve		1	17.2	17.2	feet
Plug Valve		1	25.8	25.8	feet
Tee-Flow,straight through		1	3.45	3.5	feet
Tee Flow, through side		1	10.3	10.3	feet
Total Equivalent length				2,012	feet

Table 2.1.3: Equivalent Length Calculations

Lift Station Calculations				
Velocity (Actual Capacity)	5.50 fps			
Max Flow Rate	479 gpm			
Max Dry Flow Rate	435 gpm			
Average Dry Flow Rate	124 gpm			
Min Dry Flow Rate	28 gpm	ļ		
Reqd Wet Well Volume 2 hour Detention Time	1992.5 ft^3			
Min Static Head	34 ft			
High Level Alarm	986.00 ft			
Max Static Head	38 ft			

Table 2.1.4: Lift Station Calculations

Operation Calculations			
Minimum Operating Volume			
Minimum Cycle Time	10	min	
Volume = Tq/4	1,198		
Actual Operating Volume	564		
Wet Well Detention Times	T <sub>f</sub> (min)	T <sub>e</sub> (min)	T <sub>d</sub> (min)
Max Wet Wx	1.18	94.01	95.19
Max Dry Wx	1.30	11.22	12.52
Avg Flow	4.54	1.56	6.10
Min Dry Wx	20.24	1.23	21.47
Force Main Detention			
FM Length to High Point	1,920	ft	
FM Volume (to High Point)	377	ft <sup>3</sup>	
	2,820	gallons	
Flush Time	3.5	minutes	

Table 2.1.5: Operation Calculations

Nominal Pipe Diameter	6	in
I.D.	5.82	in
Force Main Equivalent Length	2,012	ft
Pump Off	981.50	ft
Max Liquid	986.00	ft
Operating Volume	564	gallons
High Point Elevation	1020	ft
Min Static Head	34	ft
Max Static Head	38	ft
Hydraulic Radius	0.12	ft
Pipe Area	0.18	sf

**Two (2)** Submersible Pumps; 485 GPM, 4" Disch, Non-Clog, 3" Solids Passing., 3 Phase, 60 Hz., 110' TDH

Table 2.1.6: Proposed 6" Force Main Calculations

Maximum Static Head (1 Pump)

IVICAXIIII	ann Otatio	11000 (11	ump/		
Flow		Pipe			
Rate	Pump	Velocity	Total Head	Total Head	Total Head
(gpm)	Head (ft)	(ft/s)	C=140	C=110	C=100
0		0.00	38.3	38.3	38.3
100		1.21	40.4	41.6	42.3
200		2.41	46.0	50.3	52.6
300		3.62	54.5	63.6	68.5
400		4.82	65.9	81.4	89.8
485	110	5.85	77.7	99.9	111.8
500		6.03	80.0	103.5	116.1
600		7.24	96.8	129.7	147.3
700		8.44	116.1	159.8	183.3
800		9.65	137.9	193.9	224.0
900		10.85	162.1	231.9	269.2

Minimum Static Head (1 Pump)

Flow		Pipe			
Rate	Pump	Velocity	Total Head	Total Head	Total Head
(gpm)	Head (ft)	(ft/s)	C=140	C=110	C=100
0	0	0.00	33.8	33.8	33.8
100	0	1.21	35.9	37.1	37.8
200	0	2.41	41.5	45.8	48.1
300	0	3.62	50.0	59.1	64.0
400	0	4.82	61.4	76.9	85.3
485	110	5.85	73.2	95.4	107.3
500	0	6.03	75.5	99.0	111.6
600	0	7.24	92.3	125.2	142.8
700	0	8.44	111.6	155.3	178.8
800	0	9.65	133.4	189.4	219.5
900	0	10.85	157.6	227.4	264.7

Table 2.1.7: Proposed System Head Calculations

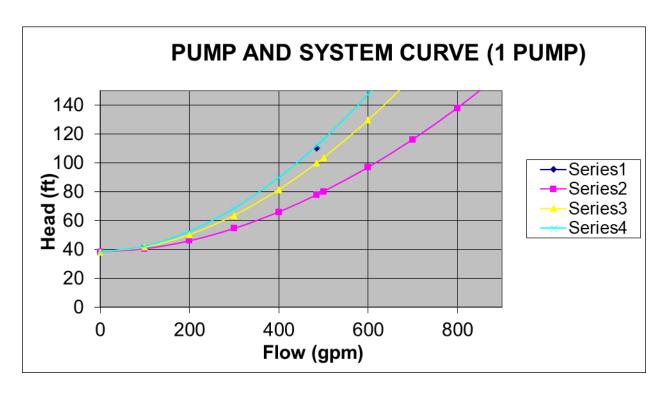


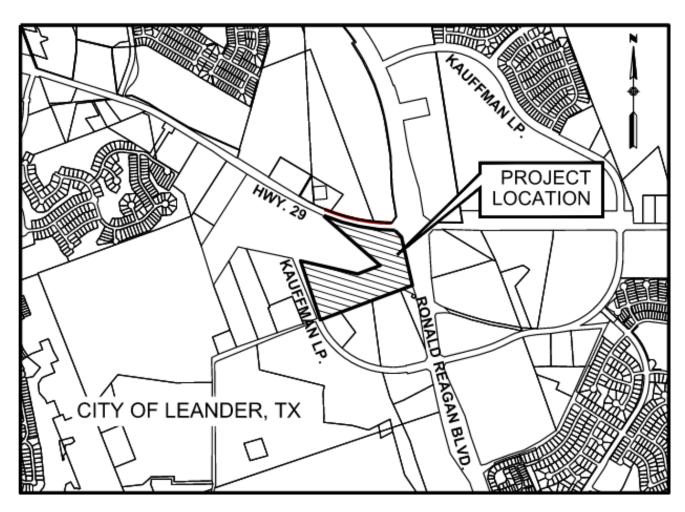
Table 2.1.8: Proposed System Curve Summary

#### 3.0 CONCLUSION

The Gateway 29 (Leander) Development is proposed on 31.9-acres located in the City of Leander, Williamson County, Texas. The Subdivision is designated for a mix of commercial multi-family use and is anticipated to serve the subject development and adjacent Zekelman Tract. The subject Subdivision is anticipated to generate 483 LUEs and the adjacent tract is anticipated to generate 246 LUEs, for a total build out of 729 LUEs. The development is in the City of Leander service area for water and wastewater service. Based on analysis of the proposed and future lift station service area wastewater demands, LJA recommends a proposed privately-owned and maintained lift station that allows for 485-gpm peak wet weather flow capacity. The proposed lift station plans are included with the project's Public Improvement Construction Plans. The wastewater infrastructure within the subject Subdivision is proposed to be public with private maintenance, with the offsite forcemain proposed to be fully-public with City ownership and maintenance. These improvements should be adequate to serve the ultimate build-out of the lift station's service area, however, since many assumptions were made as part of this analysis, future developments should confirm the proposed improvements discussed herein are adequate to serve respective future service areas.

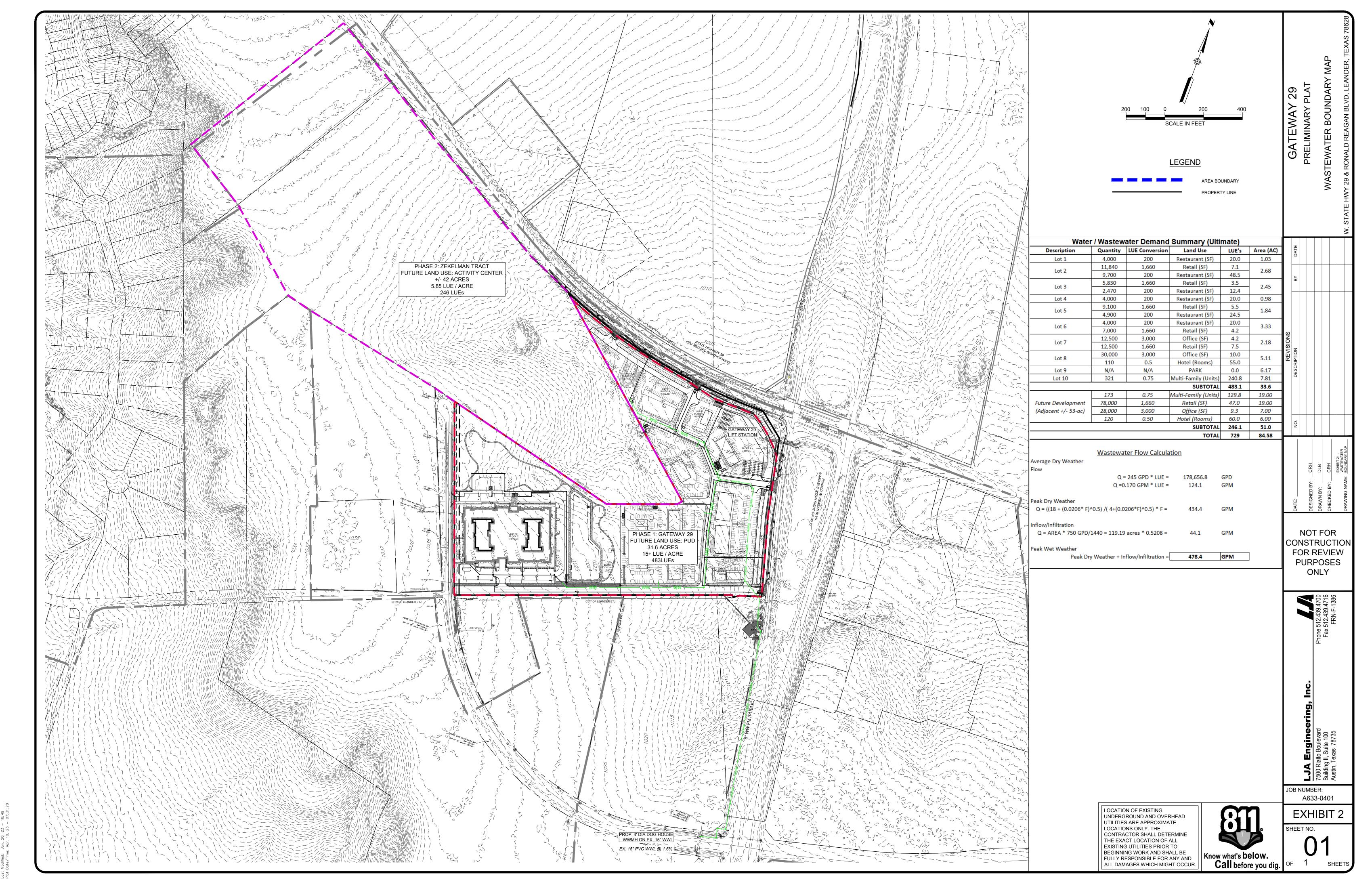
## EXHIBIT 1 LOCATION MAP

## EXHIBIT 1 - LOCATION MAP N.T.S.



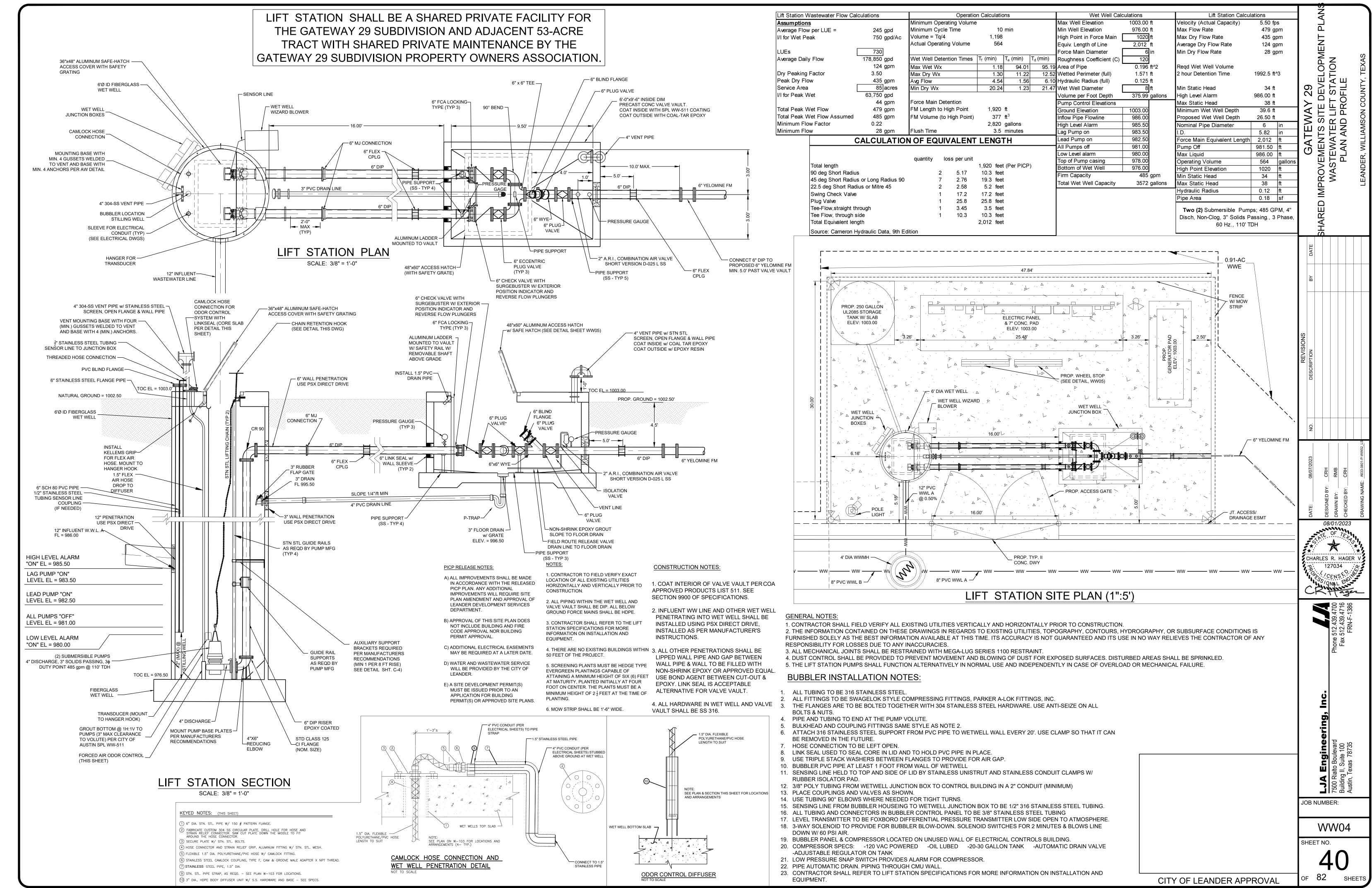
**LOCATION MAP** 

# EXHIBIT 2 LIFT STATION SEWERSHED MAP EXHIBIT

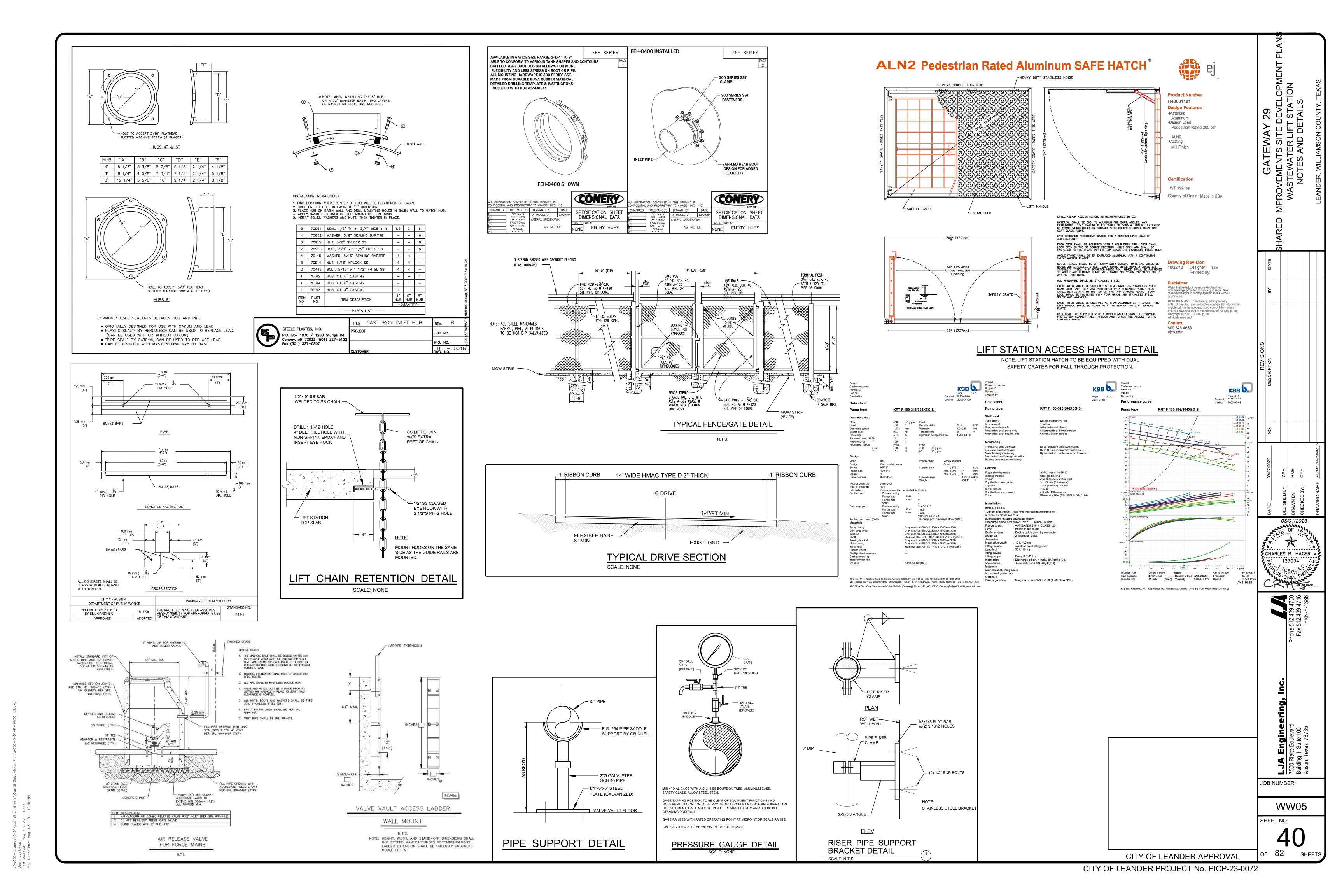


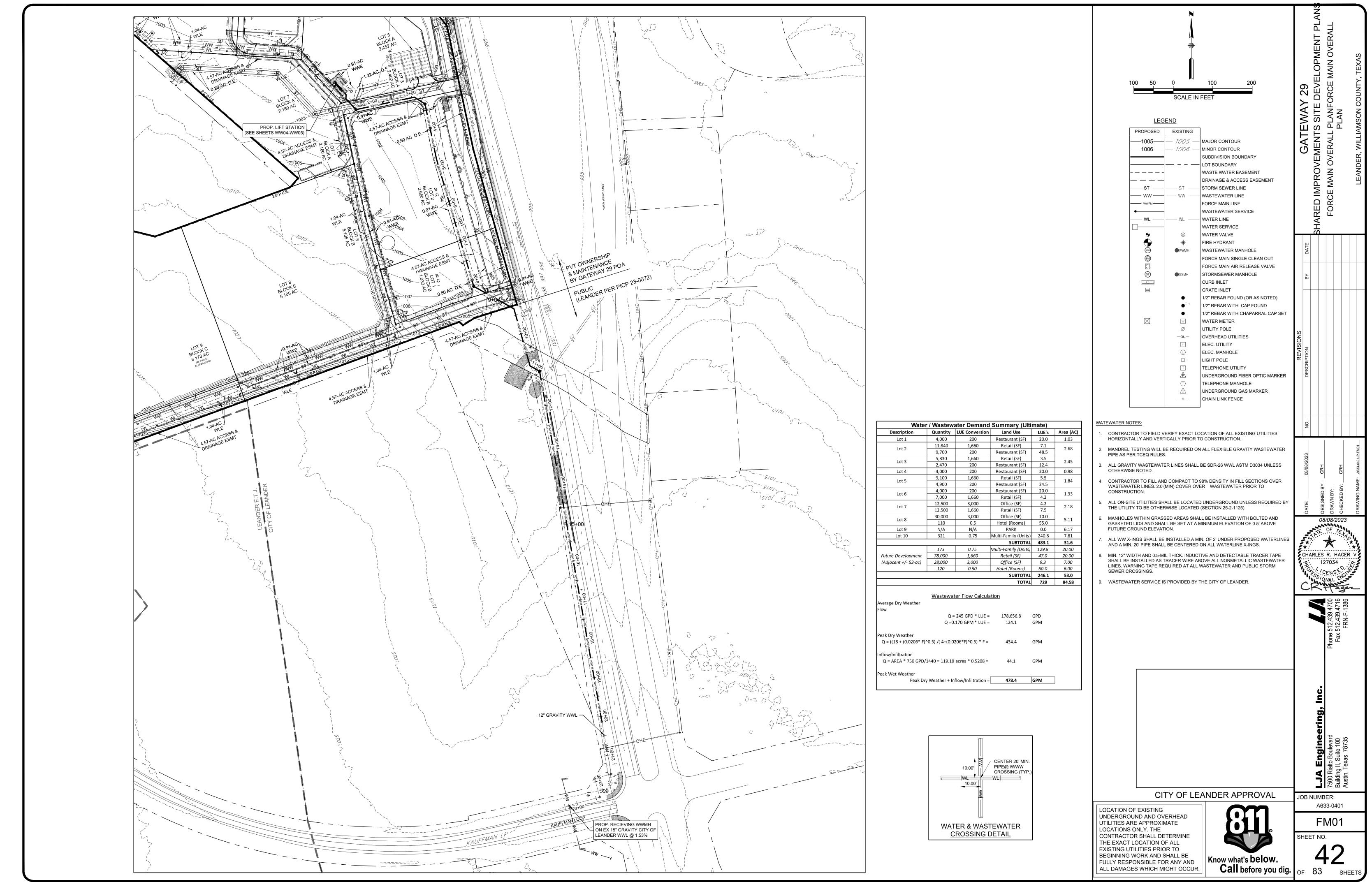
I:\a633-Gateway\0401\Exhibits\EXHIBIT 21 - WASTEWATER BOUNDARY MAP.dwg User: chager Last Modified: Jan. 20, 23 - 16:49 Plot Date/Time: Apr. 10, 23 - 07:31:20

# EXHIBIT 3 LIFT STATION AND FORCEMAIN PLANS



I: \qb5.3-gateway\U4U1\submittal sheets\Uverall Subdivision Plan\Ab5.3-U4U1-P-User: agetsinger User: agetsinger Last Modified: Aug. 08, 23 - 12:20





#### **Agent Authorization Form**

For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I	Samir Mared	lia
		Print Name
	Owner	
		Title - Owner/President/Other
of	Gateway 2	29 Real Estate, LLC
		Corporation/Partnership/Entity Name
have	authorized _	Charles Hager, V P.E.
	_	Print Name of Agent/Engineer
of	LJA Eng	neering, LLC
· · · · ·		Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

#### I also understand that:

- 1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to \$10,000 per day per violation.
- 2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.
- 3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.
- 4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.
- 5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

## SIGNATURE PAGE:



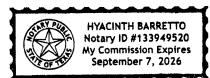
07/3//2023 Date

THE STATE OF TEXAS §

County of Fort Bend §

BEFORE ME, the undersigned authority, on this day personally appeared <u>Samir Maredia</u> known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 31st day of July , 2023



NOTARY PUBLIC

Hyacinth Barretto

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: September 7, 2026

## **Application Fee Form**

Texas Commission on Environmen					
Name of Proposed Regulated Entity: <u>Gateway 29</u>					
Regulated Entity Location: W. State	Regulated Entity Location: W. State Hwy. 29 & Ronald Reagan Blvd. Leander, Texas 78628				
Name of Customer: Gateway 29 F	leal Estate, LLC	-			
Contact Person: <u>Samir Maredia</u>	Pho	one: <u>(832) 713-4985</u>			
Customer Reference Number (if issu					
Regulated Entity Reference Numbe	r (if issued):RN	<del></del>			
Austin Regional Office (3373)					
☐ Hays	Travis	<b>X</b> 1/4	/illiamson		
San Antonio Regional Office (3362)			/illiamson		
Bexar	Medina		valde		
Comal	Kinney	0	value		
<del></del>			<del></del>		
Application fees must be paid by ch	eck, certified check,	chack will some so you	ole to the lexas		
Commission on Environmental Qua form must be submitted with your	fee navment. This	check will serve as you	ir receipt. Inis		
<del></del>	<del></del>				
Austin Regional Office		San Antonio Regional (			
X Mailed to: TCEQ - Cashier		Overnight Delivery to:	TCEQ - Cashier		
Revenues Section		12100 Park 35 Circle			
Mail Code 214		Building A, 3rd Floor			
P.O. Box 13088		Austin, TX 78753			
Austin, TX 78711-3088		(512)239-0357			
Site Location (Check All That Apply)	<b>):</b>				
X Recharge Zone	Contributing Zone	Trans	ition Zone		
Type of Plan		Size	Fee Due		
Water Pollution Abatement Plan, Co	ntributing Zone		.00 540		
Plan: One Single Family Residential [		Acres	\$		
Water Pollution Abatement Plan, Co		7			
Plan: Multiple Single Family Residential and Parks		Acres	\$		
Water Pollution Abatement Plan, Co		,			
Plan: Non-residential		32.257 Acres	\$ 6,500		
Sewage Collection System		4404 L.F.	\$ 2,202		
Lift Stations without sewer lines		Acres	\$		
Underground or Aboveground Stora	ge Tank Facility	Tanks	\$		
Piping System(s)(only)		Each	\$		
Exception	-	Fach	\$		

Each

Each \$

Extension of Time

## **Application Fee Schedule**

**Texas Commission on Environmental Quality** 

Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

#### Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

	Project Area in	_
Project	Acres	Fee
One Single Family Residential Dwelling	< 5	\$650
Multiple Single Family Residential and Parks	< 5	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial, institutional,	< 1	\$3,000
multi-family residential, schools, and other sites	1 < 5	\$4,000
where regulated activities will occur)	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

Project	Cost per Linear Foot	Minimum Fee- Maximum Fee
Sewage Collection Systems	\$0.50	\$650 - \$6,500

## Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	Cost per Tank or Piping System	Minimum Fee- Maximum Fee
Underground and Aboveground Storage Tank Facility	\$650	\$650 - \$6,500

**Exception Requests** 

Project	Fee
Exception Request	\$500

Extension of Time Requests

Project	Fee
Extension of Time Request	\$150



# **TCEQ Core Data Form**

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

### **SECTION I: General Information**

1. Reason for	Submissi	on (If other is checked	please describe	in space pr	rovided.)						
New Pern	nit, Registra	ation or Authorization	(Core Data Forn	n should be s	submitted v	vith the pro <u>c</u>	gram application.)				
Renewal	(Core Data	Form should be submi	tted with the rer	newal form)	)		Other				
2. Customer	Reference	Number (if issued)		Follow this I		<u></u>	gulated Entity Re	eference	Number (if i	issued)	
CN					Registry**	RN					
SECTIO	N II:	Customer	Inform	ation	<u>1</u>						
4. General Cu	ıstomer Ir	nformation	5. Effective I	Date for Cu	ustomer Ir	nformation	Updates (mm/dd	/уууу)			
New Custor	mer		 pdate to Custor	ner Informa	ation	Cha	nge in Regulated En	itity Own	ership		
Change in Lo	egal Name	(Verifiable with the Te	kas Secretary of	State or Tex	xas Comptro	ller of Publi	c Accounts)				
The Custome	r Name su	ıbmitted here may l	be updated au	ıtomatical	lly based o	n what is o	current and active	e with th	ne Texas Seci	retary of State	
		oller of Public Accou	-		•						
6. Customer	Legal Nam	ne (If an individual, pri	nt last name firs	st: eg: Doe, J	John)		If new Customer,	enter pre	evious Custom	ner below:	
Gateway 29 Re	al Estate, L	LC									
7. TX SOS/CP	A Filing N	umber	8. TX State 1	<b>Гах ID</b> (11 d	digits)		9. Federal Tax ID 10. DUNS Nur			Number (if	
0803899486			32077415787				(9 digits)				
0003033100			32077 123707	13707			(5 digits)				
11. Type of C	ustomer:	☐ Corpora	tion			☐ Indivi	☐ Individual Partnership: ☐ General ☐ Limit				
		County  Federal	Local   State	Other		☐ Sole F	Sole Proprietorship Other: LLC				
12. Number o			_				13. Independe	ntly Ow	ned and Ope	erated?	
		] 101-250   251-	500 🗌 501 a	and higher			∑ Yes	□ No	·		
14. Customer	r <b>Role</b> (Pro	posed or Actual) – as i	t relates to the I	Regulated Fi	ntity listed (	on this form	Please check one o	f the follo	nwina		
					-		Trease circuit one o	, ,	g		
☐Owner☐Occupation	al Licensee	☐ Operator☐ Responsible Pa		ner & Opera 'CP/BSA App			☐ Other	:			
	5522 Jen	olan Ridge Lane									
15. Mailing											
Address:		I		1	T	1	T		T =	1	
	City	Sugarland		State	TX	ZIP	77479		ZIP + 4		
16. Country F	Mailing In	formation (if outside	USA)		1	7. E-Mail A	ddress (if applicab	ile)			
					sa	mirsmaredi	a@gmail.com				
18. Telephon	e Number	•	1	9. Extensio	on or Code	<u> </u>	20. Fax N	Number	(if applicable)	l	

TCEQ-10400 (11/22) Page 1 of 3

( 832 ) 713-4985		( ) -
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# **SECTION III: Regulated Entity Information**

<b>21. General Regulated Entity Information</b> (If 'New Regulated Entity" is selected, a new permit application is also required.)											
New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information											
The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).											
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)											
Gateway 29											
23. Street Address of the Regulated Entity:											
(No PO Boxes)	City	Leaner	State	ТХ	ZIP	78628		ZIP + 4			
24. County	Williamson		·			•					
		If no Stree	et Address is provid	led, fields 2	25-28 are re	quired.					
25. Description to	Southwest	corner of SH 29 an	nd Ronald Reagan Bou	levard and is	east of Kauff	fman Loo	n.				
Physical Location:			a nonala neagan bea		cast or mau.		μ.				
26. Nearest City						State		Nea	rest ZIP Code		
Leander						TX		7862	8		
Latitude/Longitude are re used to supply coordinate	-	-	-		Oata Standa	ırds. (Ge	ocoding of th	e Physical	Address may be		
27. Latitude (N) In Decima	al:	30.635719		ongitude (V	V) In De	cimal:	-97.82976	53			
Degrees	Minutes		Seconds	Degre	ees	Minutes			Seconds		
30		38	8.59		-97			9 47.15			
29. Primary SIC Code	30.	Secondary SIC	Code	ry NAICS Co	de	CS Code					
(4 digits)	(4 d	ligits)	<b>(</b> 5 or 6 digits)					(5 or 6 digits)			
1542				236220							
33. What is the Primary B	Business of t	this entity? (Do	o not repeat the SIC o	r NAICS desci	ription.)						
34. Mailing	5522 Jeno	lan Ridge Lane									
Address:											
	City	Sugarland	State	TX	ZIP	77479		ZIP + 4			
35. E-Mail Address:	35. E-Mail Address: samirsmaredia@gmail.com										
36. Telephone Number			37. Extension or	Code	38. F	ax Num	ber (if applicab	le)			
36. Telephone Number			37. Extension or	Code	T .	ax Num	ber (if applicab	le)			

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

TCEQ-10400 (11/22) Page 2 of 3

☐ Dam Safety	Districts	☑ Edwards Aquifer	Emissions Inventory Air	Industrial Hazardous Waste
☐ Municipal Solid Waste	New Source	OSSF	☐ Petroleum Storage Tank	□ PWS
	Review Air			
Sludge	Storm Water	☐ Title V Air	Tires	Used Oil
☐ Voluntary Cleanup	Wastewater	☐ Wastewater Agriculture	☐ Water Rights	Other:
ECTION IV: P	reparer Inf	<u>ormation</u>		
O. Name: Charles Hager	, V P.E.	41. Tit	le: Sr. Project Manager	

# **SECTION V: Authorized Signature**

(843)507-8402

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

chager@lja.com

Company: Gateway 29 Real Estate LLC	Job Title: WYLY
Name (In Print): Samir Maredia	Phone: (832)713-4985
Signature:	Date: 07 31 2023

# GATEWAY 29

# SHARED IMPROVEMENTS SITE DEVELOPMENT PLANS LEANDER, WILLIAMSON COUNTY, TEXAS

PROJECT NO. SDP-23-

Sheet NO. Sheet Desc. Sheet Title

ELECTRICAL L.S. PUMP PANEL 2 ELECTRICAL L.S. PUMP PANEL 3 ELECTRICAL L.S. PUMP PANEL 4 ELECTRICAL L.S. PUMP PANEL 5

ELECTRICAL L.S. PUMP PANEL RTU

**ELECTRICAL WQ SITE PLAN & DIAGRAM** 

ELECTRICAL WQ CONTROL PANEL

ELECTRICAL GENERAL DETAILS ELECTRICAL UTILITY DTLS 1

E-20 ELECTRICAL UTILITY DTLS 2

SUBMITTED FOR APPROVAL BY: LJA ENGINEERING, INC.



DATE

# CHARLES R. HAGER, P.E. #127034

LICENSED PROFESSIONAL ENGINEER

THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY, REGULATORY COMPLIANCE, AND ADEQUACY OF THESE PLANS AND/OR SPECIFICATIONS WHETHER OR NOT THE PLANS AND/OR SPECIFICATIONS WERE REVIEWED BY THE CITY ENGINEER(S).

### FLOODPLAIN INFORMATION:

NO PORTION OF THE SUBJECT TRACT IS WITHIN THE 100-YEAR FLOODPLAIN, AS SHOWN ON THE FEMA FLOOD INSURANCE RATE MAP FOR WILLIAMSON COUNTY, TEXAS, MAP NO. 48491C0275E, WITH AN EFFECTIVE DATE OF SEPTEMBER 26, 2008.

BEING 32.257 ACRES OF LAND, MORE OR LESS, BEING OUT OF THE GREENLIEF FISK SURVEY, ABSTRACT NO. 5 AND THE WILLIAM H. MONROE SURVEY, ABSTRACT NO. 453 IN WILLIAMSON COUNTY, TEXAS, AND BEING ALL OF A 10.10 ACRE TRACT OF LAND CONVEYED TO DONALD W. STARKS, RECORDED IN DOCUMENT NO. 2003040899. AND THE REMAINING PORTION OF A 30.30 ACRE TRACT OF LAND CONVEYED TO DONALD W. STARKS, RECORDED IN DOCUMENT NO. 2003040898, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, BEING THAT SAME PROPERTY DESCRIBED IN A SPECIAL WARRANTY DEED WITH VENDOR'S LIEN RECORDED IN DOCUMENT NO. 2021019843, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.

# **AQUIFER NOTE:**

THE PROJECT LIES WITHIN THE BOUNDARY OF THE EDWARDS AQUIFER RECHARGE ZONE.

# **RELATED PROJECT INFORMATION:**

SH 29 & RONALD REAGAN BLVD. PLANNED UNIT DEVELOPMENT AGREEMENT - 20-Z-021 GATEWAY 29 PRELIMINARY PLAT - 20-PP-014

### CONTACT INFORMATION FOR COORDINATION AND EMERGENCY

CONTROL IN CHAIR COUNTY OF COUNTY AND	LIVILIA
CITY OF LEANDER ADMINISTRATION	(512) 528-27
CITY OF LEANDER ENGINEERING	(512) 528-27
CITY OF LEANDER PUBLIC WORKS	(512) 259-20
CITY OF LEANDER PLANNING	(512) 528-27
CITY OF LEANDER FIRE	(512) 528-28
CITY OF LEANDER PERMITS	(512) 528-28
CITY OF LEANDER PARKS AND RECREATION	(512) 528-29

# FIRE DEPARTMENT DATA

FIRE FLOW TEST INFORMATION (5/12/2022)

# FLOW HYDRANT (KAUFFMAN LOOP / CR 267 - S OF TEST HYDRANT)

STATIC PRESSURE VELOCITY PRESSURE = <u>66 PSI</u> FLOW RATE = 1,300 GPMFLOW RATE @ 20 PSI = <u>7,230 GPM</u>

# TEST HYDRANT (KAUFFMAN LOOP / CR 267 - WATER TOWER)

STATIC PRESSURE RESIDUAL PRESSURE = <u>66 PSI</u> FLOW RATE @ 20 PSI = <u>7,230 GPM</u>

# PICP IMPROVEMENTS OWNERSHIP & MAINTENANCE SUMMARY

1) PORTIONS OF THIS PROJECT INCLUDE SUBDIVISION IMPROVEMENTS THAT WILL BE OWNED AND MAINTAINED BY THE GATEWAY 29 POA. THESE ARE INCLUDED IN THIS PLAN SET FOR REVIEW AS THEY ARE REQUIRED TO MEET SUBDIVISION REQUIREMENTS, DESPITE BEING SHARED FACILITIES NOT INTENDED FOR CITY OF LEANDER OWNERSHIP AND MAINTENANCE. THESE IMPROVEMENTS ARE LISTED BELOW (EXCEPT WITHIN LOT 9 & 10. WHICH SHALL BE OWNED AND MAINTAINED BY LOT OWNER AND HIS/HER ASSIGNS):

### ALL PROPOSED SHARED ACCESS DRIVES AND SIDEWALKS WITHIN ACCESS EASEMENTS. ALL PROPOSED STORM, WATER QUALITY, AND DETENTION

IMPROVEMENTS WITHIN THE SUBDIVISION BOUNDARY. ALL PROPOSED WASTEWATER, FORCEMAIN, AND LIFT STATION IMPROVEMENTS WITHIN THE SUBDIVISION BOUNDARY.

otal Existing Site Area

GC-2-A (Lots 1, 2, 4-8)

		LOII	LOIZ	LOIS	LOIT	LOIS	LOIO	LOI	LOIO	LOID	LOI
MAX. FIRE FLOW DEMAND @ 20	PSI (GPM)	1,500	1,500	1,500	1,500	1,500	1,500	1,750	2,500	N/A	2,50
PRO	POSED USE	COM.	COM.	COM.	COM.	COM.	COM.	COM.	COM.	PARK	MF
IFC CONSTRUCTION CLASS	IFICATION	IIA	IIA	IIA	IIA	IIA	IIA	IIA	IIA	N/A	IB
LARGEST BUILDING FIRE	AREA (SF)	4,000	11,840	5,830	4,000	9,100	7,000	12,500	30,000	N/A	59,00
AUTO FIRE SPRINKLER SYST	EM (NFPA)	13	13	N/A	13	N/A	13	13	13	N/A	13
REDUCED FIRE FLOW DEMAN	D @ 20 PSI	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	N/A	1,87
		DOMES	TIC / FIRE /	IRR. WAT	ER SUMMA	ARY					7
	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6	LOT 7	LOT 8	LOT 9	LOT 10	)
LAND USE	COM.	COM.	COM.	COM.	COM.	COM.	COM.	COM.	PARK	MF	
TOTAL DOMESTIC LUE'S	20	56	16	20	30	24	12	65	0	241	
AV. DOMESTIC DEMAND (GPM)	26	72	21	26	39	31	15	85	0	313	
PEAK DOMESTIC DEMAND (GPM)	44	122	35	44	66	53	26	143	0	530	
IRR. WATER DEMAND* (GPM)	15	15	15	15	15	15	15	20	20	25	
PROPOSED DOM. METER	2" Turb.	2" Turb.	2" Turb.	2" Turb.	2" Turb.	2" Turb	. 2" Turb	. 3" Turk	o. N/A	4" Com	ρ.
GPM RANGE	4-190	4-190	4-190	4-190	4-190	4-190	4-190	8-435	N/A	3-600	
SERVICE UNITS	16	16	<b>1</b> 6	16	16	16	16	35	N/A	30	
PROPOSED IRRIGATION METER*	1.5" Turb.	1.5" Turb	1.5" Turb.	1.5" Turb	. 1.5" Turb	. 1.5" Turk	o. 1.5" Turk	o. 1.5" Tur	b. 1.5" Tur	b. 1.5" Tur	b.
GPM RANGE	GPM RANGE 4-120 4-120 4-120 4-12		4-120	4-120	4-120	4-120	4-120	4-120	4-120	ł	
SERVICE UNITS	9	9	9	9	9	9	9	9	9	9	
BACKFLOW DEVICE (FIRE)	4"	4"	N/A	4"	N/A	4"	4"	4"	N/A	12"	
BACKFLOW DEVICE (IRR)*	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"	1.5"	2"	2"	
RRIGATION IMPROVEMENTS REQU	RE SEPARA	TE PERMI	Г								
			PRC	JECT SUM	MARY						
	LOT 1	LOT 2	LOT 3	LOT 4	LOT 5	LOT 6	LOT 7	LOT 8	LOT 9	LOT 10	TOTAL
SITE AREA	1.03	2.68	2.45	0.98	1.84	1.33	2.18	5.11	6.17	7.81	31.58
ZONING	GC-2-A	GC-2-A	GC-3-A	GC-2-A	GC-2-A	GC-2-A	GC-2-A	GC-2-A	GC-2-A	MF-2-A	MF-2-A
EX. LAND USE						VACANT					
PROP. LAND USE	сомм.	COMM.	сомм.	сомм.	COMM.	сомм.	сомм.	COMM.	сомм.	PARK	MF
FUTURE LAND USE					ACTI	VITY CENT	ER				
EX. IMPERVIOUS COVER (SF)	0	0	0	0	0	0	0	0	0	0	0

LEANDER FIRE DEPARTMENT SUMMARY (2015 IFC DESIGN STANDARDS

LOT1 LOT2 LOT3 LOT4 LOT5 LOT6 LOT7 LOT8 LOT9 LOT10

, _ , _ ,	
GC-3-A (Lot 3)	2.452 AC
MF-2-A (Lots 9-10)	13.989 AC
Total	31.589 AC
LAND USE SUMI	MARY
Net Site Area	31.589 AC
Commercial	17.600 AC
Multi-Family	7.816 AC
Parkland/Open Space	6.173 AC
LOT ACREAGE SUP	MMARY
Lot 1	1.033 AC
Lot 2	2.680 AC
Lot 3	2.452 AC
Lot 4	0.978 AC
Lot 5	1.839 AC
Lot 6	1.333 AC
Lot 7	2.18 AC
Lot 8	5.105 AC
Lot 9	6.173 AC
Lot 10	7.816 AC

SUBDIVISION ACREAGE SUMMARY

ZONING SUMMARY

Per PUD 20-Z-021

xDOT ROW (Dedicated by Final Plat)

32.256 A

0.667 /

	TOTORE BAND 03E ACTIVITY CENTER												
E	X. IMPERVIOUS COVER (SF)	0	0	0	0	0	0	0	0	0	0	0	Lot 10
				RI	EVISIC	NS/C	ORRE	CTION	IS				
Number			Description	n					(R) Add (A Sheet No	A) Void (V)		of Sheets an Set.	City of Leander Appoval Date

# **LOCATION** .CITY OF LEANDER. TX **LOCATION MAP** 1"=2000'

**ADDRESS** W. STATE HWY. 29 & RONALD REAGAN BLVD. LEANDER, TEXAS 78628 ZONING: PER PUD 20-Z-021: GC-2-A (LOTS 1, 2, 4, 5, 6, 7, 8, 9) GC-3-A (LOT 3) MF-2-A (LOTS 10 & 11) **EXISTING SITE AREA: 32.257 ACRES** 

FILING DATE: / /2023

APPROVED BY:	
Robin M. Griffin, AICP, Executive Director of Development Services	s Date
Emily Truman, P.E., CFM, City Engineer	Date
Mark Tummons, CPRP, Director of Parks and Recreation	Date
Chief Joshua Davis, Fire Marshal	Date

# OWNER/DEVELOPER:

FAX: (512) 439-4716

GATEWAY 29 REAL ESTATE, LLC 5522 JENOLAN RIDGE LANE SUGAR LAND, TEXAS 77479 CONTACT PERSON: SAMIR MAREDIA PHONE: (832) 713-4985

LJA ENGINEERING, INC. 7500 RIALTO BOULEVARD, BUILDING II, SUITE 100 **AUSTIN TEXAS 78735** CONTACT PERSON: CHARLES R. HAGER V, P. E. PHONE: (512) 439-4700

CONTOUR DATA: ON-SITE CONTOURS: GROUND SURVEY BY WESTAR ALAMO LAND SURVEYORS, LLC (1 FT INTERVAL) OFFSITE CONTOURS: CITY OF LEANDER GIS (2-FT INTERVAL) BASIS OF BEARING WAS ESTABLISHED FROM THE

TEXAS STATE PLANE COORDINATE SYSTEM, GRID

NORTH, CENTRAL ZONE (4203), NAD 83

PHONE: (512) 931-3100

SURVEYOR:

LJA SURVEYING

AUSTIN, TX 78735

FAX: (512) 493-4716

BOERNE, TX 78006

116 SKYLINE ROAD

PHONE: (210) 372-9500

DIAMOND SURVEYING, LLC

GEORGETOWN, TX 78628

P.O. BOX 1645

PHONE: (512) 493-4700

7500 RIALTO BOULEVARD, BUILDING II, SUITE 100

CONTACT PERSON: JEREMY KOWIS, R.P.L.S.

WESTAR ALAMO LAND SURVEYORS, LLC

Sheet NO.	Sheet Desc.	Sheet Title	Sheet NO.	Sheet Desc.	Sheet Title
01	CV01	COVER SHEET	37	WW01	WASTEWATER PLAN AND PROFILE SHEET 1
02	GN01	GENERAL NOTES	38	WW02	WASTEWATER PLAN AND PROFILE SHEET 2
03	PP01	PRELIMINARY PLAT	39	WW03	WASTEWATER PLAN AND PROFILE SHEET 3
04	FP01	FINAL PLAT	40	WW04	WASTEWATER LIFT STATION PLAN AND PROFIL
05	FP02	FINAL PLAT SHEET 2	41	WW05	WASTEWATER LIFT STATION NOTES AND DETA
06	FP03	FINAL PLAT SHEET 3	42	FM01	FORCE MAIN OVERALL PLAN
07	FP04	FINAL PLAT SHEET 4	43	FM02	FORCE MAIN PLAN & PROFILE SHEET
08	FP05	FINAL PLAT SHEET 5	44	SP01	DIMENSIONAL CONTROL PLAN SHEET 1
09	FP06	FINAL PLAT SHEET 6	45	SP02	DIMENSIONAL CONTROL PLAN SHEET 2
10	FP07	FINAL PLAT SHEET 7	46	GP01	GRADING PLAN SHEET 1
11	FP08	FINAL PLAT SHEET 8	47	GP02	GRADING PLAN SHEET 2
12	FP09	FINAL PLAT SHEET 9	48	SW01	SIDEWALK PLAN LAYOUT
13	FP10	FINAL PLAT SHEET 10	49	DT01	STANDARD DETAILS SHEET 1
14	EX01	EXISTING CONDITIONS AND DEMOLITION PLAN	50	DT02	STANDARD DETAILS SHEET 2
<del>-15</del>	EX02	TREE LIST	51	DT03	STANDARD DETAILS SHEET 3
16	EC01	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 1	52	DT04	STANDARD DETAILS SHEET 4
17	EC02	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 2	53	DT05	STANDARD DETAILS SHEET 5
18	EC03	EROSION AND SEDIMENTATION CONTROL PLAN SHEET 3	54	DT06	STANDARD DETAILS SHEET 6
19	EC04	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS	55	DT07	STANDARD DETAILS SHEET 7
20	OP01	OVERALL SITE PLAN LAYOUT	56	DT08	STANDARD DETAILS SHEET 8
21	DM01	EXISTING CONDITIONS DRAINAGE AREA MAP	<b>5</b> 7	L0.1	LANDSCAPE PLAN SHEET 1
22	DM02	DEVELOPED CONDITIONS DRAINAGE AREA MAP	58	L0.2	LANDSCAPE PLAN SHEET 2
23	DM03	ONSITE DRAINAGE AREA MAP	59	L0.3	LANDSCAPE PLAN SHEET 3
24	WQ01	WATER QUALITY PLAN AND PROFILE SHEET 1	60	L0.4	LANDSCAPE PLAN SHEET 4
25	WQ02	WATER QUALITY PLAN AND PROFILE SHEET 2	61	L0.5	LANDSCAPE PLAN SHEET 5
26	WQ03	WATER QUALITY PLAN AND PROFILE SHEET 3	62	L0.6	LANDSCAPE PLAN SHEET 6
27	WQ04	WATER QUALITY PLAN AND PROFILE SHEET 4	63	L3.0	LANDSCAPE PLAN SHEET 7
28	WQ05	WATER QUALITY DETAILS SHEET 1	64	E-1	ELECTRICAL SYMBOLS & NOTES
29	WQ06	WATER QUALITY DETAILS SHEET 2	65	E-2	ELECTRICALL.S. GENERATOR SPECS
30	ST00	OVERALL STORM PLAN SHEET	66	E-3	ELECTRICAL L.S. GENERATOR/ATS SPECS
31	ST01	STORM PLAN AND PROFILE SHEET 1	67	E-4	ELECTRICAL L.S. ATS SPECS
32	ST02	STORM PLAN AND PROFILE SHEET 2	68	E-5	ELECTRICAL L.S. SITE PLAN
33	ST03	STORM PLAN AND PROFILE SHEET 3	69	E-6	ELECTRICAL L.S. ONE-LINE DIAGRAM
34	ST04	STORM PLAN AND PROFILE SHEET 4	70	E-7	ELECTRICAL L.S. PUMP CONTROL RANEL
35	ST05	STORM PLAN AND PROFILE SHEET 5	71	E-8	ELECTRICAL L.S. P&ID
36	WW00	OVERALL WASTEWATER LAYOUT	72	E-9	ELECTRICAL L.S. PUMP PANEL 1

# GENERAL NOTES:

LOCATION OF EXISTING

LOCATIONS ONLY. THE

UNDERGROUND AND OVERHEAD

CONTRACTOR SHALL DETERMINE

BEGINNING WORK AND SHALL BE

FULLY RESPONSIBLE FOR ANY AND

ALL DAMAGES WHICH MIGHT OCCUR.

