

WATER POLLUTION ABATEMENT PLAN (WPAP)

FOR SHELL ROAD OFFICE WAREHOUSE

3601 SHELL RD.

GEORGETOWN, TEXAS 78628

Prepared for:

Berry Creek Townhomes, LLC

4229 N. FM 620, Box 101 Unit 336

Austin, Texas 78734

Prepared by:

WAELTZ & PRETE, INC.

Antonio A. Prete, P.E.

211 N. A.W. Grimes Blvd.

Round Rock, Texas 78665



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

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FIRM TX. REG. #F-10308

SEPTEMBER 2025
Job No. 213-001

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

1. [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: <http://www.tceq.texas.gov/field/eapp>.

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

1. 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: Shell Road Office Warehouse				2. Regulated Entity No.:					
3. Customer Name: Berry Creek Townhomes, LLC				4. Customer No.:					
5. Project Type: (Please circle/check one)	New <input checked="" type="checkbox"/>	Modification		Extension		Exception			
6. Plan Type: (Please circle/check one)	WPAP <input checked="" type="checkbox"/>	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: (Please circle/check one)	Residential		Non-residential <input checked="" type="checkbox"/>		8. Site (acres):		10.001		
9. Application Fee:	\$6,500		10. Permanent BMP(s):			Batch Detention Pond			
11. SCS (Linear Ft.):	n/a		12. AST/UST (No. Tanks):			n/a			
13. County:	Williamson		14. Watershed:			Beery Creek			

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.)	—	—	_√_
Region (1 req.)	—	—	_√_
County(ies)	—	—	_√_
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Barton Springs/ Edwards Aquifer <input type="checkbox"/> Hays Trinity <input type="checkbox"/> Plum Creek	<input type="checkbox"/> Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	<input type="checkbox"/> Austin <input type="checkbox"/> Buda <input type="checkbox"/> Dripping Springs <input type="checkbox"/> Kyle <input type="checkbox"/> Mountain City <input type="checkbox"/> San Marcos <input type="checkbox"/> Wimberley <input type="checkbox"/> Woodcreek	<input type="checkbox"/> Austin <input type="checkbox"/> Bee Cave <input type="checkbox"/> Pflugerville <input type="checkbox"/> Rollingwood <input type="checkbox"/> Round Rock <input type="checkbox"/> Sunset Valley <input type="checkbox"/> West Lake Hills	<input type="checkbox"/> Austin <input type="checkbox"/> Cedar Park <input type="checkbox"/> Florence <input type="checkbox"/> Georgetown <input type="checkbox"/> Jerrell <input type="checkbox"/> Leander <input type="checkbox"/> Liberty Hill <input type="checkbox"/> Pflugerville <input type="checkbox"/> Round Rock

San Antonio Region					
County:	Bexar	Comal	Kinney	Medina	Uvalde
Original (1 req.)	—	—	—	—	—
Region (1 req.)	—	—	—	—	—
County(ies)	—	—	—	—	—
Groundwater Conservation District(s)	<input type="checkbox"/> Edwards Aquifer Authority <input type="checkbox"/> Trinity-Glen Rose	<input type="checkbox"/> Edwards Aquifer Authority	<input type="checkbox"/> Kinney	<input type="checkbox"/> EAA <input type="checkbox"/> Medina	<input type="checkbox"/> EAA <input type="checkbox"/> Uvalde
City(ies) Jurisdiction	<input type="checkbox"/> Castle Hills <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Helotes <input type="checkbox"/> Hill Country Village <input type="checkbox"/> Hollywood Park <input type="checkbox"/> San Antonio (SAWS) <input type="checkbox"/> Shavano Park	<input type="checkbox"/> Bulverde <input type="checkbox"/> Fair Oaks Ranch <input type="checkbox"/> Garden Ridge <input type="checkbox"/> New Braunfels <input type="checkbox"/> Schertz	NA	<input type="checkbox"/> San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.

Antonio A. Prete, P.E.

Print Name of ~~Customer~~/Authorized Agent

AE AR

09/04/2025

Signature of ~~Customer~~/Authorized Agent

Date

****FOR TCEQ INTERNAL USE ONLY****

Date(s) Reviewed:		Date Administratively Complete:	
Received From:		Correct Number of Copies:	
Received By:		Distribution Date:	
EAPP File Number:		Complex:	
Admin. Review(s) (No.):		No. AR Rounds:	
Delinquent Fees (Y/N):		Review Time Spent:	
Lat./Long. Verified:		SOS Customer Verification:	
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):
Core Data Form Complete (Y/N):			Signed (Y/N):
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):

General Information Form

Texas Commission on Environmental Quality

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.

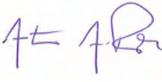
Signature

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:

Print Name of Customer/Agent: Antonio A. Prete, P.E.

Date: 09/04/2025

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Shell Road Office Warehouse
2. County: Williamson
3. Stream Basin: Berry Creek
4. Groundwater Conservation District (If applicable): _____
5. Edwards Aquifer Zone:
 Recharge Zone
 Transition Zone
6. Plan Type:
 WPAP
 SCS
 Modification
 AST
 UST
 Exception Request

7. Customer (Applicant):

Contact Person: Shahriar Khan
Entity: Berry Creek Townhoumes, LLC
Mailing Address: 4229 N. FM 620, Box 101 Unit 336
City, State: Austin, Texas Zip: 78734
Telephone: 641-781-1933 FAX: _____
Email Address: shahriar@massive.capital

8. Agent/Representative (If any):

Contact Person: Antonio A. Prete, P.E.
Entity: Waeltz & Prete, Inc
Mailing Address: 211 N. A.W. Grimes Blvd.
City, State: Round Rock, Texas Zip: 78665
Telephone: (512) 423-8730 FAX: _____
Email Address: tony@w-pinc.com

9. Project Location:

- The project site is located inside the city limits of _____.
- The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.
- The project site is not located within any city's limits or ETJ.

10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

3601 Shell Rd, Georgetown, Tx 78628

11. **Attachment A – Road Map.** A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. **Attachment B - USGS / Edwards Recharge Zone Map.** A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

- Project site boundaries.
- USGS Quadrangle Name(s).
- Boundaries of the Recharge Zone (and Transition Zone, if applicable).
- Drainage path from the project site to the boundary of the Recharge Zone.

13. **The TCEQ must be able to inspect the project site or the application will be returned.** Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

Survey staking will be completed by this date: Survey stacking completed.

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:

- Area of the site
- Offsite areas
- Impervious cover
- Permanent BMP(s)
- Proposed site use
- Site history
- Previous development
- Area(s) to be demolished

15. Existing project site conditions are noted below:

- Existing commercial site
- Existing industrial site
- Existing residential site
- Existing paved and/or unpaved roads
- Undeveloped (Cleared)
- Undeveloped (Undisturbed/Uncleared)
- Other: _____

Prohibited Activities

16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

- (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
- (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

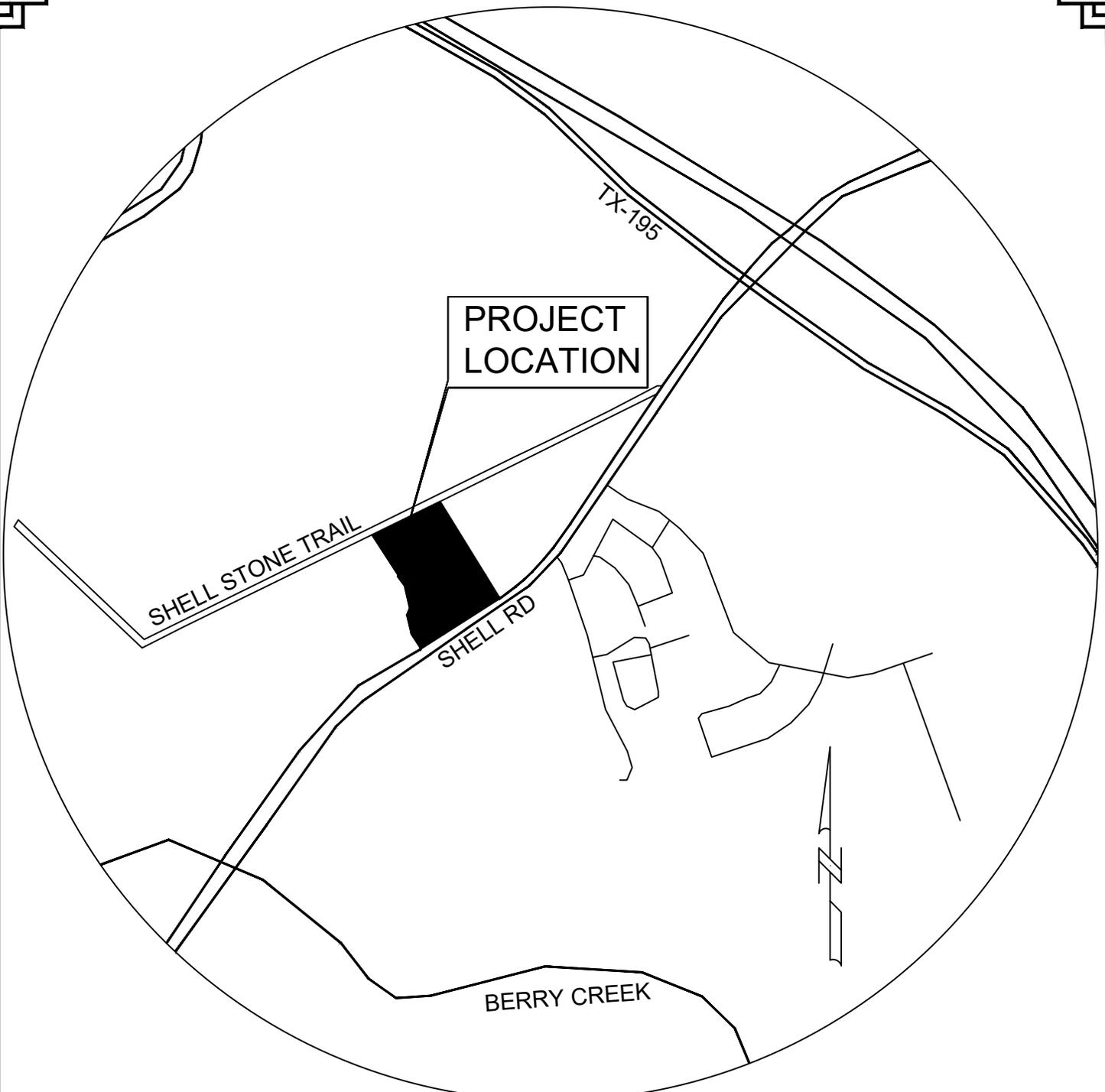
- (3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

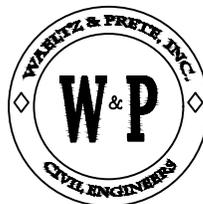
- For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
 - A request for an exception to any substantive portion of the regulations related to the protection of water quality.
 - A request for an extension to a previously approved plan.
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:
- TCEQ cashier
 - Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 - San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)
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