UTILITIES ARE APPROXIMATE

THE EXACT LOCATION OF ALL

EXISTING UTILITIES PRIOR TO

1. THIS SUBDIVISION IS WHOLLY CONTAINED WITHIN THE CURRENT CORPORATE LIMITS OF THE CITY OF LEANDER, TEXAS.

2. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO THE CITY OF LEANDER WATER DISTRIBUTION AND WASTEWATER COLLECTION FACILITIES. 3. BUILDING PERMITS ARE REQUIRED FROM THE CITY OF LEANDER PRIOR TO CONSTRUCTION OF ANY BUILDING OR SITE IMPROVEMENTS ON ANY LOT IN THIS SUBDIVISION

4. NO BUILDINGS, FENCES, LANDSCAPING OR OTHER STRUCTURES ARE PERMITTED WITHIN DRAINAGE EASEMENTS SHOWN, EXCEPT AS APPROVED BY THE CITY OF LEANDER PUBLIC WORKS

Sheet List Table

5. PROPERTY OWNER SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY THE CITY OF LEANDER.

6. ALL EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER OR HIS OR HER ASSIGNS.

7. IN ADDITION TO THE EASEMENTS SHOWN HEREON, A TEN FOOT (10') WIDE PUBLIC UTILITY, LANDSCAPE AND ACCESS EASEMENT IS DEDICATED ALONG AND ADJACENT TO ALL RIGHT-OF-WAY AND A TWO AND A HALF (2.5') FOOT WIDE PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL SIDE LOT LINES.

8. BUILDING SETBACKS NOT SHOWN HEREON SHALL COMPLY WITH THE MOST CURRENT ZONING ORDINANCE OF THE CITY OF LEANDER. 9. SIDEWALKS SHALL BE INSTALLED ON THE SUBDIVISION SIDE OF SH 29, KAUFFMAN LOOP AND RONALD REAGAN BLVD. THOSE SIDEWALKS NOT ABUTTING A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL LOT (INCLUDING SIDEWALKS ALONG STREET FRONTAGES OF LOTS PROPOSED FOR SCHOOLS, CHURCHES, PARK LOTS, DETENTION LOTS, DRAINAGE LOTS, LANDSCAPE LOTS, OR SIMILAR LOTS), SIDEWALKS ON ARTERIAL STREETS TO WHICH ACCESS IS PROHIBITED, SIDEWALKS ON DOUBLE FRONTAGE LOTS ON THE SIDE TO WHICH ACCESS IS PROHIBITED, AND ALL

SIDEWALKS ON SAFE SCHOOL ROUTES SHALL BE INSTALLED WHEN THE ADJOINING STREET IS CONSTRUCTED. 10. ALL UTILITY LINES MUST BE LOCATED UNDERGROUND.

11. APPROVAL OF THESE PUBLIC IMPROVEMENTS CONSTRUCTION PLANS DOES NOT CONSTITUTE THE APPROVAL OF VARIANCES OR WAIVERS TO ORDINANCE REQUIREMENTS.

12. THIS SUBDIVISION IS SUBJECT TO PUD 20-Z-021 (ORDINANCE 05-018-00) AND PRELIMINARY PLAT No. 22-PP-014.

13. THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE CITY OF LEANDER REQUIREMENTS APPLICABLE TO THIS DEVELOPMENT. 14. ANY RELOCATION OF EXISTING ELECTRIC FACILITIES SHALL BE AT THE OWNERS EXPENSE. DAMAGE BY ANY UTILITY COMPANY TO ANY STRUCTURES, FENCES, WALLS, OR LANDSCAPING OF ANY KIND PLACED WITHIN THE LIMITS OF THE EASEMENTS SHOWN ON THIS PLAT WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. NO LANDSCAPING OR OTHER MODIFICATIONS

ALTERING THE CROSS-SECTIONS OF DRAINAGE EASEMENTS ARE ALLOWED WITHOUT APPROVAL BY THE CITY OF LEANDER. 15. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR MAINTAINING CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

(OHSA) REGULATIONS, CITY OF LEANDER RULES AND REGULATIONS AND TEXAS STATE LAWS PERTAINING TO CLEARANCES WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD POWER LINES AND EQUIPMENT. ALL COSTS INCURRED BECAUSE OF FAILURE TO COMPLY WITH THE REQUIRED CLEARANCES WILL BE CHARGED TO THE OWNER.

16. THIS PROJECT LIES WITHIN THE BOUNDARY OF THE EDWARDS AQUIFER RECHARGE ZONE & REQUIRES TCEQ APPROVAL BEFORE ANY DEVELOPMENT MAY BEGIN.

17. THIS PROJECT IS LOCATED WITHIN THE CITY OF LEANDER EMERGENCY SERVICES / FIRE DEPARTMENT JURISDICTION. 18. THESE PLANS AND SUBSEQUENT DEVELOPMENT PLANS SHALL COMPLY WITH THE MOST CURRENT INTERNATIONAL FIRE CODE AS ADOPTED AND AMENDED BY THE CITY OF LEANDER FIRE

DEPARTMENT, OR ITS SUCCESSORS.

19. THERE ARE NO NATURAL SLOPES GREATER THAN 15% WITHIN THE PROJECT BOUNDARY.

20. WATER AND WASTEWATER SERVICE SHALL BE PROVIDED BY THE CITY OF LEANDER.

21. ELECTRIC SERVICE SHALL BE SUPPLIED BY PEDERNALES ELECTRIC COOPERATIVE.

22. TELECOMMUNICATION SERVICE SHALL BE PROVIDED BY SPECTRUM.

23. GAS SERVICE SHALL BE SUPPLIED BY ATMOS ENERGY (IF NEEDED).

24. POST DEVELOPED RUN-OFF RATE SHALL BE LESS THAN OR EQUAL TO THE PRE-DEVELOPED CONDITION RUNOFF RATES PER CITY OF LEANDER REGULATIONS.

25. SITE DEVELOPMENT PERMIT MUST BE ISSUED BY THE CITY OF LEANDER AND TCEQ RECHARGE ZONE WPAP & SCS PLAN

APPROVAL REQUIRED PRIOR TO CONSTRUCTION OF THIS PROJECT.

26. ANY DEVIATION FROM THE APPROVED PLAN SET REQUIRES A REVISION OR CORRECTION/RE-SUBMITTAL FOR REVIEW AND APPROVAL.

27. ALL CONSTRUCTION WITHIN RIGHT-OF-WAY AND EASEMENTS SHOWN HEREIN MUST COMPLY WITH CITY OF LEANDER

(AND/OR TxDOT FOR WORK WITHIN SH-29 ROW) SPECIFICATIONS. 28. IRRIGATION SHALL BE PERMITTED SEPARATELY.

29. MAINTENANCE OF DRAINAGE IMPROVEMENTS WITHIN DRAINAGE EASEMENTS ARE THE RESPONSIBILITY OF THE PROPERTY OWNER AND HIS OR HER ASSIGNS.

30. ALL DRIVE LANES, FIRE LANES, AND DRIVEWAYS WITHIN THIS SUBDIVISION SHALL PROVIDE FOR RECIPROCAL ACCESS FOR INGRESS

AND EGRESS TO ALL OTHER LOTS WITHIN THE SUBDIVISION AND TO ADJACENT PROPERTIES.

31. SEE MAINTENANCE NOTE ON THIS SHEET FOR SUMMARY OF GATEWAY 29 POA OWNERSHIP AND MAINTENANCE RESPONSIBILITY.

32. ALL NECESSARY OFFSITE EASEMENTS SHOWN HEREIN ARE REQUIRED TO BE RECORDED PRIOR TO THE APPROVAL OF THE CONSTRUCTION PLANS.

CITY OF LEANDER APPROVAL

Know what's below. Call before you dig.



LJA Engineering, Inc.

7500 Rialto Boulevard Building II, Suite 100 Austin, Texas 78735

Phone 512.439.4700

REVISED MARCH 27, 2023

ENGINEERING MAIN LINE: 512-528-2721 PLANNING DEPARTMENT: 512-528-2750 PUBLIC WORKS MAIN LINE: 512-259-2640 STORMWATER INSPECTIONS: 512-285-0055 UTILITIES MAIN LINE: 512-259-1142 UTILITIES ON-CALL: 512-690-4760

- 1. CONTRACTORS SHALL HAVE AN APPROVED SET OF PLANS WITH APPROVED REVISIONS ON SITE AT ALL TIMES. FAILURE TO HAVE APPROVED PLANS ON SITE MAY RESULT IN ISSUANCE OF WORK
- 2. CONTACT 811 SYSTEM FOR EXISTING WATER AND WASTEWATER LOCATIONS 48 HOURS PRIOR TO CONSTRUCTION.
- a. **REFRESH ALL LOCATES <u>BEFORE</u> 14 DAYS** LOCATE REFRESH REQUESTS <u>MUST INCLUDE</u> A COPY OF YOUR 811 TICKET. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION
- MARKERS ARE NO LONGER VISIBLE. b. REPORT PIPELINE DAMAGE IMMEDIATELY - IF YOU WITNESS OR EXPERIENCE PIPELINE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER BY PHONE AT 512-259-2640
- 3. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR 48 HOURS BEFORE: a. BEGINNING EACH PHASE OF CONSTRUCTION. CONTACT ASSIGNED CITY INSPECTOR b. ANY TESTING. CONTRACTOR SHALL PROVIDE QUALITY TESTING FOR ALL INFRASTRUCTURES
- TO BE ACCEPTED AND MAINTAINED BY THE CITY OF LEANDER AFTER COMPLETION. c. PROOF ROLLING SUB-GRADE AND EVERY LIFT OF ROADWAY EMBANKMENT, IN-PLACE DENSITY TESTING OF EVERY BASE COURSE, AND ASPHALT CORES. ALL OF THIS TESTING
- MUST BE WITNESSED BY A CITY OF LEANDER REPRESENTATIVE. CONNECTING TO THE EXISTING WATER LINES.
- e. THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET ROW. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S ROW MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS. 4. ALL RESPONSIBILITY FOR THE ACCURACY OF THESE PLANS REMAINS WITH THE ENGINEER OF
- RECORD WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY MUST RELY ON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD. 5. EXCESS SOIL SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. NOTIFY THE CITY OF
- LEANDER IF THE DISPOSAL SITE IS INSIDE THE CITY'S JURISDICTIONAL BOUNDARIES. 6 BURNING IS PROHIBITED 7. NO WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 9:00 P.M. AND 7:00 A.M. OR WEEKENDS.
- THE CITY INSPECTOR RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO UNCOVER ALL WORK PERFORMED WITHOUT INSPECTION. 8. CONTACT THE CITY INSPECTOR 4 DAYS PRIOR TO WORK FOR APPROVAL TO SCHEDULE ANY INSPECTIONS ON WEEKENDS OR CITY HOLIDAYS.
- 10. ANY CHANGES OR REVISIONS TO THESE PLANS MUST FIRST BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER FOR REVIEW AND WRITTEN APPROVAL PRIOR TO CONSTRUCTION OF THE REVISION. ALL CHANGES AND REVISIONS SHALL USE REVISION CLOUDS TO HIGHLIGHT ALL REVISIONS AND CHANGES WITH EACH SUBMITTAL. REVISION TRIANGLE MARKERS AND NUMBERS SHALL BE USED TO MARK REVISIONS. ALL CLOUDS AND TRIANGLE MARKERS FROM PREVIOUS
- REVISIONS MUST BE REMOVED. REVISION INFORMATION SHALL BE UPDATED ON COVER SHEET AND AFFECTED PLAN SHEET TITLE BLOCK. 11. THE CONTRACTOR AND ENGINEER SHALL KEEP ACCURATE RECORDS OF ALL CONSTRUCTION THAT DEVIATES FROM THE PLANS. THE ENGINEER SHALL FURNISH THE CITY OF LEANDER ACCURATE "RECORD DRAWINGS" FOLLOWING THE COMPLETION OF ALL CONSTRUCTION. THESE
- "RECORD DRAWINGS" SHALL MEET THE SATISFACTION OF THE ENGINEERING DEPARTMENTS PRIOR TO FINAL ACCEPTANCE. 12. THE CONTRACTOR WILL REIMBURSE THE CITY FOR ALL REPAIR AND/OR COST INCURRED AS A RESULT OF ANY DAMAGE TO ANY PUBLIC INFRASTRUCTURE WITHIN CITY EASEMENT OR PUBLIC
- RIGHT-OF-WAY, REGARDLESS OF THESE PLANS. 13. WHEN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. PRIOR TO ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND DEBRIS WITHIN THE PERMANENT EASEMENTS. CLEANUP SHALL BE TO THE
- SATISFACTION OF THE ENGINEER OF RECORD AND CITY. 14. CONTRACTOR TO LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS. RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS. AT NO ADDITIONAL COST TO THE PROPERTY OWNER.
- 15. ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMEN PRINTING OFFICE: INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 1033 LA POSADA DR. SUITE 375, AUSTIN, TEXAS 78752-3832.
- 16. ALL MANHOLE FRAMES/COVERS AND WATER VALVE/METER BOXES MUST BE ADJUSTED TO FINISHED GRADE AT THE OWNER'S EXPENSE BY THE CONTRACTOR FOR CITY CONSTRUCTION INSPECTOR INSPECTION. ALL UTILITY ADJUSTMENTS SHALL BE COMPLETED PRIOR TO FINA PAVING. CONTRACTOR SHALL BACKFILL AROUND MANHOLES AND VALVE BOXES WITH CLASS A
- 17. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL CITY OF LEANDER DETAILS AND CITY OF AUSTIN STANDARD SPECIFICATIONS.
- 18. PROJECT SPECIFICATIONS TAKE PRECEDENCE OVER PLANS AND SPECIAL CONDITIONS GOVERN OVER TECHNICAL SPECIFICATIONS. 19. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND
- ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT. 20. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL
- 21. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADS AND DRIVES ADJACENT TO AND NEAR THE SITE FREE FROM SOIL, SEDIMENT AND DEBRIS. CONTRACTOR WILL NOT REMOVE SOIL, SEDIMENT OR DEBRIS FROM ANY AREA OR VEHICLE BY MEANS OF WATER. ONLY SHOVELING AND SWEEPING WILL BE ALLOWED. CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL FROM THE SITE. THE CONTRACTOR SHALL KEEP THE SITE AREA CLEAN AND MAINTAINED AT ALL TIMES TO THE SATISFACTION OF THE CITY. THE SUBDIVISION (OR SITE) WILL NOT BE ACCEPTED (OR CERTIFICATE OF OCCUPANCY ISSUED) UNTIL THE SITE HAS BEEN
- CLEANED TO THE SATISFACTION OF THE CITY 22. TREES IN EXISTING ROW SHOULD BE PROTECTED OR NOTED IN THE PLANS TO BE REMOVED.

# **CONSTRUCTION SEQUENCE NOTES**

NOTE: BELOW IS GENERAL SEQUENCE OF CONSTRUCTION. THE ENGINEER OF RECORD SHALL UPDATE BELOW WITH NOTES SPECIFIC TO THE PROJECT.

- REACH OUT TO THE CITY FOR PRE-CONSTRUCTION MEETING AND CONSTRUCTION PERMIT. 2. SET UP E/S CONTROLS AND TREE PROTECTION AND REACH OUT TO CITY FOR INSPECTION.
- SET UP TEMPORARY TRAFFIC CONTROLS. 4. CONSTRUCT THE DRAINAGE PONDS AND STORM WATER FEATURES.
- 5. START UTILITY, ROAD, GRADING, FRANCHISE UTILITY AND ALL NECESSARY INFRASTRUCTURE CONSTRUCTION, INOTE: PLEASE UPDATE AS PER THE PROJECTI 6. REQUEST FINAL WALKTHROUGH AND CONDUCT WALKTHROUGH WITH ENGINEER OF RECORD AND
- CITY DEPARTMENT. 7. ENGINEER OF RECORD IS RESPONSIBLE TO PREPARE AND SUBMIT CLOSEOUT DOCUMENTS FOR PROJECT CLOSEOUT.

### **EROSION CONTROL NOTES**

- 1. THE CITY OF LEANDER ENVIRONMENT INSPECTOR HAS THE AUTHORITY TO ADD OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE THROUGHOUT THE DURATION OF THE PROJECT. 2. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A
- MINIMUM OF 6" TOPSOIL. THE 6" MINIMUM SOIL DEPTH SHALL CONSISTS OF 75% SOIL BLENDED WITH 25% COMPOST. 3. ALL DISTURBED AREAS SHALL BE RE-VEGETATED USING ONLY APPROVED GRASSES FROM THE GROW GREEN GUIDE.
- 4. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES AND SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
- THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP. 6. ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS SPECIFICALLY
- SHOWN ON THE PLANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY AREA 7. ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST
- 8. SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164-WC001 SEEDING
- FOR EROSION CONTROL). RESEEDING VARITIES OF BERMUDA SHALL NOT BE USED. 9. STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS
- MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD. 10. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.
- 11. IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.

### WATER AND WASTEWATER GENERAL NOTES

1. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ORGANIZATION ACCREDITED BY ANSI. 2. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY

WATER SERVICE "W" ON TOP OF CURB WASTEWATER SERVICE "S" ON TOP OF CURB "V" ON TOP OF CURB

- 3. OPEN UTILITIES SHALL NOT BE PERMITTED ACROSS THE EXISTING PAVED SURFACES. WATER AND WASTEWATER LINES ACROSS THE EXISTING PAVED SURFACES SHALL BE BORED AND INSTALLED IN STEEL ENCASEMENT PIPES. BELL RESTRAINTS SHALL BE PROVIDED AT JOINTS.
- 4. INTERIOR SURFACES OF ALL DUCTILE IRON POTABLE OR RECLAIMED WATER PIPE SHALL BE CEMENT-MORTAR LINED AND SEAL COATED AS REQUIRED BY AWWA C104. 5. SAND, AS DESCRIBED IN AUSTIN SPECIFICATION ITEM 510 PIPE. SHALL NOT BE USED AS BEDDING
- FOR WATER AND WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

SIEVE SIZE PERCENT RETAINED BY WEIGHT

95-100 6. DENSITY TESTING FOR TRENCH BACKFILL SHALL BE DONE IN MAXIMUM 12" LIFTS.

40-85

# WATER NOTES

STAMPED AS FOLLOWS:

- 1. SAMPLING TAPS SHALL BE BROUGHT UP TO 3 FEET ABOVE GRADE AND SHALL BE EASILY ACCESSIBLE FOR CITY PERSONNEL. AT THE CONTRACTORS' REQUEST, AND IN HIS PRESENCE, SAMPLES FOR BACTERIOLOGICAL TESTING WILL BE COLLECTED BY THE CITY OF LEANDER NOT LESS THAN 24 HOURS AFTER THE TREATED LINE HAS BEEN FLUSHED OF THE CONCENTRATED
- CHLORINE SOLUTION AND CHARGED WITH WATER APPROVED BY THE CITY. 2. CITY PERSONNEL WILL OPERATE OR AUTHORIZE THE CONTRACTOR TO OPERATE ALL WATER VALVES THAT WILL PASS THROUGH THE CITY'S POTABLE WATER. THE CONTRACTOR MAY BE FINED \$500 OR MORE, INCLUDING ADDITIONAL THEFT OF WATER FINES, IF A WATER VALVE IS OPERATED IN AN UNAUTHORIZED MANNER, REGARDLESS OF WHO OPERATED THE VALVE.
- 3. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 AM AND 6 AM AFTER COORDINATING WITH CITY CONSTRUCTION INSPECTORS AND INFORMING AFFECTED PROPERTIES.
- 4. PRESSURE TAPS OR HOT TAPS SHALL BE IN ACCORDANCE WITH CITY OF LEANDER STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL PERFORM ALL EXCAVATION AND SHALL FURNISH. INSTALL AND AIR TEST THE SLEEVE AND VALVE. A CITY OF LEANDER INSPECTOR MUST BE PRESENT WHEN THE CONTRACTOR MAKES A TAP, AND/OR ASSOCIATED TESTS. A MINIMUM OF TWO (2) WORKING DAYS NOTICE IS REQUIRED. "SIZE ON SIZE" TAPS WILL NOT BE PERMITTED UNLESS MADE BY THE USE OF AN APPROVED FULL-CIRCLE GASKETED TAPPING SLEEVE. CONCRETE THRUST BLOCKS SHALL BE PLACED BEHIND AND UNDER ALL TAP SLEEVES A MINIMUM OF 24 HOURS PRIOR TO THE BRANCH BEING PLACED INTO SERVICE. THRUST BLOCKS SHALL BE INSPECTED PRIOR
- 5. FIRE HYDRANTS ON MAINS UNDER CONSTRUCTION SHALL BE SECURELY WRAPPED WITH A BLACK POLY WRAP BAG AND TAPED INTO PLACE. THE POLY WRAP SHALL BE REMOVED WHEN THE MAINS ARE ACCEPTED AND PLACED INTO SERVICE.
- 6. THRUST BLOCKS OR RESTRAINTS SHALL BE IN ACCORDANCE WITH THE CITY OF LEANDER STANDARD SPECIFICATIONS AND REQUIRED AT ALL FITTINGS PER DETAIL OR MANUFACTURER'S RECOMMENDATION. ALL FITTINGS SHALL HAVE BOTH THRUST BLOCKS AND RESTRAINTS.
- 7. ALL DEAD-END WATER MAINS SHALL HAVE "FIRE HYDRANT ASSEMBLY" OR "BLOW-OFF VALVE AND THRUST BLOCK" OR "BLOW-OFF VALVE AND THRUST RESTRAINTS". THRUST RESTRAINTS SHALL BE INSTALLED ON THE MINIMUM LAST THREE PIPE LENGTHS (STANDARD 20' LAYING LENGTH). ADDITIONAL THRUST RESTRAINTS MAY BE REQUIRED BASED UPON THE MANUFACTURER'S
- RECOMMENDATION AND/OR ENGINEER'S DESIGN. 8. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C900-DR14 MIN. 305 PSI PRESSURE RATING). WATER SERVICES (2" OR LESS) SHALL BE POLYETHYLENE TUBING (BLACK, 200PSI, SDR-(9)). COPPER PIPES AND FITTINGS ARE NOT ALLOWED IN THE PUBLIC RIGHT-OF-WAY. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-P-W).
- 9. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C115/C151 PRESSURE CLASS
- 10. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL POLYETHYLENE. 11. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE COORDINATED WITH THE PUBLIC WORKS DEPARTMENT

b. DUAL, 1" METERS AND BELOW DFW39F-12-1CA, OR EQUAL

12. ALL WATER METER BOXES SHALL BE: a. SINGLE, 1" METER AND BELOW DFW37F-12-1CA, OR EQUAL

DFW1730F-12-1CA, OR EQUAL 13. ALL WATER VALVE COVERS ARE TO BE PAINTED BLUE.

c. 1.5" SINGLE METER

d. 2" SINGLE METER

# **WASTEWATER NOTES**

CURVILINEAR WASTEWATER DESIGN LAYOUT IS NOT PERMITTED. MANDREL TESTING SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST

DFW65C-14-1CA, OR EQUAL

- 3. MANHOLES SHALL BE COATED PER CITY OF AUSTIN SPL WW-511 (RAVEN 405 OR SPRAYWALL). PENETRATIONS TO EXISTING WASTEWATER MANHOLES REQUIRE THE CONTRACTOR TO RECOAT THE ENTIRE MANHOLE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATIONS SECTION
- 4. RECLAIMED AND RECYCLED WATER LINE SHALL BE CONSTRUCTED OF "PURPLE PIPE". ALL RECLAIMED AND RECYCLED WATER VALVE COVERS SHALL BE SQUARE AND PAINTED PURPLE.
- 5. FORCE MAIN PIPES NEED TO HAVE SWEEPING WYES FOR JOINTS.

# **STREET AND DRAINAGE NOTES**

ARE AS FOLLOWS: (SEE TABLE BELOW)

- 1. THE CITY OF LEANDER HAS NOT REVIEWED THESE PLANS FOR COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA). IT IS THE RESPONSIBILITY OF THE OWNER TO PROVIDE COMPLIANCE WITH ALL LEGISLATION RELATED TO ACCESSIBILITY WITHIN THE LIMITS OF CONSTRUCTION SHOWN IN THESE PLANS. ALL SIDEWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND
- TEXAS ACCESSABILITY STANDARDS (TAS). BACKFILL BEHIND THE CURB SHALL BE COMPACTED TO OBTAIN A MINIMUM OF 95% MAXIMUM DENSITY TO WITHIN 6" OF TOP OF CURB. MATERIAL USED SHALL BE PRIMARILY GRANULAR WITH NO ROCKS LARGER THAN 6" IN THE GREATEST DIMENSION. THE REMAINING 6" SHALL BE CLEAN TOPSOIL
- FREE FROM ALL CLODS AND SUITABLE FOR SUSTAINING PLANT LIFE. 3. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED BETWEEN THE CURB AND RIGHT-OF-WAY AND
- IN ALL DRAINAGE CHANNELS EXCEPT CHANNELS CUT IN STABLE ROCK. 4. DEPTH OF COVER FOR ALL CROSSINGS UNDER PAVEMENT, INCLUDING GAS, ELECTRIC
- TELEPHONE, CABLE TV, ETC., SHALL BE A MINIMUM OF 36" BELOW SUBGRADE. 5. STREET RIGHT-OF-WAY SHALL BE GRADED AT A SLOPE OF 1/4" PER FOOT TOWARD THE CURB UNLESS
- 6. ALL DRAINAGE PIPE IN PUBLIC RIGHT-OF-WAY OR EASEMENTS SHALL BE REINFORCED CONCRETE PIPE MINIMUM CLASS III OF TONGUE AND GROOVE OR O-RING JOINT DESIGN. CORRUGATED METAL PIPE IS NOT ALLOWED IN PUBLIC RIGHT-OF-WAY OR EASEMENTS. 7. THE CONTRACTOR MUST PROVIDE A PNEUMATIC TRUCK PER TXDOT SPEC FOR PROOF ROLLING.
- TYPE II (WATER BASED). STOP BARS, CROSS WALKS, WORDS AND ARROWS REQUIRE TYPE I THERMOPLASTIC. 9. MANHOLE FRAMES, COVERS, VALVES, CLEAN-OUTS, ETC. SHALL BE RAISED TO GRADE PRIOR TO

8. ALL STRIPING, WITH THE EXCEPTION OF STOP BARS, CROSS WALKS, WORDS AND ARROWS, IS TO BE

- FINAL PAVEMENT CONSTRUCTION. 10. A STOP BAR SHALL BE PLACED AT ALL STOP SIGN LOCATIONS. 11. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE SUBGRADE FOR COMPLIANCE WITH THE DESIGN ASSUMPTIONS MADE DURING PREPARATION OF THE SOILS REPORT. ANY ADJUSTMENTS THAT ARE
- REQUIRED SHALL BE MADE THROUGH REVISIONS OF THE APPROVED CONSTRUCTION PLANS. 12. GEOTECHNICAL INVESTIGATION INFORMATION AND PAVEMENT RECOMMENDATIONS WERE PROVIDED BY GEOSCIENCE ENGINEERS, LLC DATED APRIL 5, 2023. PAVEMENT RECOMMENDATIONS

	Minimum Thickness (inches)
Light Traffic	
Portland Cement Concrete	5
Minimum Lime Stabilized Subgrade	6
Compacted subgrade	6
Heavy Traffic	
Portland Cement Concrete	6
Minimum Lime Stabilized Subgrade	6
Compacted subgrade	6

- 13. A TRAFFIC CONTROL PLAN. IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL, CITY OF LEANDER STANDARD DETAILS AND TEXAS DEPARTMENT OF TRANSPORTATION CRITERIA, SHALL BE SUBMITTED TO THE CITY OF LEANDER FOR REVIEW AND APPROVAL PRIOR TO ANY PARTIAL OR COMPLETE ROADWAY CLOSURES. TRAFFIC CONTROL PLANS MUST BE SITE SPECIFIC AND SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
- 14. ALL LANE CLOSURES SHALL OCCUR ONLY BETWEEN THE HOURS OF 9 AM AND 4 PM UNLESS OTHERWISE NOTED ON THE PLANS. ANY NIGHT TIME LANE CLOSURES REQUIRE APPROVAL OF THE CITY ENGINEER AND SHALL OCCUR BETWEEN THE HOURS OF 8 PM AND 6 AM. LANE CLOSURES OBSERVED BY THE CITY DURING PEAK HOURS OF 6 AM TO 9 AM OR 4 PM TO 8 PM WILL BE SUBJECT TO A FINE AND/OR SUBSEQUENT ISSUANCE OF WORK STOPPAGE. 15. TEMPORARY ROCK CRUSHING IS NOT ALLOWED. ALL SOURCES OF FLEXIBLE BASE MATERIAL ARE
- REQUIRED TO BE APPROVED BY THE CITY. PRIOR TO BASE PLACEMENT ALL CURRENT TRIAXIAL TEST REPORTS FOR PROPOSED STOCKPILES ARE TO BE SUBMITTED TO THE CITY CONSTRUCTION INSPECTOR FOR REVIEW AND APPROVAL. 16. AT ROAD INTERSECTIONS THAT HAVE A VALLEY GUTTER, THE CROWN TO THE INTERSECTING ROAD WILL BE CULMINATED AT A DISTANCE OF 40 FEET FROM INTERSECTING CURB LINE UNLESS
- OTHERWISE NOTED 17. NO PONDING OF WATER SHALL BE ALLOWED TO COLLECT ON OR NEAR THE INTERSECTION OF PRIVATE DRIVEWAYS AND PUBLIC STREETS. RECONSTRUCTION OF THE DRIVEWAY APPROACH
- SHALL BE AT THE CONTRACTOR'S EXPENSE 18. ALL DRIVEWAY APPROACHES SHALL HAVE A UNIFORM TWO PERCENT SLOPE WITHIN THE PUBLIC RIGHT-OF-WAY UNLESS APPROVED IN WRITING BY THE ENGINEERING DEPARTMENT.
- 19. IMPROVEMENTS THAT INCLUDE RECONSTRUCTION OF AN EXISTING TYPE II DRIVEWAY SHALL BE DONE IN A MANNER WHICH RETAINS OPERATIONS OF NOT LESS THAN HALF OF THE DRIVEWAY TO REMAIN OPEN AT ALL TIMES. FULL CLOSURE OF SUCH DRIVEWAY CAN BE CONSIDERED WITH WRITTEN AUTHORIZATION OBTAINED BY THE CONTRACTOR FROM ALL PROPERTY OWNERS AND
- 20. CONTRACTOR MUST CLEAR FIVE (5) FEET BEYOND ALL PUBLIC RIGHT-OF-WAY TO PREVENT FUTURE VEGETATIVE GROWTH INTO THE SIDEWALK AREAS. 21. SLOPE OF NATURAL GROUND ADJACENT TO THE PUBLIC RIGHT-OF-WAY SHALL NOT EXCEED 3:1 SLOPE. IF A 3:1 SLOPE IS NOT POSSIBLE, SLOPE PROTECTION OR RETAINING WALL MUST BE
- SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE. 22. THERE SHALL BE NO WATER, WASTEWATER OR DRAINAGE APPURTENANCES, INCLUDING BUT NOT LIMITED TO VALVES, FITTINGS, METERS, CLEAN-OUTS, MANHOLES, OR VAULTS IN ANY DRIVEWAY, SIDEWALK TRAFFIC OR PEDESTRIAN AREA
- 23. PUBLIC SIDEWALKS SHALL NOT USE CURB INLETS AS PARTIAL WALKING SURFACE. SIDEWALKS SHALL NOT USE TRAFFIC CONTROL BOXES, METERS, CHECK VALVE VAULTS, COMMUNICATION VAULTS, OR OTHER BURIED OR PARTIALLY BURIED INFRASTRUCTURE AS A VEHICULAR OR PEDESTRIAN SURFACE
- 24. ALL WET UTILITIES SHALL BE INSTALLED AND ALL DENSITIES MUST HAVE PASSED INSPECTION(S) PRIOR TO THE INSTALLATION OF DRY UTILITIES.
- 25. DRY UTILITIES SHALL BE INSTALLED AFTER SUBGRADE IS CUT AND BEFORE THE FIRST COURSE OF BASE. NO TRENCHING COMPACTED BASE. IF NECESSARY DRY UTILITIES INSTALLED AFTER FIRST COURSE BASE SHALL BE BORED ACROSS THE FULL WIDTH OF THE PUBLIC RIGHT-OF-WAY.
- 26. A MINIMUM OF SEVEN (7) DAYS OF CURE TIME IS REQUIRED FOR HMAC PRIOR TO THE INTRODUCTION OF VEHICULAR TRAFFIC TO ALL STREETS.

# DRY UTILITY NOTES

- CONTACTOR SHALL MAINTAIN MINIMUM 24" CLEARANCE FROM ALL EXISTING UTILITIES. 2. FOR PUBLIC WATER & WASTEWATER LINE EMERGENCIES, CONTACT THE CITY OF LEANDER
- PUBLIC WORKS EMERGENCY 24-HOUR ON-CALL LINE AT 512-690-4760. 3. THE CONTRACTOR SHALL CONTACT THE TEXAS EXCAVATION SAFETY SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS 48 HOURS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES THAT ARE TO BE EXTENDED. TIED TO, CROSSED, OR ALTERED; OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION
- OPERATIONS. 4. CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT FOR EXISTING WATER, WASTEWATER, STREET LIGHT ELECTRICAL WIRING, AND TRAFFIC SIGNAL WIRING LOCATIONS A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.
- a. LOCATE REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. b. REFRESH ALL LOCATES BEFORE 14 DAYS – LOCATE REFRESH REQUESTS MUST INCLUDE A COPY OF YOUR 811 TICKET. TEXAS PIPELINE DAMAGE PREVENTION LAWS REQUIRE THAT A LOCATE REFRESH REQUEST BE SUBMITTED BEFORE 14 DAYS, OR IF LOCATION MARKERS ARE NO LONGER VISIBLE. REPORT ALL DAMAGE TO CITY INFRASTRUCTURE IMMEDIATELY – IF YOU WITNESS OR
- EXPERIENCE EXCAVATION DAMAGE, PLEASE CONTACT THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT BY PHONE. IF DAMAGE IS WITNESSED OR EXPERIENCED AFTER HOURS, CALL THE CITY OF LEANDER UTILITIES ON-CALL LINE AT THE NUMBER LISTED 5. A PRECONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN
- ENGINEER/PERMIT APPLICANT & CITY OF LEANDER REPRESENTATIVES PRIOR TO INSTALLATION OF EROSION/SEDIMENTATION CONTROLS & TREE PROTECTION MEASURES AS WELL AS PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PLANNING DEPARTMENT AT 512-528-2750 AT LEAST THREE (3) DAYS PRIOR TO MEETING DATE. 6. CITY OF LEANDER NOISE ORDINANCE PROHIBITS CONSTRUCTION ACTIVITY BETWEEN THE
- HOURS OF 9 PM AND 7 AM. REQUESTS FOR EXCEPTIONS TO THE ORDINANCE MUST BE MADE TO LEANDER CITY COUNCIL 7. CONTRACTOR SHALL BORE UNDER ALL DRIVEWAYS, STREET CROSSINGS AND OTHER PAVED
- AREAS OPEN CUT CROSSING SHALL NOT BE ALLOWED. 8. CONTRACTOR SHALL REPLACE ALL DAMAGED PAVEMENT, CURB & GUTTER, SIDEWALK, CURB INLETS AND ALL OTHER INFRASTRUCTURE DAMAGED BY CONSTRUCTION PER CITY OF LEANDER STANDARDS & SPECIFICATIONS.
- 9. AL CLAWSON DISPOSAL, INC. SHALL BE THE SOLE PROVIDER OF WASTE HAULING AFTER CONSTRUCTION. 10. ALL UNDERGROUND UTILITY LINES SHALL CROSS UNDERNEATH WATERLINES. 11. THE MINIMUM DEPTH OF COVER FOR UTILITY LINES INSTALLED UNDER CITY OF LEANDER ROADWAYS SHALL BE 36" BENEATH FINISHED GRADE.

# TRENCH SAFETY NOTES

TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT ARE DESCRIBED IN ITEM 509S "TRENCH SAFETY SYSTEMS" OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS AND SHALL BE IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATION SAFETY AND HEALTH ADMINISTRATION REGULATIONS.

# **GRADING NOTES**

- POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER. THE CONTRACTOR SHALL CONSTRUCT EARTHEN EMBANKMENTS WITH SLOPES NO STEEPER THAN 3:1 AND COMPACT SOIL TO 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CITY OF AUSTIN
- STANDARD SPECIFICATIONS. AREAS OF SOIL DISTURBANCE ARE LIMITED TO GRADING AND IMPROVEMENTS SHOWN. ALL OTHER AREAS WILL NOT BE DISTURBED.

# **BENCHMARK NOTES**

ALL BEARINGS BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, GRID NORTH, CENTRAL ZONE (4203), NAD83, SURFACE ADJUSTMENT CONVERSION FACTOR IS 1.00013.

SQUARE CUT ON NW CORNER OF SIDEWALK AT THE SW CORNER OF SUBJECT TRACT GRID NORTHING: 10,203,049.71

GRID EASTING: 3,082,826.73 ELEVATION: 1034.75'

SQUARE CUT ON SE CORNER OF CULVERT SAFETY END TREATMENT SOUTH OF SE CORNER OF SUBJECT TRACT GRID NORTHING: 10,203,480.25 GRID EASTING: 3,084,353.79

# **GENERAL CONSTRUCTION NOTES**

**ELEVATION: 996.98'** 

WE UNDERSTAND CURRENT PLANS ARE THAT THE ROADWAYS WILL LIKELY CONSIST OF FLEXIBLE PAVEMENTS. THEREFORE, WE HAVE PREPARED THE FOLLOWING RECOMMENDATIONS FOR THE DESIGN AND CONSTRUCTION OF FLEXIBLE PAVEMENT SYSTEMS. WE UNDERSTAND THE PROPOSED PAVEMENTS FOR THIS DEVELOPMENT WILL BE DESIGNED AND CONSTRUCTED IN GENERAL ACCORDANCE WITH THE CITY OF AUSTIN DESIGN STANDARDS. THESE GUIDELINES REQUIRE THAT STREETS BE DESIGNED USING THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "GUIDE FOR DESIGN OF PAVEMENT STRUCTURES".

BASED ON THE SUBSURFACE INFORMATION OBTAINED AT THE SOIL BORINGS DRILLED ALONG THE ALIGNMENT OF THE PROPOSED STREETS, THE PAVEMENT SUBGRADE SOIL PROFILE GENERALLY CONSISTS OF A FIRM TO STIFF FAT CLAY (CH). AS A PART OF ANY PAVEMENT DESIGN, THE STRENGTH OF THE UNDERLYING SUBGRADE MUST BE TAKEN INTO CONSIDERATION. THIS IS OFTEN ACCOMPLISHED BY PERFORMING A LABORATORY CALIFORNIA BEARING RATIO (CBR) TEST TO APPROXIMATE A SOIL RESILIENT MODULUS WHICH IS UTILIZED IN THE DESIGN. BASED UPON THE FINDINGS OF OUR EXPLORATORY BORINGS AND RESULTS OF LABORATORY TESTING, OUR EXPERIENCE WITH SIMILAR SOILS IN NEARBY SUBDIVISION UNITS. WE HAVE USED A DESIGN CBR OF APPROXIMATELY TWO (2) FOR THE PAVEMENTS WITHIN THIS DEVELOPMENT. TRAFFIC INFORMATION WAS NOT AVAILABLE AT THE TIME OF THIS REPORT; THEREFORE, ESALS WERE ESTIMATED AND CATEGORIZED AS LIGHT-DUTY AND HEAVY-DUTY TRAFFIC.

# GEOTECHNICAL REPORT NOTES

ALL EARTHWORK, GRADING AND SITE IMPROVEMENTS SHALL FOLLOW THE RECOMMENDATIONS IN GATEWAY 29 GEOTECHNICAL REPORT BY GEOSCIENCE ENGINEERS, LLC DATED APRIL 5, 2023, UPDATED

APRIL 20, 2003

- 1. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
- ALL PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST ALSO BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS.
- NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY WATER TRANSMISSION AND DISTRIBUTION LINES MUST BE INSTALLED IN ACCORDANCE WITH THE
- BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATERLINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE. THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED
- BY AWWA FORMULAS ALL WATERLINES SHALL BE HYDROSTATIC LEAK TESTED IN CONFORMANCE WITH AWWA C600-93
- FOR DUCTILE IRON PIPE AND AWWA C605-94 FOR PVC PIPE. ALL WATERLINES SHALL BE DISINFECTED IN CONFORMANCE WITH AWWA C651-92.

# TCEQ 217.53(d) SEPARATION DISTANCES

(d) SEPARATION DISTANCES BETWEEN PUBLIC WATER SUPPLY PIPES AND WASTEWATER COLLECTION PIPES OR MANHOLES.

MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED

- (1) COLLECTION SYSTEM PIPES MUST BE INSTALLED IN TRENCHES SEPARATE FROM PUBLIC WATER SUPPLY TRENCHES.
- (2) COLLECTION SYSTEM PIPES MUST BE NO CLOSER THAN NINE FEET IN ANY DIRECTION TO A PUBLIC WATER SUPPLY LINE.
- (3) IF A NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING GUIDELINES
- (A) IF A COLLECTION SYSTEM PARALLELS A PUBLIC WATER SUPPLY PIPE THE FOLLOWING (i) A COLLECTION SYSTEM PIPE MUST BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR

PVC MEETING ASTM SPECIFICATIONS WITH AT LEAST 150 POUNDS PER SQUARE INCH

- (PSI) PRESSURE RATING FOR BOTH THE PIPE AND JOINTS. (ii) A VERTICAL SEPARATION MUST BE AT LEAST TWO FEET BETWEEN THE OUTSIDE DIAMETERS OF THE PIPES
- (iii) A HORIZONTAL SEPARATION MUST BE AT LEAST FOUR FEET BETWEEN OUTSIDE DIAMETERS OF THE PIPES
- (B) IF A COLLECTION SYSTEM PIPE CROSSES A PUBLIC WATER SUPPLY PIPE, THE FOLLOWING REQUIREMENTS APPLY:

(iv) A COLLECTION SYSTEM PIPE MUST BE BELOW A PUBLIC WATER SUPPLY PIPE.

WITH A MINIMUM PRESSURE RATING OF 150 PSI, THE FOLLOWING REQUIREMENTS (I) A MINIMUM SEPARATION DISTANCE IS SIX INCHES BETWEEN OUTSIDE DIAMETERS OF

(i) IF A COLLECTION SYSTEM IS CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC

(II) A COLLECTION SYSTEM PIPE MUST BE BELOW A PUBLIC WATER SUPPLY PIPE.

(III) COLLECTION SYSTEM PIPE JOINTS MUST BE LOCATED AS FAR AS POSSIBLE FROM

(ii) IF A COLLECTION SYSTEM PIPE CROSSES UNDER A PUBLIC WATER SUPPLY PIPE AND THE COLLECTION SYSTEM PIPE IS CONSTRUCTED OF ACRYLONITRILE BUTADIENE STYRENE (ABS) TRUSS PIPE, SIMILAR SEMI-RIGID PLASTIC COMPOSITE PIPE, CLAY PIPE,

OR CONCRETE PIPE WITH GASKETED JOINTS, THE FOLLOWING REQUIREMENTS APPLY:

AN INTERSECTION WITH A PUBLIC WATER SUPPLY LINE.

(I) A MINIMUM SEPARATION DISTANCE IS TWO FEET

### **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY** WATER POLLUTION ABATEMENT PLAN **GENERAL CONSTRUCTION NOTES**

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY REGULATED ACTIVITIES. THIS NOTICE MUST INCLUDE:

### - THE NAME OF THE APPROVED PROJECT - THE ACTIVITY START DATE; AND - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR

- 2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
- 3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION. ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER
- 4. NO TEMPORARY OR PERMANENT HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
- 5. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY. ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
- 6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.

LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.

- 7. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS NOT
- 8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
- 9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
- 10. IF PORTIONS OF THE SITE WILL HAVE A TEMPORARY OR PERMANENT CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
- THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND

11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON

- 12. THE HOLDER OF ANY APPROVED EDWARDS AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
- A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES; B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT

- THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.

WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER: C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL

WATER POLLUTION ABATEMENT PLAN. AUSTIN REGIONAL OFFICE 12100 PARK 35 CIRCLE, BUILDING A AUSTIN. TX 78753-1808 PHONE: (512) 339-2929

SAN ANTONIO REGIONAL OFFICE 14250 JUDSON ROAD SAN ANTONIO, TX 78233-4480 PHONE: (210) 490-3096

FAX: (512) 339-3795 FAX: (210) 545-4329 THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS

PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

TCEQ-0592 (REV. 7/15/2015)

08/08/2023

JOB NUMBER:

Know what's **below** Call before you dig.

**GN01** SHEET NO.

LOCATION OF EXISTING

LOCATIONS ONLY. THE

UNDERGROUND AND OVERHEAD

CONTRACTOR SHALL DETERMINE

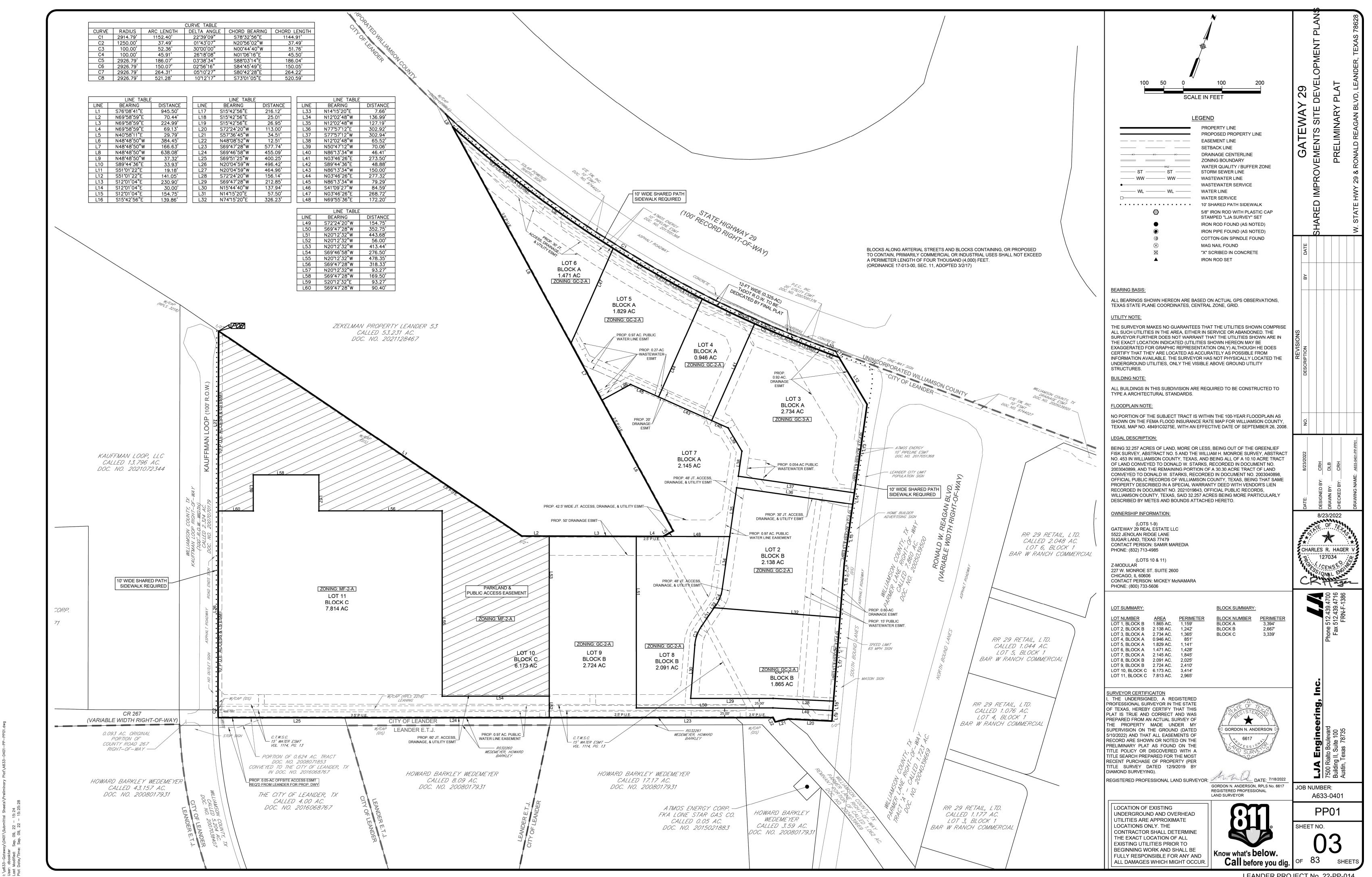
FULLY RESPONSIBLE FOR ANY AND

ALL DAMAGES WHICH MIGHT OCCUR.

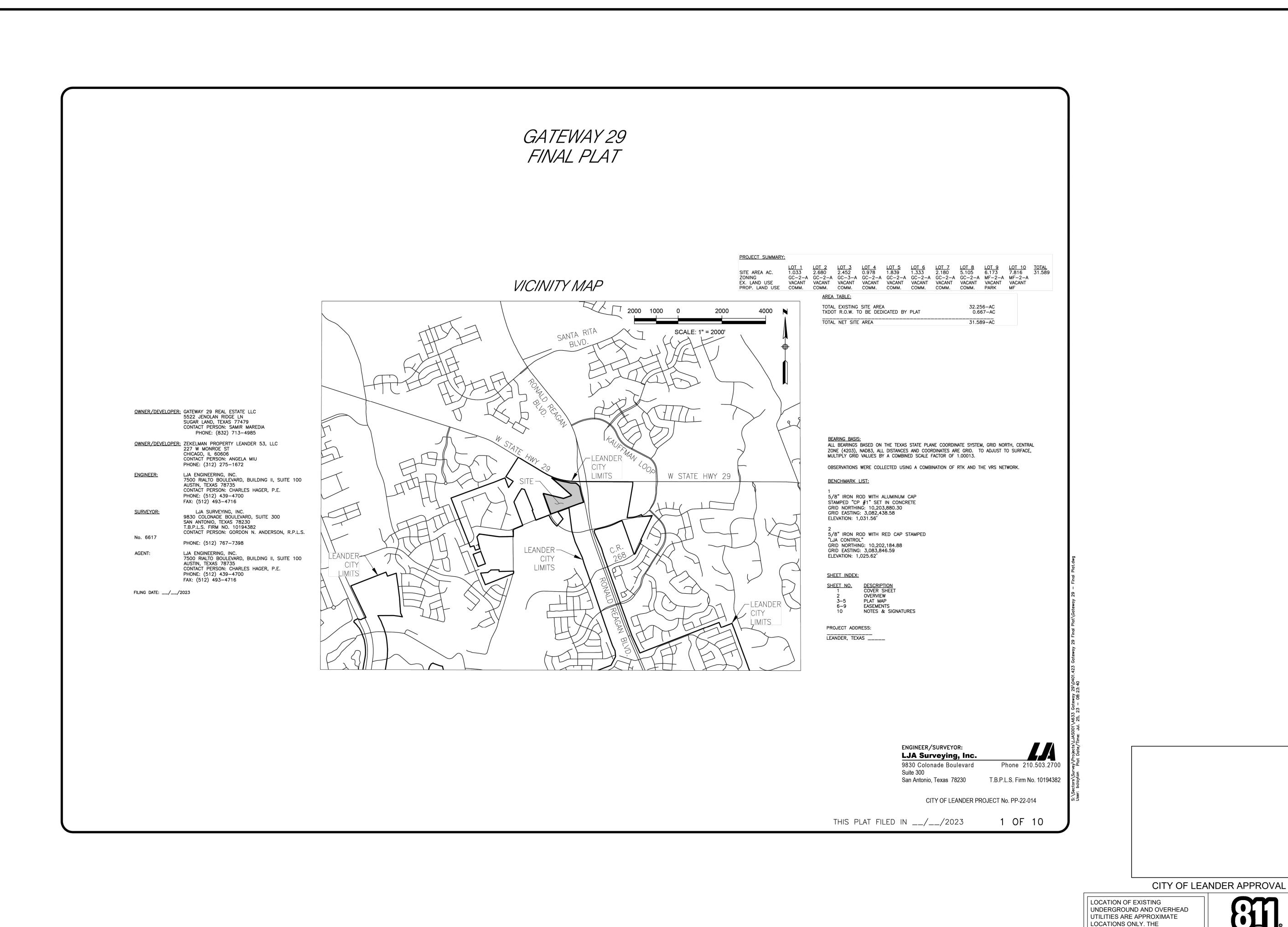
UTILITIES ARE APPROXIMATE

THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE

CITY OF LEANDER APPROVAL



LEANDER PROJECT No. 22-PP-014 CITY OF LEANDER PROJECT No. SDP-23-XXXX



JOB NUMBER: A633-0401 FP01 SHEET NO. Know what's **below**. Call before you dig. OF 83

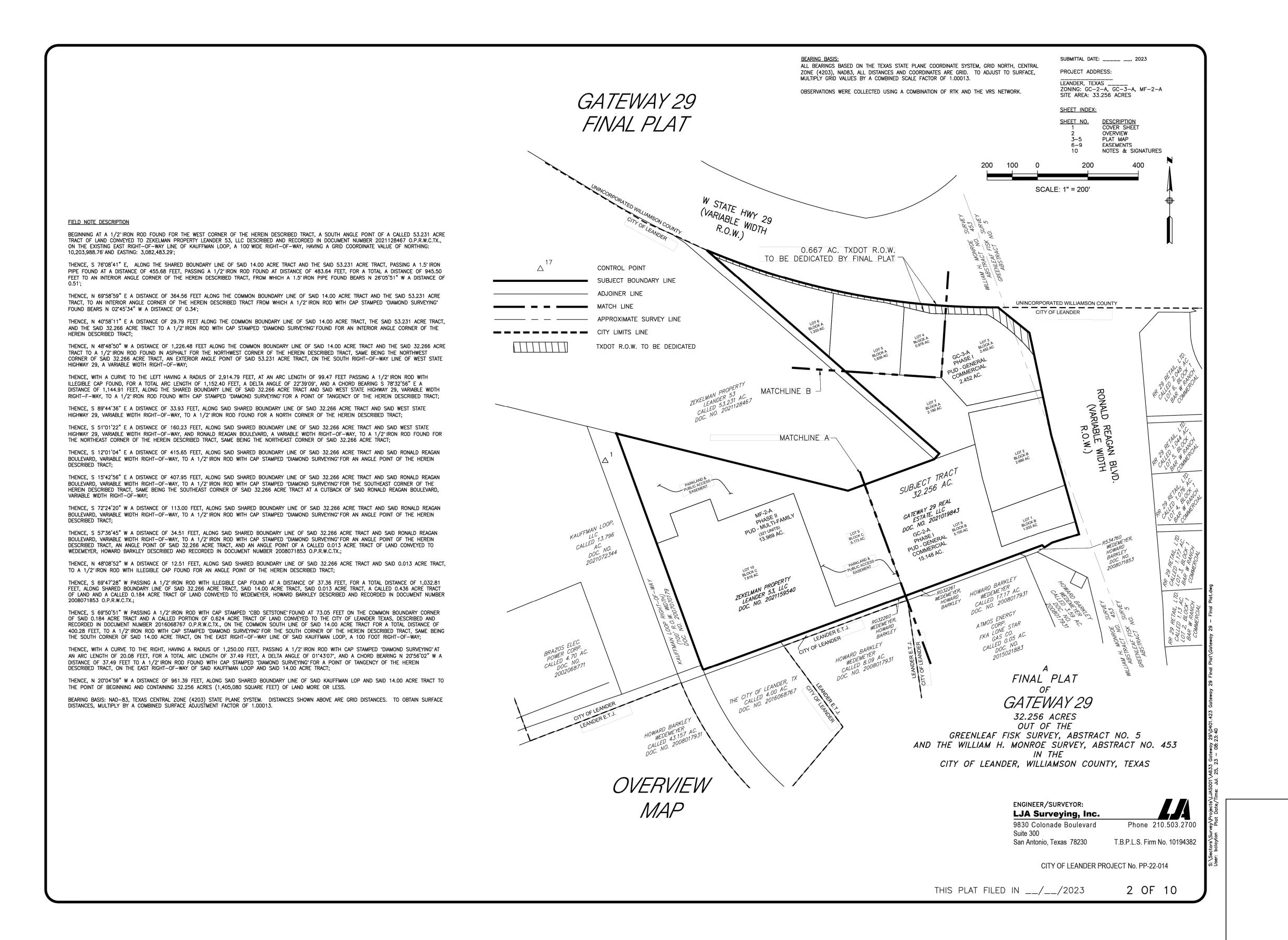
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CONTRACTOR SHALL DETERMINE

FULLY RESPONSIBLE FOR ANY AND

ALL DAMAGES WHICH MIGHT OCCUR.

THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE



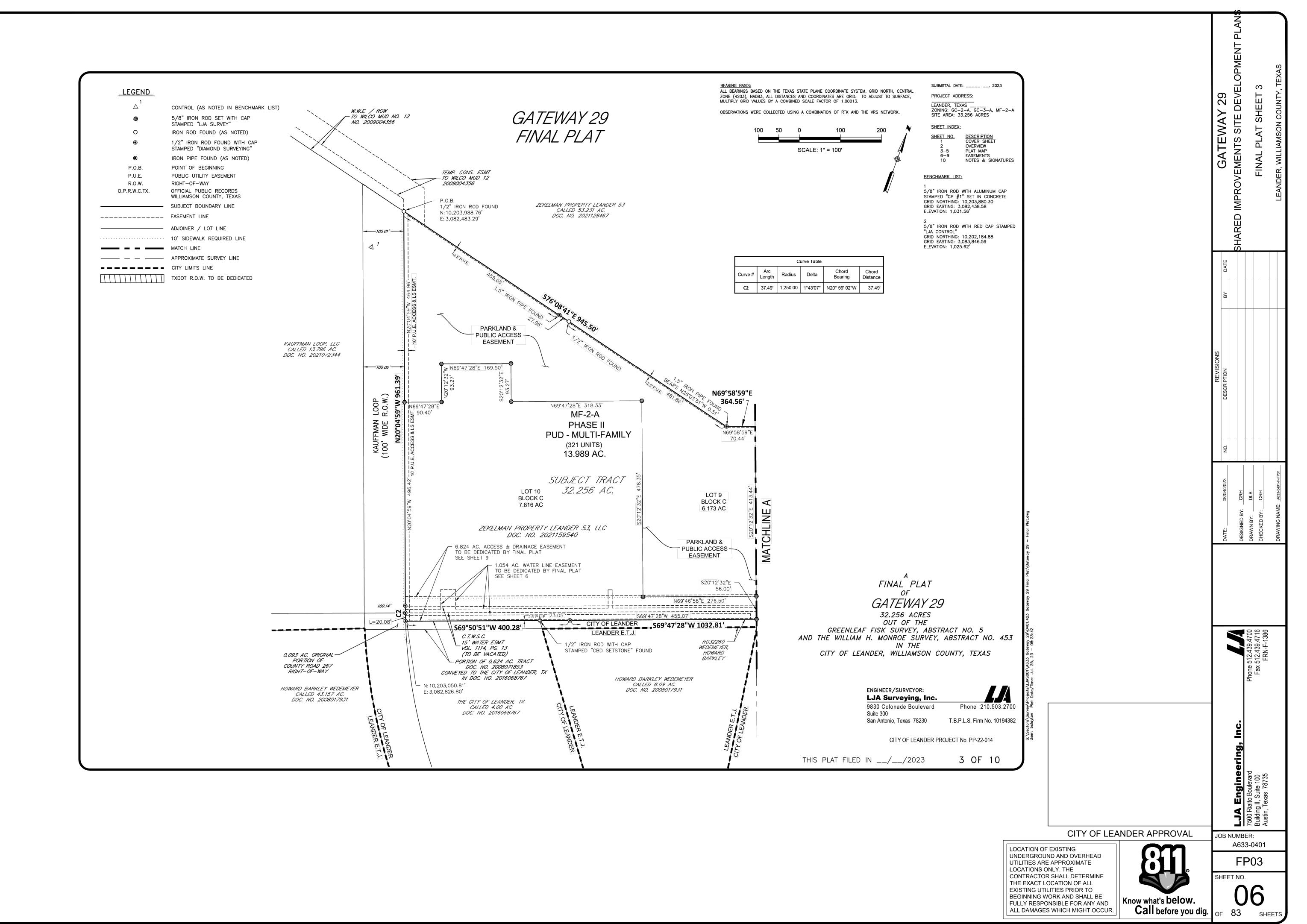
CITY OF LEANDER APPROVAL

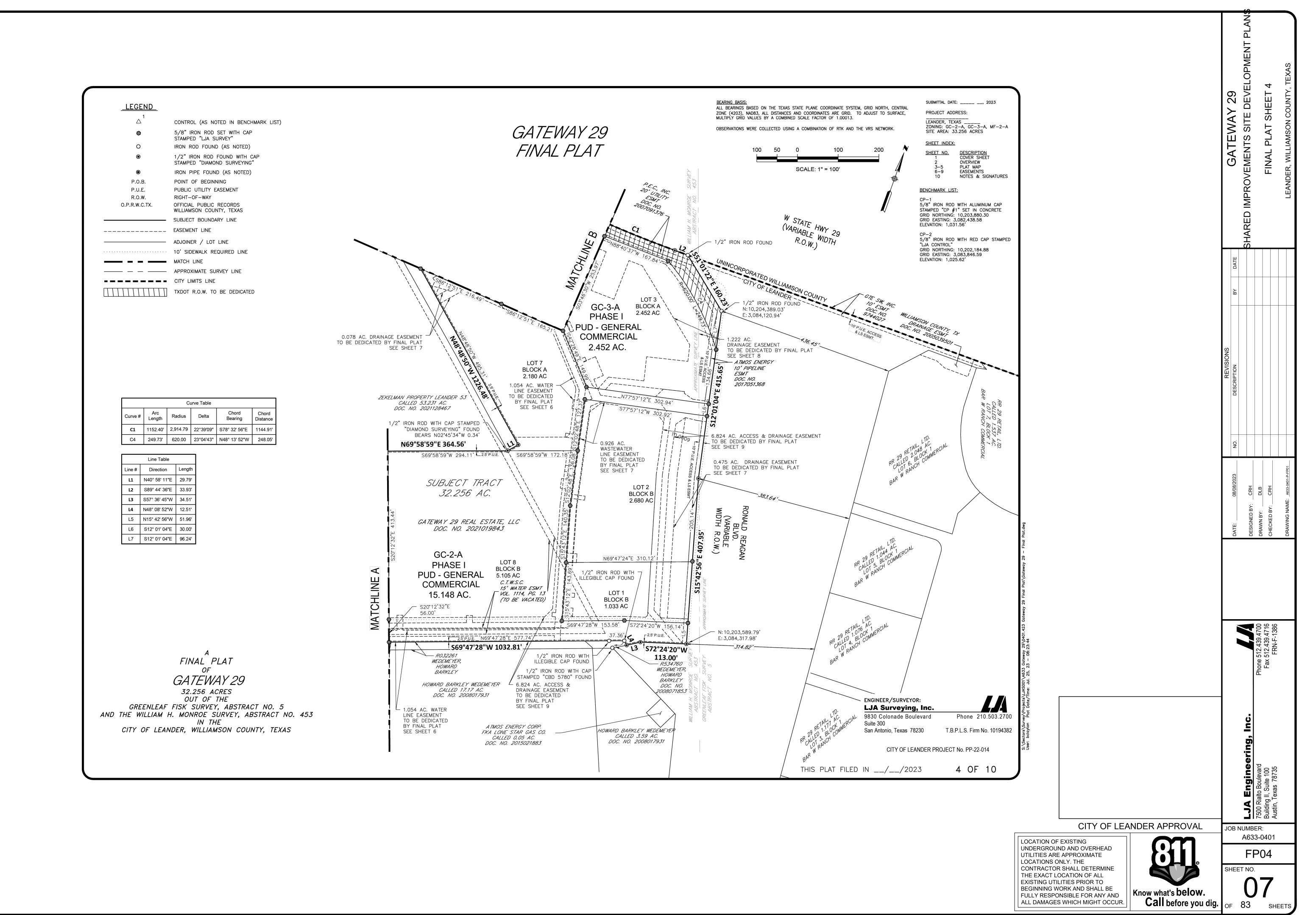
**LOCATION OF EXISTING** UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

Know what's **below**.

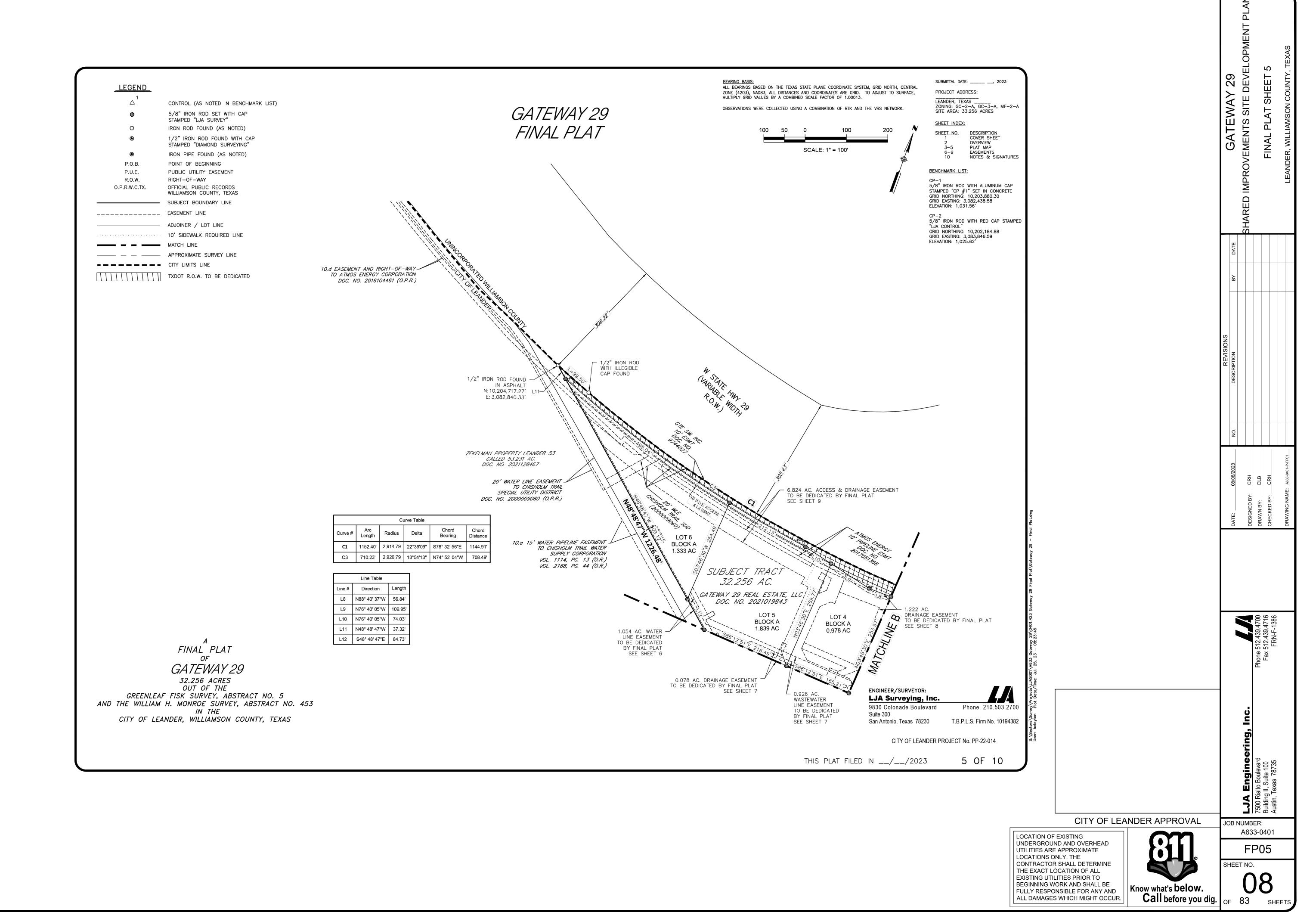
JOB NUMBER: A633-0401 FP02 SHEET NO.

Call before you dig. OF 83

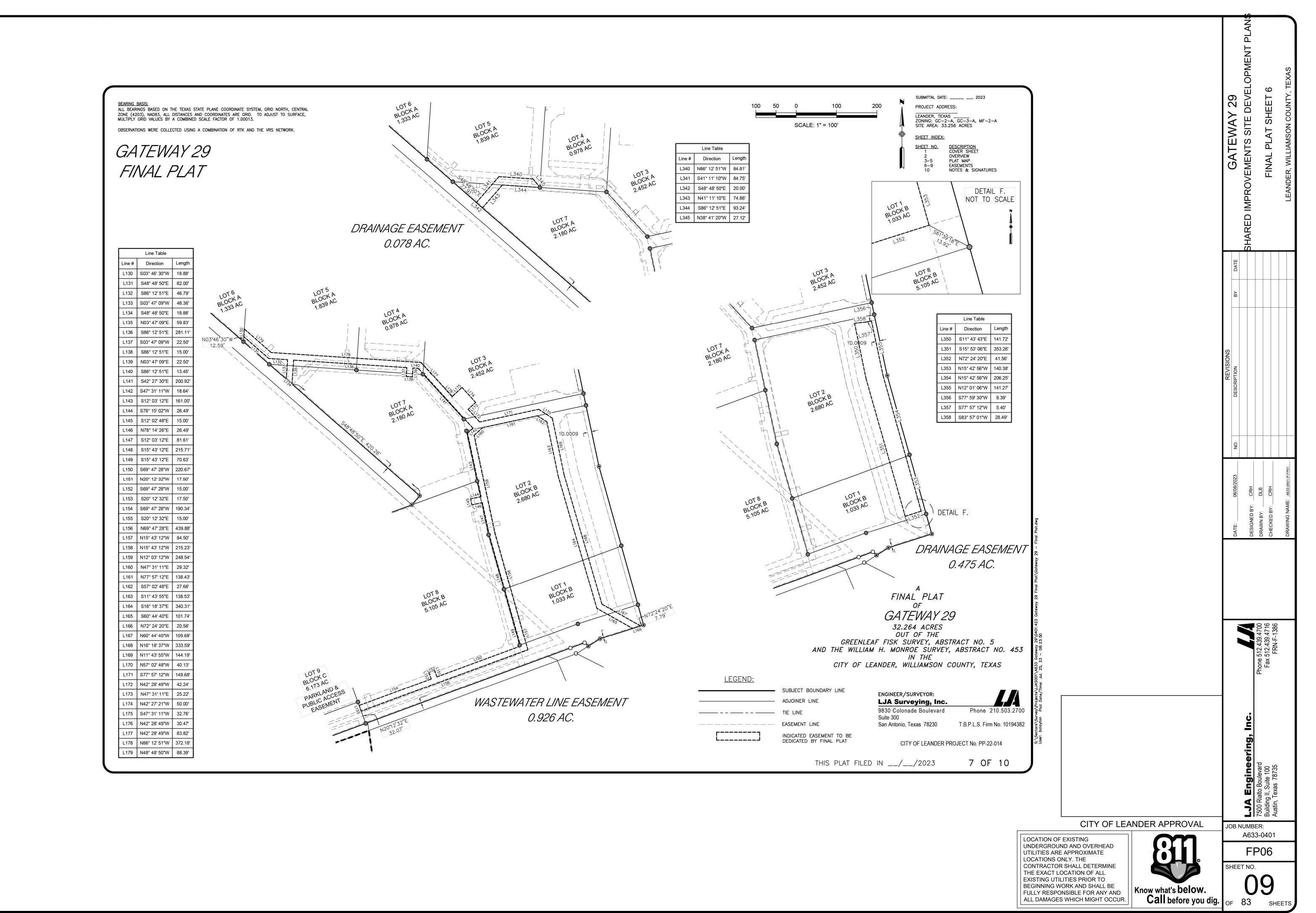




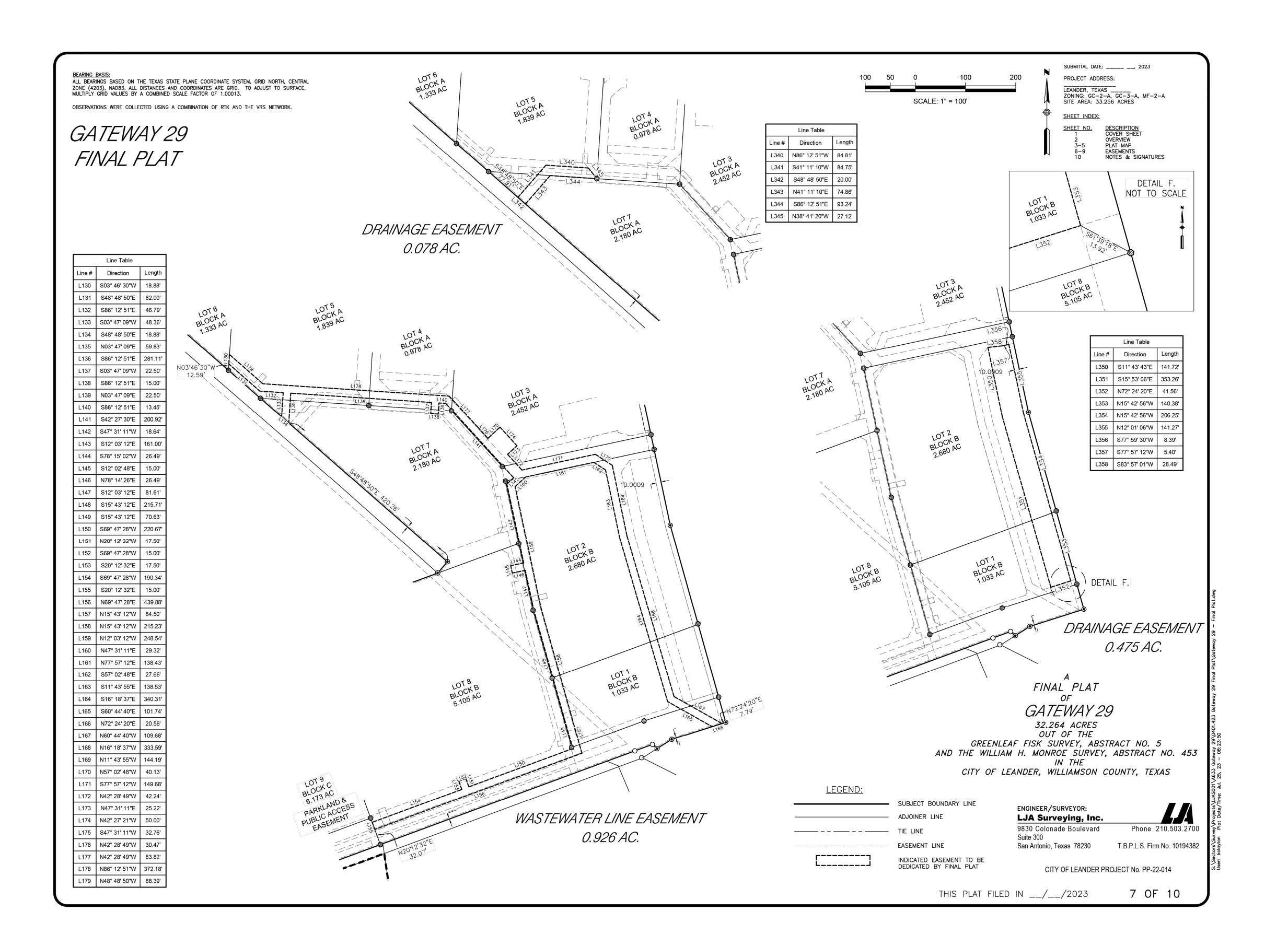
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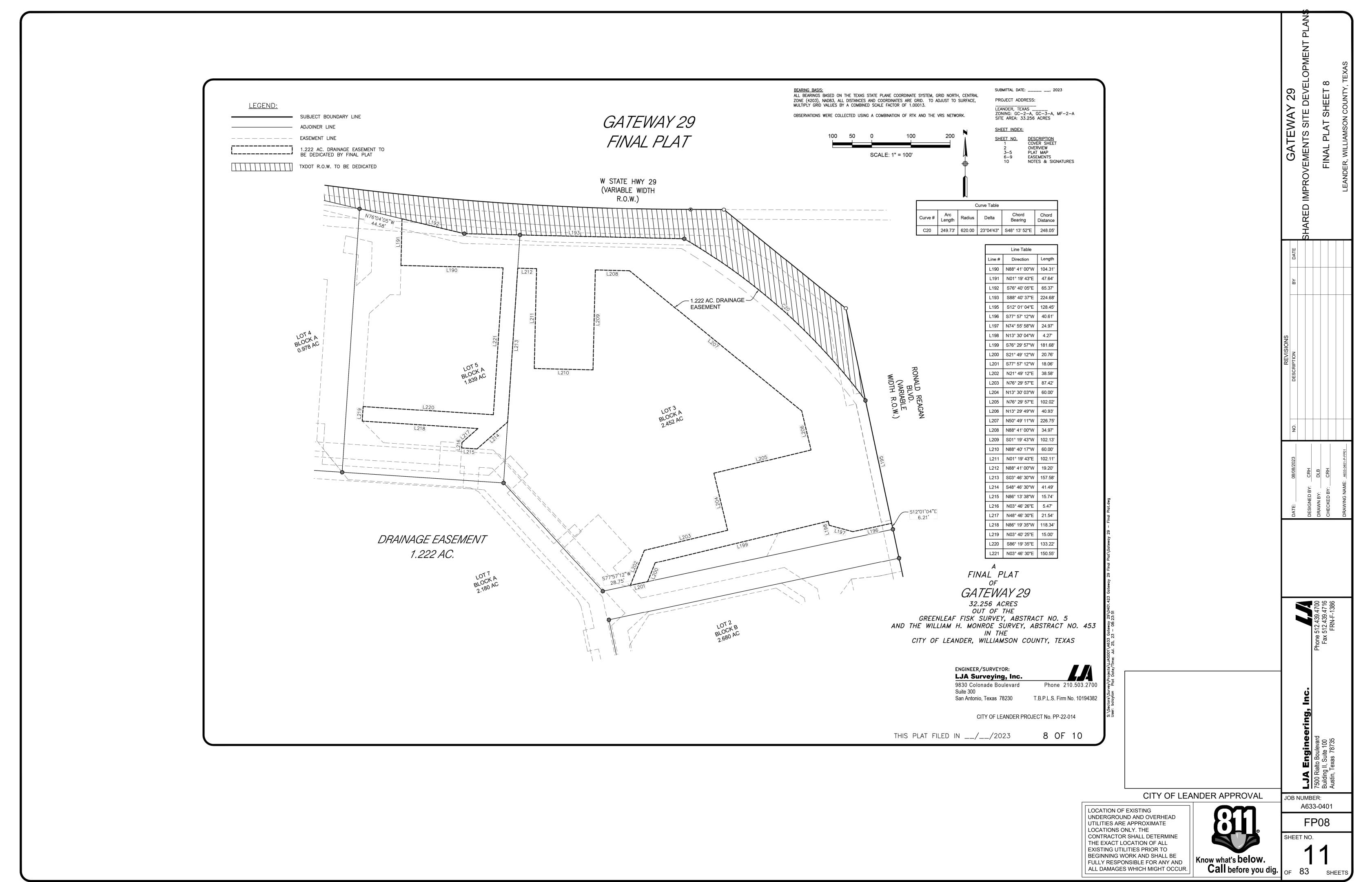


LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

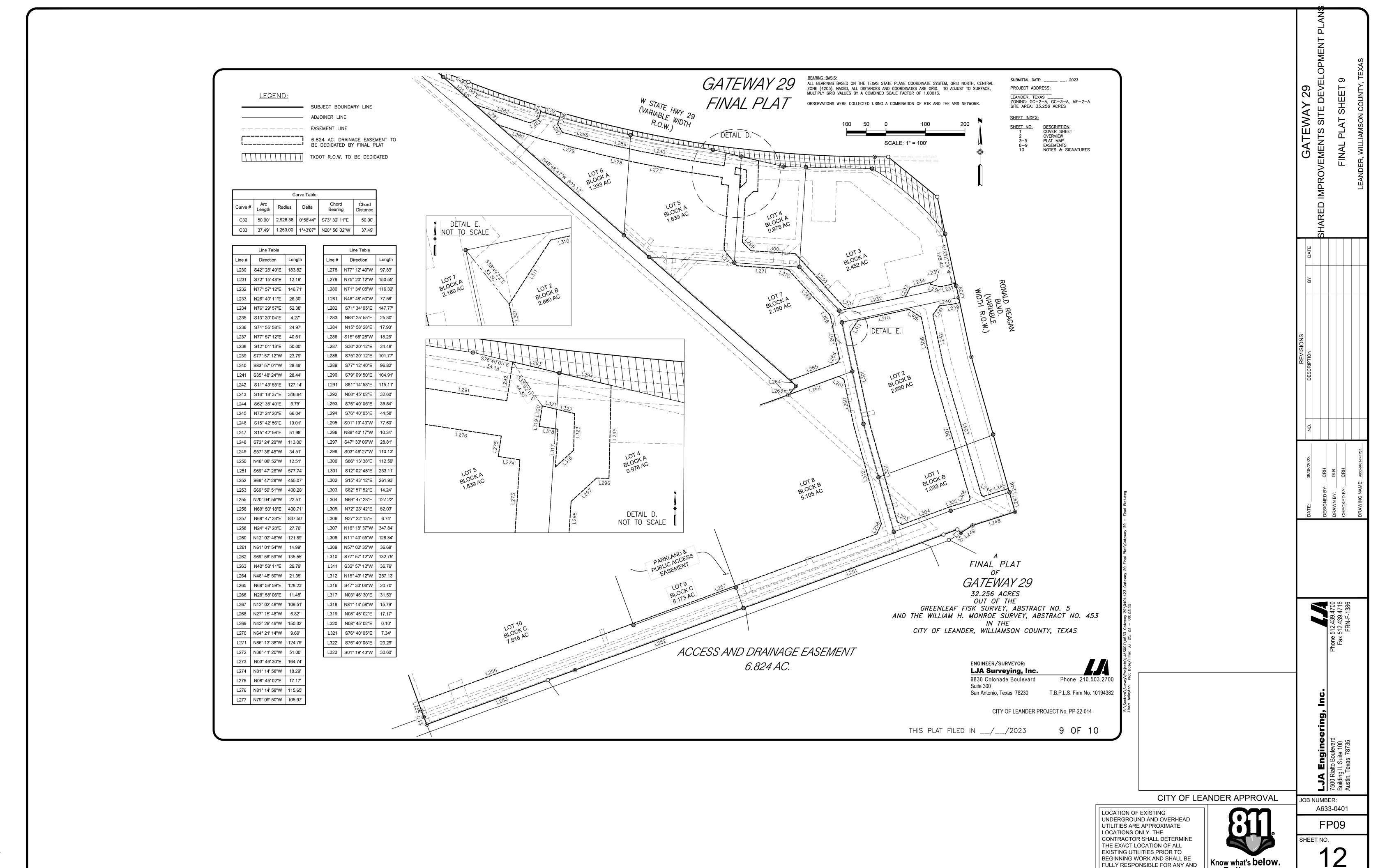
Know what's below. Call before you dig. OF 40

JOB NUMBER: A633-0401 FP07

SHEET NO.



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CITY OF LEANDER PROJECT No. SDP-23-XXXX

ALL DAMAGES WHICH MIGHT OCCUR.

Call before you dig. OF 83

SUBMITTAL DATE:, 2023
PROJECT ADDRESS:
LEANDER, TEXAS ZONING: GC-2-A, GC-3-A, MF-2-A SITE AREA: 33.256 ACRES
SHEET INDEX:
SHEET NO. DESCRIPTION
1 COVER SHEET 2 OVERVIEW
3-5 PLAT MAP 6-9 EASEMENTS
10 NOTES & SIGNATURES
THE STATE OF TEXAS §
COUNTY OF WILLIAMSON §
THAT, GATEWAY 29 REAL ESTATE LLC, BEING THE OWNER OF A BEING A 32.256 ACRE TRACT (1,405,080 SQUARE FEET) OF LAND, LOCATED IN THE WILLIAM H. MONROE SURVEY, ABSTRACT NO. 453 AND THE GREENLEAF FISK SURVEY, ABSTRACT NO. 5,
SITUATED IN WILLIAMSON COUNTY, TEXAS, OUT OF A CALLED 14.00 ACRE TRACT OF LAND DESCRIBED IN A SPECIAL WARRANTY DEED WITH VENDOR'S LIEN TO ZEKELMAN PROPERTY LEANDER 53, LLC DESCRIBED AND RECORDED IN DOCUMENT NUMBER 2021159540 IN
THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS (O.P.R.W.C.TX.), AND A 32.266 ACRE TRACT OF LAND DESCRIBED IN A SPECIAL WARRANTY DEED WITH VENDOR'S LIEN TO GATEWAY 29 REAL ESTATE, LLC RECORDED IN DOCUMENT NUMBER 2021019843
O.P.R.W.C.TX., DOES HEREBY CERTIFY THAT THERE ARE NO LIEN HOLDERS AND DEDICATES TO THE PUBLIC FOREVER USE OF ALL ADDITIONAL ROW, STREETS, ALLEYS, EASEMENTS, PARKS, AND ALL OTHER LANDS INTENDED FOR PUBLIC
DEDICATION, OR WHEN THE SUBDIVIDER HAS MADE PROVISION FOR PERPETUAL MAINTENANCE THEREOF, TO THE INHABITANTS OF THE SUBDIVISION AS SHOWN HEREON TO BE KNOWN AS:
"GATEWAY 29 FINAL PLAT"
GATEWAY 29 REAL ESTATE LLC 5522 JENOLAN RIDGE LN
SUGAR LAND, TEXAS 77479 CONTACT PERSON: SAMIR MAREDIA
PHONE: (832) 713-4985
THE STATE OF TEXAS § COUNTY OF WILLIAMSON §
BEFORE ME, THE UNDERSIGNED AUTHORITY, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS THE DAY
OF, 2O, PERSONALLY APPEARED, SAMIR MAREDIA, AS CONTACT OF GATEWAY 29 REAL ESTATE LLC, A DULY AUTHORIZED AGENT WITH AUTHORITY TO SIGN SAID DOCUMENT, PERSONALLY KNOWN TO ME (AND PROVED TO ME ON
THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING
INSTRUMENT, AND ACKNOWLEDGED TO ME THAT (S)HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.
GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE DAY OF 20
NOTARY PUBLIC-STATE OF
PRINTED NAME:
THE STATE OF TEXAS § COUNTY OF WILLIAMSON §
THAT, ZELELMAN PROPERTY LEANDER 53, LLC, BEING THE OWNER OF A 14.000 ACRES TRACT OF LAND, MORE OR LESS,
SITUATED IN THE WILLIAM H. MONROE SURVEY, ABSTRACT NO. 453 IN WILLIAMSON COUNTY, TEXAS, DESCRIBED AND RECORDED IN DOCUMENT NUMBER 2021159540, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS
(O.P.R.W.C.TX.), AND BEING OUT OF THE REMNANT PORTION OF A CALLED 32.266 ACRE TRACT DESCRIBED AND RECORDED IN DOCUMENT NO. 2021019843 O.P.R.W.C.TX., DOES HEREBY CERTIFY THAT THERE ARE NO LIEN HOLDERS
AND DEDICATES TO THE PUBLIC FOREVER USE OF ALL ADDITIONAL ROW, STREETS, ALLEYS, EASEMENTS, PARKS, AND ALL OTHER LANDS INTENDED FOR PUBLIC DEDICATION, OR WHEN THE SUBDIVIDER HAS MADE PROVISION FOR PERPETUAL
MAINTENANCE THEREOF, TO THE INHABITANTS OF THE SUBDIVISION AS SHOWN HEREON TO BE KNOWN AS:
"GATEWAY 29 FINAL PLAT"
ZEKELMAN PROPERTY LEANDER 53, LLC
227 W MONROE ST CHICAGO, IL 60606 CONTACT PERSON: ANGELA MIU
PHONE: (312) 275–1672
THE STATE OF TEXAS \$
COUNTY OF WILLIAMSON §
BEFORE ME, THE UNDERSIGNED AUTHORITY, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS THE DAY OF, 20, PERSONALLY APPEARED, ANGELA MIU, AS CONTACT OF ZEKELMAN PROPERTY LEANDER 53, LLC, A DULY
AUTHORIZED AGENT WITH AUTHORITY TO SIGN SAID DOCUMENT, PERSONALLY KNOWN TO ME (AND PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE) TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING
INSTRUMENT, AND ACKNOWLEDGED TO ME THAT (S)HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.
GIVEN UNDER MY HAND AND SEAL OF OFFICE ON THIS THE DAY OF 20
STATE STOCK WIT FINITE AND SEAR OF CITIES ON THIS THE DAT OF ZU
NOTARY PUBLIC-STATE OF
PRINTED NAME:
MY COMMISSION EXPIRES:

GATEWAY 29 FINAL PLAT

### STATE OF TEXAS § COUNTY OF BEXAR §

THAT I, GORDON N. ANDERSON, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF LAND SURVEYING AND HEREBY STATE THAT I PREPARED THIS PLAT FROM AN ACTUAL AND ACCURATE ON-THE-GROUND SURVEY OF THE LAND AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY PERSONAL SUPERVISION, IN ACCORDANCE WITH ALL CITY OF LEANDER ORDINANCE AND CODES, AND THAT ALL EXISTING EASEMENTS OF RECORD AS FOUND ON THE TITLE POLICIES PROVIDED BY TITLE RESOURCES GUARANTY COMPANY, GF NO. 1936194-COM, HAVING AN EFFECTIVE DATE OF JANUARY 13, 2021, AND AN ISSUED DATE JANUARY 25, 2021, AND FIRST AMERICAN TITLE INSURANCE COMPANY, GF NO. 202102162, HAVING AN EFFECTIVE DATE OF JUNE 14, 2021, AND AN ISSUED DATE JUNE 29, 2021 HAVE BEEN SHOWN OR NOTED HEREON. NOTHING FURTHER DATED WITHIN 1 YEAR.



GORDON N. ANDERSON, R.P.L.S. No. 6617 LJA SURVEYING, INC., 9830 COLONADE BOULEVARD, SUITE 300 SAN ANTONIO, TEXAS 778230 T.B.P.L.S. FIRM NO. 10194382

### STATE OF TEXAS § COUNTY OF TRAVIS §

THAT I, CHARLES R. HAGER, AM AUTHORIZED UNDER THE LAWS OF THE STATE OF TEXAS TO PRACTICE THE PROFESSION OF ENGINEERING, AND DO HEREBY STATE THAT THIS PLAT CONFORMS WITH THE APPLICABLE ORDINANCES OF THE CITY OF LEANDER, TEXAS.



CHARLES R. HAGER V, P.E. No. 127034
LJA ENGINEERING, INC.
7500 RIALTO BOULEVARD, BUILDING II, SUITE 100 AUSTIN, TEXAS 78735

### CITY OF LEANDER § CERTIFICATE OF APPROVAL §

APPROVED THIS THE DAY OF \_\_\_, 20\_\_ A.D. AT A PUBLIC MEETING OF THE PLANNING AND ZONING COMMISSION OF THE CITY OF LEANDER, TEXAS AND AUTHORIZED TO BE FILED FOR RECORD BY THE COUNTY CLERK OF COUNTY.

DONNIE MAHAN, CHAIRMAN PLANNING & ZONING COMMISION CITY OF LEANDER, TEXAS

ELLEN COUFAL, RECORDING SECRETARY PLANNING AND ZONING COMMISION CITY OF LEANDER, TEXAS

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

I, NANCY RISTER, CLERK OF COUNTY COURT, OF SAID COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE \_\_\_\_ DAY OF \_\_\_\_\_, \_\_\_, A.D., AND DULY RECORDED ON THE \_\_\_\_ DAY OF \_\_\_\_\_, A.D., AT \_\_\_\_ O'CLOCK \_\_\_, IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS IN INSTRUMENT NO. \_\_\_\_\_\_.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT THE COUNTY COURT OF SAID COUNTY OF OFFICE IN GEORGETOWN, TEXAS, THE DATE LAST SHOWN ABOVE WRITTEN.

NANCY RISTER, CLERK COUNTY COURT OF WILLIAMSON COUNTY, TEXAS

# **BEARING BASIS:**

ALL BEARINGS BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, GRID NORTH, CENTRAL ZONE (4203), NAD83, ALL DISTANCES AND COORDINATES ARE GRID. TO ADJUST TO SURFACE, MULTIPLY GRID VALUES BY A COMBINED SCALE FACTOR OF 1.00013.

OBSERVATIONS WERE COLLECTED USING A COMBINATION OF RTK AND THE VRS NETWORK.