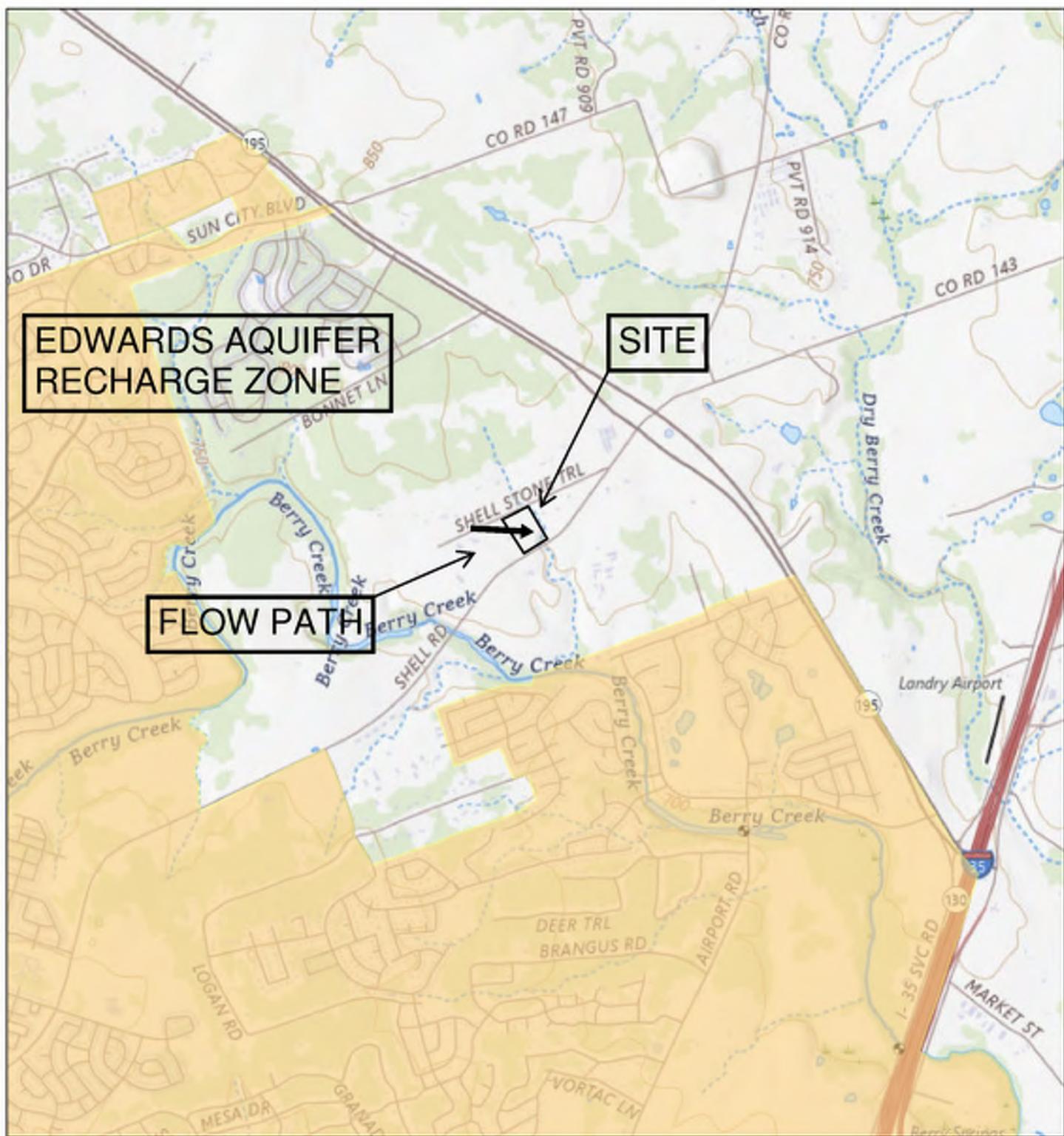
LOCATION MAP
SCALE: 1" = 1000'

ATTACHMENT "A"
ROAD MAP
SHELL ROAD
OFFICE WAREHOUSE

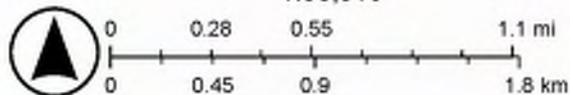


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ATTACHMENT "B" – USGS/EDWARDS RECHARGE ZONE MAP



1:38,519



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USGS - 7 1/2 MIN.
EDWARDS RECHARGE ZONE MAP
SHELL ROAD OFFICE WAREHOUSE
GEORGETOWN, TX

ATTACHMENT “C” – PROJECT DESCRIPTION

This Water Pollution Abatement Plan (WPAP) is submitted for a 10.001-acre tract located at 3601 Shell Road in Georgetown, Texas. The property has been removed from the City of Georgetown’s Extraterritorial Jurisdiction (ETJ) pursuant to Texas Senate Bill 2038. The site lies within the Edwards Aquifer Recharge Zone and is therefore subject to Water Quality Best Management Practices (BMPs) in accordance with TCEQ requirements.

The site is currently undeveloped, with no existing impervious cover. Additionally, there are no FEMA-regulated floodplains within the project limits.

The proposed development includes:

- Eight (8) buildings of approximately 12,000 square feet each, designated for office-warehouse use
- One (1) building of approximately 12,850 square feet, designated for retail use

Site improvements will include all elements shown in the Site Development Plan (SDP), including water and wastewater services, dry utilities, irrigation infrastructure, storm sewer system with a batch detention pond, paving, and grading.

The total proposed impervious cover is 6.52 acres, representing 65.19% of the site. Based on this coverage, the project is required to achieve 80% Total Suspended Solids (TSS) removal, equating to 5,675 pounds annually. This requirement will be met on-site via the proposed batch detention pond.

The batch detention pond is located at the southeast corner of the site and is designed to treat stormwater runoff from Drainage Area DA-1, which encompasses 7.65 acres with 6.52 acres (85.23%) of impervious cover. Drainage Area DA-2 represents the remaining 2.36 acres of pervious, undeveloped land that bypasses the pond. Off-site drainage is routed around the proposed improvements and also bypasses the pond.

The pond design complies with the TCEQ publication *Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices*, and is engineered to remove the full 5,675 pounds of TSS required for 80% removal efficiency.

All supporting TSS removal calculations are provided immediately following this summary. Construction plans and exhibits are submitted concurrently with this WPAP.

OVERALL BATCH DETENTION TSS REMOVAL CALCULATIONS

(In Accordance with TCEQ Regulations : RG-348)

Required Load Reduction (L_M)- Total Project Area:

Eq 3.2 $L_m = 28.9 (A_N * P)$

County =

P = Average Annual Precipitation

A_{tot-prj} = Total project area included in the plan

A_{pre} = Predevelopment impervious area

A_{post} = Postdevelopment impervious area

A_N = Area of the net increase of impervious area

IC_{pre} = Fraction of impervious cover (Pre Development)

IC_{post} = Fraction of impervious cover (Post Development)

L_M = Req'd TSS removal (80% of Increase)

Williamson	
32.0	[in]
10.001	[ac]
0.00	[ac]
6.52	[ac]
6.52	[ac]
0.00	[%]
65.19	[%]

5,675 [lbs]

Load Removed by BMP (L_R):

Eq 3.8 $L_R = (BMP\ Eff) * P (A_i * 34.6 + A_p * 0.54)$

A_{tot-sub} = Total area treated in the BMP subbasin

A_i = Impervious area proposed in BMP subbasin

A_p = Pervious area remaining in the BMP subbasin

IC = Impervious cover (Post Development)

BMP Type =

BMP Eff = BMP TSS Removal Efficiency

L_R = TSS Load Removed From Subbasin by BMP

7.65	[ac]
6.52	[ac]
1.13	[ac]
85.23	[%]
Batch Detention	
0.91	

6,587 [lbs]

Fraction of Annual Runoff to Treat the subbasin (F):

Eq 3.9 $F = L_M / \Sigma L_R$

Desired L_M = Req'd TSS removal (80% of Increase typical)

L_R = Load removed from *each* BMP

F = Fraction of the Annual Rainfall treated by BMP

5,675 [lbs]
6,587 [lbs]

0.86

Water Quality Volume Required (WQV_{req}):

Eq 3.10 $WQV = d * R_v * A$

Eq 3.11 $R_v = 1.72(IC)^3 - 1.97(IC)^2 + 1.23(IC) + .02$

$WQV_{req} = WQV + S$

F = Fraction of the Annual Rainfall treated by BMP

d = Rainfall Depth required to capture

A = Portion of Site contributing to BMP

IC = Fraction of Impervious Cover

R_v = Runoff Coefficient

WQV = Water quality volume

S = 20% Increase for Sediment Storage

WQV_{req} = Water quality volume required (With 20% increase)

0.86
1.38 [in]
7.65 [ac]
0.85
0.70

26,908 [ft³]
5,382 [ft³]

32,290 [ft³]



09/05/2025



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SCI ENGINEERING, INC.

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GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

September 6, 2023

Andrew Brewer
IronGall Investments
5900 Balcones Drive, Suite 100
Austin, Texas 78731

RE: Geological Assessment
Berry Creek Townhomes
Georgetown, Texas
SCI No. 2023-0982.1G

Dear Andrew Brewer:

At your request, SCI Engineering, Inc. (SCI) conducted a Geologic Assessment (GA) of 3601 Shell Road in Georgetown, Texas (subject site). Our services were provided in general accordance with our proposal, dated July 26, 2023. The GA was completed in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located within the Edwards Aquifer Recharge Zone (EARZ). As the site is in the EARZ, the GA must be completed and signed by a Professional Geoscientist licensed in the State of Texas. This letter addresses those requirements and describes the surficial geologic units and identifies the location and extent of geologic features present within the development area.

According to *30 TAC 213.5(b)(3)*, Effective June 1, 1999, a Geologic Assessment must include:

- Geologic Assessment Form (TCEQ-0585)
- Geologic Assessment Table (TCEQ-0585-Table)
- Stratigraphic Column
- Overview Maps
- Site Geologic Map
- Narrative Description of Geology and Soils
- Site Photographs

PROJECT DESCRIPTION

SCI understands that the project site consists of an undeveloped lot measuring a total of 10.001 acres in size and will likely include the future construction of a townhome development with associated pavement areas and infrastructure. The proposed project site lies within the EARZ and the 2014 United States Geologic Survey (USGS) Karst dataset indicates that the site is located within Carbonate Karst Zone.

As the proposed project meets the 30 TAC 213 definition of a regulated activity, a GA will be required to be submitted to the TCEQ in conjunction with the Water Pollution Abatement Plan (WPAP), prepared by others, and approved prior to the beginning of construction activities.

SITE INVESTIGATION

The site investigation was conducted on July 26, 2023, by an SCI Staff Scientist, under the supervision of a State of Texas Licensed Professional Geoscientist (PG). Vegetation consisted of grasses throughout the property with sparse scrub-shrub. Deciduous trees were observed throughout the property, mostly along the ephemeral stream situated along the eastern property boundary. Light gray weathered limestone outcrops were observed along the banks of the stream; limestone bedrock belongs to the Edwards Limestone (Ked) formation of the Fredericksburg group according to the USGS data and the Bureau of Economic Geology.