### LEGAL DESCRIPTION:

BEING A 32.256 ACRE TRACT (1,405,080 SQUARE FEET) OF LAND, LOCATED IN THE WILLIAM H. MONROE SURVEY, ABSTRACT NO. 453 AND THE GREENLEAF FISK SURVEY, ABSTRACT NO. 5, SITUATED IN WILLIAMSON COUNTY, TEXAS, OUT OF A CALLED 14.00 ACRE TRACT OF LAND DESCRIBED IN A SPECIAL WARRANTY DEED WITH VENDOR'S LIEN TO ZEKELMAN PROPERTY LEANDER 53, LLC DESCRIBED AND RECORDED IN DOCUMENT NUMBER 2021159540 IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS (O.P.R.W.C.TX.), AND A 32.266 ACRE TRACT OF LAND DESCRIBED IN A SPECIAL WARRANTY DEED WITH VENDOR'S LIEN TO GATEWAY 29 REAL ESTATE, LLC RECORDED IN DOCUMENT NUMBER 2021019843 O.P.R.W.C.TX.

### FINAL PLAT NOTES:

1) THIS SUBDIVISION IS WHOLLY CONTAINED WITHIN THE CURRENT CORPORATE LIMITS OF THE CITY OF LEANDER, TEXAS.

2) NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTED TO THE CITY OF LEANDER WATER DISTRIBUTION AND WASTEWATER FACILITIES.

DRAINAGE EASEMENTS SHOWN EXCEPT AS APPROVED BY THE CITY OF LEANDER PUBLIC

- 3) A BUILDING PERMIT IS REQUIRED FROM THE CITY OF LEANDER PRIOR TO CONSTRUCTION OF ANY BUILDING OR SITE IMPROVEMENTS ON ANY LOT IN THIS SUBDIVISION. 4) NO BUILDINGS, FENCES, LANDSCAPING OR OTHER STRUCTURES ARE PERMITTED WITHIN
- WORKS DEPARTMENT. 5) PROPERTY OWNER SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY THE CITY OF LEANDER.
- 6) ALL EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER OR HIS OR HER ASSIGNS.
- 7) IN ADDITION TO THE EASEMENTS SHOWN HEREIN, A TEN (10') FOOT WIDE PUBLIC UTILITY EASEMENT SHALL BE DEDICATED ALONG AND ADJACENT TO ALL RIGHT-OF-WAY AND TWO AND A HALF (2.5') FOOT WIDE PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL SIDE
- 8) NO PORTION OF THIS TRACT IS WITHIN A FLOOD HAZARD AREA AS SHOWN ON THE FLOOD INSURANCE RATE MAP PANEL #48491CO470F OF WILLIAMSON COUNTY, EFFECTIVE ON DECEMBER 20, 2019.
- 9) SIDEWALKS SHALL BE INSTALLED ON SUBDIVISION SIDE OF SH 29, RONALD REAGAN, AND KAUFFMAN LOOP. THOSE SIDEWALKS NOT ABUTTING A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL LOT (INCLUDING SIDEWALKS ALONG STREET FRONTAGES OF LOTS PROPOSED FOR SCHOOLS, CHURCHES, PARK LOTS, DETENTION LOTS, DRAINAGE LOTS, LANDSCAPE LOTS, OR SIMILAR LOTS), SIDEWALKS ON ARTERIAL STREETS TO WHICH ACCESS IS PROHIBITED, SIDEWALKS ON DOUBLE FRONTAGE LOTS ON THE SIDE TO WHICH ACCESS IS PROHIBITED, AND ALL SIDEWALKS ON SAFE SCHOOL ROUTES SHALL BE INSTALLED WHEN THE ADJOINING STREET IS CONSTRUCTED.
- 10) ALL UTILITY LINES MUST BE LOCATED UNDERGROUND.
- 11) THIS PLAT CONFORMS TO THE PRELIMINARY PLAT APPROVED BY THE PLANNING & ZONING COMMISSION ON 10/27/2022.
- 12) APPROVAL OF THIS FINAL PLAT DOES NOT CONSTITUTE THE APPROVAL OF VARIANCES OR WAIVERS TO ORDINANCE REQUIREMENTS.
- 13) ALL DRIVE LANES, FIRE LANES, AND DRIVEWAYS WITHIN THIS SUBDIVISION SHALL PROVIDE FOR RECIPROCAL ACCESS FOR INGRESS AND EGRESS TO ALL OTHER LOTS WITHIN THE
- SUBDIVISION AND TO ADJACENT PROPERTIES. 14) ALL OWNERSHIP DOCUMENTS FOUND IN THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS.
- 15) PURSUANT TO CITY CODE OF ORDINANCES SECTION 61, LOT 9 IS HEREBY DEDICATED FOR PARK AND RECREATIONAL PURPOSES WITH A NONEXCLUSIVE PARKLAND AND PUBLIC ACCESS EASEMENT ENCOMPASSING THE ENTIRE LOT. GRANTOR SHALL BE OBLIGATED TO MAINTAIN TO A GOOD AND FUNCTIONING CONDITION THE EASEMENT AREA AND RECREATIONAL FACILITIES.

T.B.P.L.S. Firm No. 10194382

LJA Surveying, Inc. 9830 Colonade Boulevard Phone 210.503.2700 Suite 300 San Antonio, Texas 78230

CITY OF LEANDER PROJECT No. PP-22-014

THIS PLAT FILED IN \_\_/\_\_/2023 10 OF 10

ENGINEER/SURVEYOR:

CITY OF LEANDER APPROVAL

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

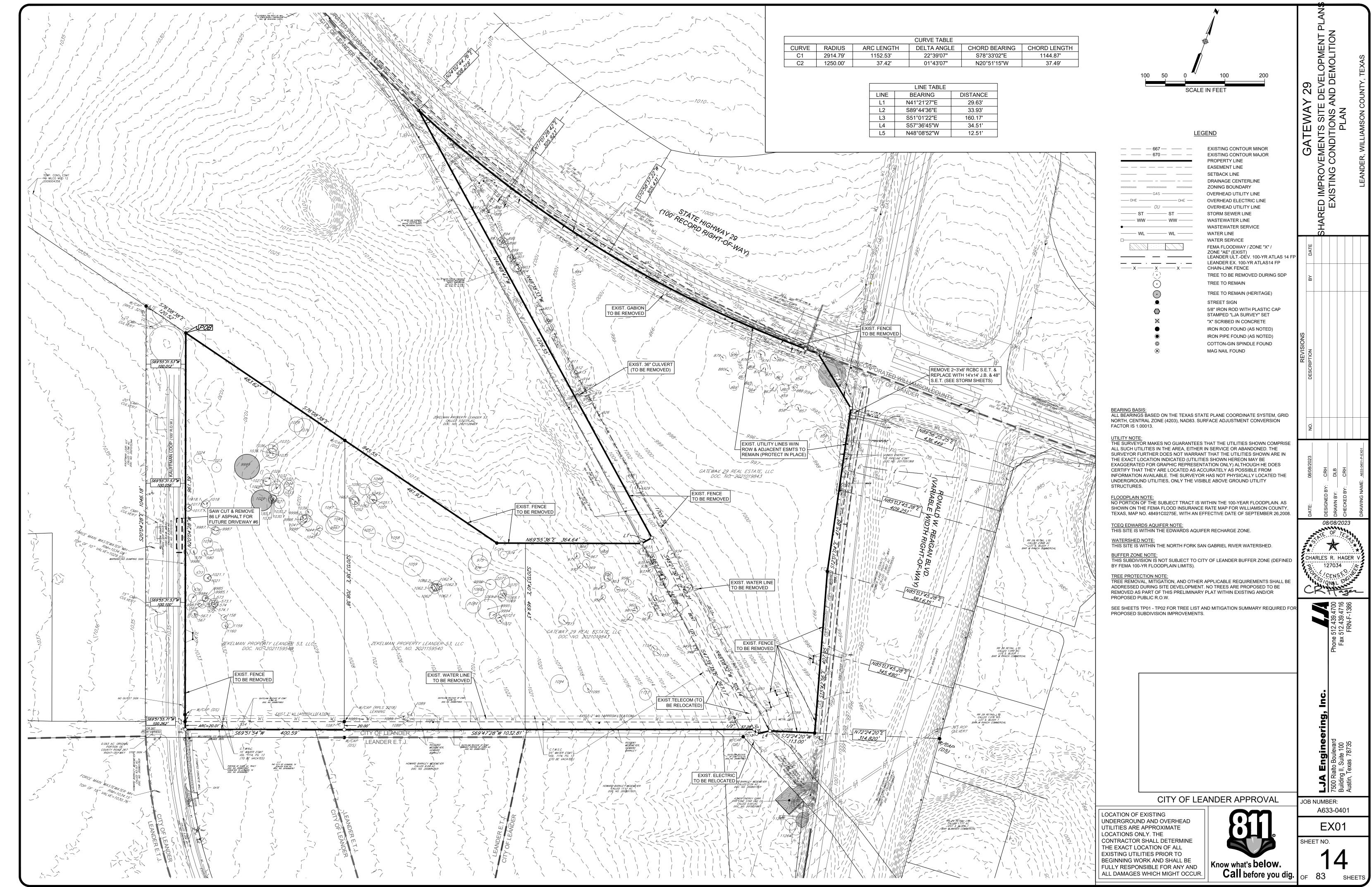
Know what's **below**.

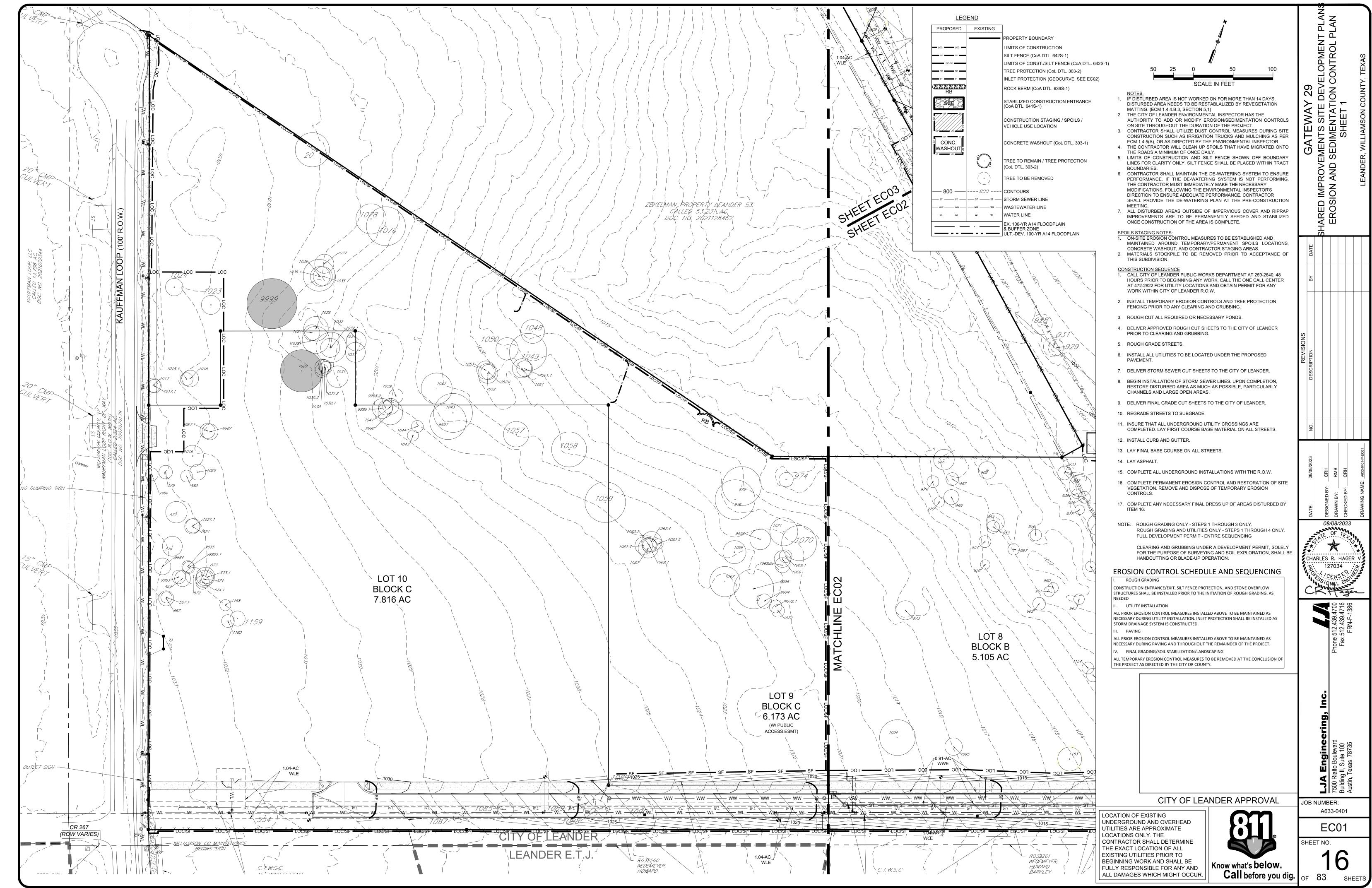
Call before you dig. OF 83

JOB NUMBER: A633-0401 SHEET NO.

7 29 DEVI

SHEETS





CALLED 0.05 | AC. DOC. NO. 2015 p 21885 GATEWAY 29
SHARED IMPROVEMENTS SITE DEVELOPMENT P
EROSION AND SEDIMENTATION CONTROL PLA

A633-0401
EC02

**1** 7

### **EROSION AND SEDIMENTATION CONTROL NOTES**

- THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTIVE FENCING PRIOR TO ANY WORK (CLEARING, GRUBBING OR EXCAVATION). CONTACT STORMWATER INSPECTOR FOR ON SITE INSPECTION PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE OF CONTROLS AND FENCES SHALL IMMEDIATELY MAKE ANY NECESSARY REPAIRS TO DAMAGED AREAS. SILT ACCUMULATION AT
- CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES. THE TEMPORARY SPOILS DISPOSAL SITE IS TO BE SHOWN IN THE EROSION CONTROL MAP. 4. ANY ON-SITE SPOILS DISPOSAL SHALL BE REMOVED PRIOR TO ACCEPTANCE UNLESS SPECIFICALLY SHOWN ON THE PLANS. THE DEPTH OF SPOIL SHALL NOT EXCEED 10 FEET IN ANY
- . ALL AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL AND COMPOST BLEND. TOPSOIL ON SINGLE FAMILY LOTS MAY BE INSTALLED WITH HOME CONSTRUCTION. THE TOPSOIL AND COMPOST BLEND SHALL CONSIST OF 75% TOPSOIL AND 25% COMPOST.
- SEEDING FOR REESTABLISHING VEGETATION SHALL COMPLY WITH THE AUSTIN GROW GREEN GUIDE OR WILLIAMSON COUNTY'S PROTOCOL FOR SUSTAINABLE ROADSIDES (SPEC 164--WC001 SEEDING FOR EROSION CONTROL). RESEEDING VARIETIES OF BERMUDA SHALL NOT BE USED. TIFWAY419 SOD OR OTHER GRASS SPECIES FOUND WITHIN COA GROW GREEN GUIDE ARE PERMITTED. NON-SEEDING VARIETIES OF BERMUDA CAN ONLY BE PLANTED BY SOD OR SPRIGS
- STABILIZED CONSTRUCTION ENTRANCE IS REQUIRED AT ALL POINTS WHERE CONSTRUCTION TRAFFIC IS EXITING THE PROJECT ONTO EXISTING PAVEMENT. LINEAR CONSTRUCTION PROJECTS MAY REQUIRE SPECIAL CONSIDERATION. ROADWAYS SHALL REMAIN CLEAR OF SILT AND MUD. TEMPORARY STOP SIGNS SHOULD BE INSTALLED AT ALL CONSTRUCTION ENTRANCES WHERE A STOP CONDITION DOES NOT ALREADY EXIST.
- I. IN THE EVENT OF INCLEMENT WEATHER THAT MAY RESULT IN A FLOODING SITUATION, THE CONTRACTOR SHALL REMOVE INLET PROTECTION MEASURES UNTIL SUCH TIME AS THE WEATHER EVENT HAS PASSED.
- CITY OF AUSTIN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION
- . ALL TREES AND NATURAL AREAS SHOWN ON PLAN TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY FENCING. PROTECTIVE FENCES SHALL BE ERECTED ACCORDING TO CITY OF AUSTIN STANDARDS FOR TREE
- 3. PROTECTIVE FENCES SHALL BE INSTALLED PRIOR TO THE START OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE
- 4. EROSION AND SEDIMENTATION CONTROL BARRIERS SHALL BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILD-UP WITHIN TREE DRIP LINES.
- 5. PROTECTIVE FENCES SHALL SURROUND THE TREES OR GROUP OF TREES, AND WILL BE LOCATED AT THE OUTERMOST LIMIT OF BRANCHES (DRIP LINE), FOR NATURAL AREAS, PROTECTIVE FENCES SHALL FOLLOW THE LIMIT OF CONSTRUCTION LINE, IN ORDER TO PREVENT THE FOLLOWING:
- A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF **EQUIPMENT OR MATERIALS**;
- B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL), OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE CITY ABORIST;
- C. WOUNDS TO EXPOSED ROOTS, TRUNK OR LIMBS BY MECHANICAL EQUIPMENT; D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CEMENT TRUCK
- CLEANING, AND FIRES. 6. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIP LINES MAY BE PERMITTED IN THE FOLLOWING
- A. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT, ERECT THE FENCE APPROXIMATELY 2 TO 4 FEET BEYOND THE AREA DISTURBED;
- B. WHERE PERMEABLE PAVING IS TO BE INSTALLED WITHIN A TREE'S DRIP LINE, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA (PRIOR TO SITE GRADING SO THAT THIS AREA IS GRADED SEPARATELY PRIOR TO PAVING INSTALLATION TO MINIMIZED ROOT DAMAGE);
- C. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE TO ALLOW 6 TO 10 FEET OF WORK SPACE BETWEEN THE FENCE AND THE BUILDING;
- D. WHERE THERE ARE SEVERE SPACE CONSTRAINTS DUE TO TRACT SIZE, OR OTHER SPECIAL REQUIREMENTS, CONTACT THE CITY ARBORIST AT 974-1876 TO DISCUSS ALTERNATIVES.
- SPECIAL NOTE: FOR THE PROTECTION OF NATURAL AREAS, NO EXCEPTIONS TO INSTALLING FENCES AT THE LIMIT OF CONSTRUCTION LINE WILL BE PERMITTED. 7. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TREE
- TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FT (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED. 8. TREES APPROVED FOR REMOVAL SHALL BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES
- 9. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH
- REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION. 10. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF LANDSCAPE IRRIGATION SHALL BE PLACED AS
- FAR FROM EXISTING TREE TRUNKS AS POSSIBLE. 11.NO LANDSCAPE TOPSOIL DRESSING GREATER THAN 4 INCHES SHALL BE PERMITTED WITHIN THE DRIP LINE OF TREES. NO SOIL IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
- 12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC AND EQUIPMENT SHALL TAKE PLACE BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.).
- 13. ALL FINISHED PRUNING SHALL BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES AVAILABLE ON REQUEST FROM THE CITY ARBORIST).
- 14.DEVIATIONS FROM THE ABOVE NOTES MAY BE CONSIDERED ORDINANCE VIOLATIONS IF THERE IS SUBSTANTIAL NON-COMPLIANCE OR IF A TREE SUSTAINS DAMAGE AS A RESULT.

# CONSTRUCTION SEQUENCE

- 1. CALL CITY OF LEANDER PUBLIC WORKS DEPARTMENT AT 259-2640 48 HOURS PRIOR TO BEGINNING ANY WORK. CALL THE ONE CALL CENTER AT 472-2822 FOR UTILITY CALL CENTER AT 472-2822 FOR UTILITY LOCATIONS
- AND OBTAIN PERMIT FOR ANY WORK WITHIN CITY OF LEANDER R.O.W. 2. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION
- FENCING PRIOR TO ANY CLEARING AND GRUBBING. 3. ROUGH CUT ALL REQUIRED OR NECESSARY PONDS.
- 4. DELIVER APPROVED ROUGH CUT SHEETS TO THE CITY OF LEANDER
- PRIOR TO CLEARING AND GRUBBING. 5. ROUGH GRADE STREETS.
- 6. INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PROPOSED PAVEMENT.
- 7. DELIVER STORM SEWER CUT SHEETS TO THE CITY OF LEANDER. 8. BEGIN INSTALLATION OF STORM SEWER LINES. UPON COMPLETION,
- RESTORE AS MUCH DISTURBED AREA AS MUCH AS POSSIBLE, PARTICULARLY CHANNELS AND LARGE OPEN AREAS.
- 9. DELIVER FINAL GRADE CUT SHEETS TO THE CITY OF LEANDER.
- 10. REGRADE STREETS TO SUBGRADE. 11. INSURE THAT ALL UNDERGROUND UTILITY CROSSINGS ARE
- COMPLETED. LAY FIRST COURSE BASE MATERIAL ON ALL STREETS 12. INSTALL CURB AND GUTTER.
- 13. LAY FINAL BASE COURSE ON ALL STREETS.
- 14. LAY ASPHALT.
- 15. COMPLETE ALL UNDERGROUND INSTALLATIONS WITH THE R.O.W. 16. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION. REMOVE AND DISPOSE OF TEMPORARY EROSION
- 17. COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED BY ITEM 17.

NOTE: ROUGH GRADING ONLY - STEPS 1 THROUGH 3 ONLY. ROUGH GRADING AND UTILITIES ONLY - STEPS 1 THROUGH 4 ONLY. FULL DEVELOPMENT PERMIT - ENTIRE SEQUENCING

> CLEARING AND GRUBBING UNDER A DEVELOPMENT PERMIT, SOLELY FOR THE PURPOSE OF SURVEYING AND SOIL EXPLORATION, SHALL BE HANDCUTTING OR BLADE-UP OPERATION.

# SPECIAL CONSTRUCTION TECHNIQUES

PRIOR TO EXCAVATION WITHIN TREE DRIPLINES OR THE REMOVAL OF TREES ADJACENT TO OTHER TREES THAT ARE TO REMAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.

IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING AND WHERE HEAVY VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH A MINIMUM OF 12 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. IN AREAS WITH HIGH SOIL PLASTICITY GEOTEXTILE FABRIC, PER STANDARD SPECIFICATION 620S. SHOULD BE PLACED UNDER THE MULCH TO PREVENT EXCESSIVE MIXING OF THE SOIL AND MULCH. ADDITIONALLY, MATERIAL SUCH AS PLYWOOD AND METAL SHEETS, COULD BE REQUIRED BY THE CITY ARBORIST TO MINIMIZE ROOT IMPACTS FROM HEAVY EQUIPMENT. ONCE THE PROJECT IS COMPLETED, ALL MATERIALS SHOULD BE REMOVED, AND THE MULCH SHOULD BE REDUCED TO A DEPTH OF 3 INCHES.

PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS BY HAND OR WITH SMALL EQUIPMENT TO

WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.

WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

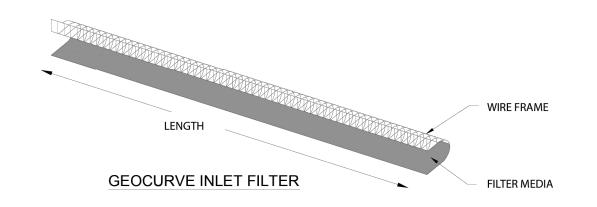
# PAVING AREA WOOD CHIP MULCH AREA 100 mm-150 mm (4"-6") DEPTH LINEAR CONSTRUCTION THROUGH TREES TREES IN PAVING AREA (WOOD CHIP MULCH 100 TO 150 mm (4" TO 6" DEPTH) BLDG. LIMIT OF CONSTRUCTION LINE C.R.Z. AS SHOWN ON PLAN DD BOARDS STRAPPED TO TRUNK DUE TO CLOSENESS OF FENCE LESS THAN 1.5 m (5') FROM TRUNK. TREES NEAR NATURAL AREAS CONSTRUCTION ACTIVITY CRITICAL ROOT ZONE (C.R.Z. OF TRUNK DIAMETER INDIVIDUAL TREE GROUP OF TREES CITY OF AUSTIN TREE PROTECTION FENCE LOCATIONS ONSIBILITY FOR APPROPRIATE USE 610S-1

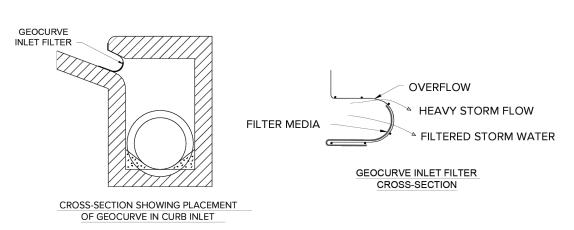
ADOPTED

# GeoCurve Product Data Sheet



The GeoCurve Stormwater Curb Inlet Filter prevents sediment and debris from entering the storm sewer system, while complying to stormwater management requirements (SWPPP). The GeoCurve's compression fit technology allows the product to fit snug within the mouth of the inlet, hidden from oncoming traffic and pedestrians.

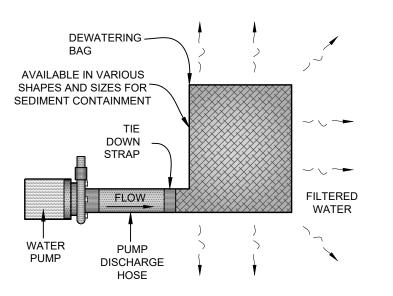




GeoSolutions, Inc. | 13812 Aston Street, Houston, TX 77040 (713) 714-8243 | www.geocurve.net

# **EROSION CONTROL SCHEDULE AND SEQUENCING**

- CONSTRUCTION ENTRANCE/EXIT, SILT FENCE PROTECTION, AND STONE OVERFLOW STRUCTURES SHALL BE INSTALLED PRIOR TO THE INITIATION OF ROUGH GRADING, AS
- UTILITY INSTALLATION LL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS
- NECESSARY DURING UTILITY INSTALLATION. INLET PROTECTION SHALL BE INSTALLED AS STORM DRAINAGE SYSTEM IS CONSTRUCTED. ILL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS
- NECESSARY DURING PAVING AND THROUGHOUT THE REMAINDER OF THE PROJECT. FINAL GRADING/SOIL STABILIZATION/LANDSCAPING
- LL TEMPORARY EROSION CONTROL MEASURES TO BE REMOVED AT THE CONCLUSION OF THE PROJECT AS DIRECTED BY THE CITY OR COUNTY.



SEDIMENT BAG (DEWATERING) DETAIL A GRAVITY BAG FILTER, ALSO REFERRED TO AS A DEWATERING BAG, IS A SQUARE OR

EFFECTIVE FOR THE REMOVAL OF SEDIMENTS (GRAVEL, SAND, AND SILT). SOME METALS

RECTANGULAR BAG MADE OF NON-WOVEN GEOTEXTILE FABRIC THAT COLLECTS SAND, SILT,

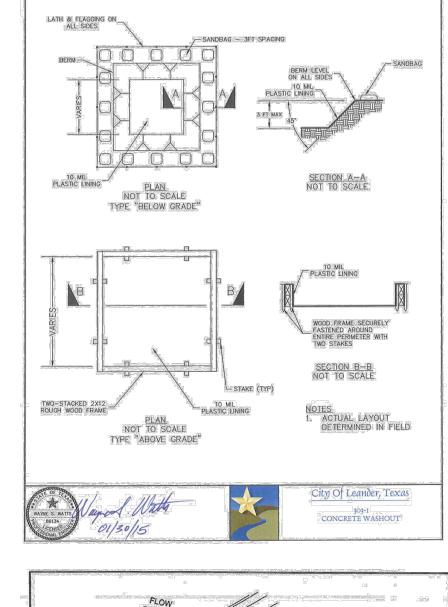
ARE REMOVED WITH THE SEDIMENT.

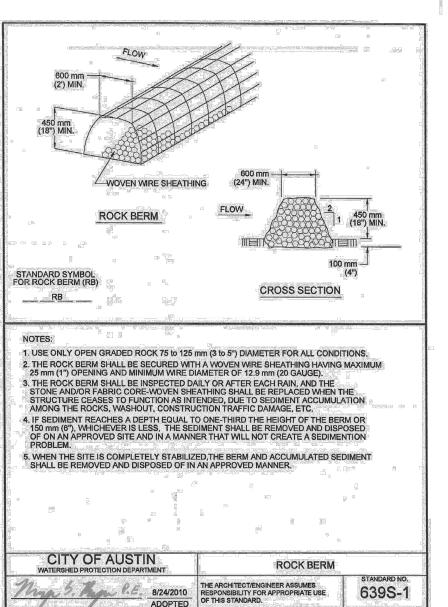
WATER IS PUMPED INTO ONE SIDE OF THE BAG AND SEEPS THROUGH THE BOTTOM AND SIDES OF THE BAG.

A SECONDARY BARRIER, SUCH AS A ROCK FILTER BED OR STRAW/HAY BALE BARRIER IS PLACED BENEATH AND BEYOND THE EDGES OF THE BAG TO CAPTURE SEDIMENTS THAT ESCAPE THE BAG.

INSPECTION OF THE FLOW CONDITIONS, BAG CONDITION, BAG CAPACITY, AND THE SECONDARY BARRIER IS REQUIRED.

REPLACE THE BAG WHEN IT NO LONGER FILTERS SEDIMENT OR PASSES WATER AT A REASONABLE RATE. THE BAG IS DISPOSED OF OFFSITE.





**ANCHOR POSTS** 

MULCH SOCK

MULCH SOCK

1' DEPTH SWALE AROUND INLET

INLET GRATE

GRATE INLET PROTECTION DETAIL (N.T.S.)

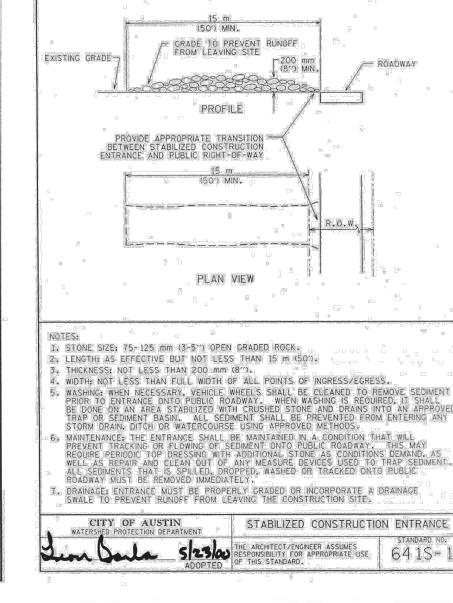
GEOTEXTILE BLANKET BURY 2' DEEP

AROUND INLET & SECURE TO BOTTOM OF

2.00' --- --

GEOTEXTILE BLANKET

1' DEPTH SWALE AROUND INLE



1 ACRE

PLE: SE-PERMITTER CONTROL

Rock Riprap Class

by Median Particle

Diameter (D50

Incarrect - Do Nat Jayout "perimeter

concentrate and overwhelm the system

Rock Riprap Gradation Table

Min

5.2 | 5.7 | 6.9

7.8 8.5 10.5

D50 (in)

13 | 14.5 | 17.5 | 19.5

13 | 18.5 | 20 | 24 | 27.5 | 32.5

30 | 18.5 | 26 | 28.5 | 34.5 | 39 | 46 | 60

 36
 22
 31.5
 34
 41.5
 47
 55.5
 72

42 | 25.5 | 36.5 | 40 | 48.5 | 54.5 | 64.5 | 84

7.3 | 10.5 | 11.5 | 14 | 15.5 | 18.5 | 24

11 | 15.5 | 17 | 20.5 | 23.5 | 27.5 | 36

14.5 21 23 27.5 31 37 48

control" silt fances along properly lines. All sediment laden runoff will

DRIPLINE OF EXISTING TREE

D. OTHER ACTIVITIES DETRIMENTAL TO TREES, SUCH AS CHEMICAL STORAGE, CEMENT TRUCK CLEANING AND FIRE.

3. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:

C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.

4 CRITICAL ROOT ZONE REQUIREMENTS

1. IREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING

A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MATERIALS.

B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN SIX INCHES (6")) CUT OR FILL, OR TRENCHING NOT

A WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.

B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN SIX FEET (6"-0") TO BUILDING.

A. NO CONSTRUCTION OR DISTURBANCE SHALL OCCUR WITHIN AN AREA THAT CONSTITUTES MORE THAN FIFTY (50%) OF THE TOTAL, CRITICAL ROOT ZONE AND ONE HALF THE RADIAL DISTANCE OF THE CRITICAL ROOT ZONE FOR EACH TREE BEING PRESERVED INCLUDING SIGNIFICANT INEES, HERTISCE TREES, AND ANY OTHER TREES FOR WHICH PRESERVATION IS TO BE GREDITED. THE REMAINING CRITICAL ROOT ZONE SHALL CONSIST OF AT LEAST ONE HUNDRED (100) SQUARE FEET.

B. THIS DEFINED AREA SHALL BE FLAGGED AND ENCIRCLED WITH PROTECTIVE FENCING DURING CONSTRUCTION. THE PLANNING

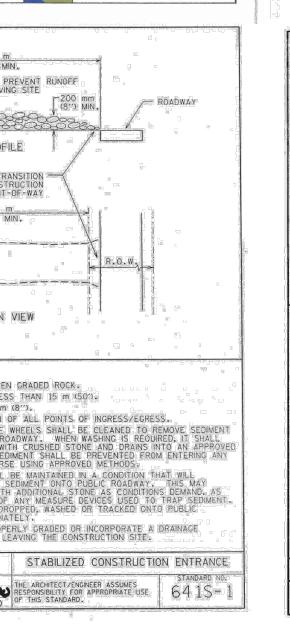
director may approve construction closer to the trunk than one half  $(\frac{y}{2})$  the radial distance, depending on the Size, spacing, or species of the tree, the type of disturbance proposed, and uniqueness of the situation.

C. CUT OR FILL THAT IS GREATER THAN FOUR (4) INCHES IN DEPTH AND THE SEVERING OF MAJOR ROOTS SHALL BE CONSIDERED DISTURBANCE FOR THE PURPOSES OF THIS ORDINANCE.

D. WITHIN THE PROTECTED CRITICAL ROOT ZONE, ONLY FLATWORK, DECKING, OR SIMILAR CONSTRUCTION, MAY BE APPROVED AND SHALL NOT AFFECT THE BRANCHING OF THE TREE.

E. IF PROPOSED OR ACTUAL PROTECTION OF THE CRITICAL ROOT ZONE OF A TREE DOES NOT MEET THE REQUIREMENTS OF THIS SECTION, THEN THE TREE SHALL BE CONSIDERED REMOVED AND SHALL REQUIRE MITIGATION IN ACCORDANCE WITH THIS ORDINANC

Fences shall completely surround the tree, or clusters of trees; shall be located at the outermost limit of the tree. Branches (Dripline), and shall be maintained throughout the construction project in order to prevent the



Correct - Install J-hooks

istalled with J-hooks or 'smiles'

will be much more effective.

SILT FENCE PLACEMENT

FOR PERIMETER CONTROL

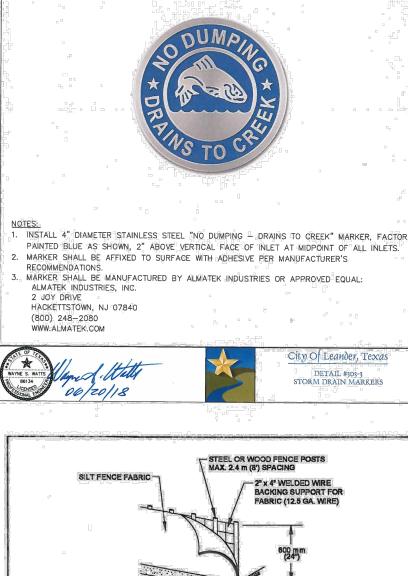
D85 (in)

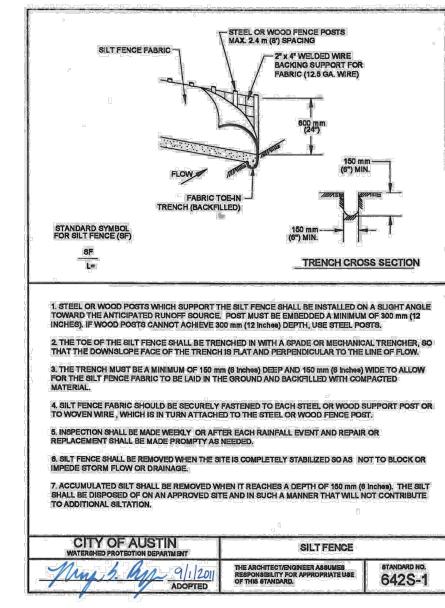
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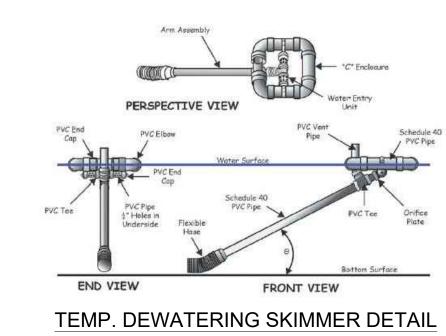
11.5

D100 (in)

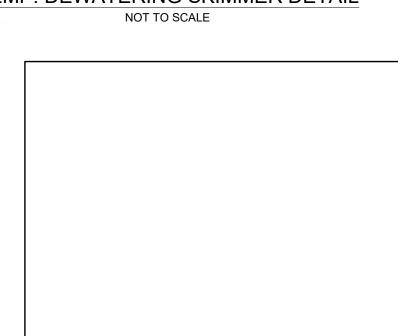
City Of Leander, Texas











CITY OF LEANDER APPROVAL

LOCATION OF EXISTING UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND

ALL DAMAGES WHICH MIGHT OCCUR.

Know what's **below**.

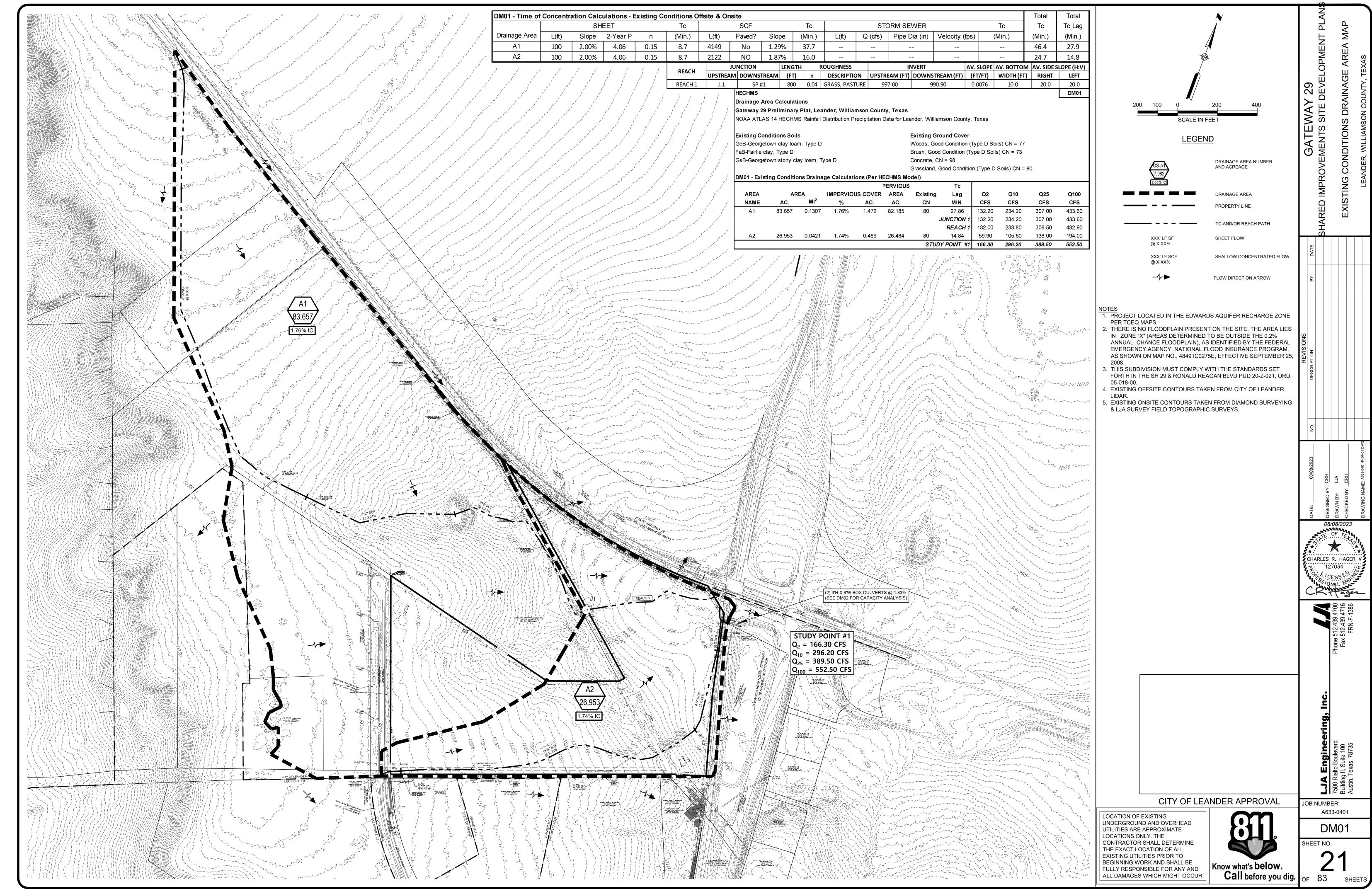
Call before you dig.

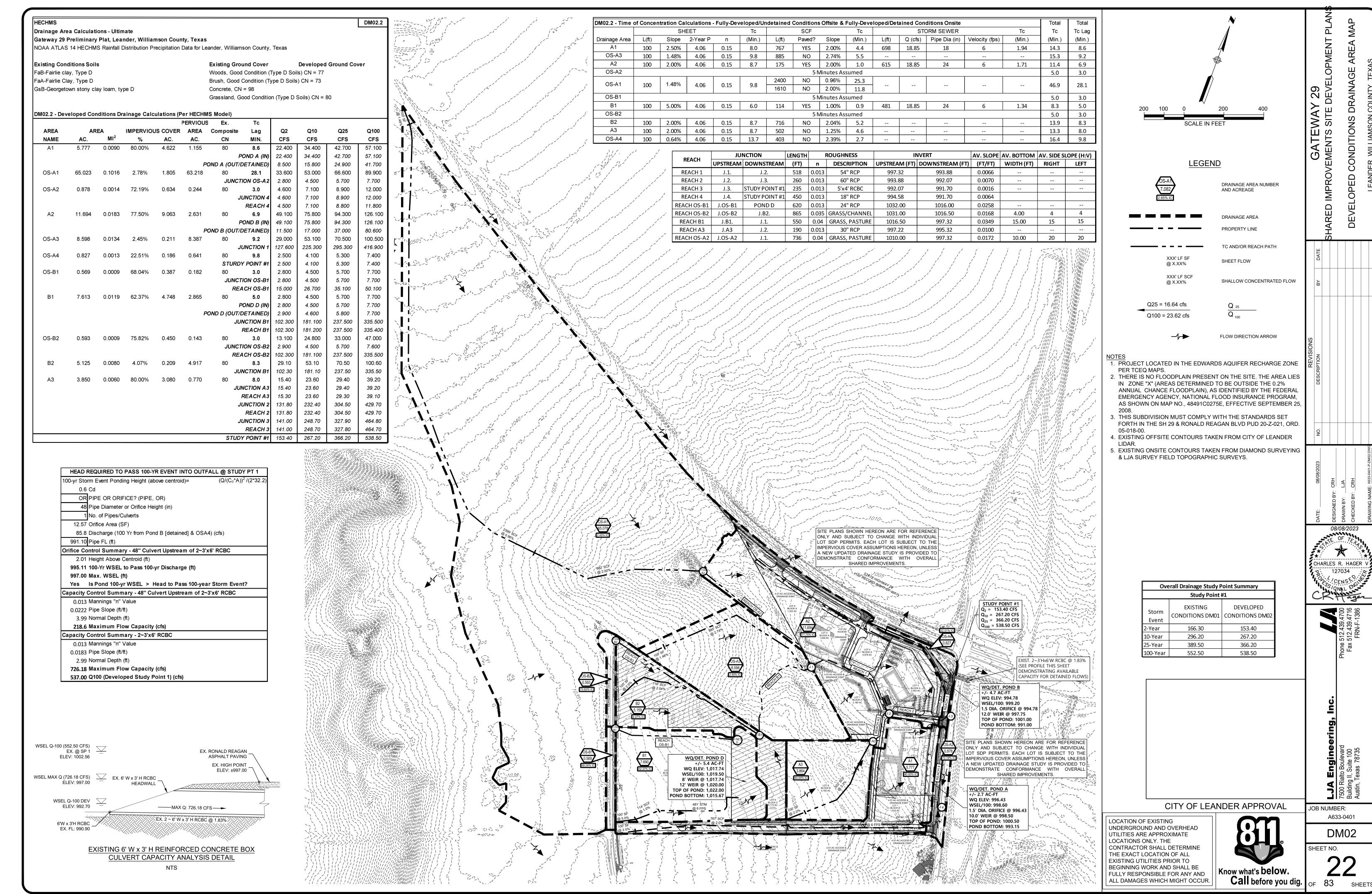
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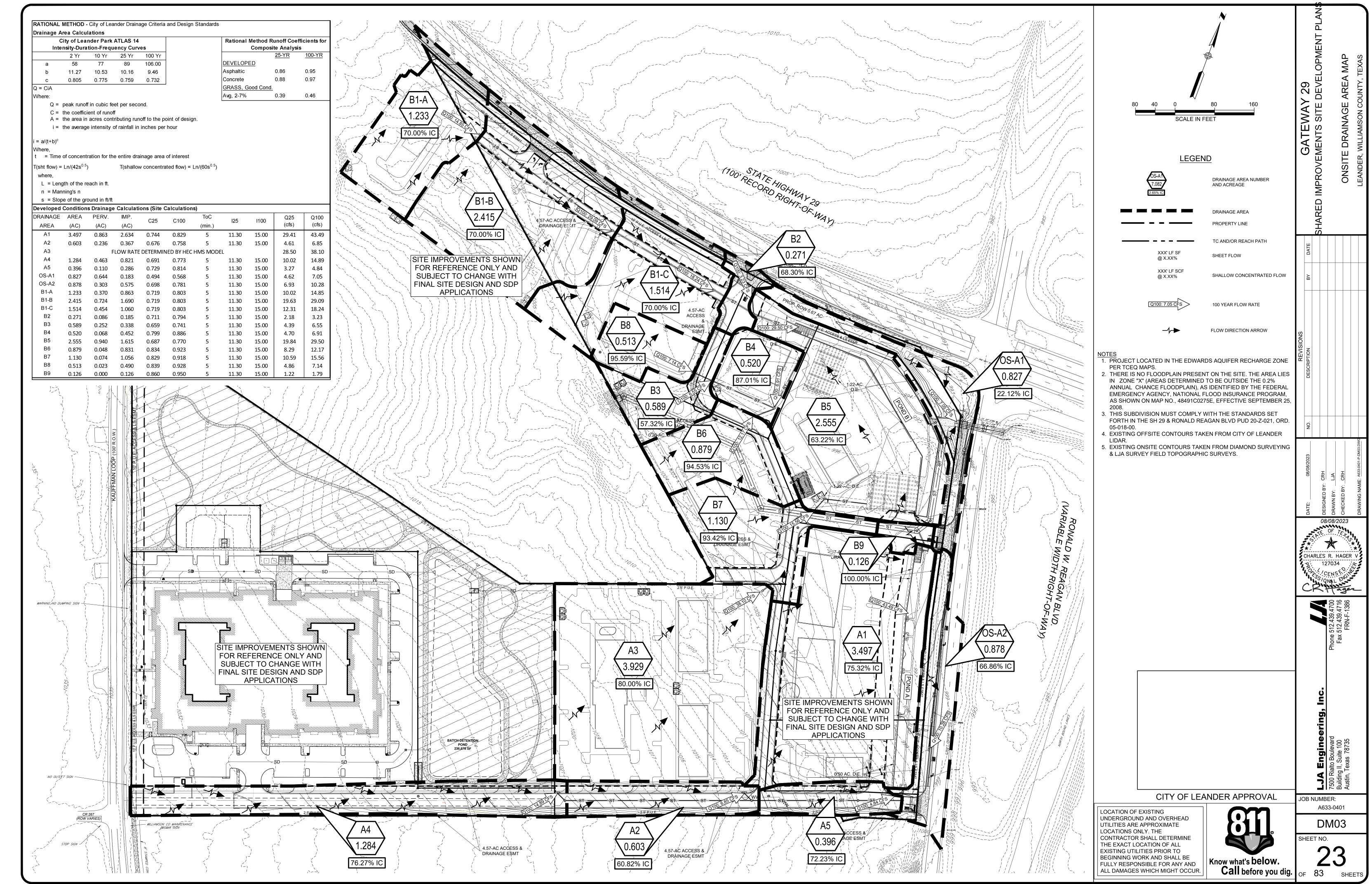
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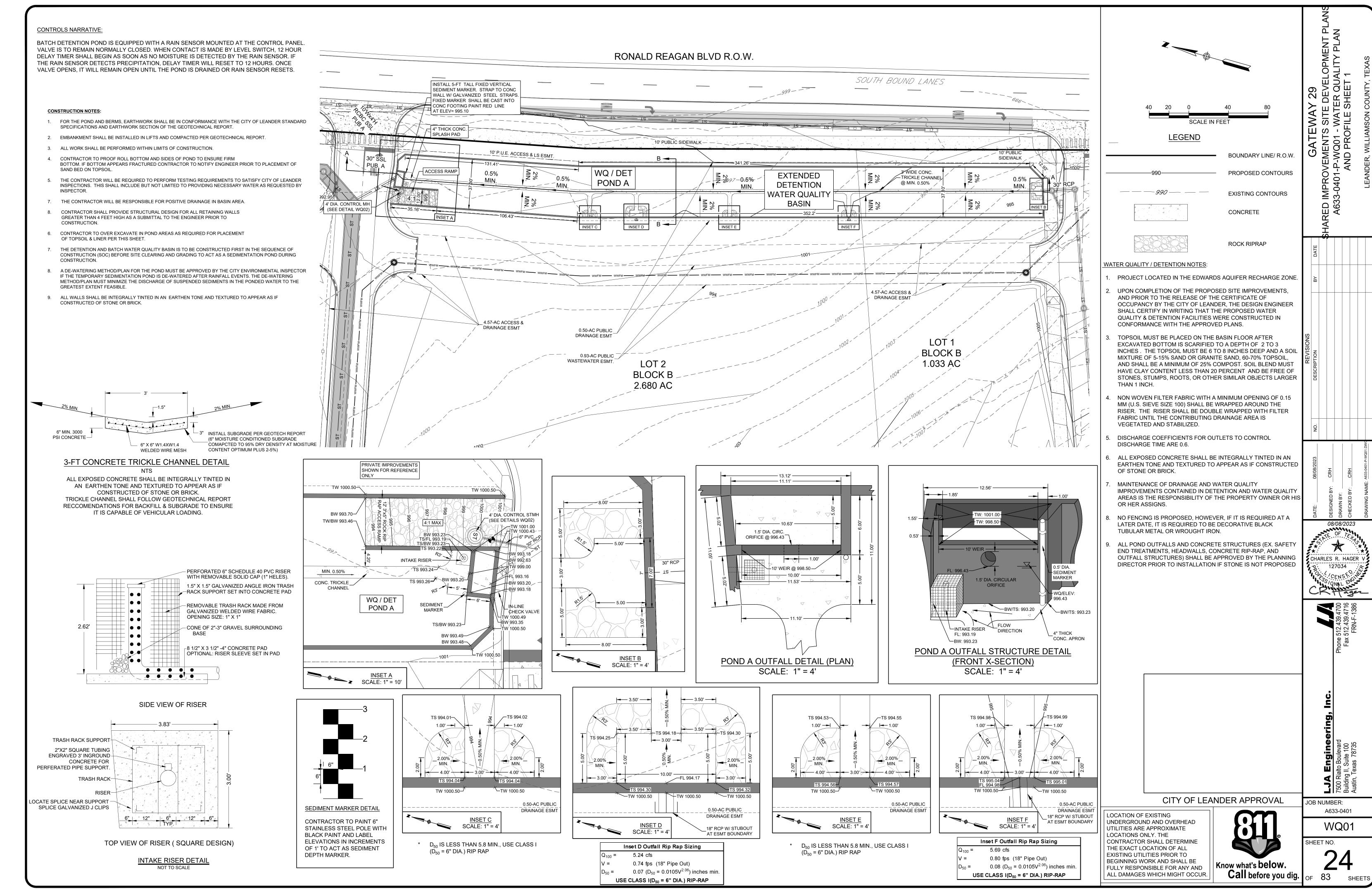
CHARLES R. HAGER

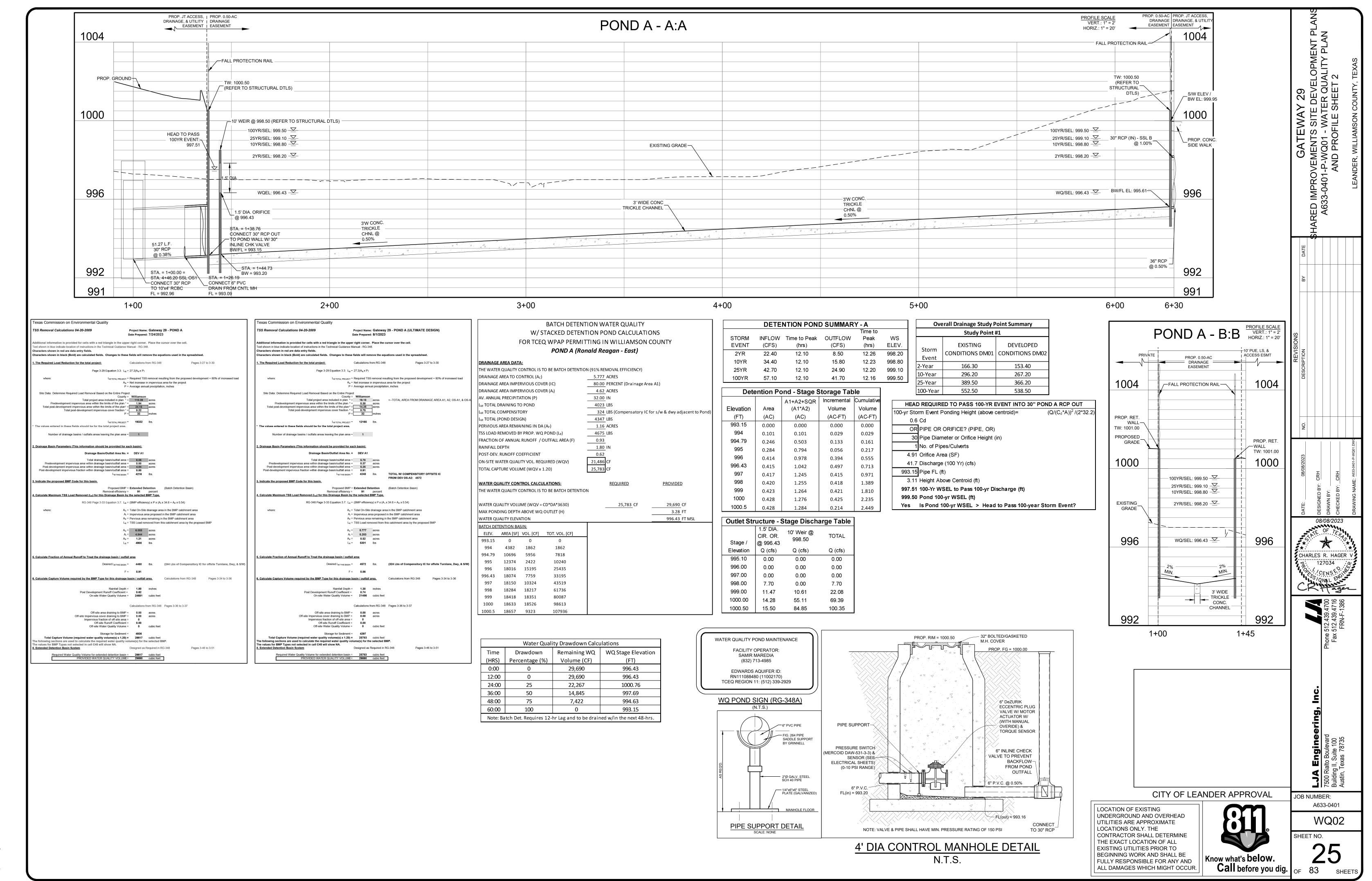
A633-0401







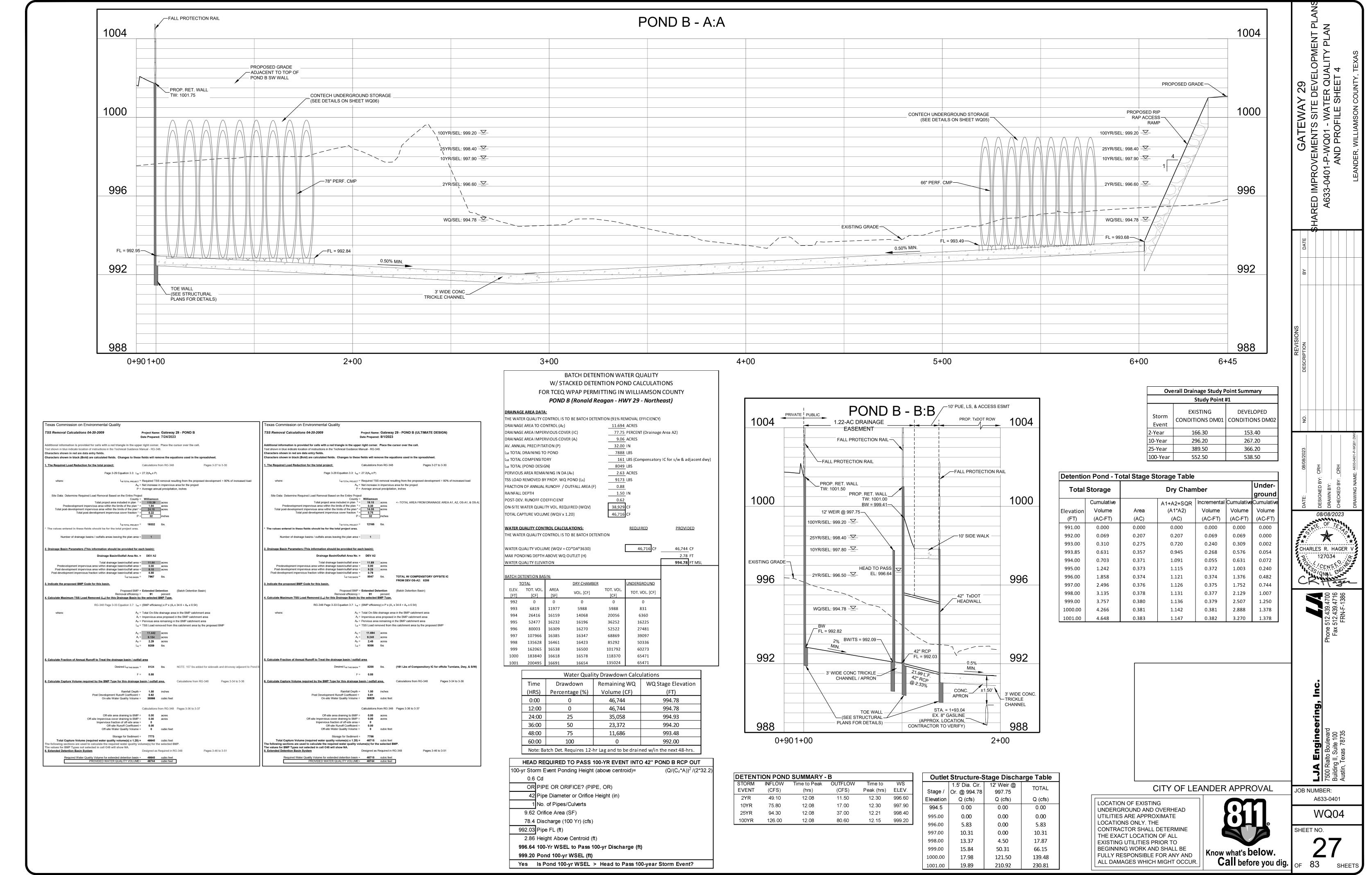




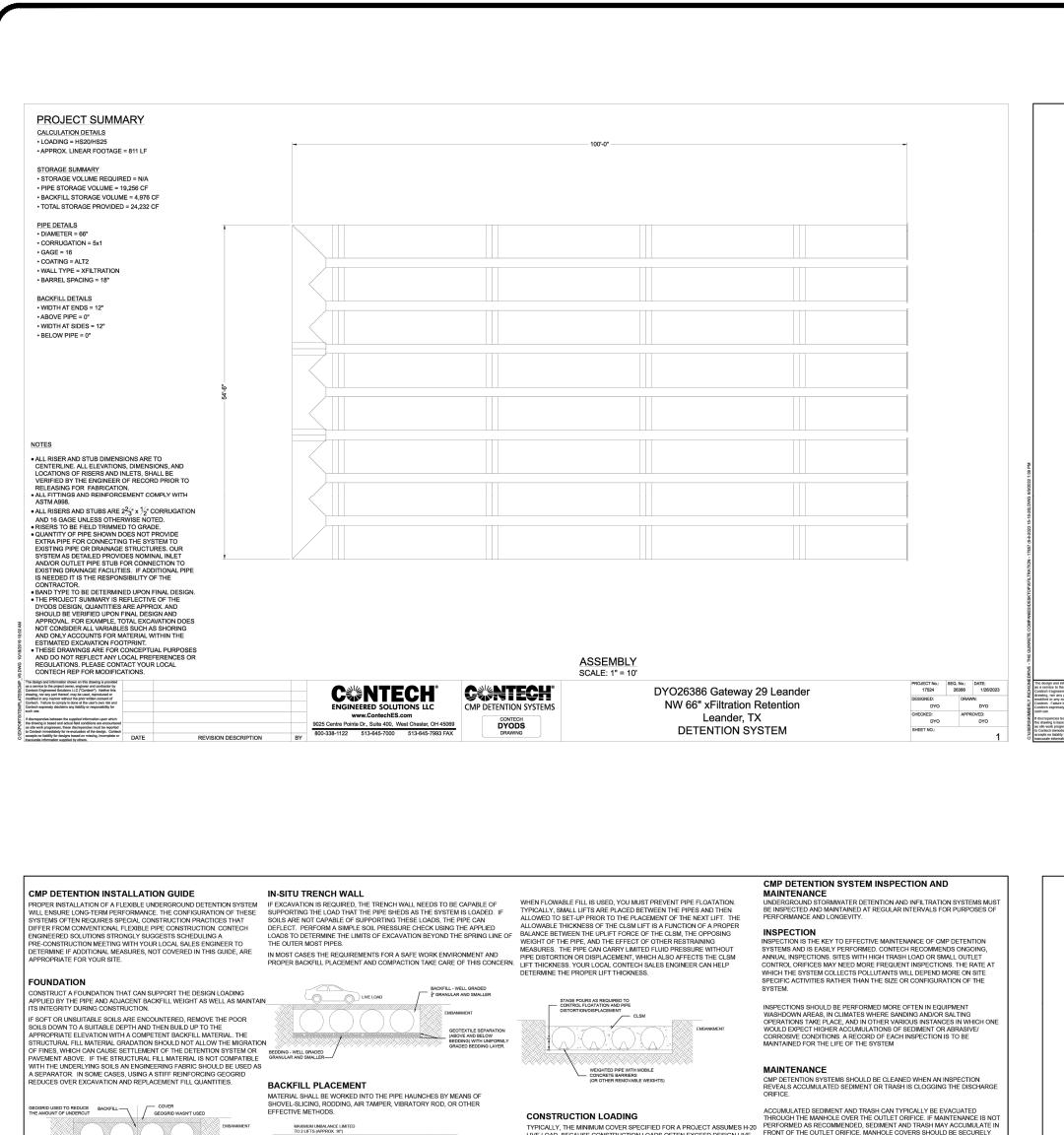
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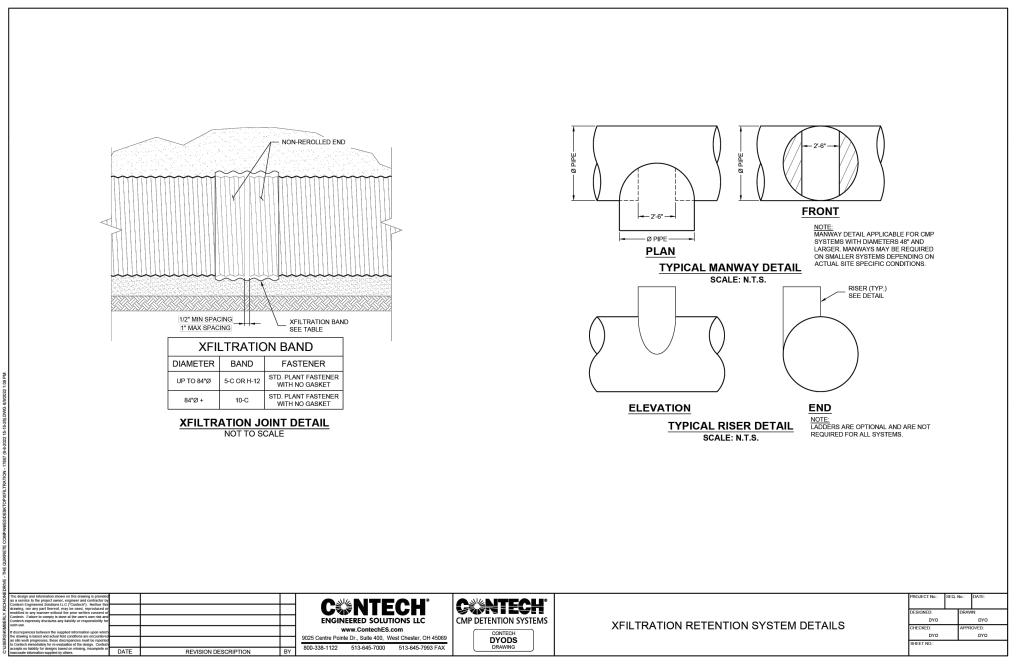
ALL DAMAGES WHICH MIGHT OCCUR.

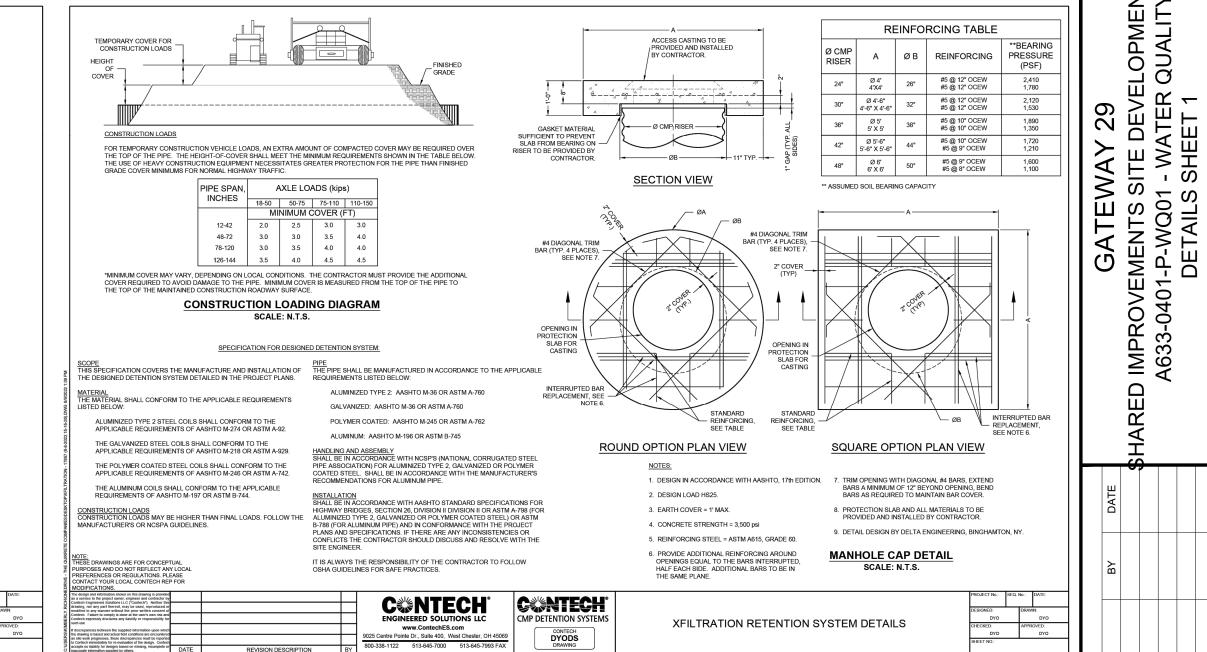
Call before you dig. OF 83

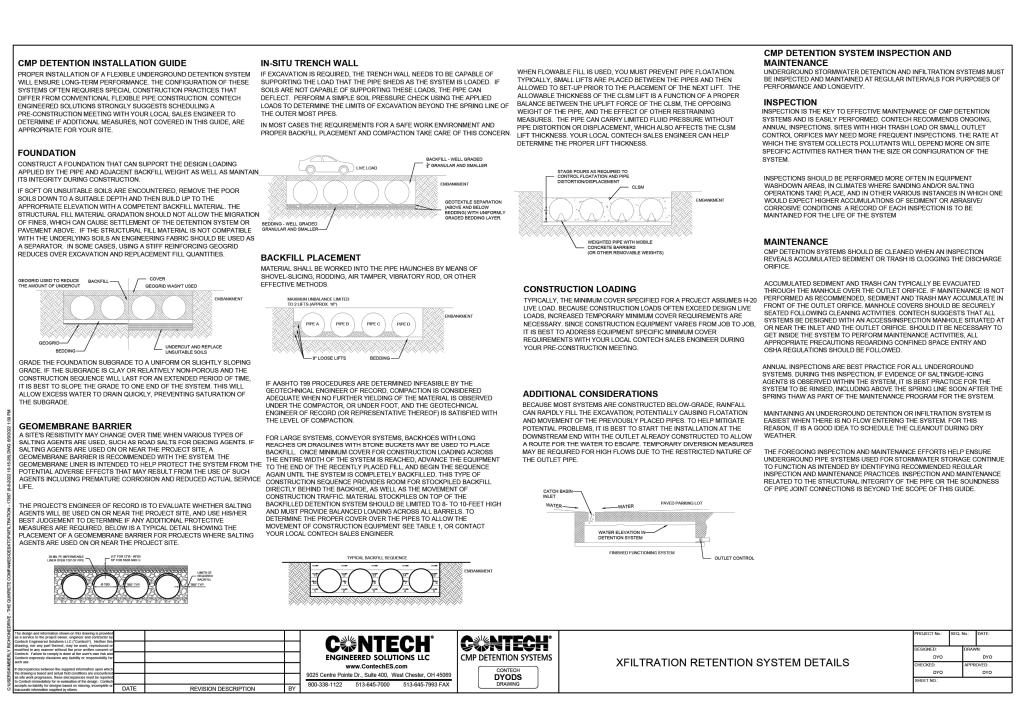


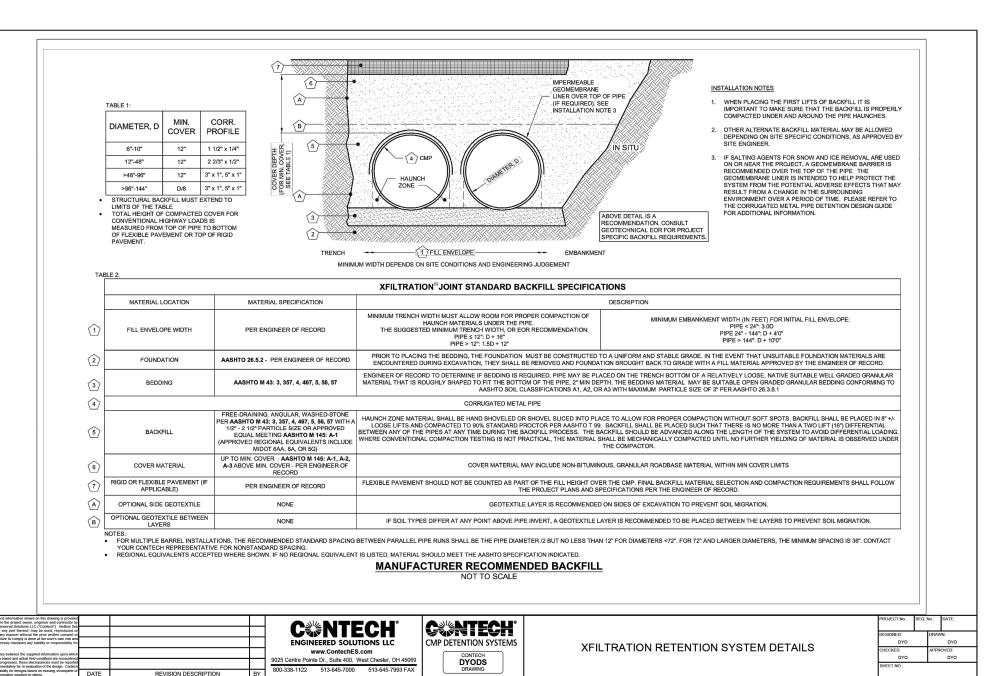
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739837-HydroCAD Stage Storage Rainfall file not specified Prepared by Contech Engineered Solutions Printed 1/27/2023 HydroCAD® 10.20-2f s/n 00447 © 2022 HydroCAD Software Solutions LLC Page 2

# Summary for Pond 1P: NW 66" xFiltration

Volume	Invert	Avail.Storage	Storage Description
#1	993.75'	363 cf	6.50'W x 56.50'L x 6.00'H Prismatoid
			2,204 cf Overall - 1,295 cf Embedded = 909 cf x 40.0% Voids
#2	993.75'	1,295 cf	66.0" Round CMP_Round 66" Inside #1
			L= 54.5' S= 0.0050 '/'
#3	993.75'	5,765 cf	56.50'W x 95.50'L x 6.00'H Prismatoid
			32,375 cf Overall - 17,961 cf Embedded = 14,413 cf x 40.0% Voids
#4	993.75'	17,961 cf	66.0" Round CMP_Round 66" x 8 Inside #3
			L= 94.5' S= 0.0050 '/'
		25,385 cf	Total Available Storage

08/08/2023 \* \*\* CHARLES R. HAGER \ 127034 CENSE

JOB NUMBER: A633-0401 WQ05

SHEET NO.

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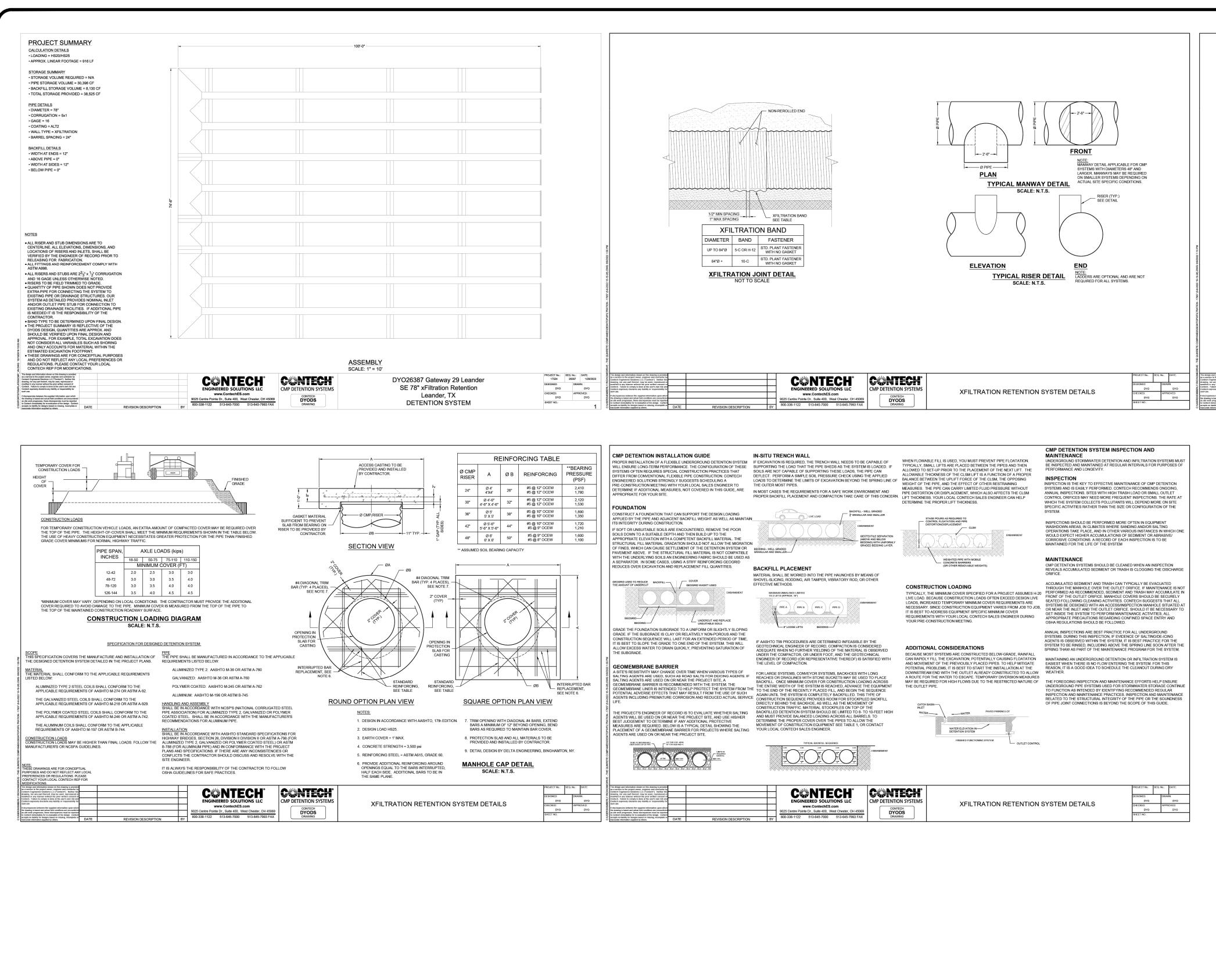
UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

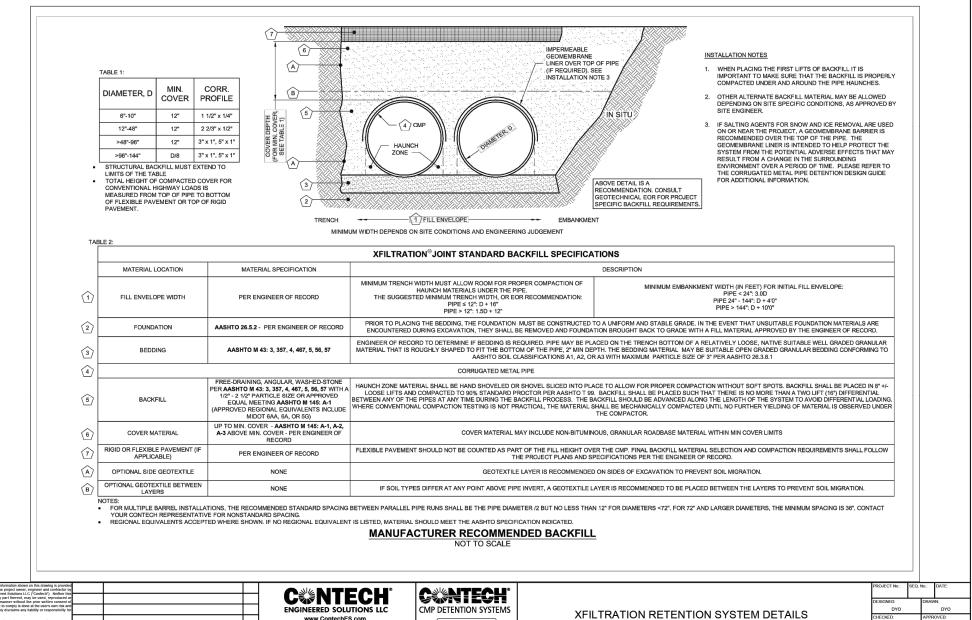
**LOCATION OF EXISTING** 

UNDERGROUND AND OVERHEAD

Know what's **below**. Call before you dig. OF 83

CITY OF LEANDER APPROVAL





Rainfall file not specified 739837-HydroCAD Stage Storage Printed 1/27/2023 Prepared by Contech Engineered Solutions HydroCAD® 10.20-2f s/n 00447 © 2022 HydroCAD Software Solutions LLC

# **Summary for Pond 2P: SE 78" xFiltration**

Volume	Invert	Avail.Storage	Storage Description
#1	992.75'	618 cf	7.50'W x 76.50'L x 7.00'H Prismatoid
			4,016 cf Overall - 2,472 cf Embedded = 1,544 cf x 40.0% Voids
#2	992.75'	2,472 cf	78.0" Round CMP_Round 78" Inside #1
			L= 74.5' S= 0.0050 '/'
#3	992.75'	9,072 cf	76.50'W x 94.50'L x 7.00'H Prismatoid
			50,605 cf Overall - 27,924 cf Embedded = 22,681 cf x 40.0% Voids
#4	992.75'	27,924 cf	<b>78.0" Round CMP_Round 78"</b> x 9 Inside #3
		,	L= 93.5' S= 0.0050 '/'

40,086 cf Total Available Storage

CITY OF LEANDER APPROVAL

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Know what's below. Call before you dig. OF 83

JOB NUMBER: A633-0401 WQ06 SHEET NO.

Y 29 : DEVELOPMENT F ATER QUALITY EET 2

GATEW
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I-P-WQ01
DETAILS

08/08/2023

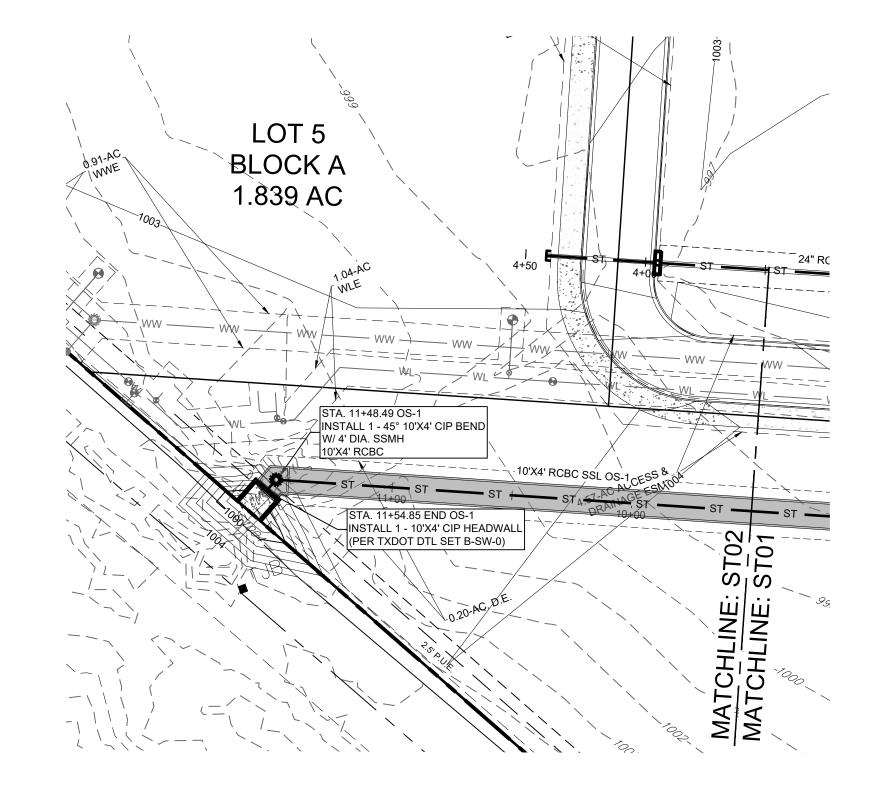
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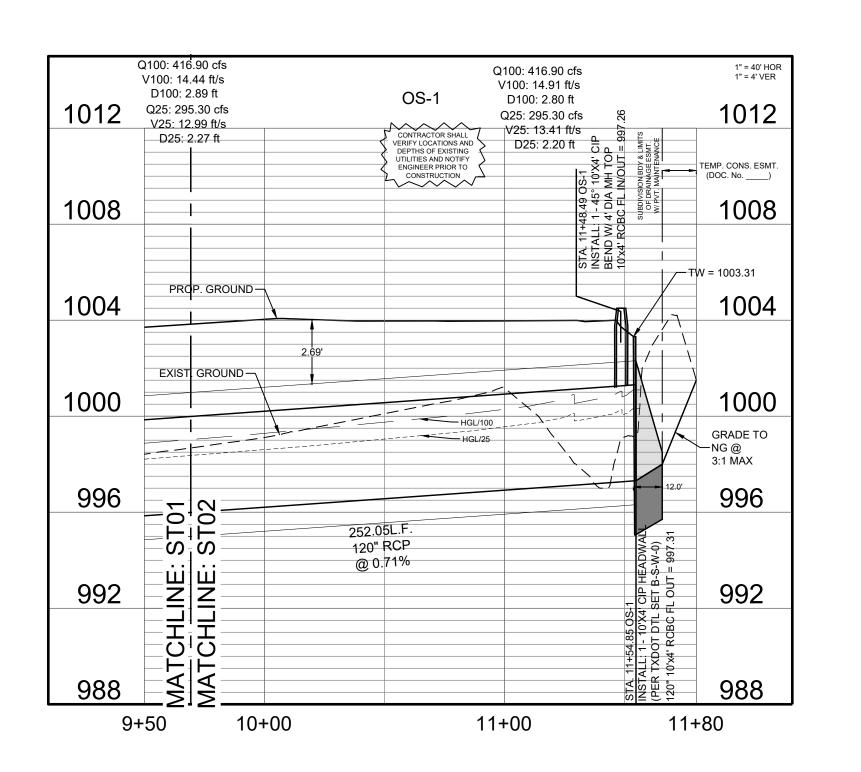
CHARLES R. HAGER \

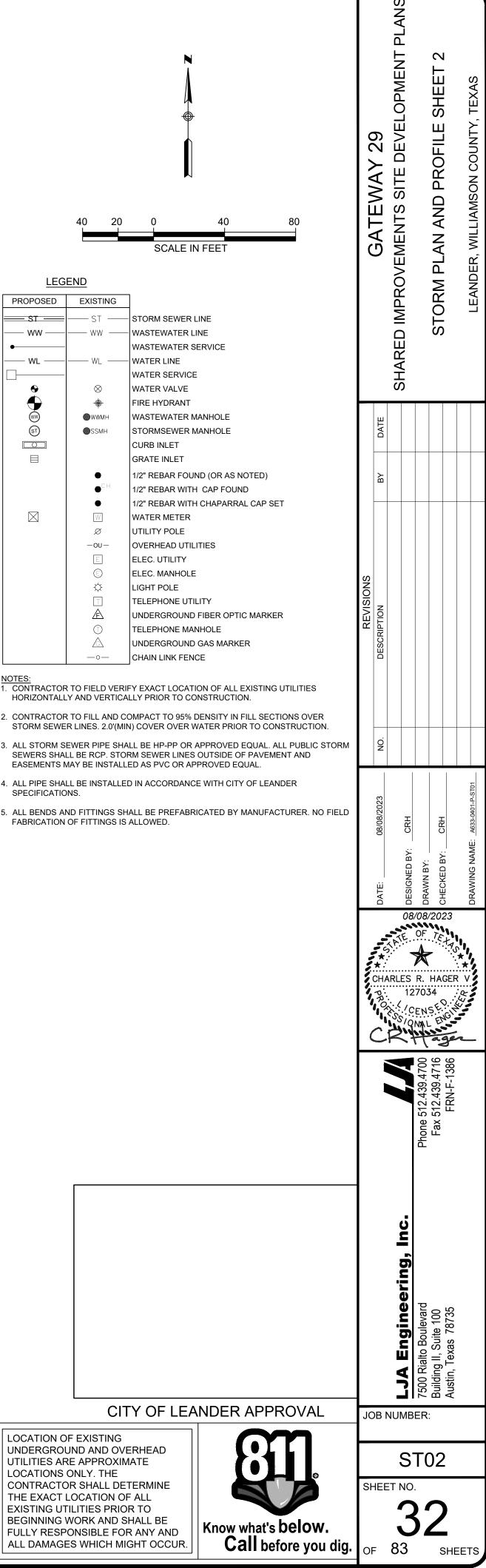
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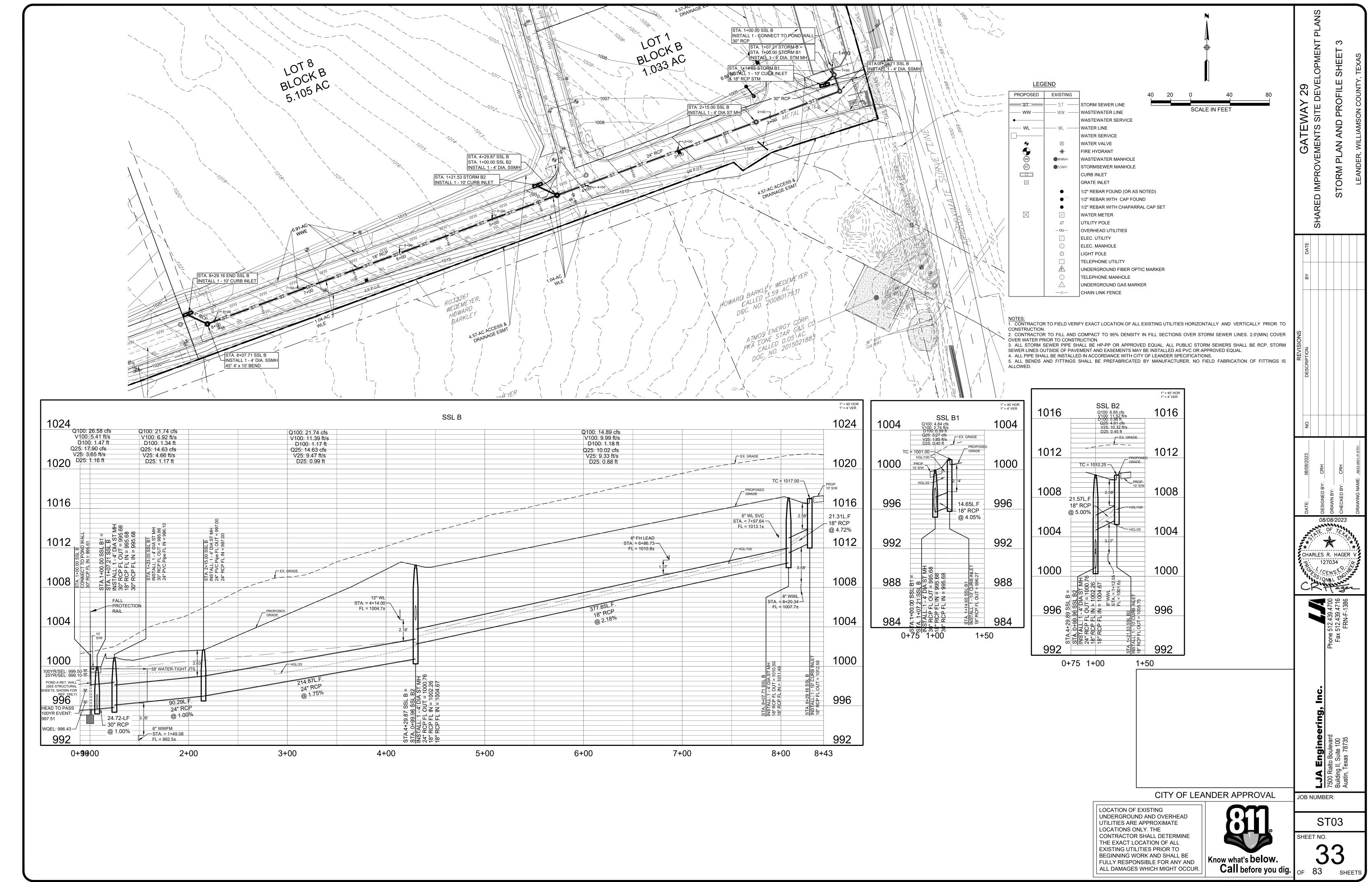
SHEETS