The site is undeveloped with utilities identified outside of the site, parallel to the adjacent Shell Road. The site is surrounded by rural residential lots, with an educational facility on the western adjacent lot.

The field investigation was performed in maximum 50-foot transects to evaluate the property for potential sensitive/recharge features. Four natural features were documented and assessed for recharge potential, but no sensitive features (ex. caves, sinkholes, faults/fractures) were identified within the project site, nor along its perimeter.

SUMMARY

Two solution cavities and two closed depressions were found within the site boundaries. The observed vegetation and infill within each feature suggests slow or background infiltration, and the features seem unlikely to provide rapid recharge to underlying formations. However, it is possible that other features within the property may be covered by soil, organic debris, or vegetation. If such karst features are found during excavation or construction, further investigation may be required to determine the extent of these features and their influence on groundwater aquifers. Additional details regarding features found within the project site may be referenced in the Geologic Table in Attachment A and in the Geologic Narrative in Attachment C.

LIMITATIONS

This report has been prepared for the exclusive use of IronGall Investments. SCI is not responsible for independent conclusions or recommendations made by others. The findings of this report are valid as of the present date of the assessment. SCI is not responsible for surveys, calculations, or plans that were prepared by others.

Andrew Brewer
IronGall Investments

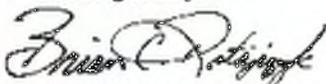
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September 6, 2023
SCI No. 2023-0982.1G

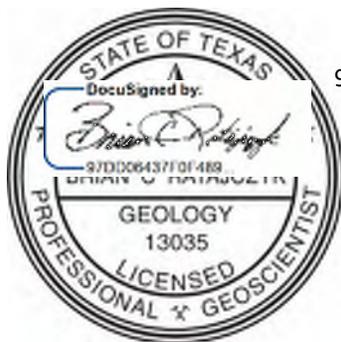
We appreciate the opportunity to be of service to you on this project. If you have any questions or comments, please do not hesitate to contact us.

Respectfully,

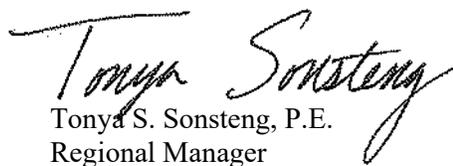
SCI ENGINEERING, INC.
Texas Engineering Firm F-7870

DocuSigned by:

97DD06437F0F489...

Brian C. Ratajczyk, P.G
Professional Geoscientist



9/6/2023


Tonya S. Sonsteng, P.E.
Regional Manager

LJV/TSS/BCR/snp/mas

Enclosures

- Attachment A - Geologic Assessment Form and Table
- Attachment B - Generalized Stratigraphic Column
- Attachment C - Site Geology and Soils Description
- Attachment D - Site Maps
- Attachment E - Photographic Summary

Attachment A

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: Brian Ratajczyk

Telephone: 512-996-9199

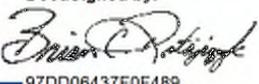
Date: 09/06/2023

Fax: 844-462-0439

Representing: SCI Engineering, Inc. - TBPG 13035

(Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

DocuSigned by:

97DD06437F0F489...

Regulated Entity Name: IronGall Investments - Berry Creek Townhomes

Project Information

1. Date(s) Geologic Assessment was performed: 7/26/2023

2. Type of Project:

WPAP

AST

SCS

UST

3. Location of Project:

Recharge Zone

Transition 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)
(EeB) Eckrant stony clay, 0 to 3 percent slopes	D	<5
(GsB) Georgetown stony clay loam, 1 to 3 percent slope	D	<5

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" = 120'
 Site Geologic Map Scale: 1" = 120'
 Site Soils Map Scale (if more than 1 soil type): 1" = 120'
- 9. Method of collecting positional data:
 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. The Recharge Zone boundary is shown and labeled, if appropriate.
14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, 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.

Administrative 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 office.

Attachment B

Attachment B - Stratigraphic Column

AGE	GROUP	STRATIGRAPHIC FORMATION	THICKNESS (ft)	LITHOLOGY	
Upper Cretaceous	Buda	Buda Limestone (Kbu)	~ 45	Fine grained, bioclastic, commonly glauconitic, pyritiferous, hard, massive, poorly bedded to nodular, thinner bedded and argillaceous near upper contact, light gray to pale orange; weathers dark gray to brown, burrows filled with chalky marl. Abundant pelecypods.	
	Grayson	Del Rio Clay (Kdr)	40 to 70	Calcareous and gypsiferous clay, blocky, medium gray, weathers light gray to yellowish gray; some thin lenticular beds of highly calcareous siltstone. Marine mega fossils include abundant Exogyra arietina and other pelecypods.	
	Washita	Georgetown Formation (Kgt)	~ 90	Unit consists of thick bedded nodular limestone with interbedded chalky, argillaceous limestone and light gray to buff shale. Interbedded, thin, chalky limestone and light gray marl can be present near the bottom of the formation.	
Lower Cretaceous	Fredericksburg	Edwards Formation (Ked)	~ 210	Formation consists of massive limestone bed with chert nodules and dolomite. The limestone is aphanitic to fine-grained, massive to thin bedded, hard, brittle, some rudistid biostromes, and milliollid biosparite. Zones of recrystallized weathering and vuggy porosity.	Edwards Aquifer
	Fredericksburg	Comanche Peak Formation (Kcp)	~ 65	Unit consists of fine to very fine grained, fairly hard, nodular, light gray weathers to white. Extensively burrowed, irregularly interbedded with marl.	
	Fredericksburg	Walnut Formation (Kwa)	70 to 90	Limestone and claystone interbedded. Argillaceous, nodular, thin to medium bedded, iron stained, and burrowed. unit consist of marly limestone alternating with harder more crystalline limestone.	

Note: Stratigraphic Column adapted from; Housh, Todd B. 2007, Bedrock Geology of Round Rock and Surrounding areas, Williamson and Travis Counties, Texas.

*Blue shading represents lithology underling the project site.

Attachment C

Attachment C - Site Geology Narrative

INTRODUCTION

This Geologic Assessment Narrative accompanies the TCEQ Geologic Assessment Form TCEQ-0585 completed for the 10.001-acre property located at 3601 Shell Road in Georgetown, Williamson County, Texas. The site location is depicted on the *Vicinity and Topographic Map*, Attachment D, Figure 1. SCI understands that the proposed development will likely include the future construction of a townhome development with associated pavement areas and infrastructure.

GEOLOGIC SETTING

Located within Williamson County, Texas, the project site is located in north Georgetown. The site is located on the east edge of the Edwards Plateau, within the Balcones Escarpment. With the region's semi-arid climate, precipitation is approximately 36 inches per year, with temperate grasslands, savannas, and shrublands. Outcrops of Cretaceous aged limestone belonging to the Edwards Limestone of the Fredericksburg Group were occasionally seen throughout the property. Berry Creek is less than a half mile south-southeast of the site. The site is located in the Edwards Aquifer Recharge Zone.

Soils:

Information regarding soil descriptions is derived from the soil survey of Williamson County published by the Soil Conservation Service via the Web Soil Survey application. The project site soils map within the Georgetown stony clay loam, 1-3 percent slope (GsB), primary, and the Eckrant stony clay, 0 to 3 percent slope (EeB), secondary. Soils are classified as Hydrologic Soil Group D which have a high runoff potential when thoroughly wet, and water movement through the soil is restricted or very restricted. Parent material consists of residuum weathered from limestone, with a soil profile range of stony clay loam to cobbly and limestone bedrock.

Table 1 – Soil Description

Map Symbol and Map Unit Name	Component/Local Phase	Component Percent	Landform	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group
GsB- Georgetown stony clay, 1 to 3 percent slopes, stony	Georgetown	90	Ridges	20 to 40-inches to lithic bedrock	> 80"	D
EeB- Eckrant stony clay, 0 to 3 percent, stony	Eckrant stony	85	Ridges	4 to 20-inches to lithic bedrock	>80"	D

Stratigraphy:

The bedrock lithology underlying the site consists of the Edwards Limestone (Ked), and the tract is located entirely within the Edwards Aquifer Recharge Zone *Geologic Formation Map*, Attachment D, Figure 2. Edwards Limestone is a cretaceous age limestone within the Fredericksburg Group of the Comanchean - Albian series. Edwards Limestone consists of limestone, dolostone, and chert. The limestone is aphanitic to fine grained, massive to thin bedded, hard, brittle, in part rudistid biostromes, many miliolid biospartie. Exposed outcrops are generally susceptible to chemical weathering, and secondary porosity may vary from microscopic to megascopic in scale.

A Stratigraphic Column Illustrating the Generalized Stratigraphy of the Edwards Aquifer, underlying the project site is provided in Attachment B. (Barton Springs Edwards Aquifer Conservation District (2022) defines the generalized stratigraphy and aquifers around the project site, accessed from <https://bseacd.org/aquifer-science/about-the-aquifers>).

Attachment C - Site Geology Narrative

Structure:

The Balcones Escarpment is a geologic fault zone several miles wide consisting of several faultings. The Balcones fault zone ultimately controls the structural geology of the region, displacing eastward dipping strata of the Early and Late Cretaceous as much as 1,000 feet down to the east through north to northeast-trending normal faults. It is thought that this displacement occurred primarily during the late Oligocene or early Miocene; others have argued instead that movement during the Late Cretaceous and Pliocene is plausible.

In general, aquifer recharge occurs where formations are exposed at or near the surface, but it may also occur in the presence of faults, fractures, and karst features. Exposure of the Edwards Formation is often correlated to karst development within the region. Karst features are commonly found along fractures, joints, and bedding planes within the Edwards Formation.

SITE SUMMARY

The site investigation was conducted on July 26, 2023, by an SCI Staff Scientist under the supervision of a State of Texas Licensed Professional Geoscientist (PG). Vegetation consisted of grasses and sparse mesquite and cedar elm scrub-shrub. Deciduous trees, including cedar elm and hackberry, were observed through the property, mostly along the bank of the ephemeral stream. Light gray limestone outcrops were observed along the bank as of the ephemeral stream.

The site is undeveloped with utilities running parallel to the adjacent Shell Road. The site is surrounded by rural residential lots, with an educational facility adjacently located to the west. Based on historical aerial images available online, it appears that this site has never been developed. The adjacent property to the west, Georgetown Christian Academy, was developed in the early 1900's. The residences to the east were developed in the late 1990's to early 2000's. In the 2015 to 2016 imagery, a collection of fill stockpiles was observed in the northeast corner of the property. The ephemeral stream is observed along the eastern boundary of the site.

The site field investigation was performed in maximum 50-foot transects to evaluate the property for potential sensitive/recharge features. Four natural features were documented and evaluated for recharge potential; the observed vegetation and infill within each feature suggests slow or background infiltration, and the features seem unlikely to provide rapid recharge to underlying formations.

No sensitive features (ex. caves, sinkholes, faults/fractures) were identified within the 10.001-acre lot, nor along its perimeter. However, it is possible that other features within the property may be covered by soil, organic debris, or vegetation. If such karst features are found during excavation or construction, further investigation may be required to determine the extent of these features and their influence on groundwater aquifers.

Feature Description:

SD-1: Feature SD-1 located on the top of bank, along the shoulder of the hillslope. The feature is approximately 6 feet in length, by 4 feet in width, and 12 to 24 inches in depth. In the depression was a stand of Hackberry trees. Around the rim of the depression was exposed limestone boulders and cobbles. The feature was enclosed with soil, rock and gravel. Probing with tool indicated the feature was closed.

SD-2: Feature SD-2 is located southeast adjacent to SD-1, on the shoulder of the hillslope. The feature is approximately 3 feet in length, 2 feet in width, and 6 inches in depth. In the depression was a smaller stand of Hackberry trees. Around the rim of the depression was exposed limestone cobbles. The feature was enclosed with soil, vegetation, and gravel. Probing with tool indicated the feature was closed.

Attachment C - Site Geology Narrative

CD-1: Feature CD-1 is a topographic depression that is approximately 4 feet in diameter and 12 inches deep. The depression was filled with soil and rock and vegetation covered. Some limestone cobbles were observed exposed around the rim. Probing with tool indicated that the feature was closed. When observing past aerials, it was observed that the location had previously contained trees and shrubs. Further evaluation suggests that CD-1 formed independently of karst processes.

CD-2: Feature CD-2 is a topographic depression that is roughly 6 feet in diameter and 14 to 16 inches deep. The depression was filled with soil and rock and vegetation covered. Some limestone cobbles were observed exposed around the rim. Probing with tool indicated that the feature was closed. When observing past aerials, it was observed that the location had previously contained trees and shrubs. Further evaluation suggests that CD-2 formed independently of karst processes.

Manmade Features:

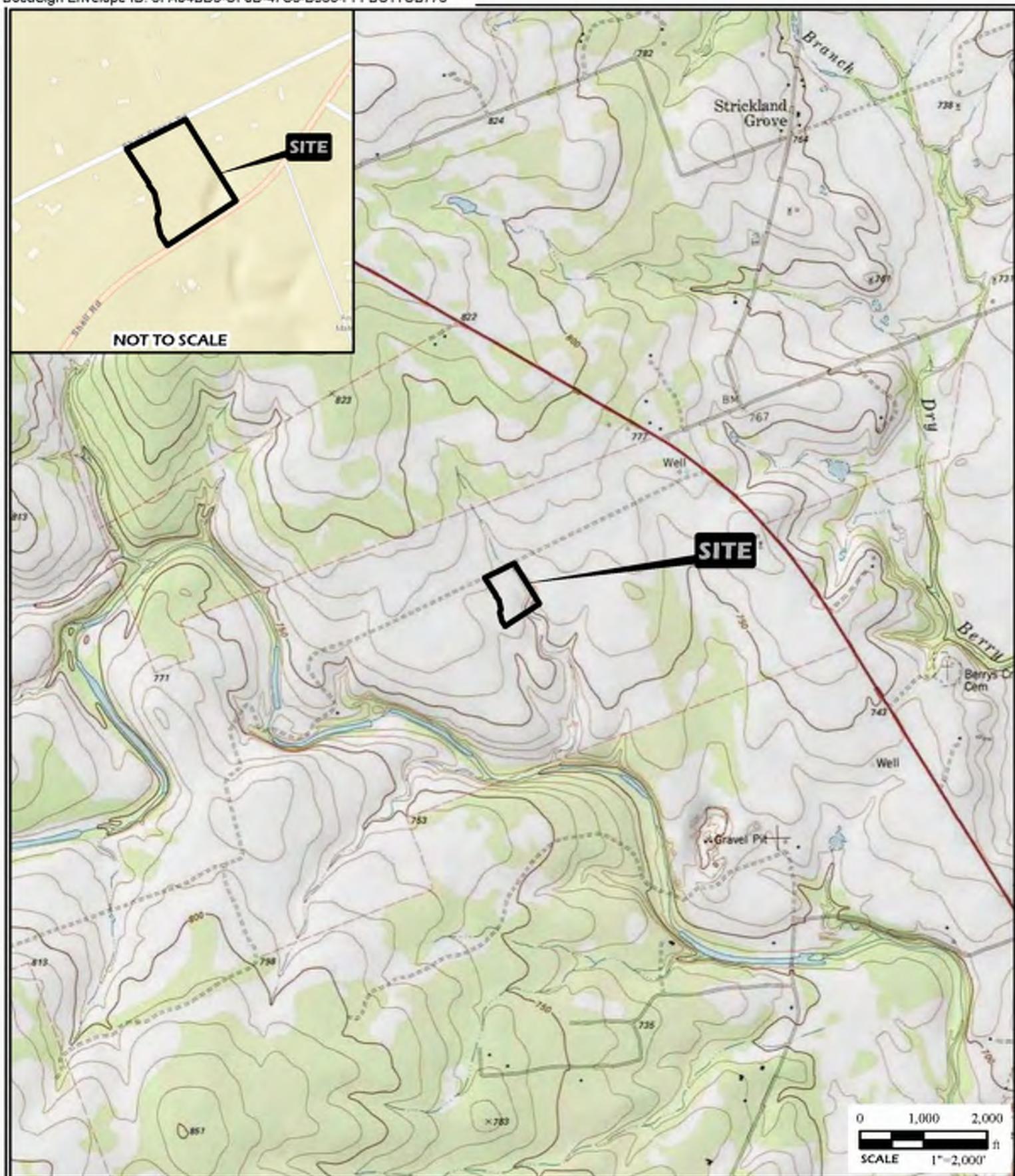
While the site is undeveloped, some infrastructure does exist. Above-ground electric lines trending parallel to the road on the south side of the site. SCI did not identify any manmade features within the property.

City of Georgetown Ordinance:

An unnamed, ephemeral stream trending north to south, is located parallel to, and along, the eastern property boundary as depicted in the *Site Geologic Map*, Attachment D, Figure 3. The stream is identified as a Riverine habitat, classified as R4SBC based on the U.S. Fish & Wildlife Service (FWS), National Wetlands Inventory. This classification code indicates a Riverine system, Intermittent subsystem, Streambed class, Seasonally Flooded water regime. According to the FWS, the site is not currently identified as containing a critical habitat unit, and therefore is not classified as an Occupied Site.

A stream buffer will need to be established in accordance with the City of Georgetown Unified Development Code (UDC), Section 11.07.030 for this property. In addition, all regulated activities within the recharge zone must follow water quality best management practices, and development of the property will need to comply with the water quality protection measures as outlined in Section 11.07.040 of the UDC.

Attachment D



PROJECT NAME
BERRY CREEK TOWNHOMES
GEORGETOWN, TEXAS

VICINITY AND TOPOGRAPHIC MAP

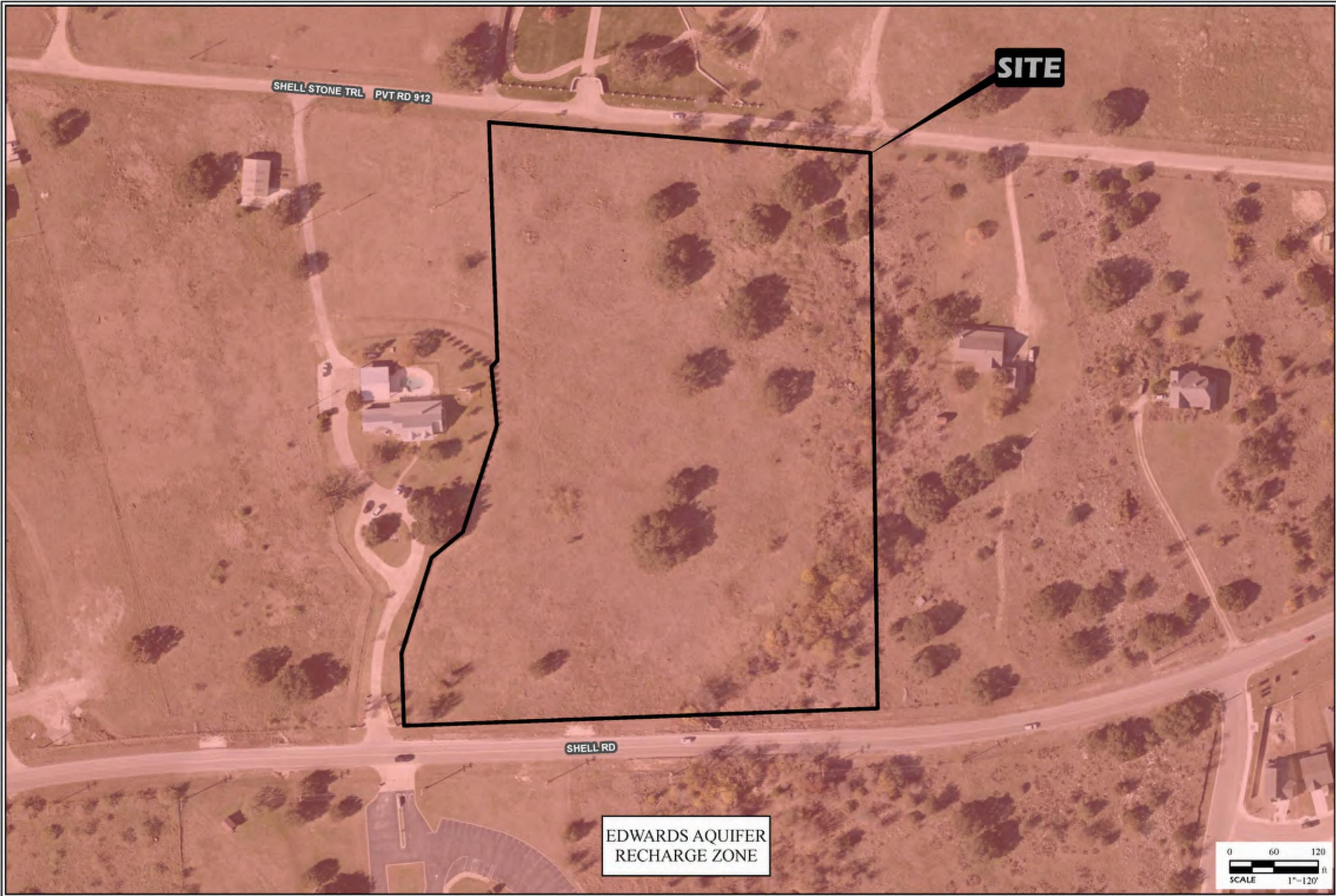
DRAWN BY	ACV	DATE	JOB NUMBER
CHECKED BY	TSS	09/2023	2023-0982.10

GENERAL NOTES/LEGEND
USGS TOPOGRAPHIC MAP
GEORGETOWN TEXAS QUADRANGLE
DATED 1982
10' CONTOURS

STREET MAP
[HTTP://GTO.ARCGISONLINE.COM/MAPS/WORLD_STREET_MAP](http://gto.arcgisonline.com/maps/world_street_map)



FIGURE
1





GENERAL NOTES/LEGEND

- Edwards Limestone (Kcof)