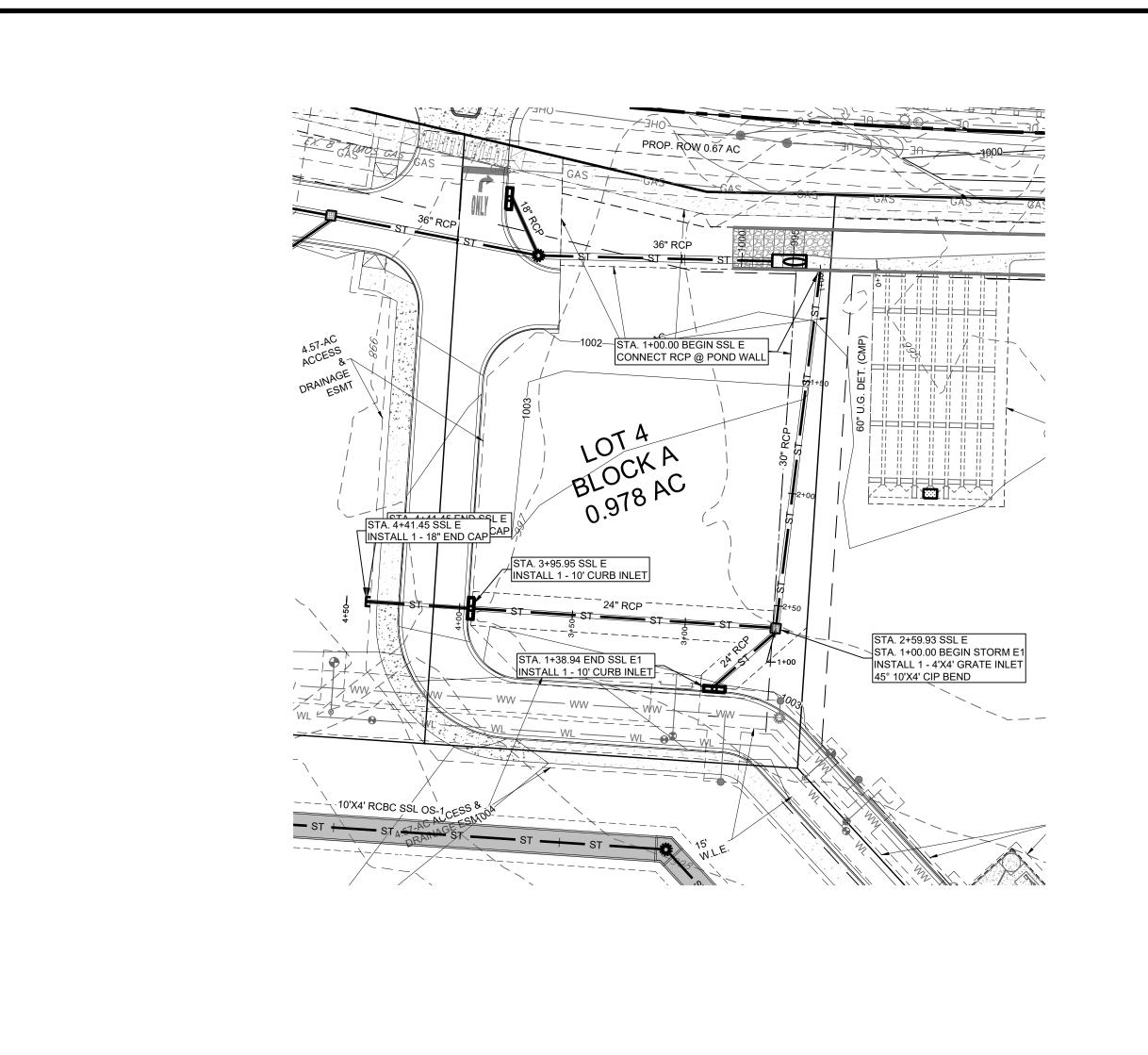


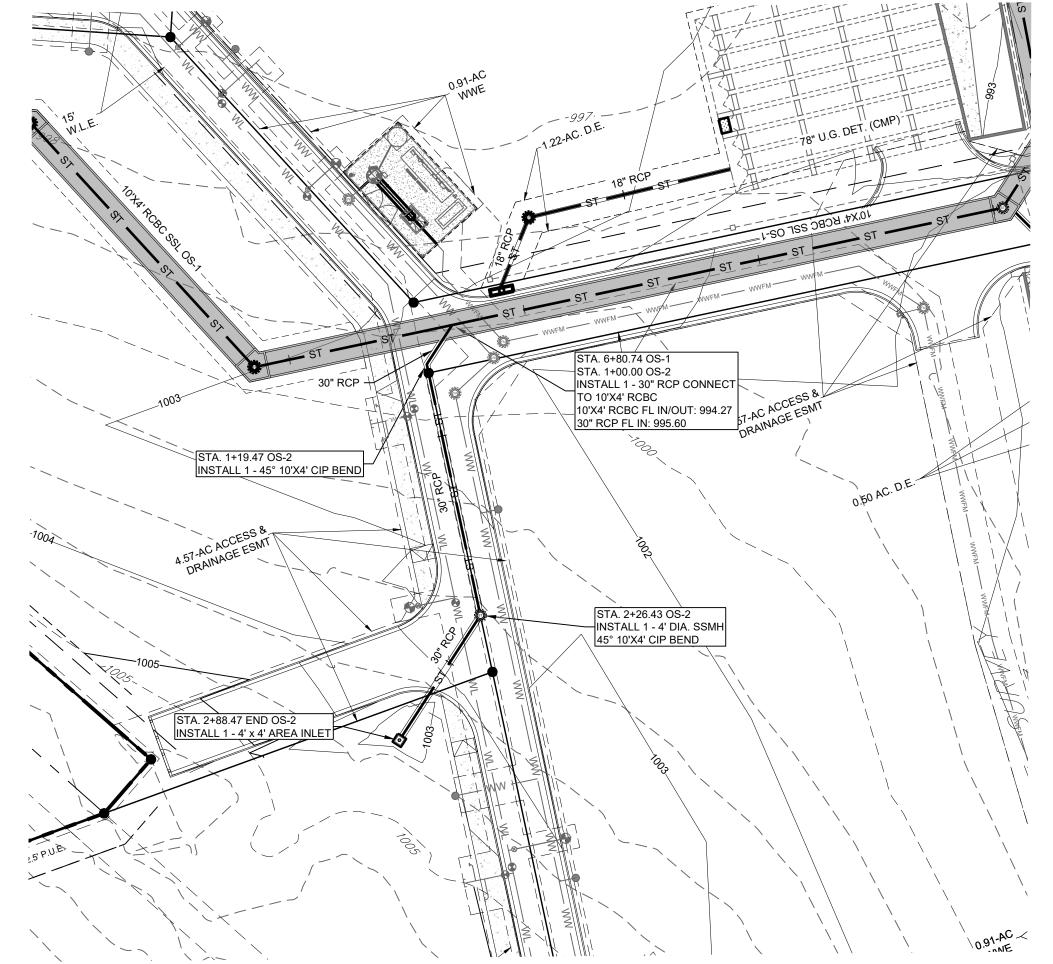
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1" = 40' HOR 1" = 4' VER

-TC = 1003.14

-EXIST. GROUND

8" WWL

FL = 991.9±

1+50

└─STA. = 1+48.68

SSL E1

Q100: 12.17 cfs

V100: 8.54 ft/s D100: 0.93 ft

Q25: 8.29 cfs

V25: 7.71 ft/s

D25: 0.75 ft

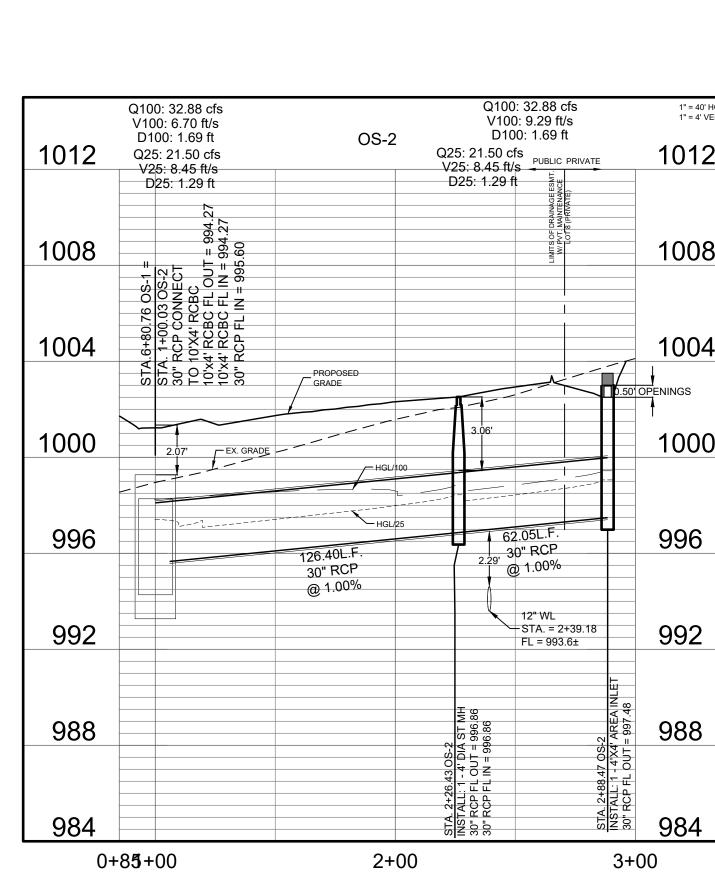
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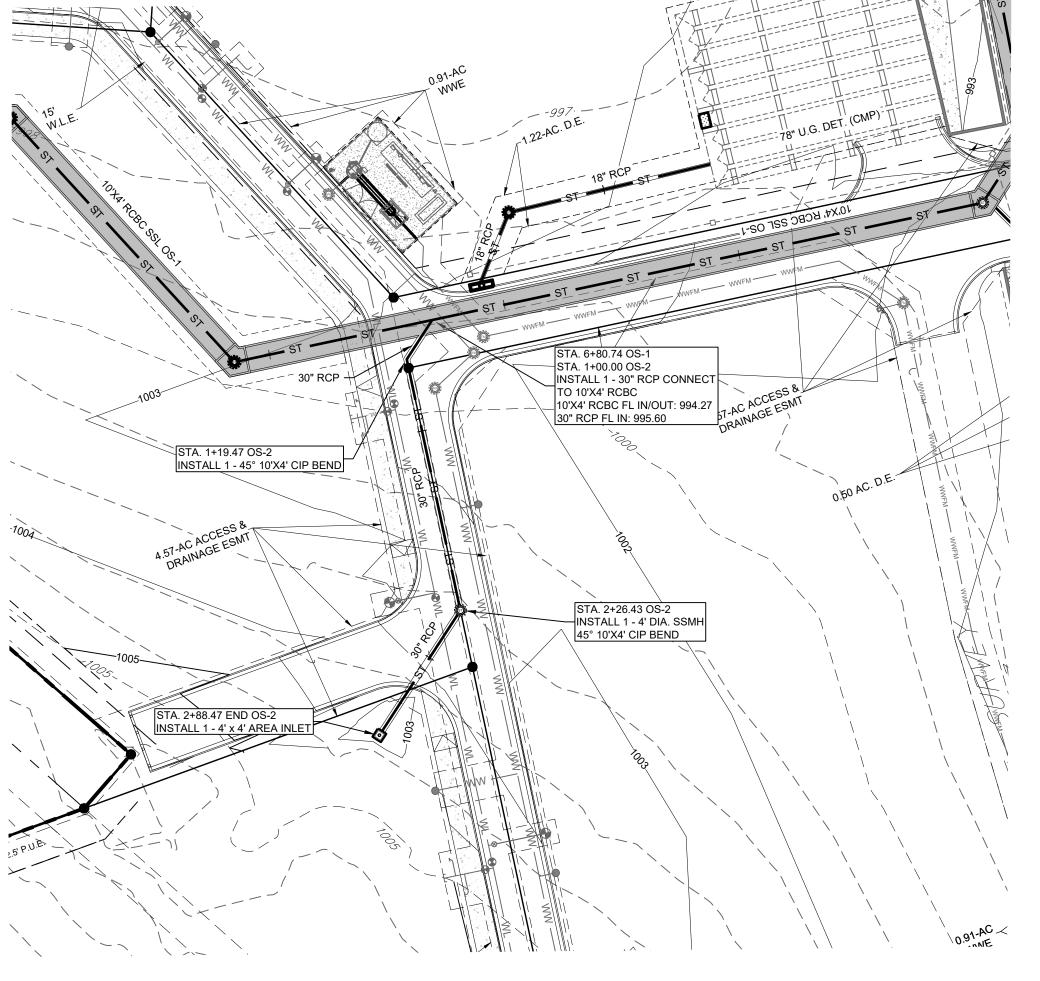
1 \_24" RCP

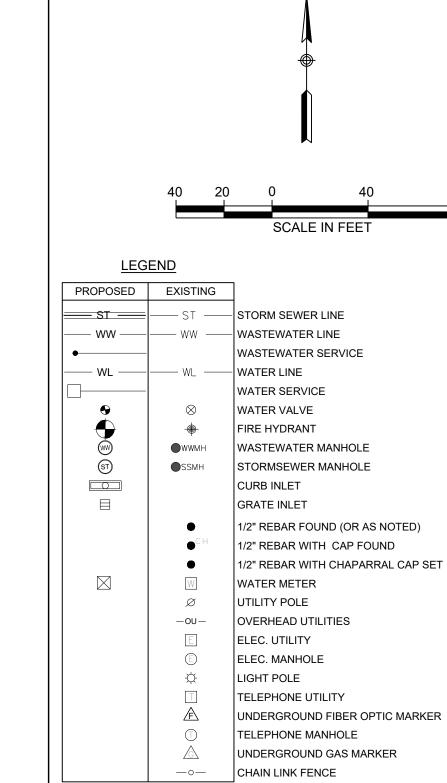
PROP. GROUND

0+75 1+00

1004





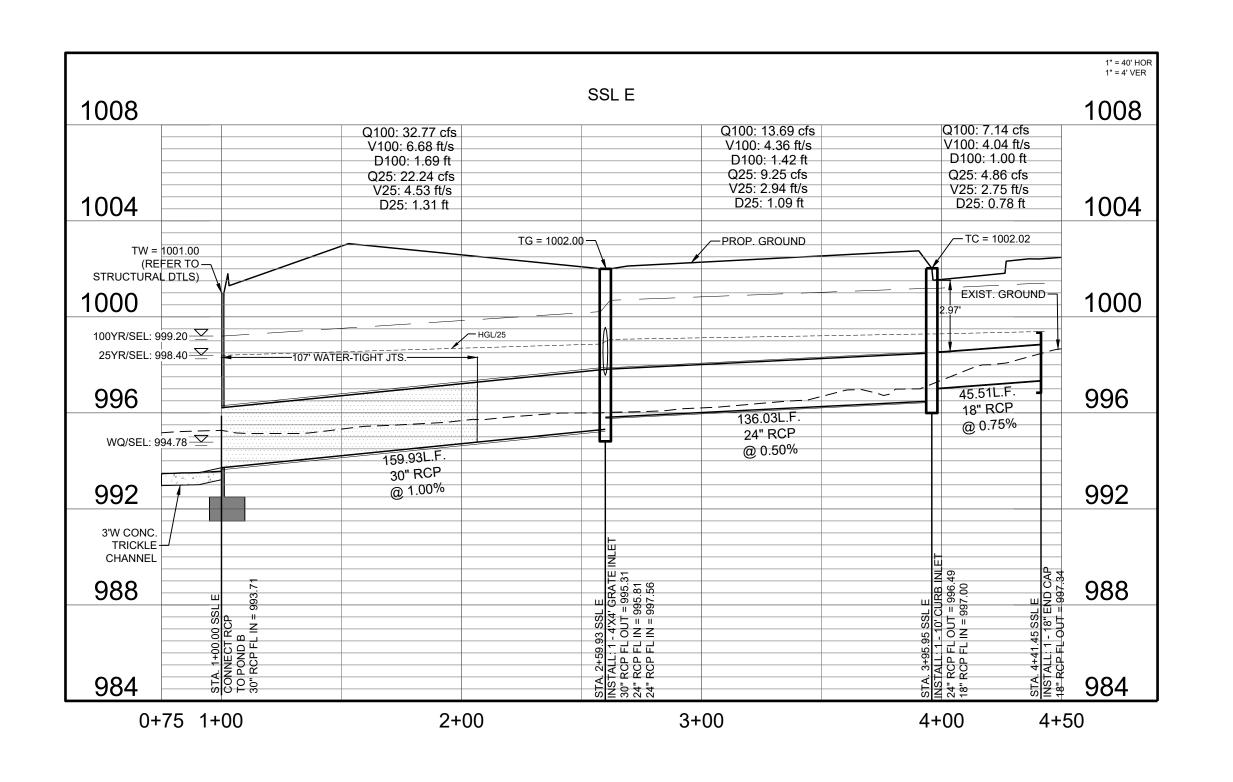


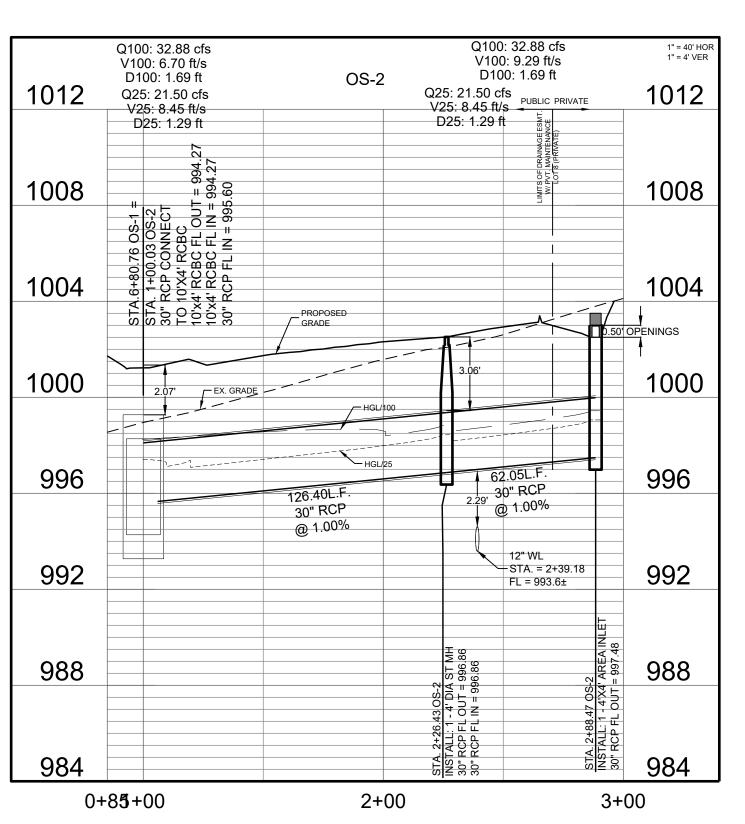
HORIZONTALLY AND VERTICALLY PRIOR TO CONSTRUCTION.

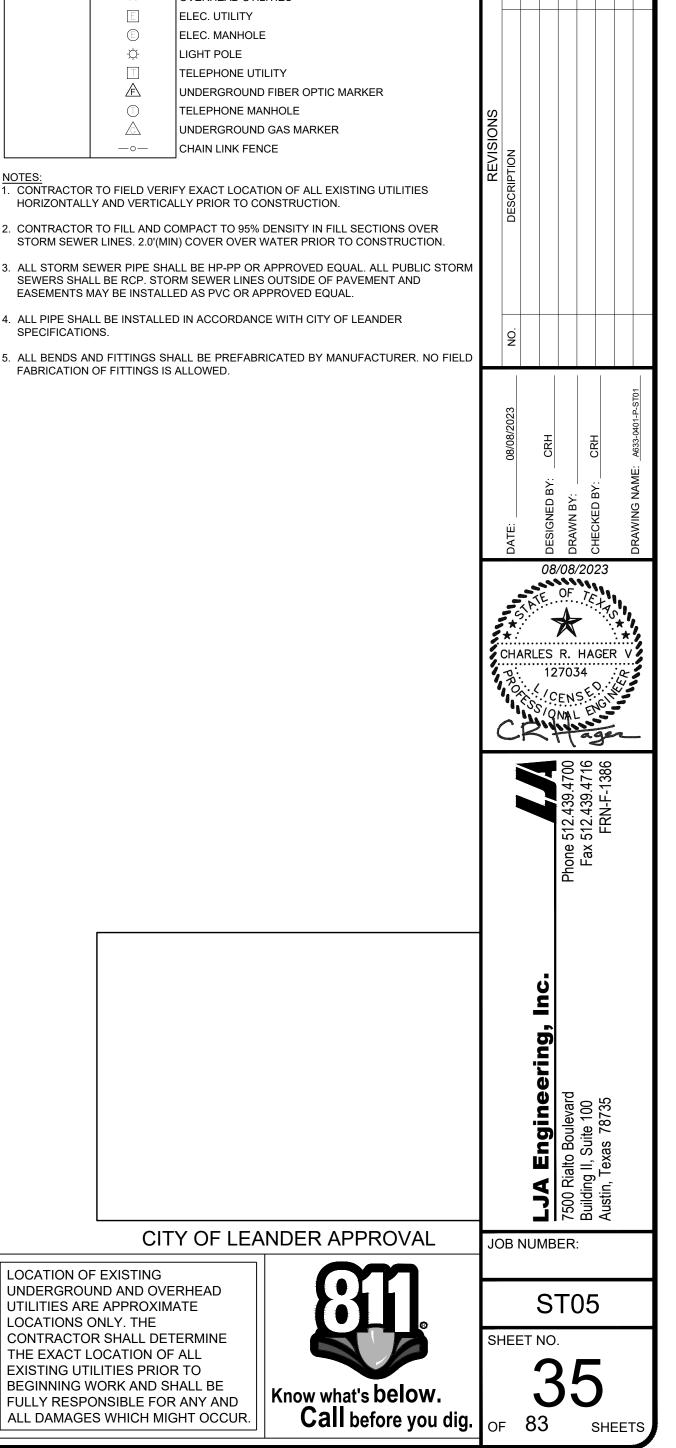
STORM SEWER LINES. 2.0'(MIN) COVER OVER WATER PRIOR TO CONSTRUCTION.

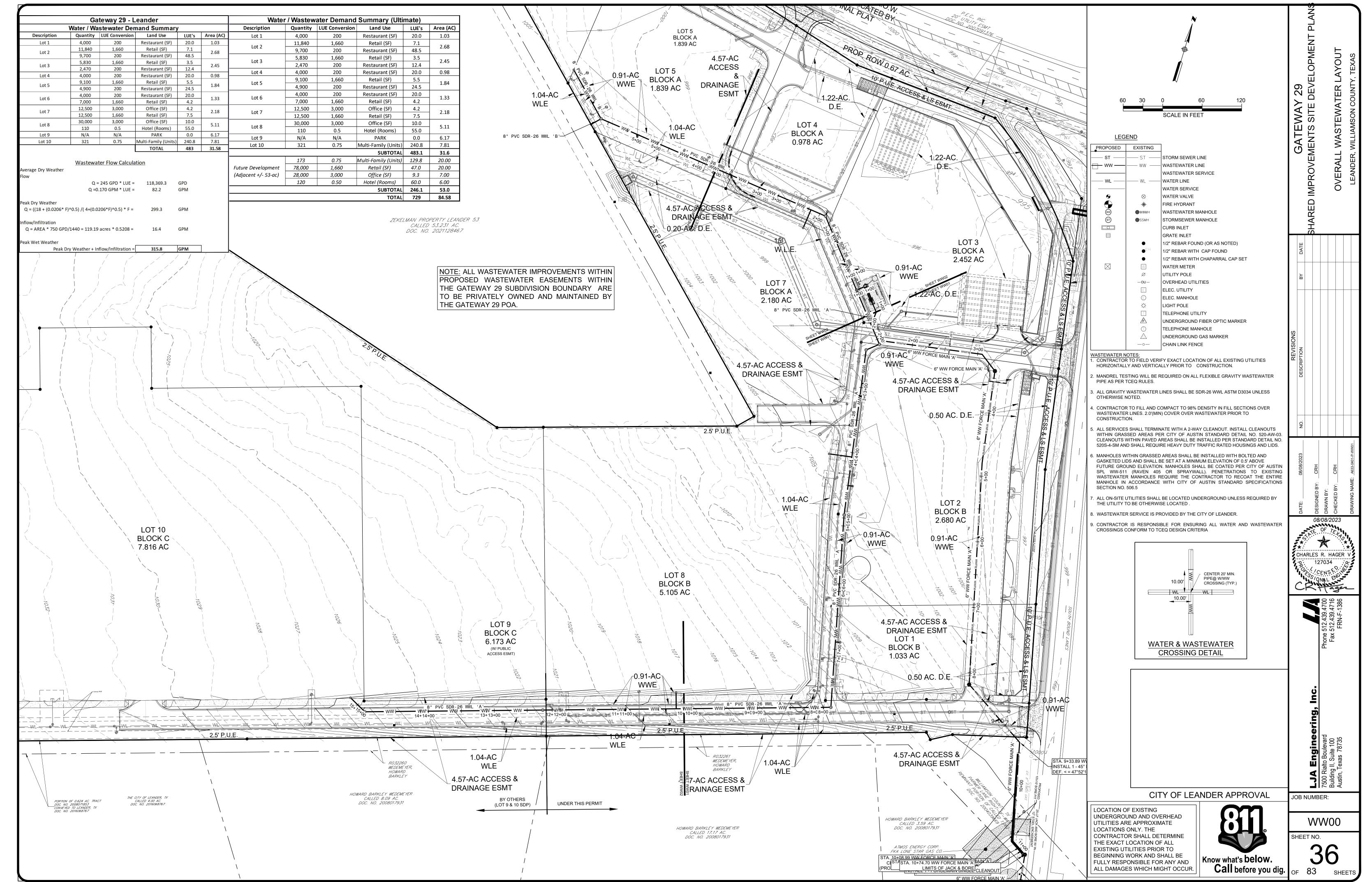
SEWERS SHALL BE RCP. STORM SEWER LINES OUTSIDE OF PAVEMENT AND EASEMENTS MAY BE INSTALLED AS PVC OR APPROVED EQUAL.

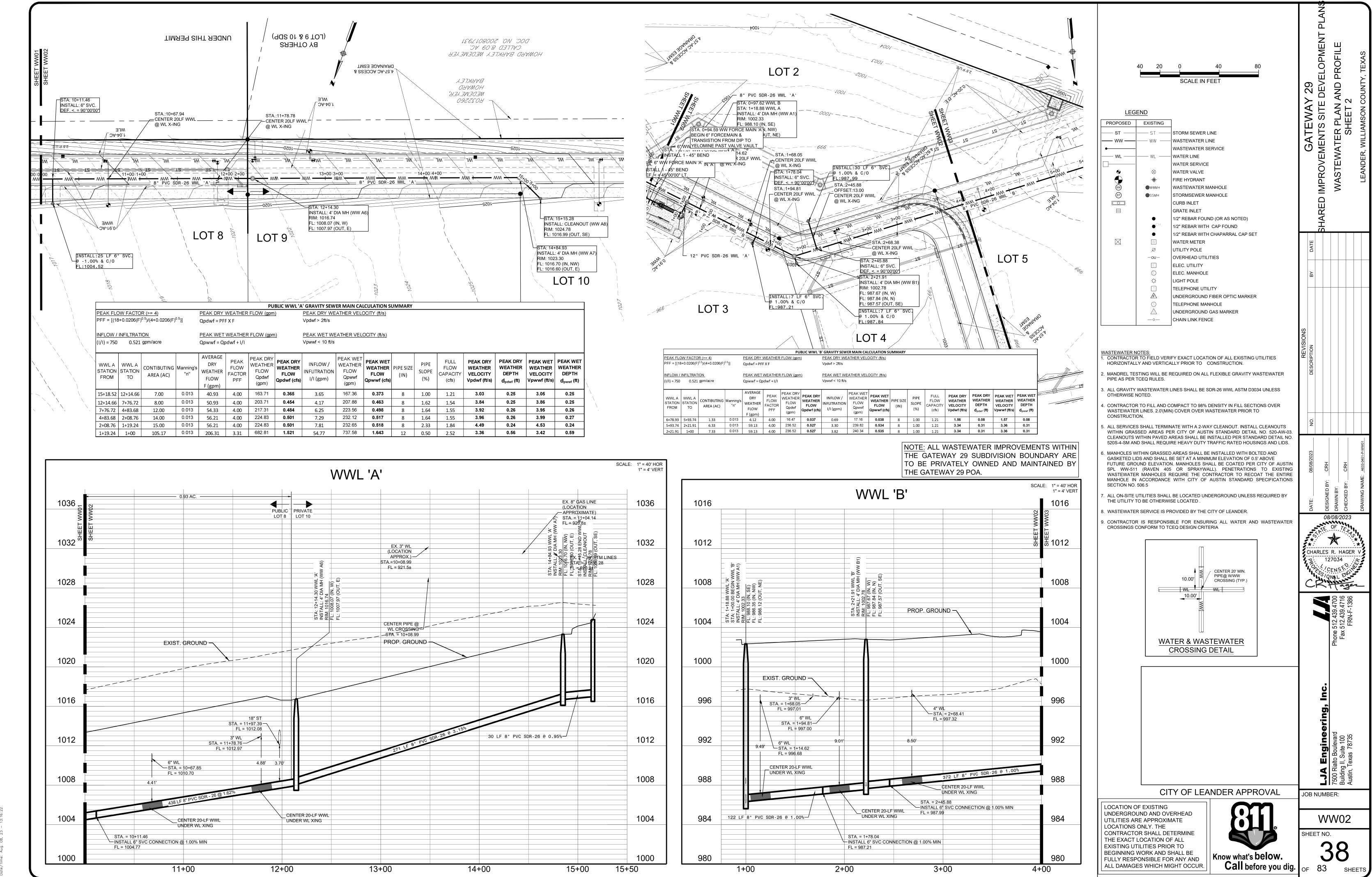
5. ALL BENDS AND FITTINGS SHALL BE PREFABRICATED BY MANUFACTURER. NO FIELD





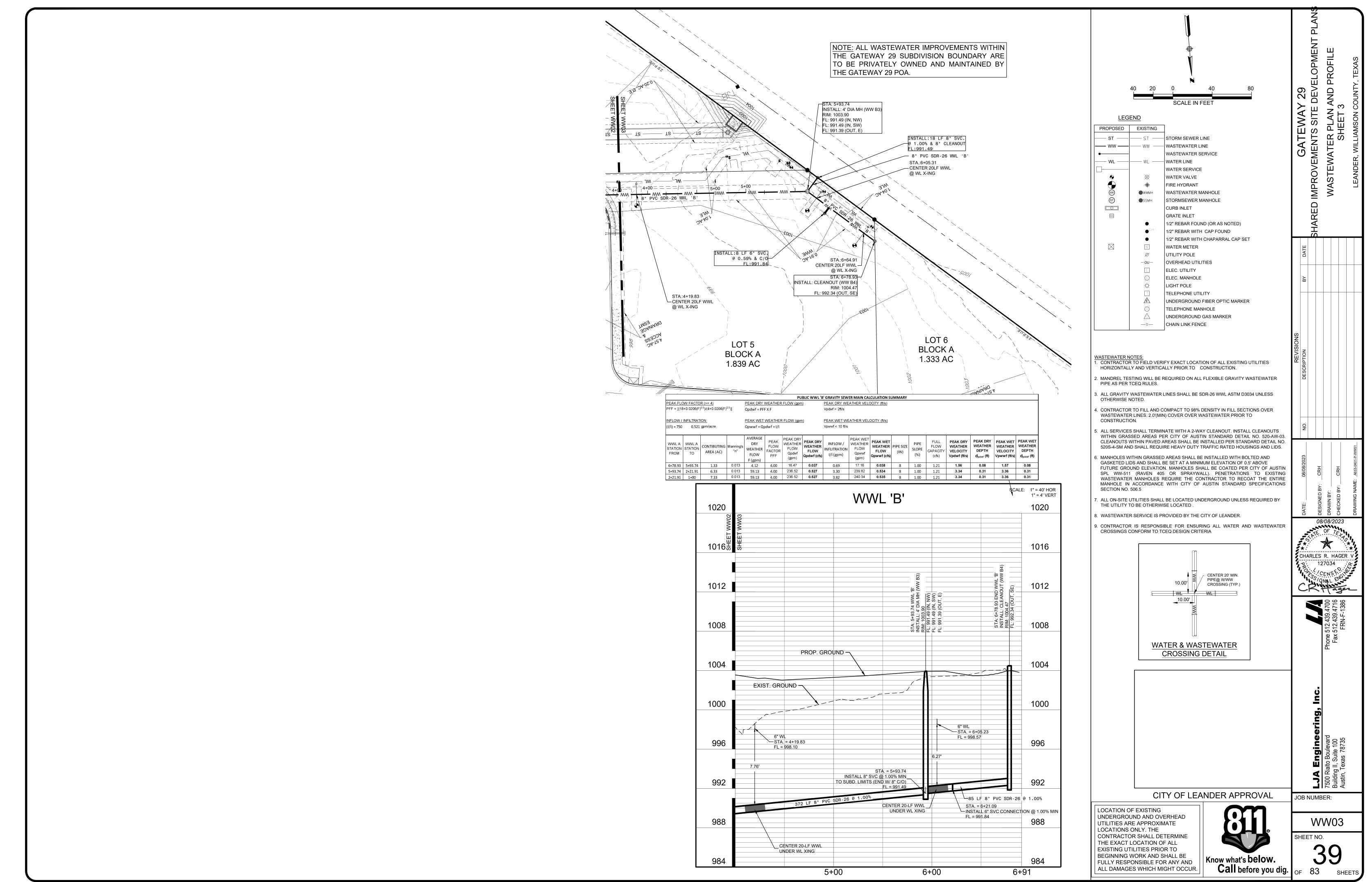




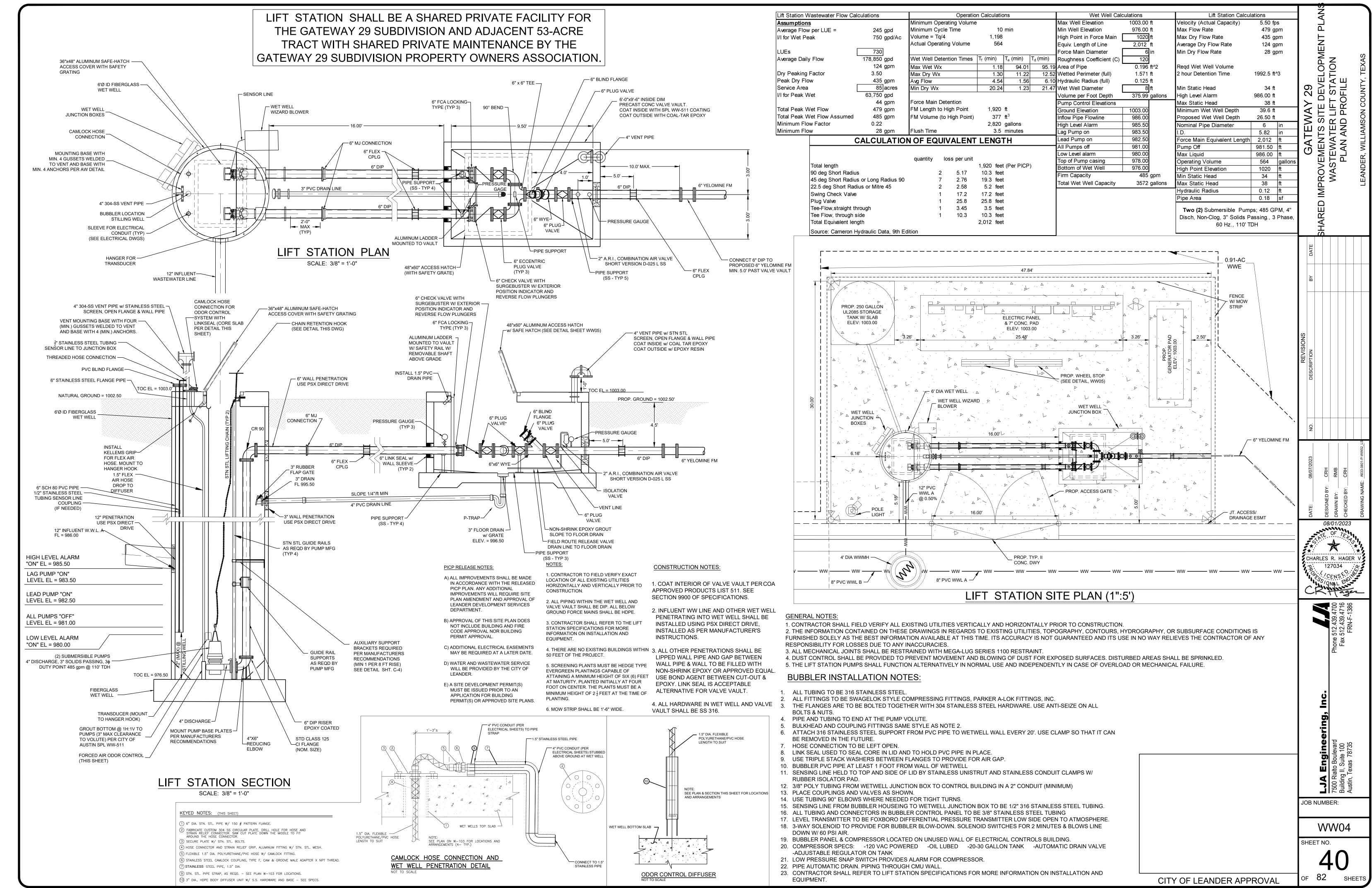


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User: agetsinger
Last Modified: Aug. 08, 23 - 12:20

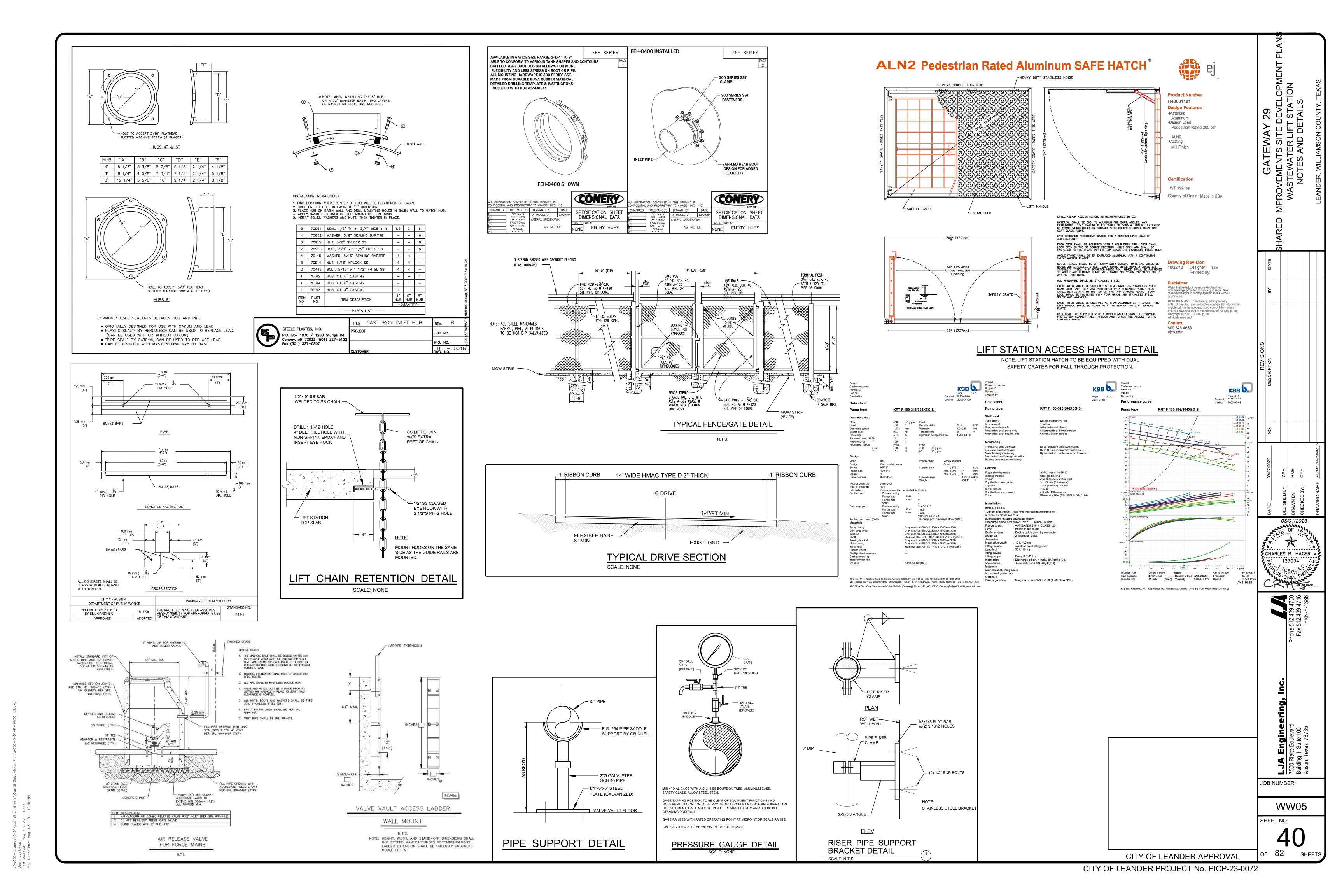
CITY OF LEANDER PROJECT No. SDP-23-XXXX

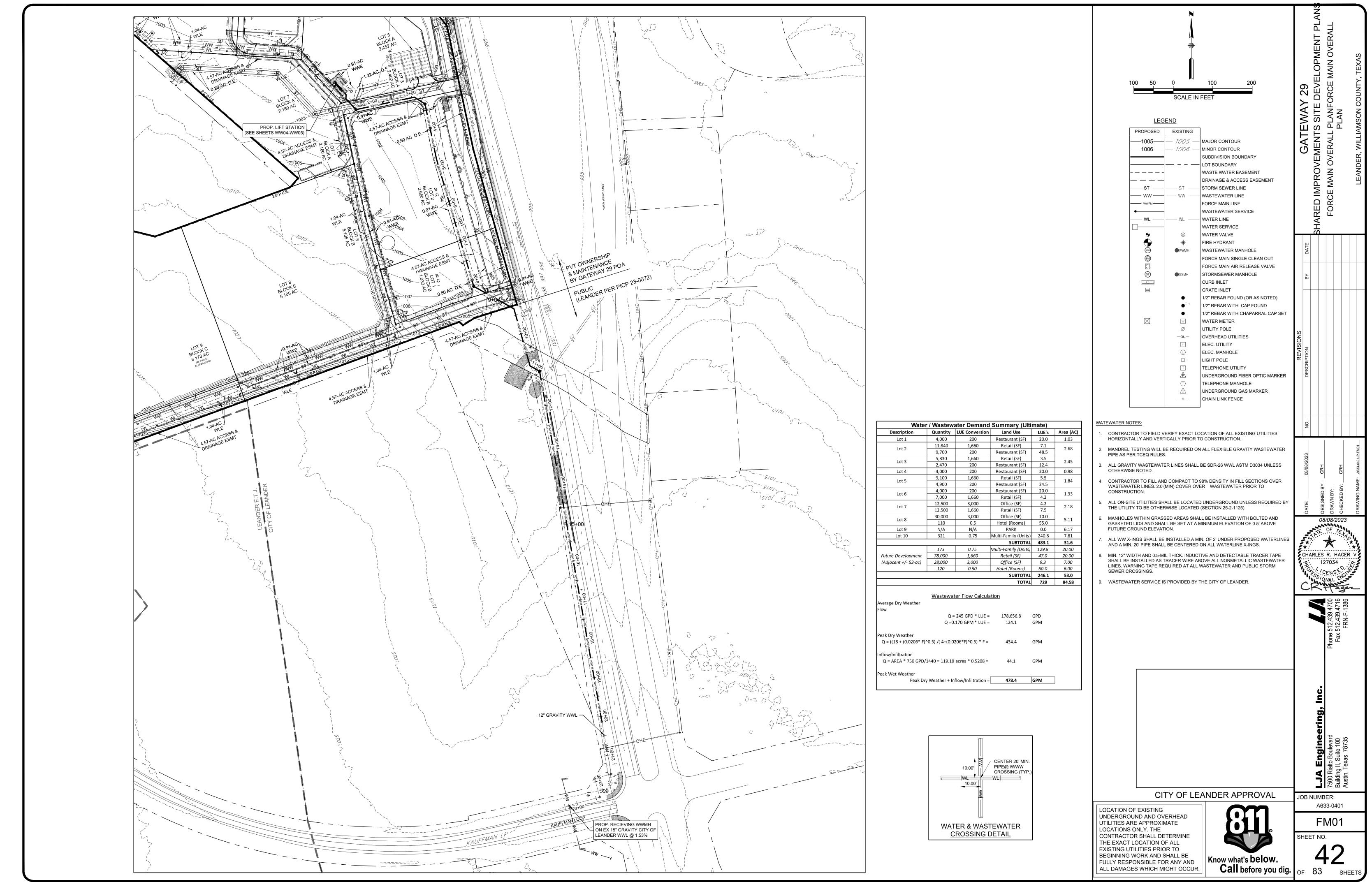


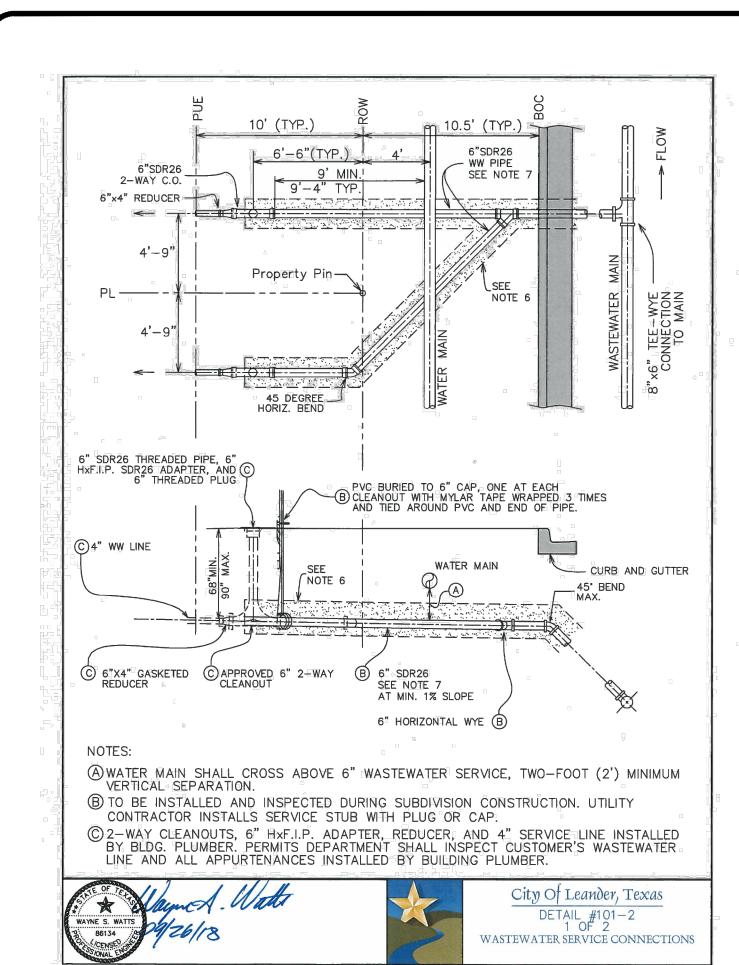
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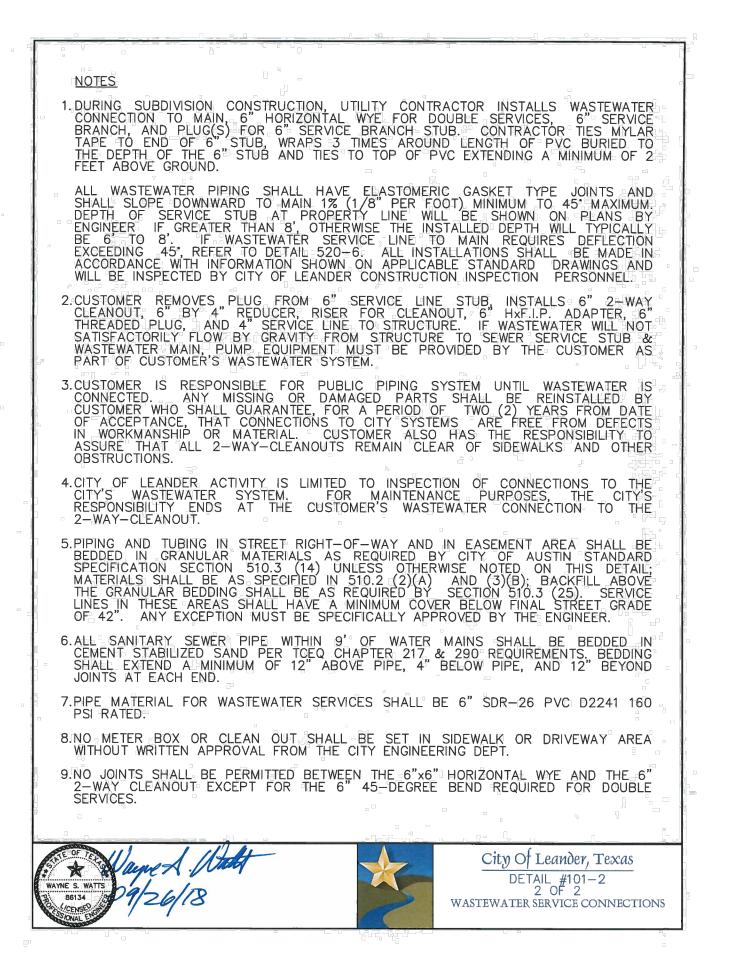