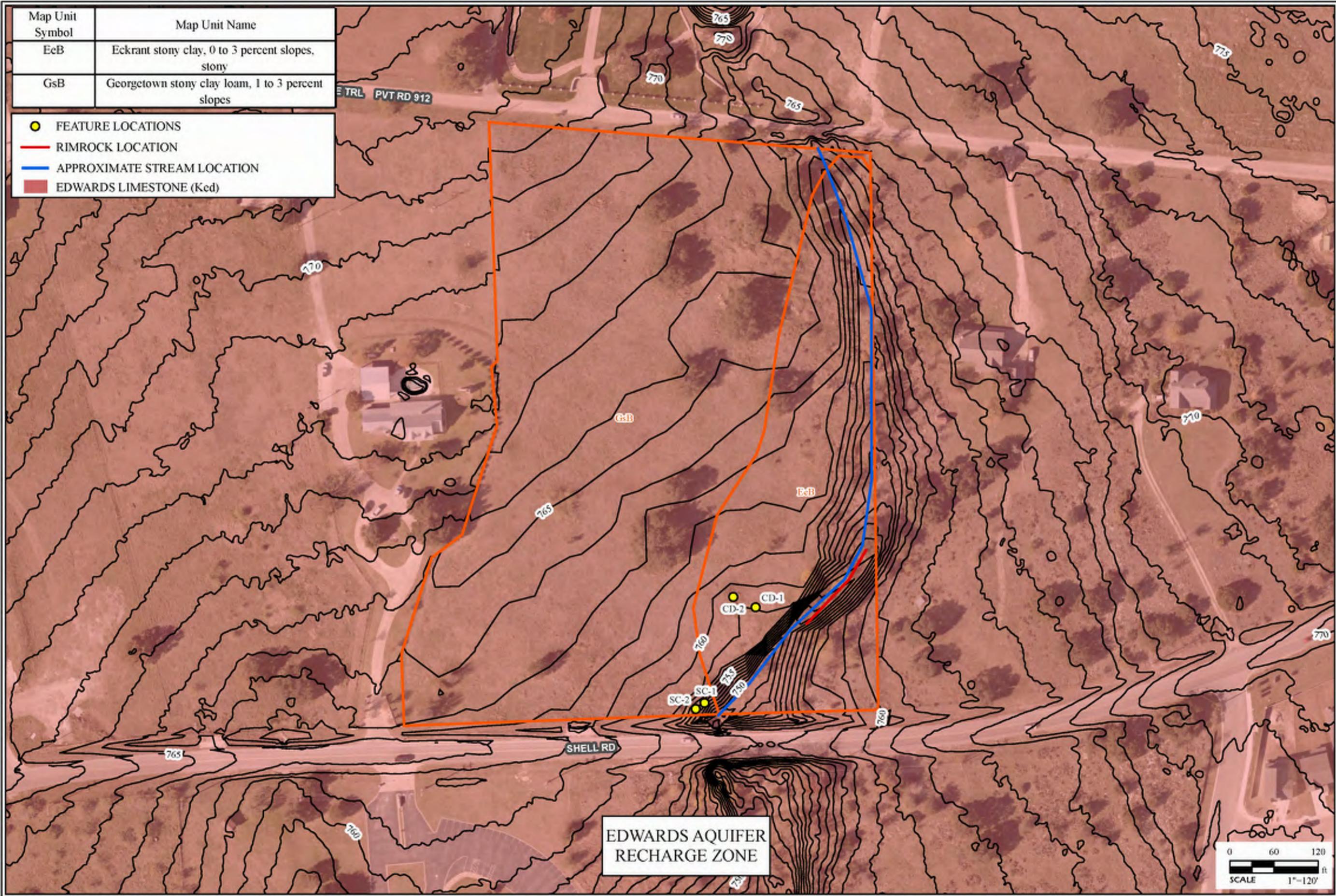
GEOLOGIC FORMATION: <https://brs.dgs.gov/geology/>
 AERIAL PHOTOGRAPH OBTAINED FROM ARCGIS ONLINE, WORLD IMAGERY
 DIMENSIONS AND LOCATIONS ARE APPROXIMATE. ACTUAL MAY VARY. DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.

PROJECT NAME
 BERRY CREEK TOWNHOMES
 GEORGETOWN, TEXAS

GEOLOGICAL FORMATION MAP



JOB NUMBER	2023-0982.10
DATE	09/2023
DRAWN BY	ACV
CHECKED BY	TSS
FIGURE	2



Map Unit Symbol	Map Unit Name
EeB	Eckrant stony clay, 0 to 3 percent slopes, stony
GsB	Georgetown stony clay loam, 1 to 3 percent slopes

- FEATURE LOCATIONS
- RIMROCK LOCATION
- APPROXIMATE STREAM LOCATION
- EDWARDS LIMESTONE (Ked)



GENERAL NOTES/LEGEND

GEOLOGIC FORMATION: <https://pub.nps.gov/geo/geo/contours/>
 BERRY CREEK TOWNHOMES
 GEORGETOWN, TEXAS

GEOLOGIC FORMATION: <https://pub.nps.gov/geo/geo/contours/>
 CONTOURS: WILLIAMSON COUNTY GIS DEPARTMENT
 AERIAL PHOTOGRAPH OBTAINED FROM ARCOIS ONLINE, WORLD IMAGERY.
 SOILS DATA OBTAINED FROM <https://websoilsurvey.sc.egov.usda.gov/>
 DIMENSIONS AND LOCATIONS ARE APPROXIMATE; ACTUAL MAP VARY. DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.

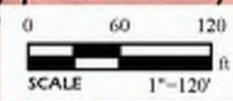
PROJECT NAME
 BERRY CREEK TOWNHOMES
 GEORGETOWN, TEXAS

SITE GEOLOGIC MAP



JOB NUMBER	2023-0982.10
DATE	09/2023
DRAWN BY	ACV
CHECKED BY	TSS
FIGURE	3

**EDWARDS AQUIFER
 RECHARGE ZONE**



Attachment E



Photo 1. Southwest Corner of Site, Facing North



Photo 2. Southwest Corner of Site, Facing East



Photo 3. Northwest Side of Site, Facing East



Photo 4. Northwest Side of Site, Facing South



Photo 5. SC-1, Facing North



Photo 6. SC-1, Facing South



Photo 7. SC-1, Facing East



Photo 8. SC-2, Facing Southeast



Photo 9. SC-2, Facing East



Photo 10. SC-2 and SC-1, Facing North



Photo 11. South Side of Stream, Facing North Upstream



Photo 12. Stream with East Bank Rimrock, Facing Upstream North



Photo 13. North Side of Stream at Culverts, Facing Downstream South



Photo 14. Northeast Side of Site, Facing South



Photo 15. Rimrock or East Bank, Facing South



Photo 16. CD-1 and CD-2, Facing South



Photo 17. CD-1 and CD-2, Facing West



Photo 18. East Side of POI, Facing West



Photo 19. North Side of POI, Facing South



Photo 20. West Side of POI, Facing East

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it.* A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* **Confront the risk of moisture infiltration** by including building-envelope or mold specialists on the design team. **Geotechnical engineers are not building-envelope or mold specialists.**



Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org

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.

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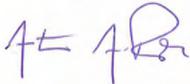
Signature

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: Antonio A. Prete, P.E.

Date: 09/04/2025

Signature of Customer/Agent:



Regulated Entity Name: Shell Road Office Warehouse

Regulated Entity Information

1. 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): 10.001

3. Estimated projected population: +/- 234

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	108850	÷ 43,560 =	2.495
Parking	162949.67	÷ 43,560 =	3.7408
Other paved surfaces	12424.09	÷ 43,560 =	.2852
Total Impervious Cover	284223.76	÷ 43,560 =	6.52

Total Impervious Cover 6.52 ÷ Total Acreage 10.001 X 100 = 65.19% 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:

- TXDOT road project.
- County road or roads built to county specifications.
- City thoroughfare or roads to be dedicated to a municipality.
- Street or road providing access to private driveways.

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 x W = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

10. Length of pavement area: _____ feet.

Width of pavement area: _____ feet.

L x W = _____ Ft² ÷ 43,560 Ft²/Acre = _____ acres.

Pavement area _____ acres ÷ 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. Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

13. **Attachment B - Volume and Character of Stormwater.** A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on the area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

14. The character and volume of wastewater is shown below:

<u>100%</u> Domestic	<u>25,526</u> Gallons/day
<u> </u> % Industrial	<u> </u> Gallons/day
<u> </u> % Commingled	<u> </u> Gallons/day
TOTAL gallons/day <u>16,546</u>	

15. Wastewater will be disposed of by:

- On-Site Sewage Facility (OSSF/Septic Tank):

Attachment C - Suitability Letter from Authorized Agent. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

- Sewage Collection System (Sewer Lines):

Private service laterals from the wastewater generating facilities will be connected to an existing SCS.

Private service laterals from the wastewater generating facilities will be connected to a proposed SCS.

The SCS was previously submitted on _____.

The SCS was submitted with this application.

The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

The sewage collection system will convey the wastewater to the N/A (name) Treatment Plant. The treatment facility is:

Existing.

Proposed.

16. All private service laterals will be inspected as required in 30 TAC §213.5.

Site Plan Requirements

Items 17 – 28 must be included on the Site Plan.

17. The Site Plan must have a minimum scale of 1" = 400'.

Site Plan Scale: 1" = 40'.

18. 100-year floodplain boundaries:

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): #48491C0285F (December 20, 2019)

19. 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. 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)

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 §76.

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:

All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.

No sensitive geologic or manmade features were identified in the Geologic 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. The drainage patterns and approximate slopes anticipated after major grading activities.
- 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.

Administrative 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

Factors that could affect the quality of surface and ground water are the parking and use of motor vehicles on site. This includes the emission of certain hydrocarbon based substances as well as the tracking of silt. In addition, the maintenance of lawn or landscape areas could also affect the quality of surface and ground water through runoff of chemical fertilizers or pesticides.

ATTACHMENT "B"

VOLUME AND CHARACTER OF STORMWATER

It is expected that the character of surface and ground water run-off would be consistent with the development of a commercial site; analysis has been completed incorporating the ultimate development of the property, which will include office warehouse buildings and retail building. Constituents would include hydrocarbon based product residues, silt, pesticides, and chemicals resulting from vehicular emissions and landscape maintenance.

The expected volume of run-off was based on the SCS method. This was calculated using curve numbers, which are based on impervious cover and the nature of surfaces over which run-off water flows. These calculations are presented in the attachment directly behind this page and in the attached construction plans.

The stormwater quality for the site was determined using "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices". The results from these calculations are presented directly behind this page.

HEC-HMS SUMMARY & INPUT VARIABLES:

DRAINAGE AREA BOUNDARY CONDITIONS SUMMARY:

SUB-BASIN [ID]	AREA [mi ²]	AREA [ac]	BASE CURVE #	IC [%]	Tc [min]	Tc LAG [min]	SUBBASIN RUNOFF			
							2YR [cfs]	10YR [cfs]	25YR [cfs]	100YR [cfs]
EX-DA-1	0.0156	9.99	80	0.00	15.64	9.38	23.76	44.80	58.95	82.27
PROP DA-1	0.0120	7.65	80	85.23	8.33	5.00	36.23	55.16	67.66	88.42
PROP DA-2	0.0037	2.34	80	0.00	8.33	5.00	7.10	13.39	17.64	24.66

*Minimum Tc lag used =5 min

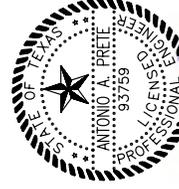
SUMMARY TABLE: DETENTION POND #1

ATLAS-14 STORM NOAA 24hr	[in]	[Event]	PEAK INFLOW TO POND [cfs]	PEAK DISCHARGE FROM POND [cfs]	PEAK STORAGE DET VOLUME [ac-ft]	PEAK ELEVATION DET PND [ft]
2 year	36.23	13.88	1.24	760.61		
10 year	55.16	24.27	1.62	761.77		
25 year	67.66	29.11	1.83	762.42		
100 year	88.42	36.02	2.19	763.55		

SUMMARY OF EXISTING VS. PROPOSED RUNOFF AT SPECIFIC FLOW CONCENTRATION POINT:

ATLAS-14 STORM NOAA 24hr	EX PEAK DISCHARGE FC PT #1	PROP PEAK DISCHARGE FC PT #1
2 year	23.76	17.95
10 year	44.8	33.22
25 year	58.95	41.91
100 year	82.27	54.79

* Refer to Drainage Area Maps for Concentration Flow Points (eg FC PT # X).



09/05/2025



Waeltz & Prete, Inc.
CIVIL ENGINEERS
211 N. B.W. Grimes Blvd.
P.O. Box 1000
P.O. Box 1000
FIRMTX REC: #F-10308

ATTACHMENT "C"

SUITABILITY LETTER FROM AUTHORIZED AGENT

Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

ATTACHMENT "D"

EXCEPTION TO THE REQUIRED GEOLOGIC ASSESSMENT

A Geologic Assessment has been submitted with this application

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.

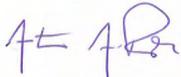
Signature

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:

Print Name of Customer/Agent: Antonio A. Prete, P.E.

Date: 09/04/2025

Signature of Customer/Agent:



Regulated Entity Name: Shell Road Office Warehouse

Project Information

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: Gasoline

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.

- 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.
- 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.
- 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.

Sequence 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.
 - For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.
 - 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.
- 6. Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Berry Creek

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.

- 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.
8. 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.
9. **Attachment F - Structural Practices.** 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. **Attachment G - Drainage Area Map.** 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.

- There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.
11. **Attachment H - Temporary Sediment Pond(s) Plans and Calculations.** Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
- N/A
12. **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
13. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
14. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
15. Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
16. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

1.4.16 Spill Prevention and Control

The objective of this section is to describe measures to prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

The following steps will help reduce the stormwater impacts of leaks and spills:

Education

(1) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

(2) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

(3) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

(4) Establish a continuing education program to indoctrinate new employees.

(5) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

(1) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

(2) Store hazardous materials and wastes in covered containers and protect from vandalism.

(3) Place a stockpile of spill cleanup materials where it will be readily accessible.

(4) Train employees in spill prevention and cleanup.

(5) Designate responsible individuals to oversee and enforce control measures.

(6) Spills should be covered and protected from stormwater runoff during rainfall to the extent that it doesn't compromise clean up activities.

(7) Do not bury or wash spills with water.

(8) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the revisions in applicable BMPs.

(9) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

(10) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

(11) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

(12) Keep waste storage areas clean, well organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

(1) Clean up leaks and spills immediately.

(2) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

(3) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

(2) Use absorbent materials on small spills rather than hosing down or burying the spill.

(3) Absorbent materials should be promptly removed and disposed of properly.

(4) Follow the practice below for a minor spill:

(5) Contain the spread of the spill.

(6) Recover spilled materials.

(7) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.

Spills should be cleaned up immediately:

(1) Contain spread of the spill.

(2) Notify the project foreman immediately.

(3) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

(4) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

(5) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

(1) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

(2) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

(3) Notification should first be made by telephone and followed up with a written report.

(4) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

(5) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html

ATTACHMENT "B"

POTENTIAL SOURCES OF CONTAMINATION

Potential sources of contamination from this site include hydrocarbon residue, emissions from vehicles, asphaltic products used for paved surfaces, and tracking of silt onto paved surfaces by construction equipment.

ATTACHMENT "C"
SEQUENCE OF MAJOR ACTIVITIES

<u>Activity</u>	<u>Area</u>
Install Erosion Controls	± 7.65 ac (Limits of Construction)
Clearing / Grubbing	± 7.65 ac (Limits of Construction)
Fill / Excavation (Grading)	± 7.65 ac (Limits of Construction)
Utility Installation	± 3.00 ac
Paving / Infrastructure	± 7.65 ac
Revegetation	± 7.65 ac (Limits of Construction)

NOTE: There are no common drainage areas containing more than 10 acres of disturb area.

ATTACHMENT "D"

TEMPORARY BEST MANAGEMENT PRACTICES & MEASURES

The TBMP's are to be installed prior to any site activities and will be in place for all sequenced activities. This includes the placement of temporary inlet protection, stabilized construction entrance, concrete washout area, rock berms and silt fencing on the down gradient side of the site to prevent any silted run-off to water surfaces and to prevent any erosion or disturbance to vegetation.

Post construction of improvements and prior to project acceptance, the limits of disturbance shall be revegetated.

ATTACHMENT "E"

REQUEST TO TEMPORARILY SEAL A FEATURE

A request to temporarily seal a feature is not being made.

ATTACHMENT "F"

STRUCTURAL PRACTICES

Silt fencing, inlet protection, & rock berms will be placed on the down gradient side of any exposed soils in order to limit the discharge of silt and pollutants from exposed areas of the site.

ATTACHMENT "G"

DRAINAGE AREA MAP

A drainage area map has been included as part of the construction plans, which has been submitted with this Water Pollution Abatement Plan (WPAP)

ATTACHMENT "H"

TEMPORARY SEDIMENT POND(S) PLANS & CALCULATIONS

There are no common drainage areas containing more than 10 acres of disturb area. Therefore, a temporary sediment pond is not required for this project

ATTACHMENT "I"

INSPECTION & MAINTENANCE FOR BMPs

SILT FENCES & ROCK BERMS:

Weekly: Accumulated silt shall be removed when it reaches a depth of 6 inches. Silt shall be disposed of in an approved site and in such a manner as to not contribute to additional siltation. Repair and replace any damaged section resulting from construction activity or other cases.

After Rainfall: Fences shall be checked for structural damage from stormwater flows immediately after a significant (≥ 0.5 inch) rainfall as soon as ground conditions make fences accessible (usually within 24 hours). Should there be prolonged rainfall, inspections should be conducted without vehicles and temporary repairs made until equipment can be brought in without major surface damage. Remove accumulated silt when depth reaches 6 inches and dispose of as indicated in Weekly maintenance.

Adjust fence configuration if necessary after rainfall event to accommodate conditions defined by stormwater flows.

STABILIZED CONSTRUCTION ENTRANCE:

Weekly: The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public roadways. If necessary, top dress with additional stone and repair and/or cleanout any measures used to trap sediment.

After Rainfall: Immediately after a significant rainfall (≥ 0.5 inch), as soon as ground conditions make stabilized construction entrance accessible (usually within 24 hours), the same inspection and maintenance procedures for the weekly requirements shall be performed.

CONCRETE TRUCK WASHOUT:

Daily: The washout lining and sidewalls shall be inspected for damages and leaks. Repair and replace any damages resulting from construction activity or other cases. Ensure the washout area does not exceed 75% capacity. If 75% capacity is exceeded, the wash water should be vacuumed off or allowed to evaporate to avoid overflows. Once the remaining cementitious solids have hardened, they shall be removed and recycled.

Before Rainfall: Prior to a heavy rainfall, the washout's liquid level should be lowered or the washout area should be covered.

After Rainfall: Immediately after a significant rainfall (≥ 0.5 inch), as soon as ground conditions are accessible (usually within 24 hours), the same inspection and maintenance procedures for the daily requirements shall be performed.

RECORD KEEPING:

Project superintendent shall have a log for entering site inspections for both weekly and rainfall events. Results of inspections including damage and recommended repairs shall be noted, along with inspection personnel data and date of remedial action taken.

INLET PROTECTION:

Weekly: Accumulated silt shall be removed when it reaches a depth of 3 inches. Silt shall be disposed of in an approved site and in such a manner as to not contribute to erosion. Check for gaps within the structure and inlet. Inspect filter fabric. Repair and replace any damaged section resulting from construction activity or other cases.

After Rainfall: Fences shall be checked for structural damage from stormwater flows immediately after a significant (≥ 0.5 inch) rainfall as soon as ground conditions are accessible (usually within 24 hours). Should there be prolonged rainfall, inspections should be conducted without vehicles and temporary repairs made until equipment can be brought in without major surface damage. Remove accumulated silt when depth reaches 3 inches and dispose of as indicated in Weekly maintenance.

RECORD KEEPING:

Project superintendent shall have a log for entering site inspections for both weekly and rainfall events. Results of inspections including damage and recommended repairs shall be noted, along with inspection personnel data and date of remedial action taken.

ATTACHMENT "J"

SCHEDULE OF INTERIM & PERMANENT SOIL STABILIZATION PRACTICES

Interim soil stabilization shall be instituted whenever an area has been disturbed and there is a lapse of twenty-one consecutive days when no construction activities have occurred on that location or if any area is not scheduled for final construction activities to occur later than twenty-one days after last disturbance.

Post final grading, permanent soil stabilization shall occur at the first practical opportunity after the completion of construction activities in an area (Within fourteen days). Records must be kept as to when each soil stabilization measure was instituted in each area.

Hydro-mulch shall be utilized for permanent soil stabilization, unless otherwise noted. Reference erosion & sedimentation notes and details in the construction plans.

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)(li), (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.

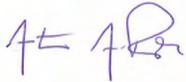
Signature

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: Antonio A. Prete, P.E.

Date: 09/04/2025

Signature of Customer/Agent



Regulated Entity Name: Shell Road Office Warehouse

Permanent Best Management Practices (BMPs)

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

- Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.
 N/A
- 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 multi-family 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.

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.

The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.

The site will not be used for multi-family residential developments, schools, or small business sites.

6. **Attachment B - BMPs for Upgradient Stormwater.**

- A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
 - No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
 - Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.
7. **Attachment C - BMPs for On-site Stormwater.**
- A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
 - Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.
8. **Attachment D - BMPs for Surface Streams.** A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.
- N/A
9. The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.
- The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.
 - Attachment E - Request to Seal Features.** A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.
10. **Attachment F - Construction Plans.** All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:
- Design calculations (TSS removal calculations)
 - TCEQ construction notes
 - All geologic features
 - All proposed structural BMP(s) plans and specifications
- 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:
- Prepared and certified by the engineer designing the permanent BMPs and measures
 - Signed by the owner or responsible party
 - Procedures for documenting inspections, maintenance, repairs, and, if necessary 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

This project is not seeking an impervious cover waiver.