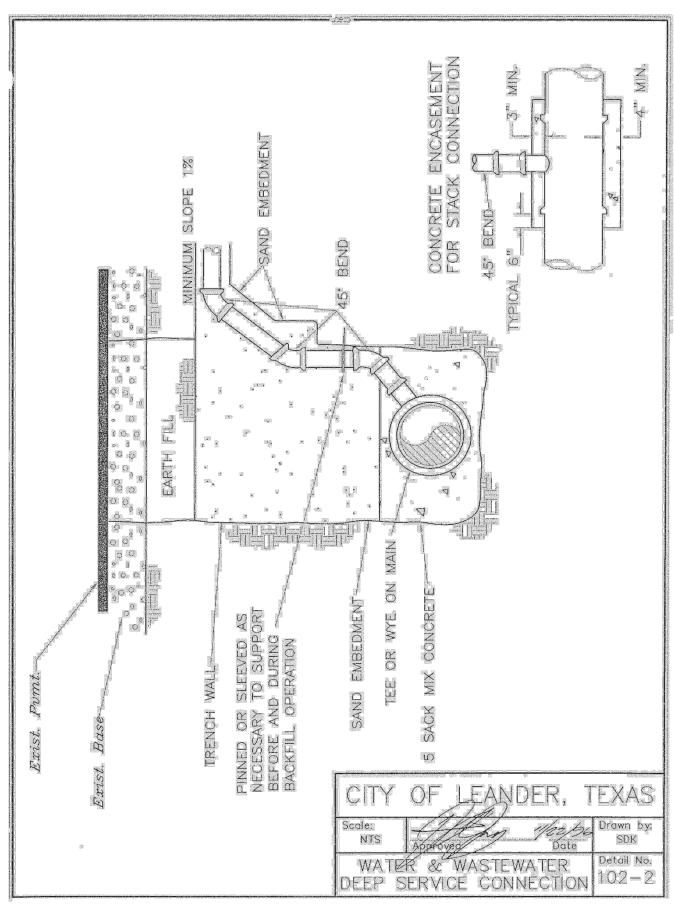
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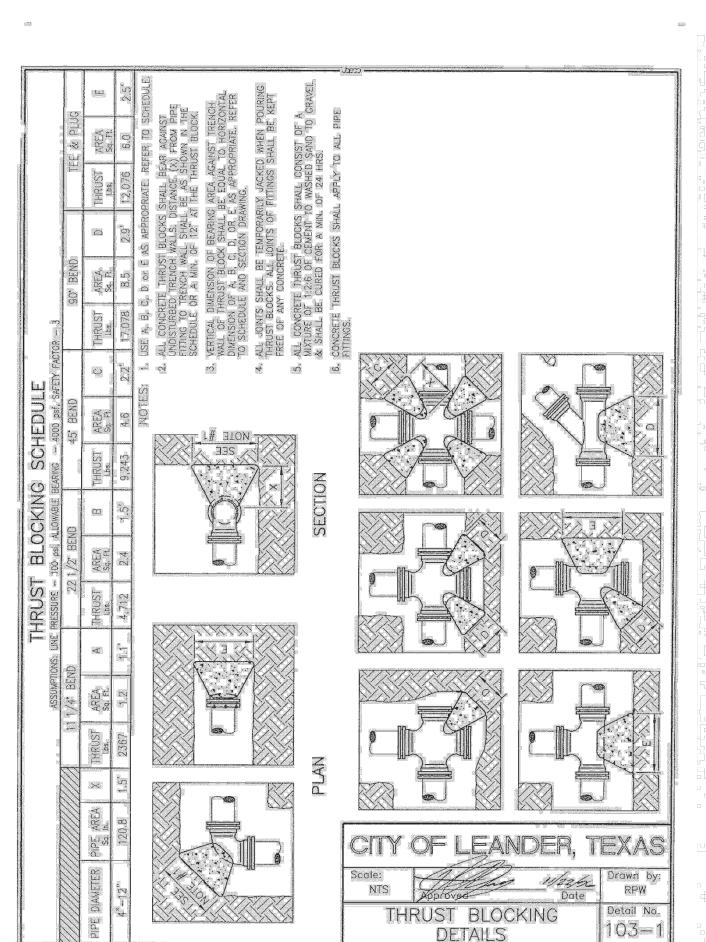


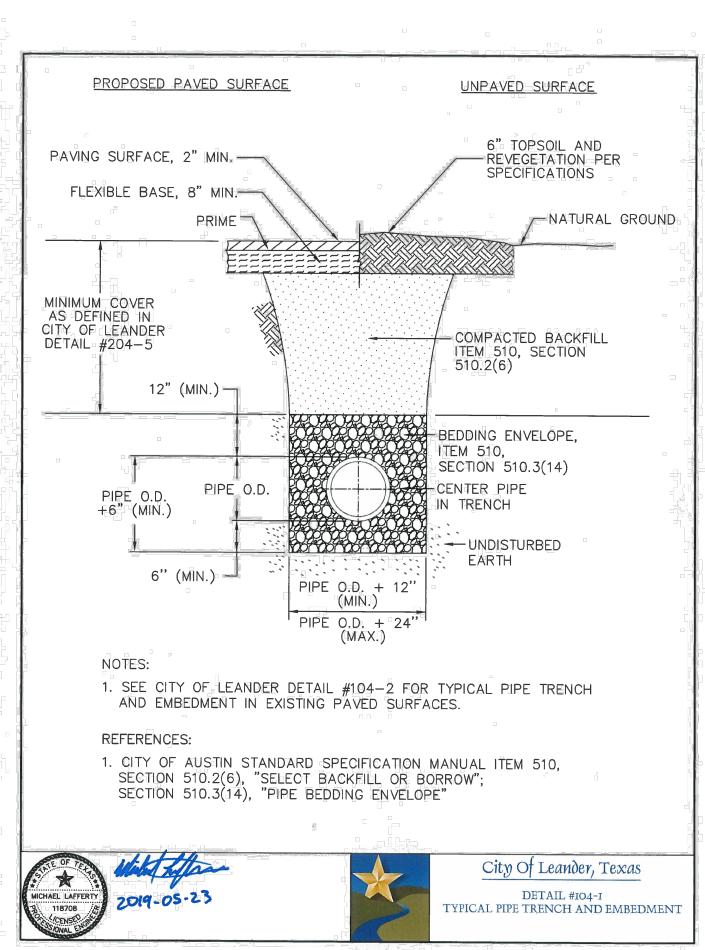


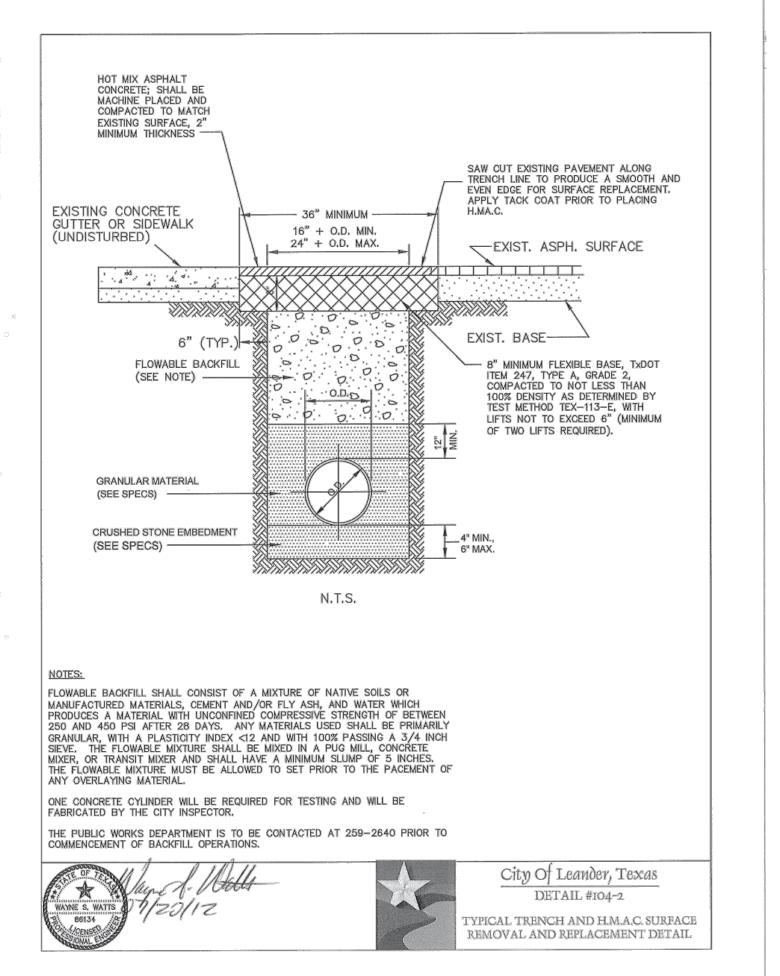


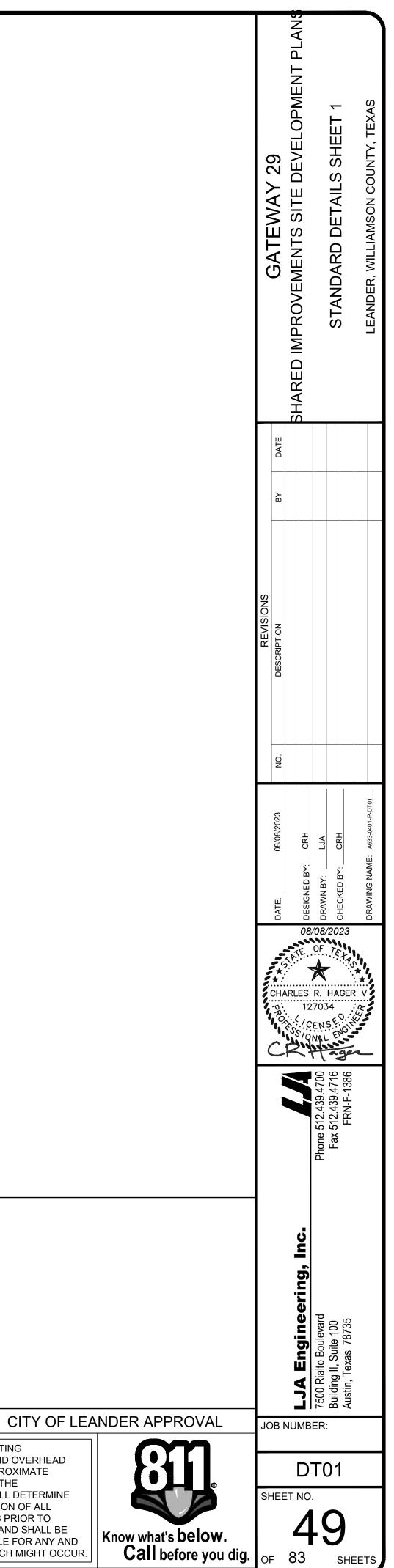












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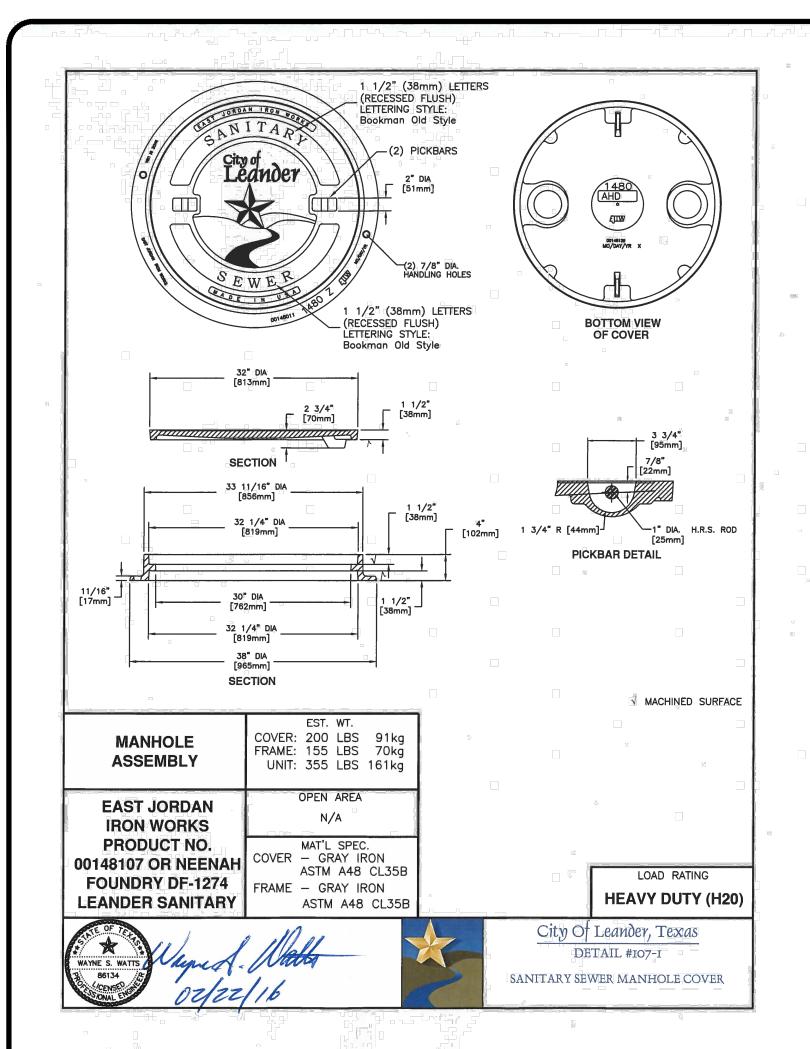
UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE

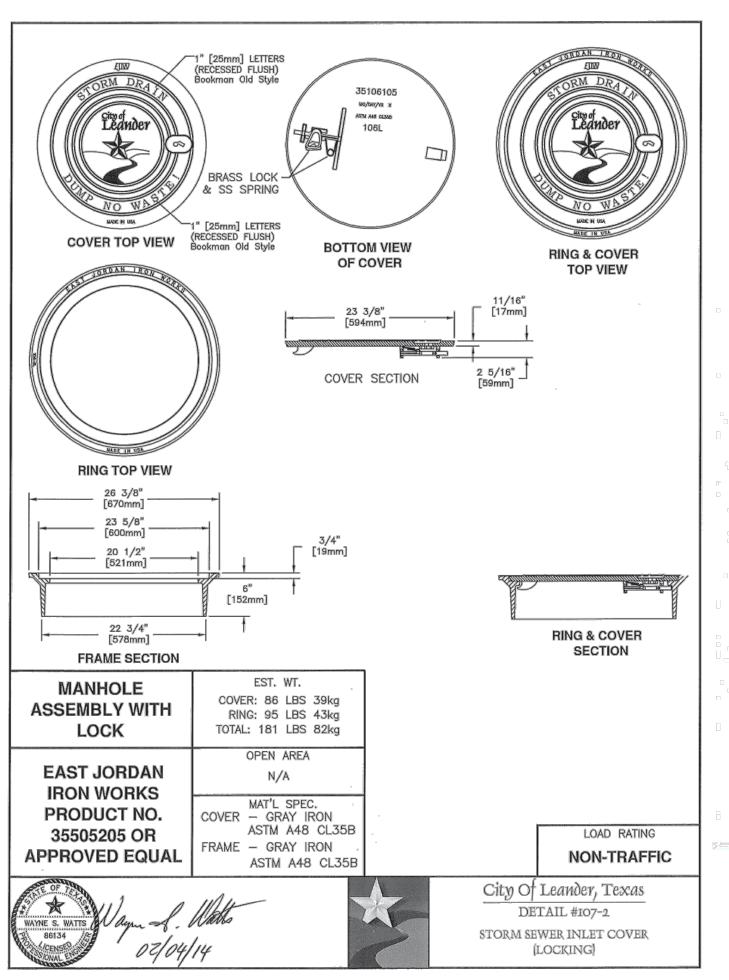
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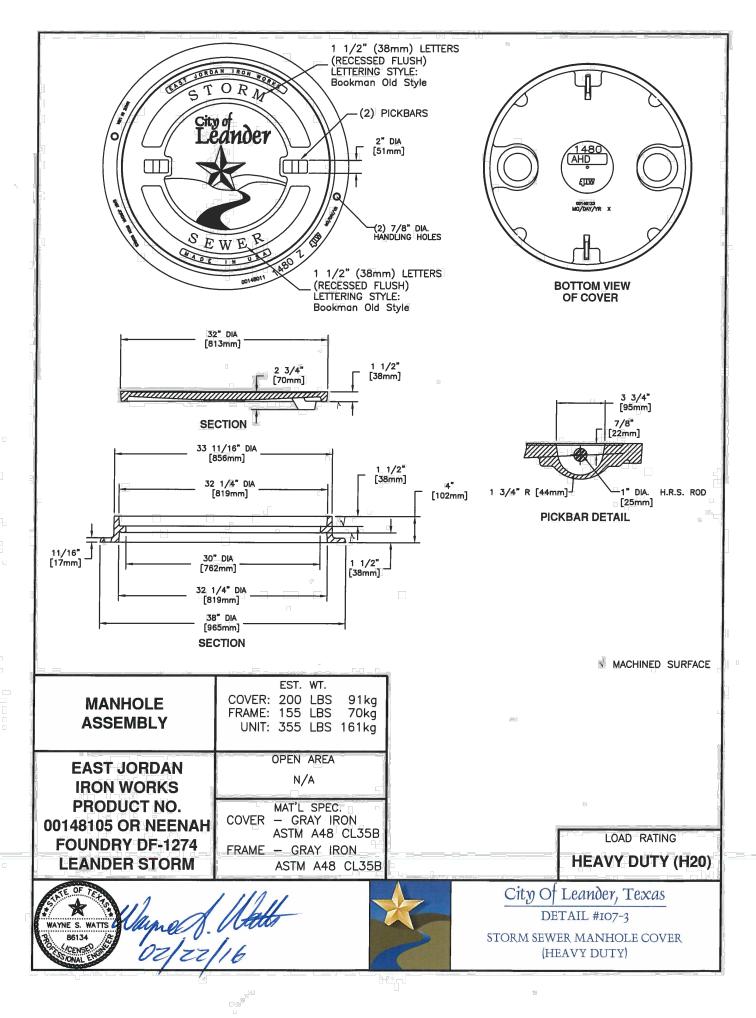
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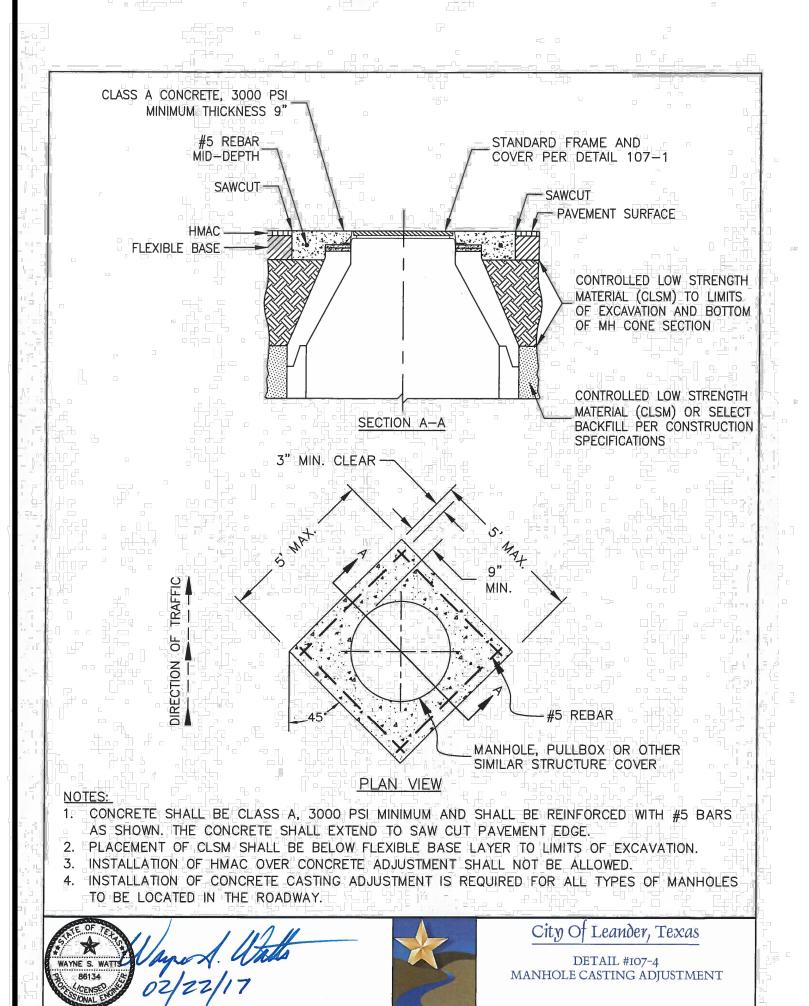
ALL DAMAGES WHICH MIGHT OCCUR.

THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE



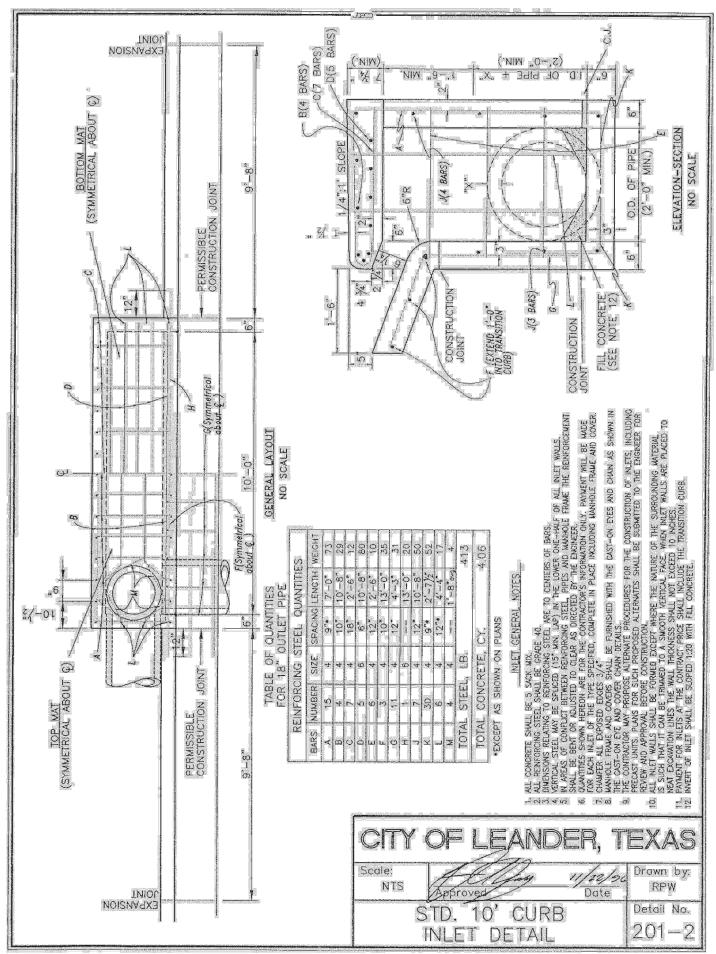


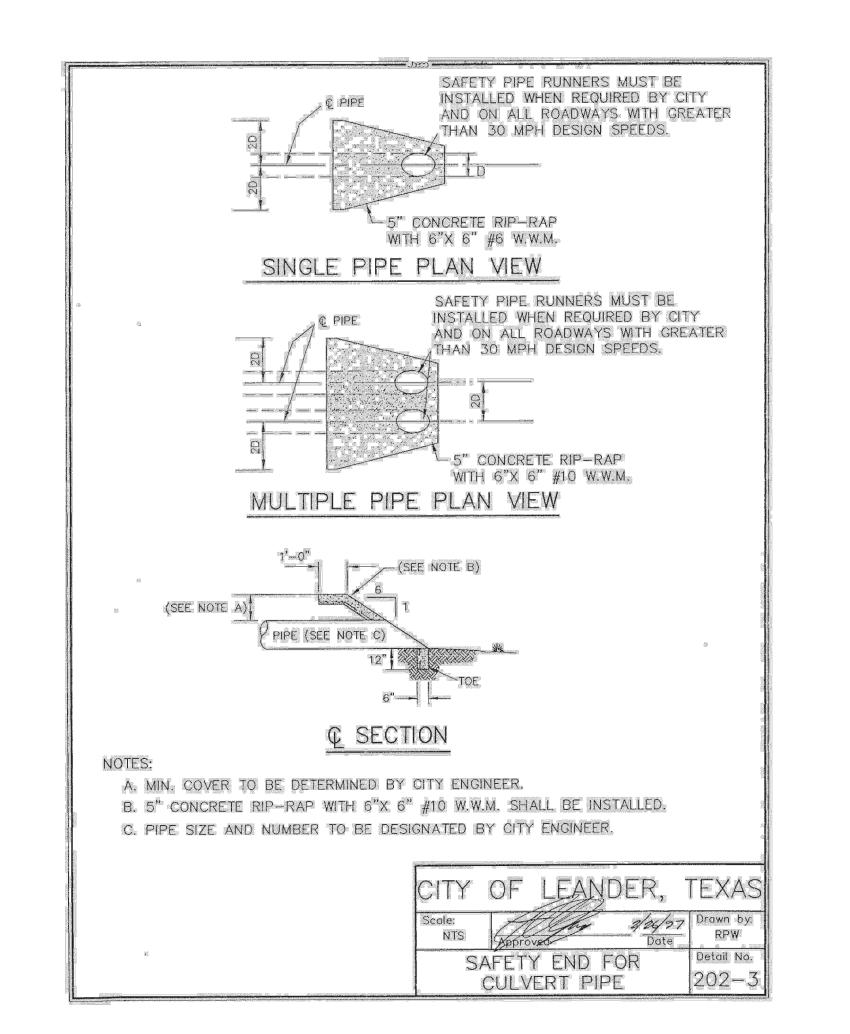


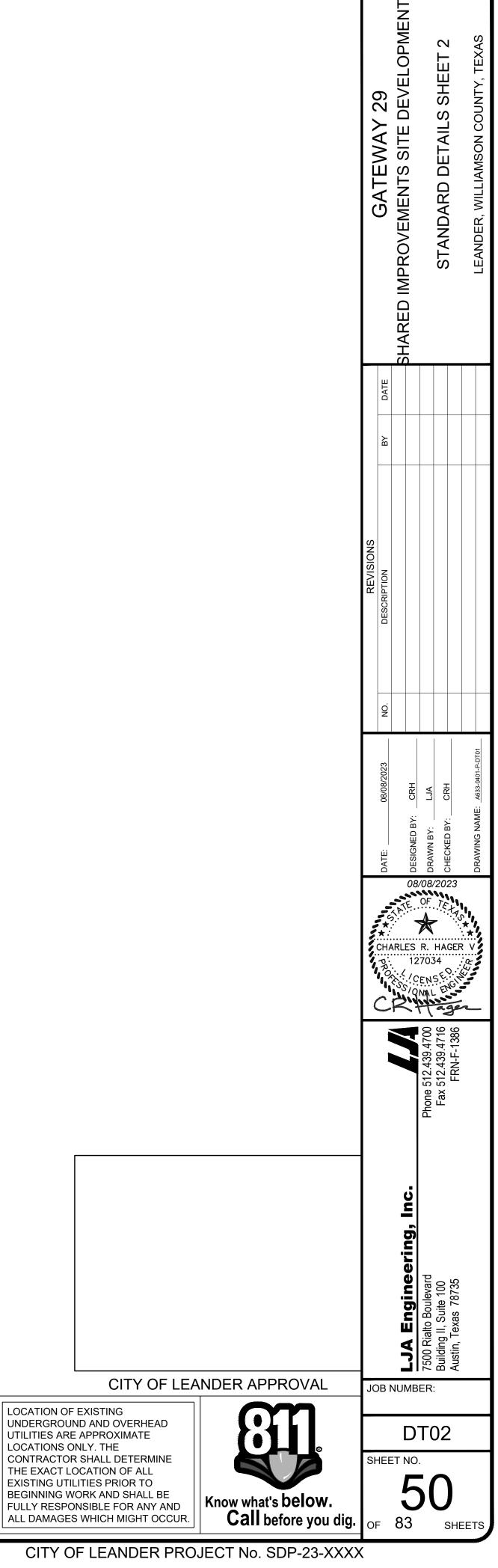


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CITY OF LEANDER PROJECT No. SDP-23-XXXX

ALL OTHER ROADWAY CLASSIFICATIONS		
DROPOFF HEIGHT/ CONDITION	RAIL OPTIONS	
< 30" DROPOFF	TXDOT PRD-13 TY C, TXDOT PRD-13 TY E or COA 707S-2	
≥ 30" DROPOFF OR ALONG BICYCLE PATH	TXDOT PRD-13 TY E or COA 707S-2	

- 1. BICYCLE PATHS INCLUDE ALL SIDEWALKS OR PATHS GREATER
- THAN SIX FEET (6') IN WIDTH. 2. HANDRAIL TYPE AND FINISH SHALL REMAIN CONSISTENT AT EACH INSTALLATION
- LOCATION (CULVERT CROSSING, DROPOFF, ETC.). 3. ALL HANDRAIL INSTALLED ALONG ARTERIAL ROADWAYS SHALL BE GALVANIZED. 4. HANDRAIL INSTALLED ALONG ALL OTHER ROADWAYS SHALL BE GALVANIZED OR FACTORY POWDER-COATED BLACK.

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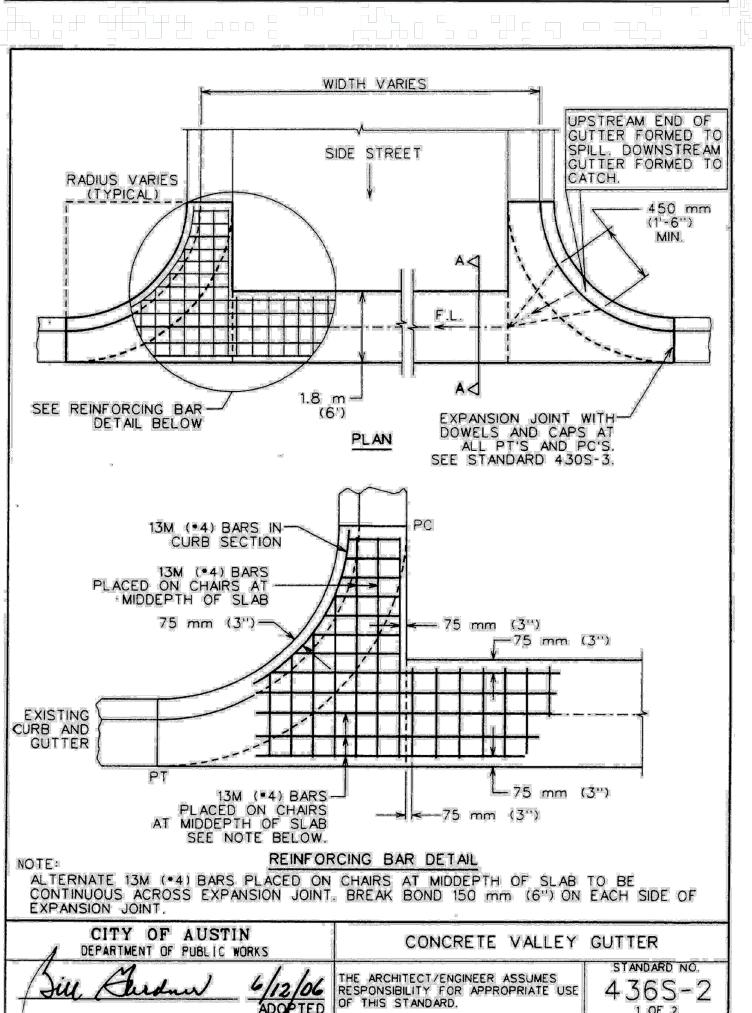
1. CITY OF AUSTIN STANDARD NO. 707S-2 PEDESTRIAN HANDRAIL OPTION 1. 2. TEXAS DEPARTMENT OF TRANSPORTATION PEDESTRIAN HANDRAILS DETAIL PRD-13.

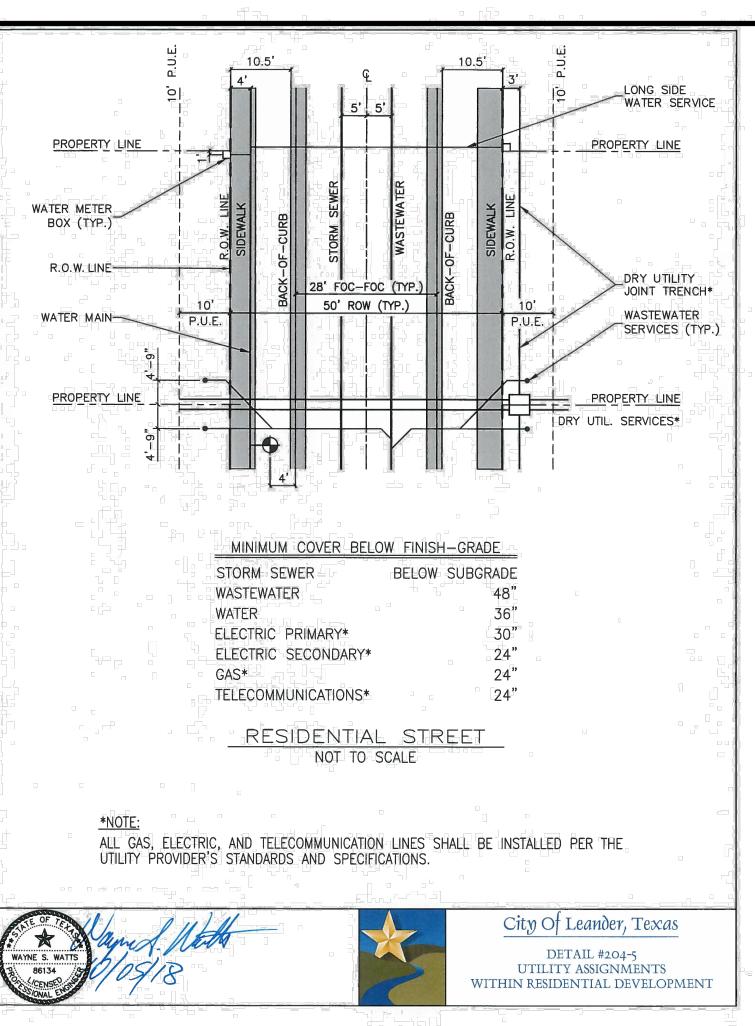


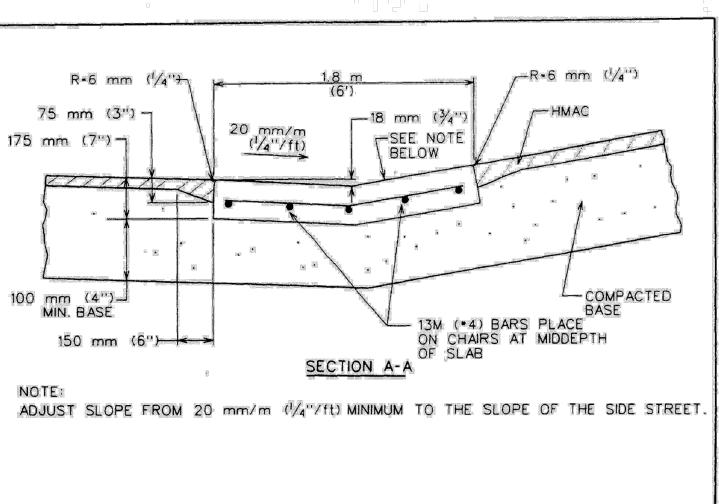


DETAIL #202-4 PEDESTRIAN HANDRAIL







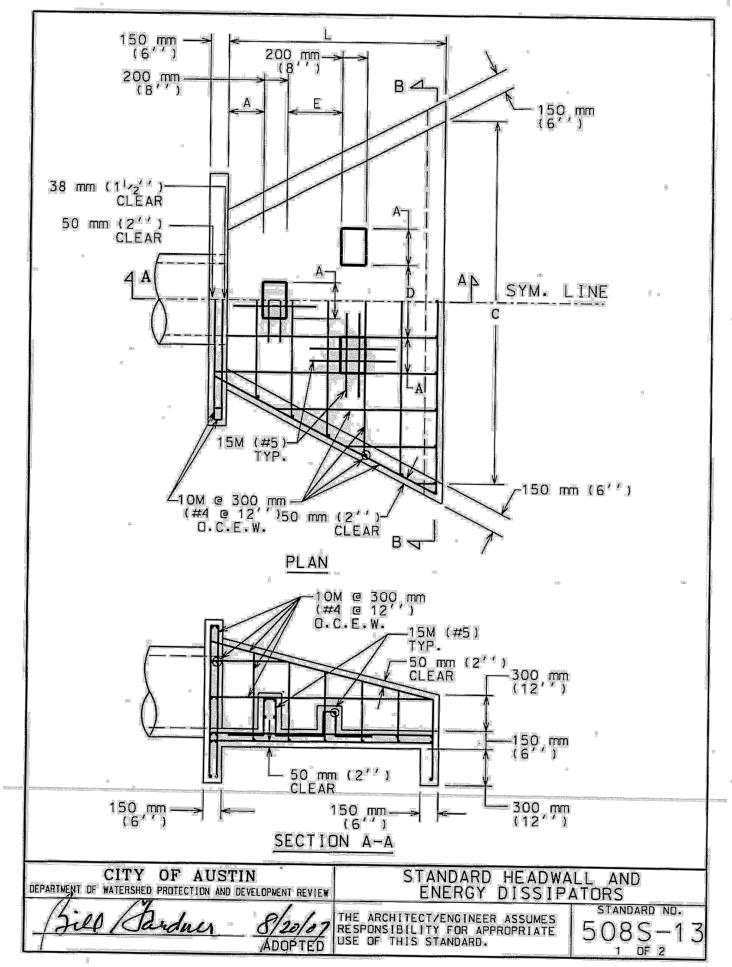


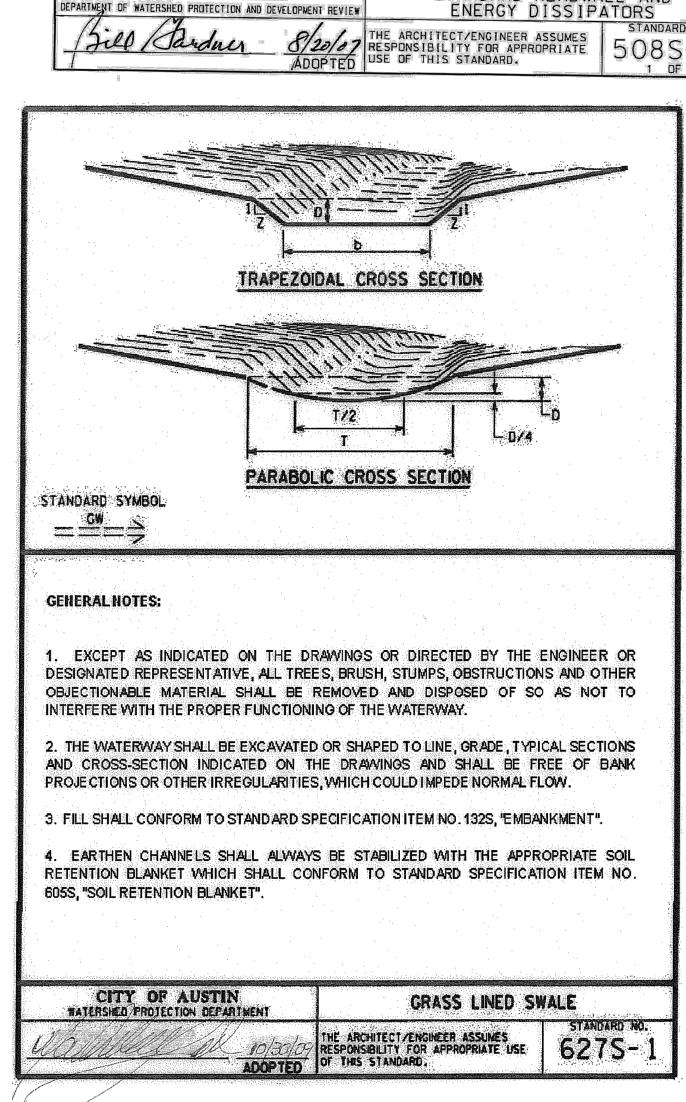
## NOTES:

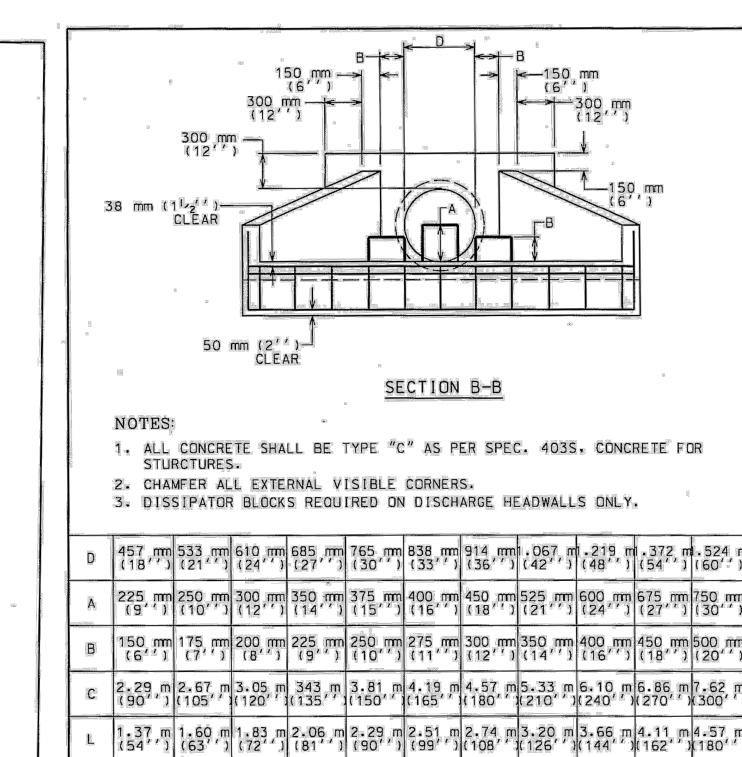
1 OF 2

- MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF AUSTIN STANDARD SPECIFICATIONS. CONCRETE FOR THE VALLEY GUTTER SHALL BE CLASS A, ITEM 403S, "CONCRETE FOR
- STRUCTURES". MONOLITHIC CURB AND GUTTER SHALL BE MEASURED BY PLAN QUANTITY PER SQUARE FEET AND PAID AS VALLEY GUTTER.
- 4. THE UPSTREAM CURB MID POINT MUST BE AT OR LOWER THAN THE BEGINNING P.C. AND 0.5% MINIMUM HIGHER THAN THE OPPOSING MID POINT.
- 5. ALLOWABLE CONSTRUCTION JOINT AT THE CENTER LINE WHEN TRAFFIC FLOW MUST BE MAINTAINED, CONSTRUCTED AS A CONTROL JOINT.

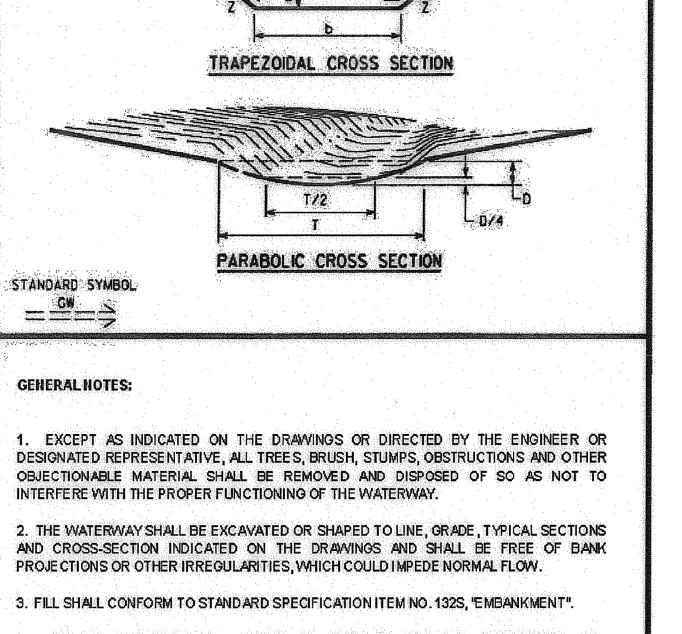
CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	CONCRETE VALLEY	GUTTER
	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	\$TANDARD NO. 4365-2







300 mm 350 mm 400 mm 450 mm 500 mm 550 mm 600 mm 700 mm 800m 900 mm 1000 m (12 ′′′) (14 ′′′) (16 ′′′) (20 ′′′) (22 ′′′) (24 ′′′) (28 ′′′) (32 ′′′) (36 ′′′) (40 ′′′ DIMENSIONS IN MILLIMETERS, METERS AND (INCHES). DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REQUIRE ROCK DUTLET PROTECTION. STANDARD HEADWALL AND THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.



CITY OF LEANDER APPROVAL

**LOCATION OF EXISTING** UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR.

Know what's below. Call before you dig.

JOB NUMBER: SHEET NO.

of **83** 

SHEETS

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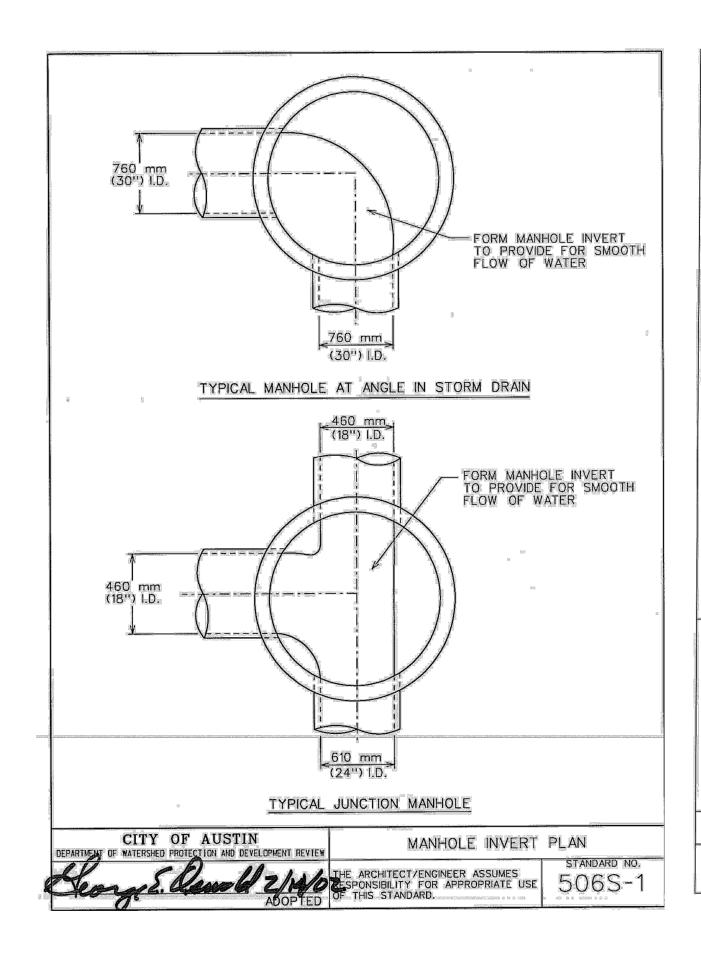
08/08/2023

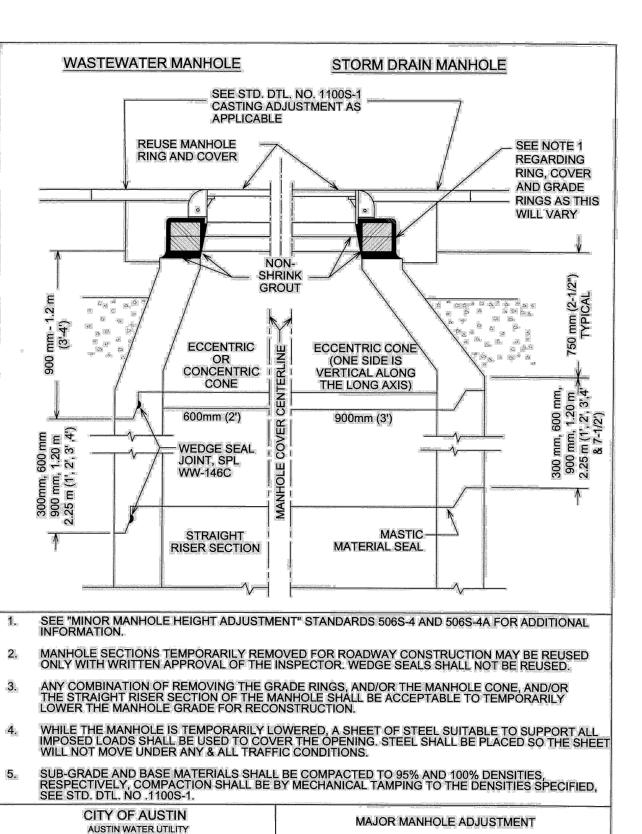
\*

CHARLES R. HAGER

127034

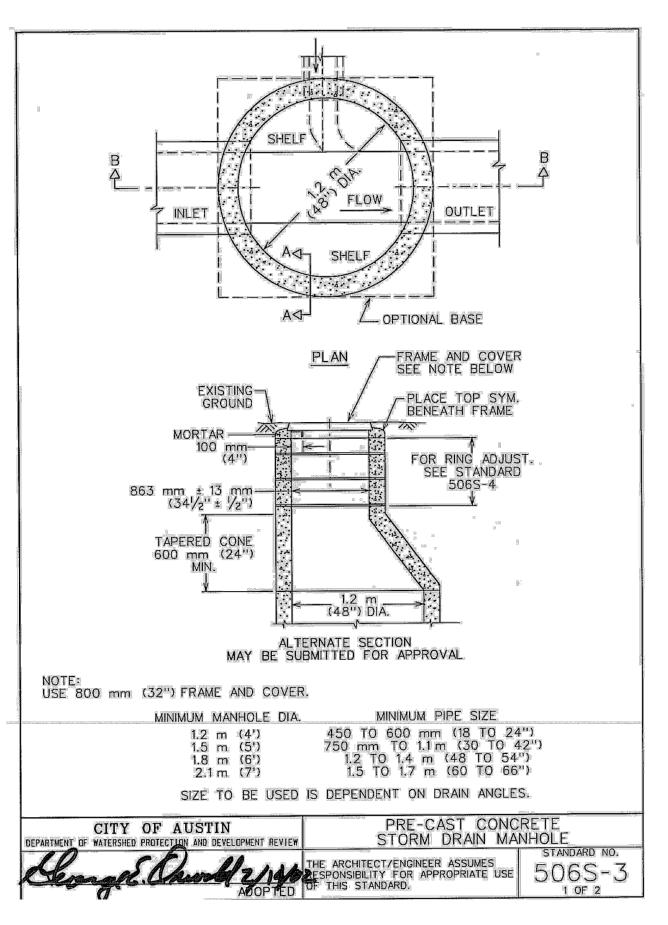
CENSE !