ATTACHMENT "B" –

BMPs FOR UPGRADIENT STORMWATER

There is no stormwater originating from upgradient areas that flows through the proposed project site. All upgradient runoff is conveyed around the site via existing drainage infrastructure. To the north, a roadside ditch along Private Road 912 directs stormwater to an existing drainage channel. To the west, runoff is conveyed through a drainage swale that discharges into the Shell Road right-of-way (ROW).

ATTACHMENT "C" –
BMPs FOR ON-SITE STORMWATER

Storm water from this project will be treated by the following Best Management Practice (BMP).

The batch detention pond is located at the southeast corner of the site and is designed to treat stormwater runoff from Drainage Area DA-1, which encompasses 7.65 acres with 6.52 acres (85.23%) of impervious cover. Drainage Area DA-2 represents the remaining 2.36 acres of pervious, undeveloped land that bypasses the pond. Off-site drainage is routed around the proposed improvements and also bypasses the pond.

The pond design complies with the TCEQ publication *Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices*, and is engineered to remove the full 5,675 pounds of TSS required for 80% removal efficiency.

All supporting TSS removal calculations are provided immediately following this summary. Construction plans and exhibits are submitted concurrently with this WPAP.

OVERALL BATCH DETENTION TSS REMOVAL CALCULATIONS

(In Accordance with TCEQ Regulations : RG-348)

Required Load Reduction (L_M)- Total Project Area:

Eq 3.2 $L_m = 28.9 (A_N * P)$

County =

P = Average Annual Precipitation

A_{tot-prj} = Total project area included in the plan

A_{pre} = Predevelopment impervious area

A_{post} = Postdevelopment impervious area

A_N = Area of the net increase of impervious area

IC_{pre} = Fraction of impervious cover (Pre Development)

IC_{post} = Fraction of impervious cover (Post Development)

L_M = Req'd TSS removal (80% of Increase)

Williamson	
32.0	[in]
10.001	[ac]
0.00	[ac]
6.52	[ac]
6.52	[ac]
0.00	[%]
65.19	[%]

5,675 [lbs]

Load Removed by BMP (L_R):

Eq 3.8 $L_R = (BMP\ Eff) * P (A_i * 34.6 + A_p * 0.54)$

A_{tot-sub} = Total area treated in the BMP subbasin

A_i = Impervious area proposed in BMP subbasin

A_p = Pervious area remaining in the BMP subbasin

IC = Impervious cover (Post Development)

BMP Type =

BMP Eff = BMP TSS Removal Efficiency

L_R = TSS Load Removed From Subbasin by BMP

7.65	[ac]
6.52	[ac]
1.13	[ac]
85.23	[%]
Batch Detention	
0.91	

6,587 [lbs]

Fraction of Annual Runoff to Treat the subbasin (F):

Eq 3.9 $F = L_M / \Sigma L_R$

Desired L_M = Req'd TSS removal (80% of Increase typical)

L_R = Load removed from *each* BMP

F = Fraction of the Annual Rainfall treated by BMP

5,675	[lbs]
6,587	[lbs]

0.86

Water Quality Volume Required (WQV_{req}):

Eq 3.10 $WQV = d * R_v * A$

Eq 3.11 $R_v = 1.72(IC)^3 - 1.97(IC)^2 + 1.23(IC) + .02$

$WQV_{req} = WQV + S$

F = Fraction of the Annual Rainfall treated by BMP

d = Rainfall Depth required to capture

A = Portion of Site contributing to BMP

IC = Fraction of Impervious Cover

R_v = Runoff Coefficient

WQV = Water quality volume

S = 20% Increase for Sediment Storage

WQV_{req} = Water quality volume required (With 20% increase)

0.86	
1.38	[in]
7.65	[ac]
0.85	
0.70	

26,908	[ft ³]
5,382	[ft ³]

32,290 [ft³]



09/05/2025



Waeltz & Prete, Inc.
CIVIL ENGINEERS
211 n. a.w. grimes blvd.
Round Rock, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F10308

ATTACHMENT “D” –

BMPs FOR SURFACE STREAMS

There is no surface water, groundwater, or stormwater originating upgradient from the site that runs across the site. All upgradient stormwater is directed around the site.

ATTACHMENT “E” –

REQUEST TO SEAL FEATURES

We are not requesting to seal a feature.

ATTACHMENT "F" –
CONSTRUCTION PLANS

The constructions plans have been attached as part of this submittal. The design calculations, treatment summary, and specifications for the proposed Batch Detention Pond are attached directly behind this page.

Special Specification 7130

Batch Detention Pond



1. Description

Furnish, install, test, and make fully operational a Batch Detention Pond Control System as specified below or an engineer approved equal with appurtenances included hereafter at designated locations as shown on the plans. Approved equal equipment shall provide the same functionality and monitoring functions as the equipment specified below. Ensure the equipment, design, and construction use the latest available techniques with a minimum number of different parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality.

For each solar power system located at each project site submit electrical load calculations, structural load calculations, drawings, and details. Include the structural connection details for solar panels, control panel, and battery enclosure to poles. Structural calculations shall be sealed by a licensed structural engineer in the state of Texas. Provide equipment data sheets, details, and specifications.

2. Materials

Provide all materials necessary for the installation of a Detention Pond Control System. Provide materials that comply with the details shown on the plans, the requirements of this Item, and the pertinent requirements of the following items:

- Item 416, "Drilled Shaft Foundation"
- Item 421, "Hydraulic Cement Concrete"
- Item 440, "Reinforcement for Concrete"
- Item 442, "Metal for Structures"
- Item 445, "Galvanizing"
- Item 449, "Anchor Bolts"
- Item 465, "Junction Boxes, Manholes and Inlets"
- Item 618 "Conduit"
- Item 620, "Electrical Conductors"
- Item 624, "Ground Boxes"
- Item 687, "Pedestal Pole Assemblies"

3. Equipment

Provide labor, equipment and materials to employ solar-generated, battery-backed power for the assigned field equipment specified in the plans, or as directed. Install all equipment, including batteries and solar charge controller, in a suitably sized enclosure or enclosures.

Size the enclosure to house the solar controller, batteries, and lightning protection equipment. Furnish a solar powered system that supplies and maintains 100% continuous and intermittent electrical loads for up to 24 hr. per day with autonomy of 3.6 days. Provide system as described in the plans, and generally consisting of the following:

- Photovoltaic (PV) modules with mounts or racks, and mounting brackets for affixing the modules to a pole as shown on the plans. Two year manufacturer's material and workmanship and twelve year 90% minimum power output warranties. Provide adjustable tilt mounts that can be repositioned to an appropriate angle to maximize seasonal solar radiation.
- 12 VDC sealed, valve-regulated, absorbed glass mat (AGM), maintenance-free batteries
- One toggle-type power switch or overcurrent protection device for emergency shutoff, and external conduit, wiring cable and conductors (as recommended by the supplier) between the following:
 - Photovoltaic module to controller panel
 - Battery interconnect and batteries to controller panel, and wiring between components in cabinet.

Pre-set the equipment, optimize photovoltaic module direction, and configure hardware components to allow automatic operation. Furnish and install a fully operational assembly with all cabling and terminations matched to support the selected components. Use the component sizing chart, Table 1 shown below to size the individual components (PV modules, batteries, etc.) based on the planned electrical load and days autonomy:

	COUNT	VDC	UNIT POWER (W)	HOURS PER DAY	TOTAL POWER (W-hr)
In-Situ, Inc. LevelTROLL 500 (Measuring)	1	12	0.048	0.0003	0.0000144
In-Situ, Inc. LevelTROLL 500 (Sleep Mode)	1	12	0.00216	23.9997	0.052
ISCO Signature Base Meter	1	12	1.628	24	39.072
Remote Hand Station	1	24	0.72	24	17.280
Control Valve	1	24	360	.025	9.000
TOTAL					65.404

Table 1 Solar Power System Component Load Requirements

- 3.1. **PV Modules.** Supply and install the appropriate number and size of PV modules needed to meet the minimum power requirements shown in Table 1 or as required by the plans. Use photo voltaic USA (PVUSA) test conditions (PTC) ratings.

Supply industrial grade, mono-crystalline or poly-crystalline type solar modules. Consumer grade modules are not acceptable. Ensure that the PV modules meet the following minimum requirements:

- Minimum output voltage of 12 VDC.
- Minimum area efficiency rating of 9.4%.
- Include an ultraviolet (UV) resistant, Ingress Protection (IP) 65 rated junction box providing wire termination for 8-14 AWG wiring with the PV module.
- Hail impact resistance up to 1 in. diameter at 50 mi. per hr.
- UL 1703 listing.

Ensure PV modules, regardless of wattage size, shares common mounting holes for mounting so that a single mounting structure will accommodate the entire module line.

PV modules may be wired in "strings" of panels wired in series, which are then wired in parallel to other strings. Ensure that the open circuit voltage of any single string of PV modules does not exceed 127 V.

Construct PV modules with a tempered glass surface and an industrial grade anodized aluminum frame that completely surrounds and seals the module laminate. Ensure construction is consistent with the demands of installation near humid salt air environments.

Design and construct the photovoltaic module mounting assembly of galvanized steel (ASTM A-153 Class A) or aluminum. The mounting assembly must be of adequate design and strength to provide a means of securely attaching the PV module frame to a pole. Provide a mounting assembly capable of 360° horizontal orientation with a means of locking the bracket at an inscribed angular position about the pole. Ensure the mounting assembly is designed and installed to prevent module re-positioning during 110 mph wind conditions.

Label all PV modules with open-circuit voltage, operating (maximum power) voltage, maximum permissible voltage, operating (maximum power) current, short-circuit current, and maximum power.

Provide a warning label on all DC junction boxes warning that the active parts inside the boxes are fed by a PV array and may still be energized after isolation.

Mark each PV system disconnect as such. NEC 690.13(B).

- 3.2. **Solar Control Panel.** This panel shall contain the solar controller equipment, batteries, and block (plug) valve controls within the same or multiple enclosures. The enclosure or enclosures shall be pole-mounted, NEMA 3R, lockable, and 304 stainless steel construction. Provide a double flanged cabinet door opening. Provide cabinet with a Corbin style #2 lock with a keyhole cover as an integral part of the door and 2 keys. Provide cabinet with provisions to hold the door open at approximately 90° and 120° positions.

Provide louvers on each side of the cabinet to allow adequate cooling of the electronic components and to prevent the accumulation of gases. Provide screen vents that prevent entry of insects.

Provide an aluminum back panel in the lower compartment with a thickness of 0.125 in. Size the back panel to provide adequate space for the control electronics and terminal strips. Equip the cabinet with at least two shelves of a minimum thickness of 0.125 in, with a 1 in. x 3 in. cutout in the back of the shelves for cable run. Ensure that the shelves are capable of supporting design battery weight. Provide a rubber mat installed on each shelf that supports the batteries and two 1/8 in. drain holes located in the bottom of the cabinet at opposite corners. Provide a minimum of 2 in. of separation from the top of the battery posts to the bottom of the next shelf. Equip the cabinet with all necessary mounting equipment and hardware. Configure the cabinet for pole mounting using two aluminum "U" channel mounting brackets with stainless steel reinforcing plates on the inside of the cabinet. Include a 0.25 in. aluminum reinforcing plate mounted in the bottom of the cabinet. The supplier shall be Amerseco Solar as provided by C.C. Lynch & Associates, Inc., 1-800-333-2252, or engineer approved equal.