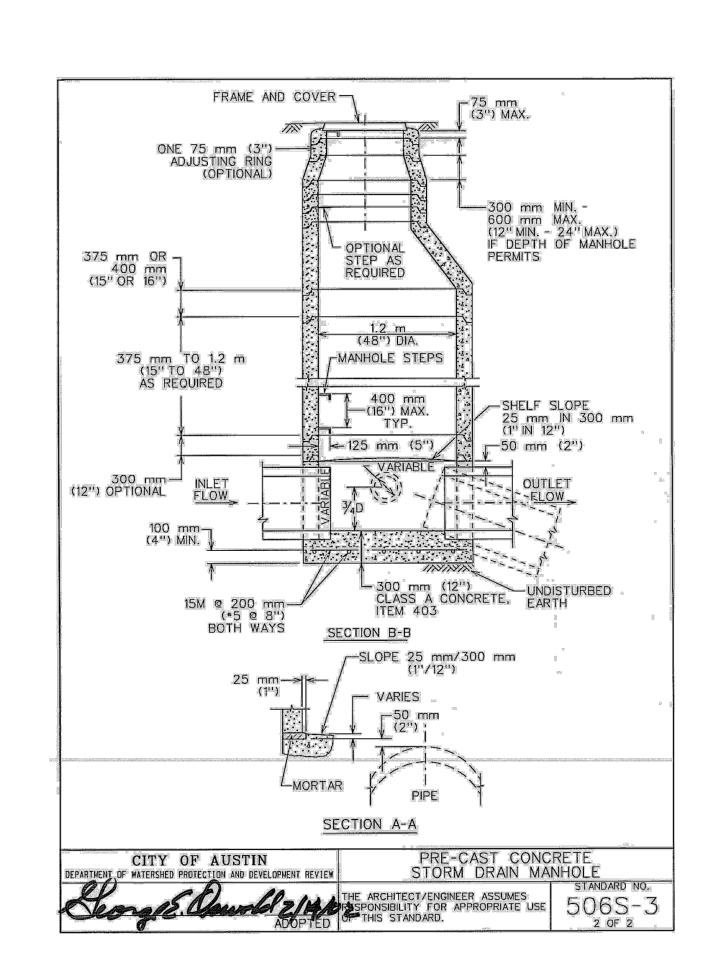




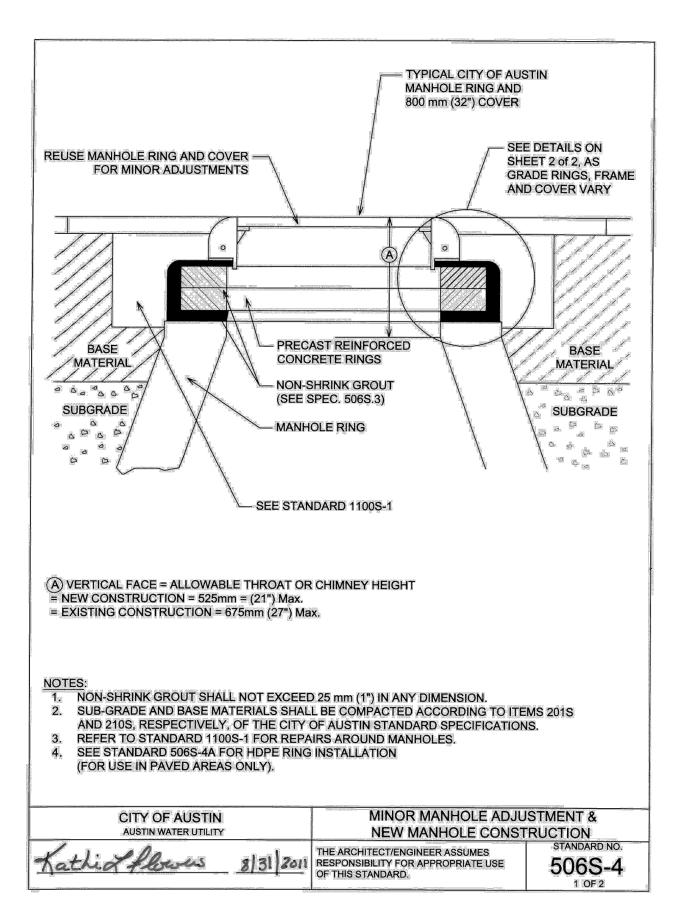
7 THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE

OF THIS STANDARD.



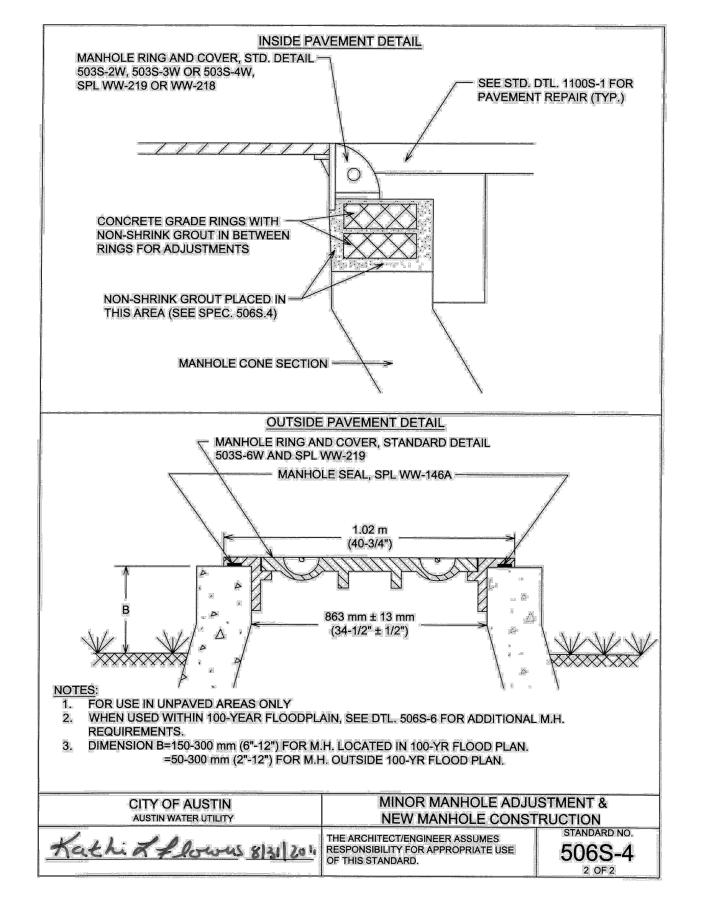


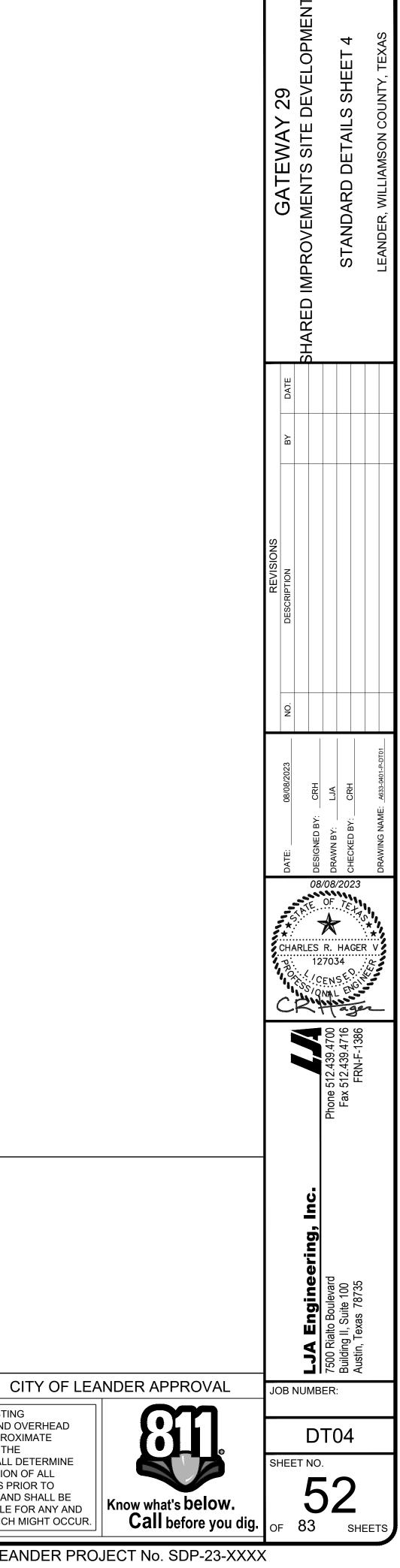
I: \a6 User: Last Plot



STANDARD NO.

506S-2





LOCATION OF EXISTING

UNDERGROUND AND OVERHEAD

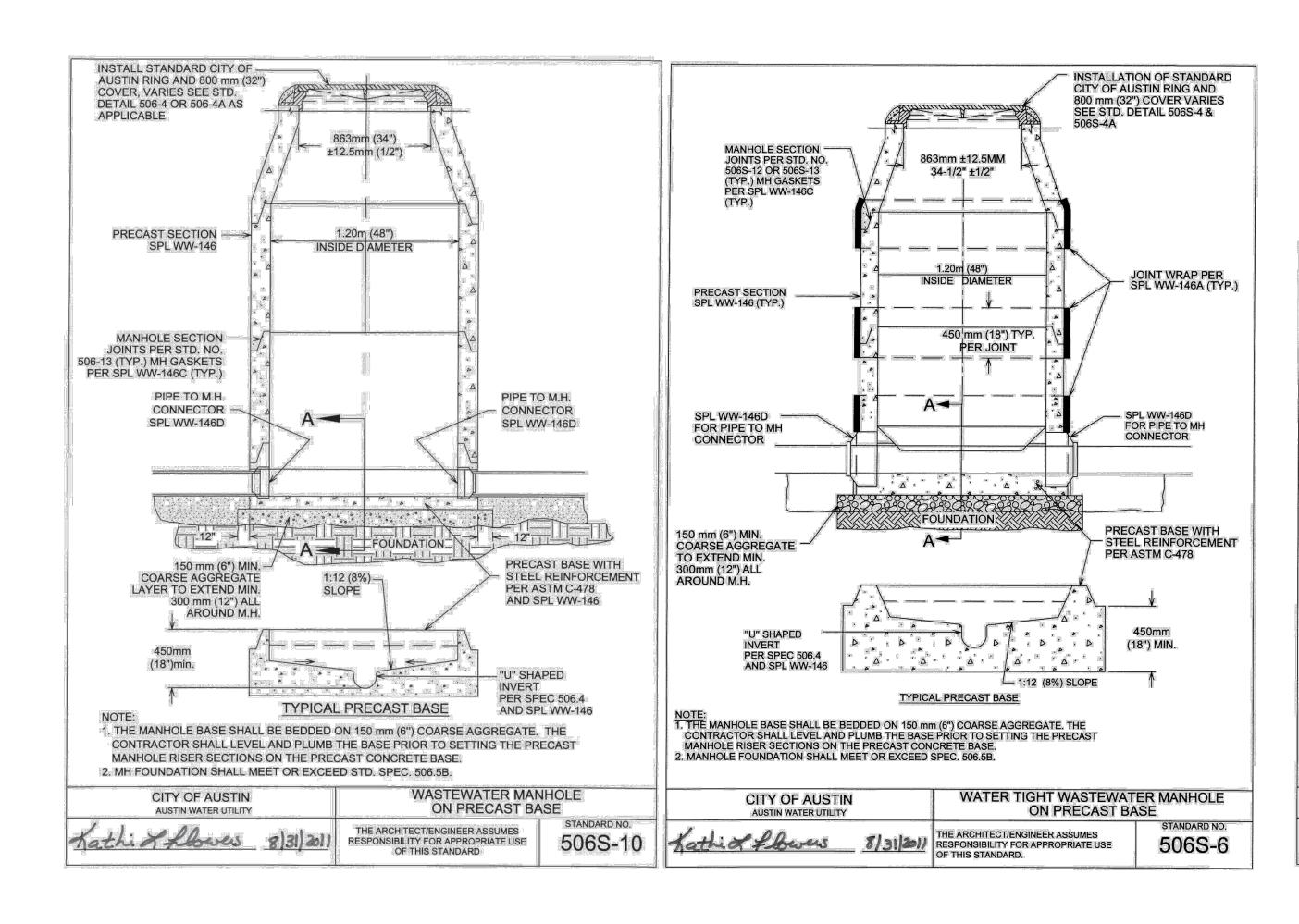
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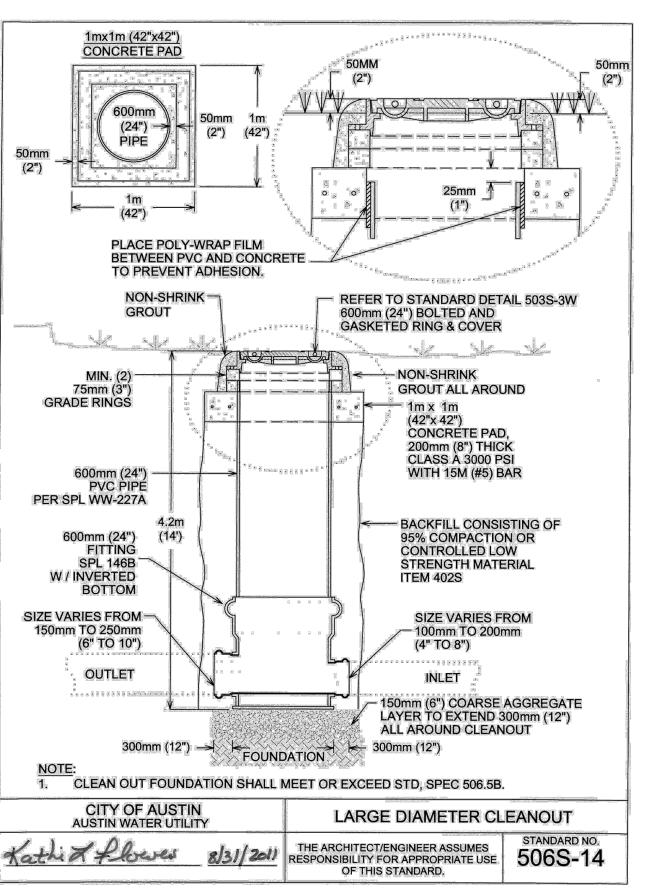
FULLY RESPONSIBLE FOR ANY AND

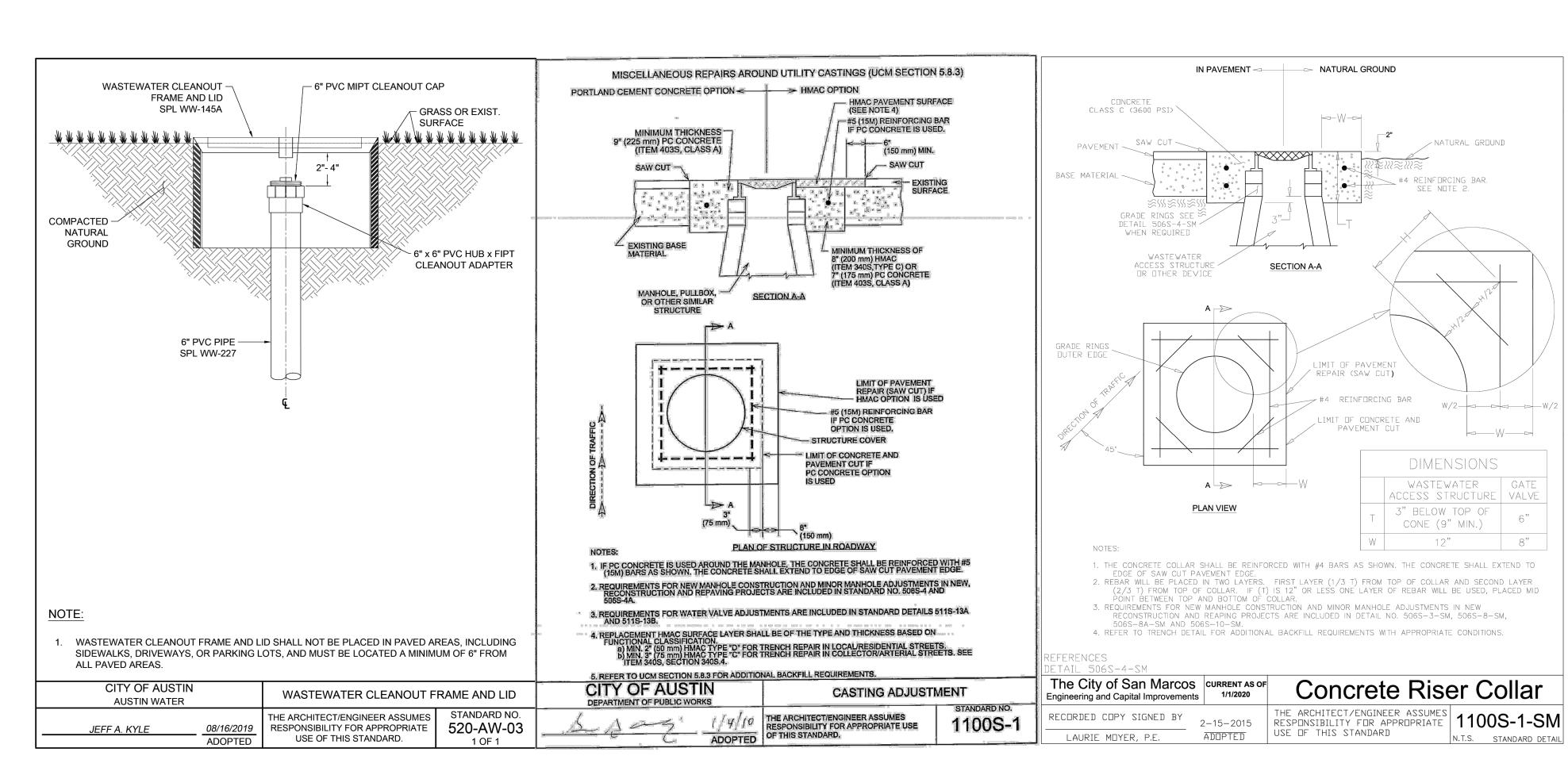
ALL DAMAGES WHICH MIGHT OCCUR.

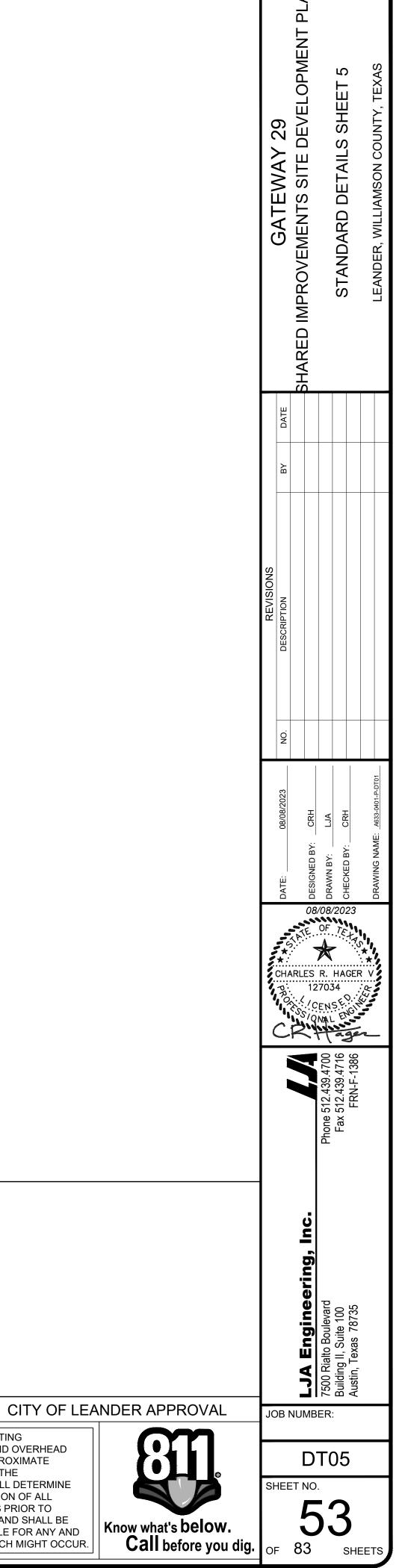
THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE

**UTILITIES ARE APPROXIMATE** LOCATIONS ONLY. THE









LOCATION OF EXISTING

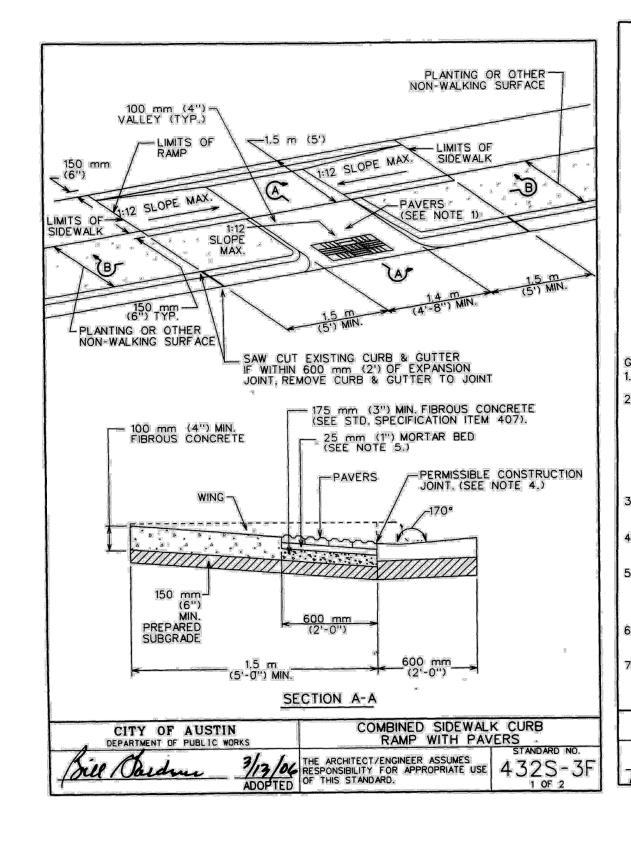
UNDERGROUND AND OVERHEAD UTILITIES ARE APPROXIMATE LOCATIONS ONLY. THE

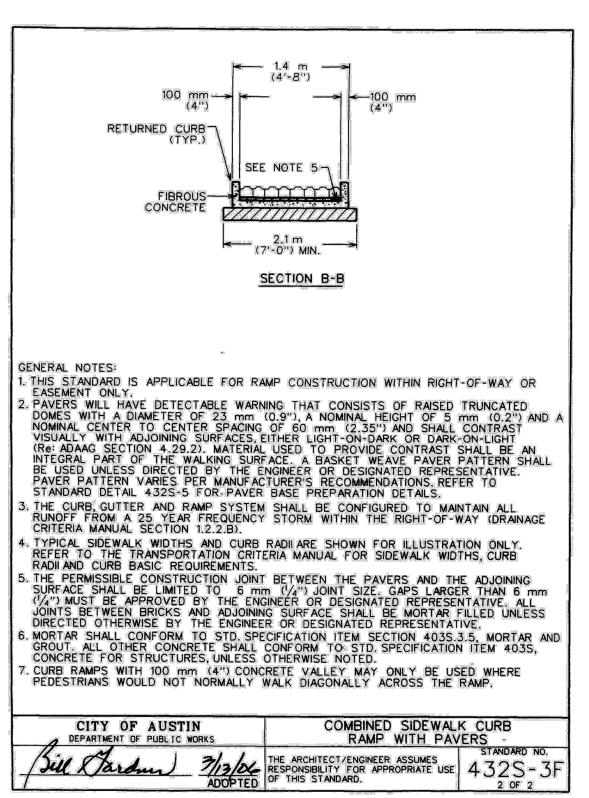
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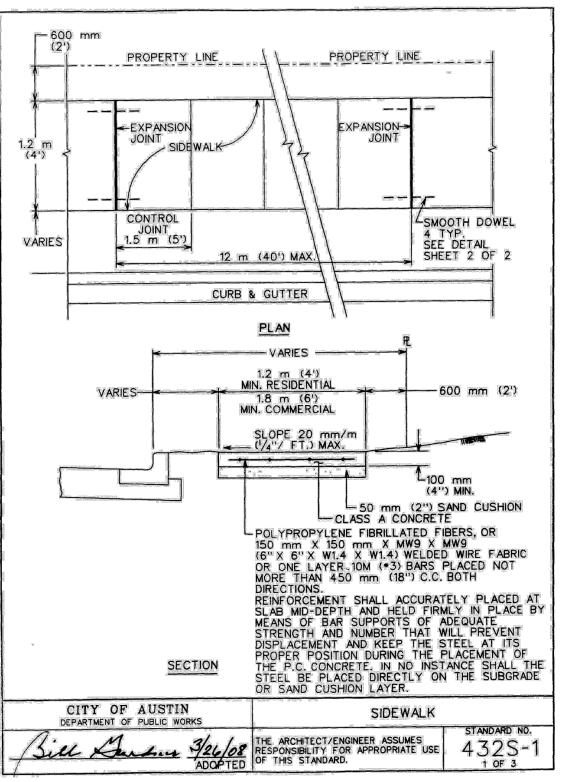
FULLY RESPONSIBLE FOR ANY AND

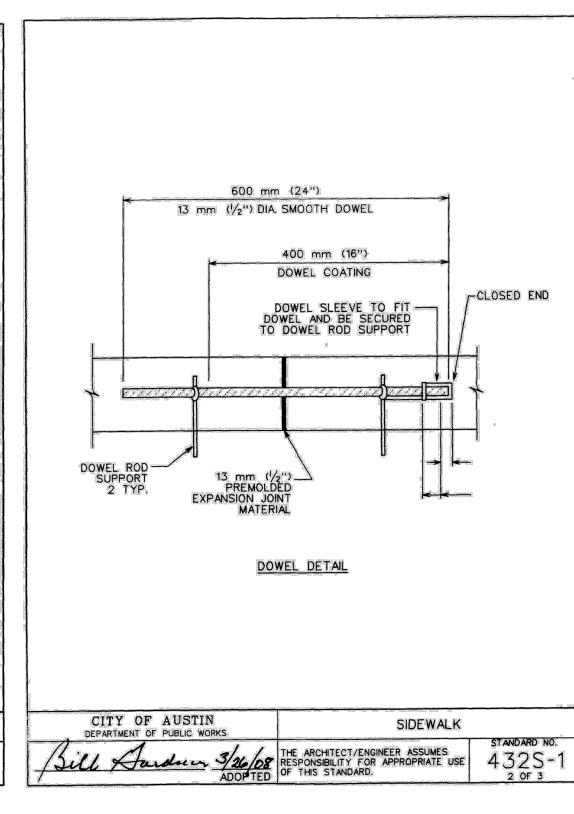
ALL DAMAGES WHICH MIGHT OCCUR.

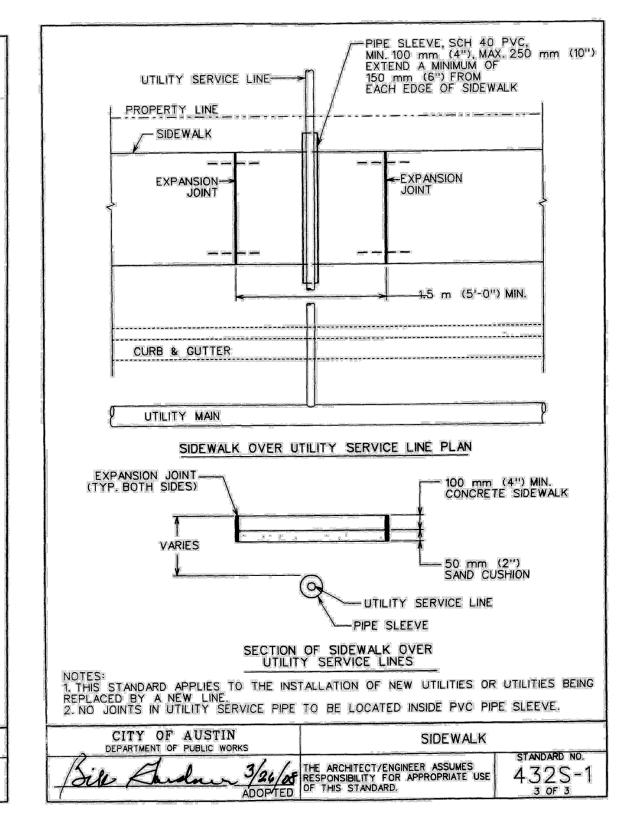
THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO BEGINNING WORK AND SHALL BE

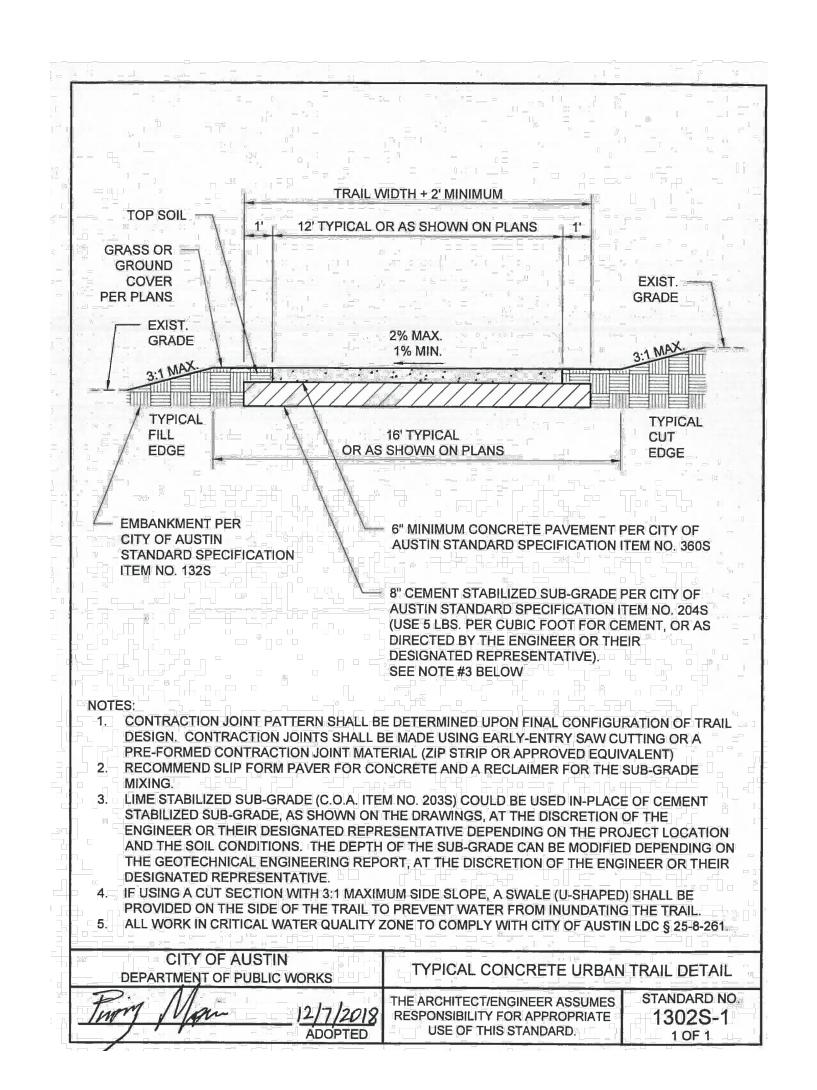


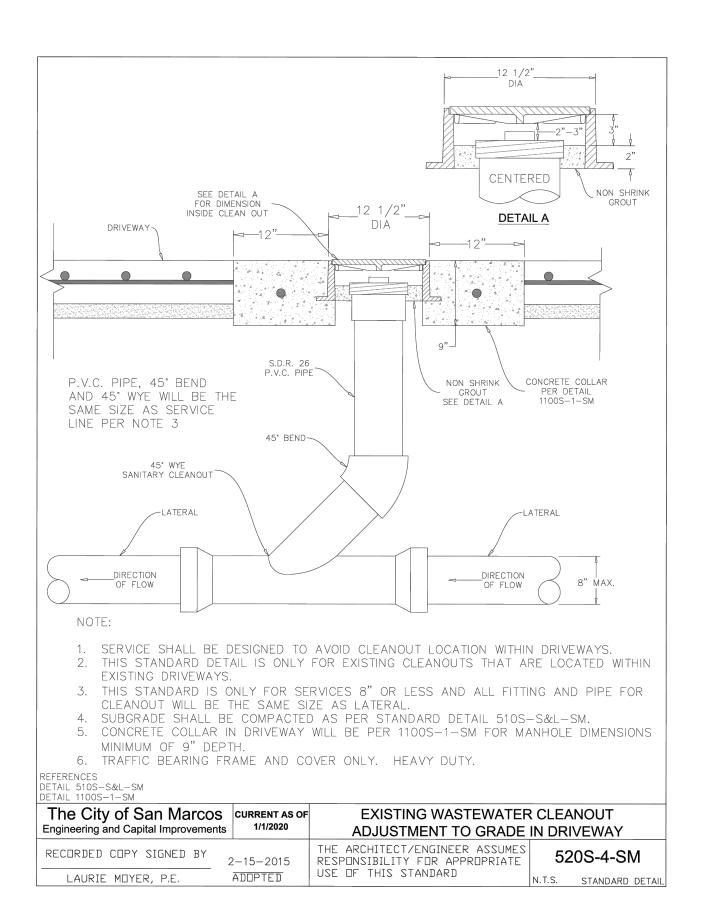


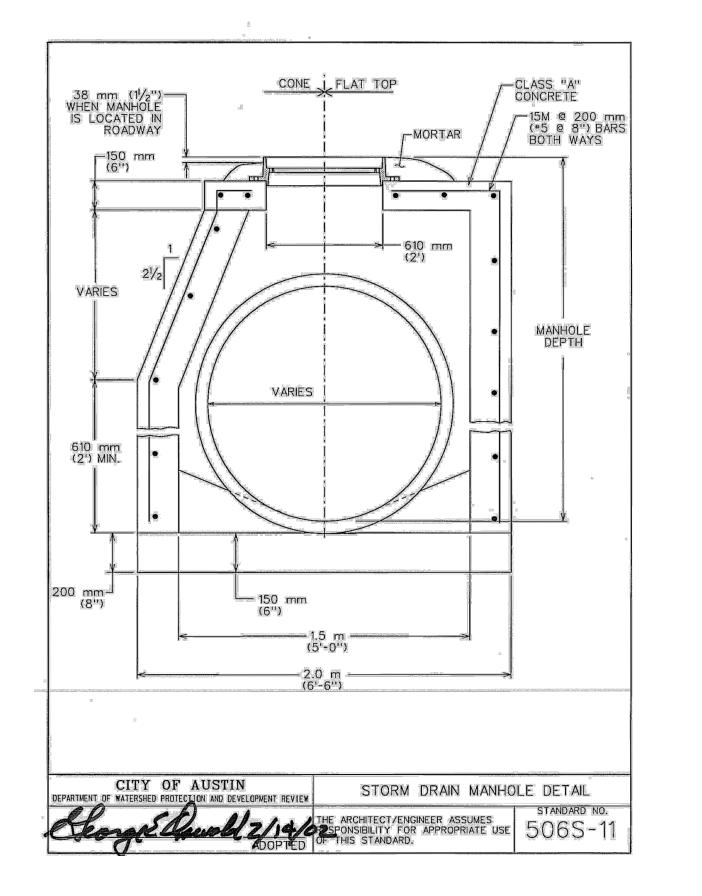


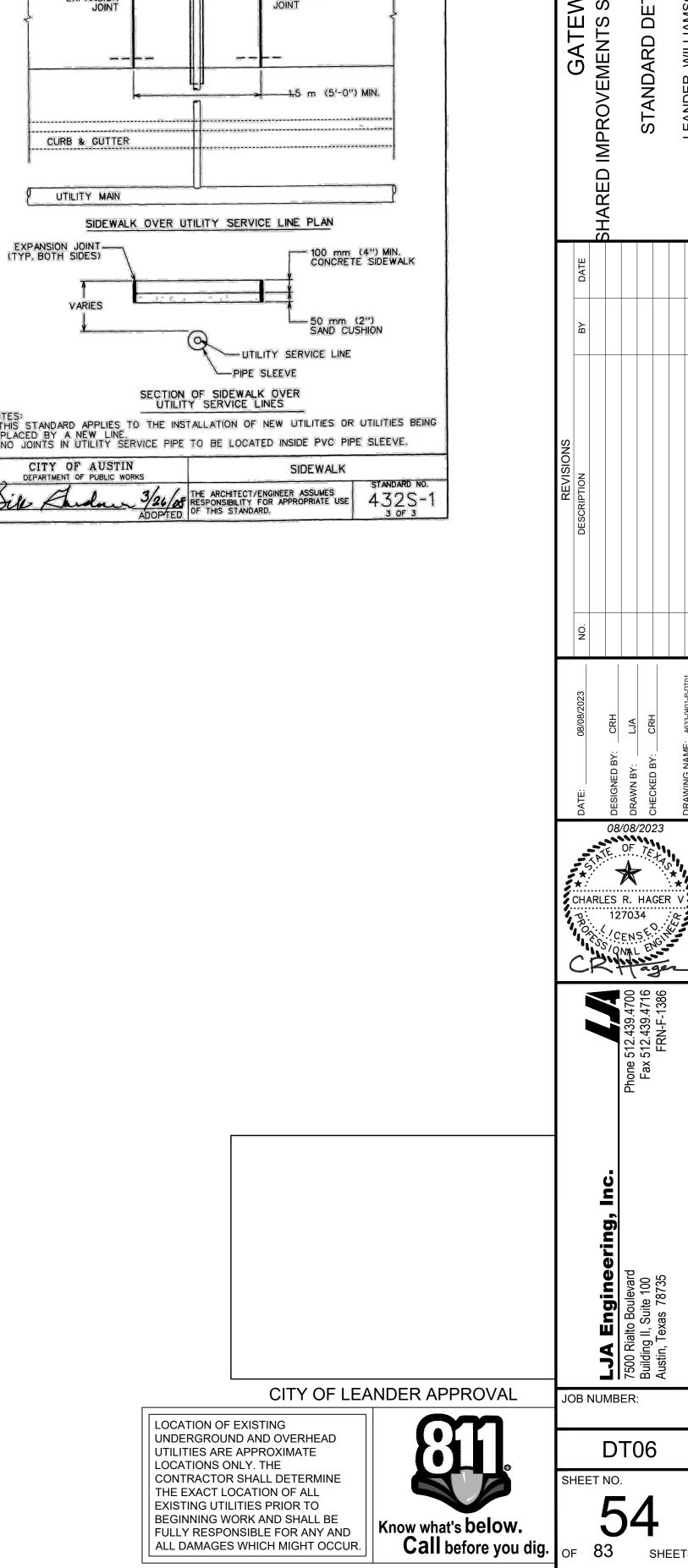








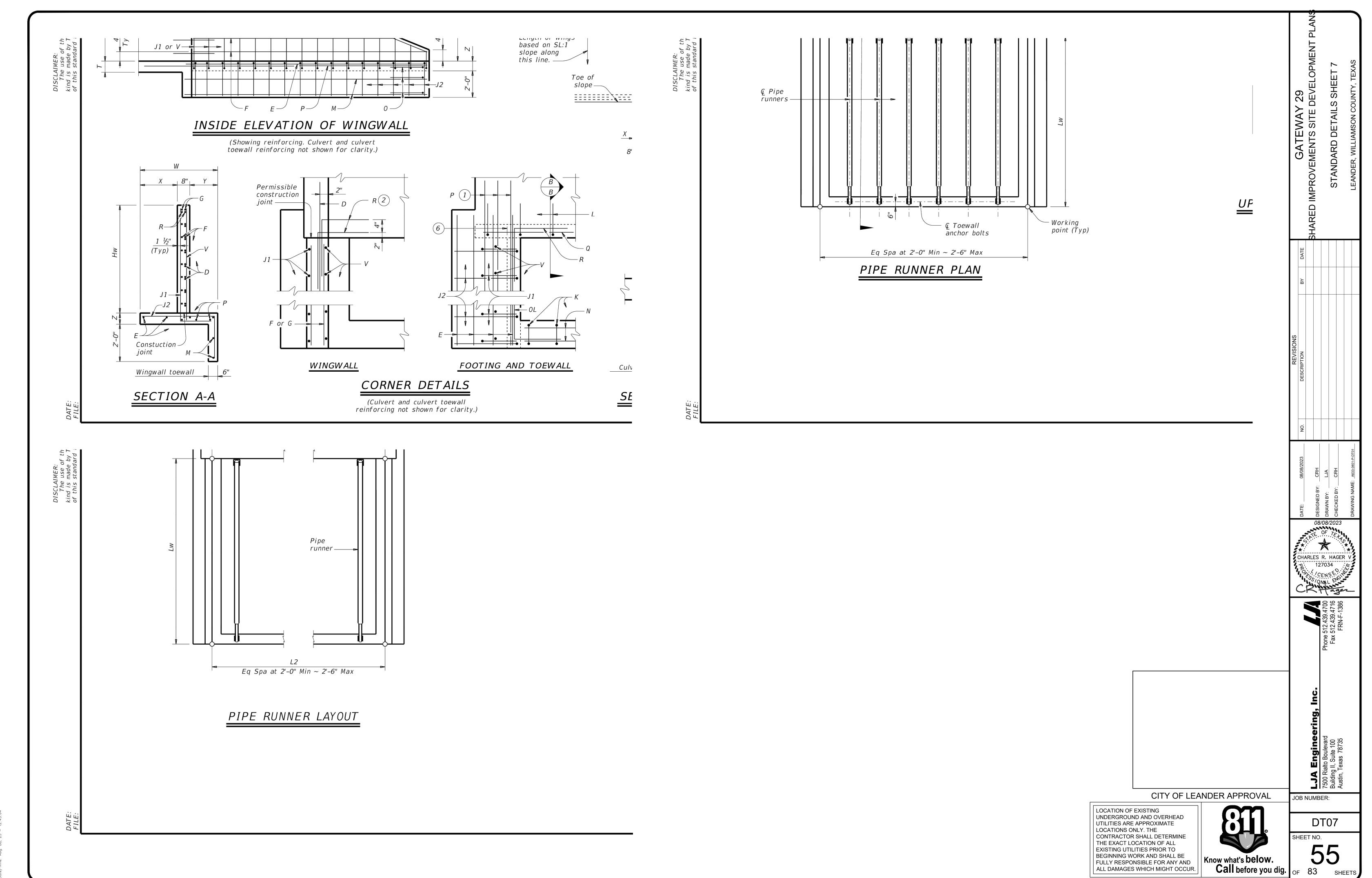




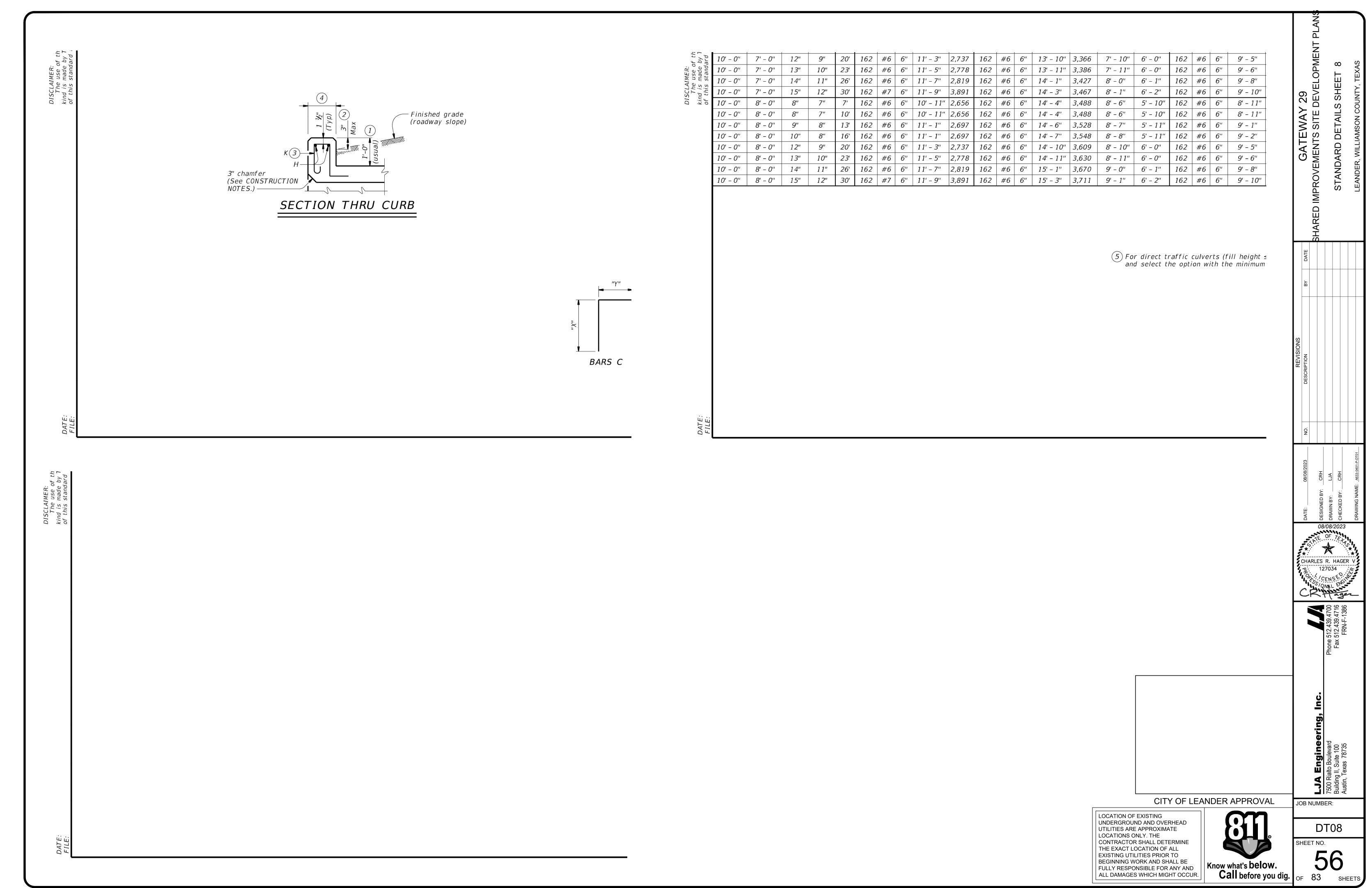
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