Solar Controller. The solar controller shall be capable of providing continuous 24 VDC power to the control valve and 12 VDC power to the LevelTROLL and Signature Base Station for the worst anticipated available daylight. The Controller shall be capable of operating in temperatures ranging from -40°C to 60°C and a humidity of 5% to 95% non-condensing. The Controller shall be a complete turn-key packaged system integrated by a single provider. The Controller supplier shall be regularly engaged in fabricating controllers of this type for a minimum of 5 years. The Contractor shall provide a list of Controller supplier(s) for approval. For calculating the daylight availability, the system design shall be based on the central Texas area with a useful minimum daily solar exposure of 4.19 hours.

- 3.3. **Batteries.** Provide maintenance free, spill proof, AGM batteries with the following minimum characteristics:

- 12 VDC,
- 80% allowable depth of discharge (DOD),

- rated for a minimum of 2,000 recharge cycles, and
- capacity rated at 77°F, 100 hr. discharge rate.

Supply appropriate number of batteries to ensure the minimum total amp-hours meets or exceeds the value in Table 1, as described in the plans, when wired in series. Label, with a UV resistant system, the battery bank with maximum operating voltage, equalization voltage, and polarity.

Arrange the system components so that all battery terminals are guarded and adequate working space is provided per (NEC) 690.71(B)(2) and (NEC)480.9.

Install current-limiting fuses on battery output circuits per (NEC) 690.71(C).

Provide overcurrent protection for the battery circuit conductors in conformance with (NEC) 690.9(A) and (NEC) 240.

Use battery interconnections with #4 AWG or larger flexible cables that are listed for hard-service use and are moisture resistant

- 3.4. **Control Valve Motor Operator Controller.** The control valve motor operator controller shall include timing and logic functions to control the basin plug valve based on sensing the presence of water in a pipe with an In-Situ, Inc. LevelTROLL 500 pressure transducer. The controller shall operate at 12VDC and shall include three wires that are internally connected to isolated relay contacts rated for 30 amps wired as a common, normally open, and normally closed. The controller shall poll the pressure transducer via MODBUS or SDI-12 at user selectable intervals and shall close the relay when water has been detected above a threshold for 12 hours. The pressure transducer shall be in "sleep mode" when not being polled in order to conserve power. The controller display shall be capable of a keypress timeout function in order to conserve power. The relay shall be opened when the water level detected by the pressure transducer drops below the threshold. The controller shall be capable of logging data internally which can be retrieved by USB thumb drive, laptop, cell modem, or Ethernet modem. The controller shall be model Teledyne ISCO Signature Base Station with a TIENet 304 Contact Output Card, and SPA 999 30 Amp alarm contacts. The pressure transducer shall be an In-Situ, Inc. LevelTROLL 500 (5 PSIG)). The LevelTROLL 500 shall be supplied with an NPT adapter and ISCO RuggedCable. Refer to plans for RuggedCable lengths.

The basin plug valve controls shall include the controls for the plug valve and the pressure transducer to detect water in the pipe. These controls shall contain, but not necessarily limited to, the control valve motor operator controller, relay box, terminal blocks, and control valve remote hand station. Configure controller to operate as diagrammed on the drawings.

- 3.5. **Remote Hand Station:** Provide a Remote Hand Station (RHS) to locally control the basin plug valve from solar control panel. The RHS shall be suitable for remote connection to an electric actuator up to 100m (330ft) distance, include local control facilities, a backlit LCD display and terminals for communication highway connection to the host actuator housed within a self-contained, double-sealed enclosure.

In order to maintain the integrity of the enclosure, setting of the actuator torque levels, position limits and configuration of the indication contacts etc. shall be carried out without the removal of any covers via a Bluetooth® wireless interface. Sufficient commissioning tools shall be provided with the actuators and must meet the enclosure protection and certification levels of the actuator and remote hand station. Commissioning tools shall not form an integral part of the actuator and must be removable for secure storage / authorized release. In addition, provision shall be made for the protection of configured actuator settings by a means independent of access to the commissioning tool. Provision shall be made to disable Bluetooth® communications or only allow a Bluetooth® connection initiated by an Infra-Red command for maximum security.

The RHS shall be suitable for indoor and outdoor use. The unit shall be capable of functioning in an ambient temperature ranging from -50°C (-58°F) to 70°C (158°F), up to 100% relative humidity. Actuators for

hazardous area applications shall meet the area classification, gas group and surface temperature requirements specified in data sheet.

RHS enclosure shall be O-ring sealed, watertight to IP66/IP68 7m for 72hrs, NEMA 4, 6. The internal electrical elements of the actuator shall be protected from ingress of moisture and dust when the terminal cover is removed for site for cabling, the terminal compartment having the same ingress protection rating as the actuator with the terminal cover removed. The RHS enclosure shall allow for temporary site storage without the need for electrical supply connection. All external fasteners shall be plated stainless steel. The use of un-plated stainless steel or steel fasteners is not permitted.

The RHS shall incorporate local controls for Open, Close and Stop and a Local/Stop/Remote mode selector switch lockable in any one of the following three positions: local control only, stop (no electrical operation), remote control plus local stop only. It shall be possible to select maintained or non-maintained local control. The local controls shall be arranged so that the direction of valve travel can be reversed without the necessity of stopping the actuator. Provision should be made to enable control arbitration between the RHS and the connected actuator. The local controls and display shall be rotatable through increments of 90 degrees to suit mounting orientation and access.

Power for the RHS shall be provided from the actuator and shall run in the same cable as the interconnecting communication. Independent power is not acceptable. Communication between the RHS and actuator should be based on a high-speed CAN bus technology.

The RHS display shall include a dedicated numeric/symbol digital position indicator displaying valve position from fully open to fully close in 0.1% increments. Valve closed and open positions shall be indicated by symbols showing valve position in relation to the pipework to ensure that valve status is clearly interpreted. With power connected, the display shall be backlit to enhance contrast at all ambient light levels and shall be legible from a distance of at least 5m (16ft). Red, green, and yellow LEDs corresponding to open, closed and intermediate valve positions shall be included on the RHS display when power is switched on. The yellow LED should also be fully programmable for on/off, blinker and fault indication. The RHS display shall include a fully configurable dot-matrix display element with a minimum pixel resolution of 168 x 132 to display operational, alarm, configuration and graphical datalogger information. The text display shall be selectable between English and other languages such as: Spanish, German, French, and Italian. Provision shall be made to upload a different language without removal of any covers or using specialized tools not provided as standard with the actuator. Datalogger graphical displays should as a minimum be able to display log and trend graphs on the local LCD for the following:

- Torque versus Position
- Number of Starts versus Position
- Number of starts per hour
- Average temperature

The display shall be capable of indicating 4 different home-screens of the following configuration:

- Position and status
- Position and torque (analogue)
- Position and torque (digital)
- Position and demand (positioning)

Provision shall be made for the addition of an optional environmental cover to protect the display from high levels of UV radiation or abrasive materials.

The local controls and display shall be rotatable through increments of 90 degrees to suit valve and actuator orientation. A vandal-proof cover should be available to prevent un-authorized operation and to protect the LCD and window from damage.

Facilities shall be provided for monitoring actuator operation and availability directly from the RHS. Actuator datalogger information shall be accessed via non-intrusive Bluetooth® communication via the RHS and data displayed on the LCD. Sufficient standard intrinsically safe tools shall be provided for downloading datalogger and actuator configuration files from the actuators and subsequent uploading to a PC. The actuator manufacturer shall supply PC software to enable datalogger files to be viewed and analyzed

A terminal compartment shall be provided to enable interconnecting cables to be terminated without the removal of the main electronics cover. The terminal compartment shall be separated from the inner electrical components of the actuator by means of a watertight seal. All wiring supplied as part of the RHS to be contained within the main enclosure for physical and environmental protection.

A durable anodized aluminum nameplate shall be affixed to the RHS housing and contain all relevant serial and approval information.

- 3.6. **Future Cellular Modem and Antenna.** Provide provisions in solar control panel system for a future cellular modem. The Modem shall be FCC approved and approved for CDMA networks such as Verizon. The modem shall be integral to the Teledyne ISCO Signature Base Station.
- 3.7. **End User Interface.** Provide provisions to allow for future offsite access and control of the Signature Base Station, at a minimum it shall be capable of remote access through cellular modem for online editing, email messaging via SMTP for statuses and alarms, remote monitoring and programming, and read/write data table access. In addition, the Signature Base Station shall have a MODBUS RS-485 output using ASCII or RTU transmission coding.
- 3.8. **Batch Detention Outlet Structure.** An outlet structure with dual hatch entry hatch for access shall be furnished and installed. The structure shall contain, but not necessarily limited to, 6" motor operated eccentric plug valve, 6" manual eccentric plug valve, connectors, pipe supports, pressure transducer, piping, conduit and a NEMA 4X junction box.
- 3.9. **Perforated Riser Column and Outlet Pipe with Trash Rack.** A perforated riser column shall be connected to an outlet pipe and installed with a trash rack as shown in the plans.
- 3.10. **Vertical Sediment Depth Marker.** A PVC pipe with wing channel post as shown in plans.
- 3.11. **Grounding.**

Ungrounded Systems. Include disconnects, overcurrent protection, and ground-fault protection. Provide equipment that is listed for use with ungrounded systems per NEC 690.35.

Module Grounding Connectivity. Provide module connections such that removal of a module does not interrupt a grounded conductor to another PV source circuit per NEC 620.49).

Ground-Fault Protection. Provide ground fault protection for grounded arrays per NEC 690.5.

PV System Grounding. Provide one grounded DC conductor for two-wire PV systems operating above 50 V per NEC 690.41.

Single Point. Provide DC grounding at a single point on the PV output circuit per NEC 690.42.

Equipment Grounding. Ground non-current-carrying metal components, including module frames, mounting structures, equipment, conduit, and boxes per NEC 690.43.

Equipment Grounding Conductors. Route equipment conductors with PV circuit conductors per NEC 690.43.

Equipment Grounding Conductor Size. If the array has ground fault protection, size the grounding conductor according to NEC 250.122. If not, size the grounding conductor to handle at least twice the derated circuit conductor ampacity per NEC 690.45.

Grounding Electrode Systems. Ground the AC system according to NEC 250.50 through 250.60. Ground the DC system according to NEC 250.166 through 250.169, and NEC 690.47.

Common Grounding. If the system includes both AC and DC systems, bond the grounding electrodes together. Size the bonding conductor for the larger of the AC and DC requirements per NEC 690.47(C).

- 3.12. **Disconnects.** Provide disconnects to disconnect equipment (batteries, solar controllers, etc.) from all ungrounded conductors of all power sources per NEC 690.15.

For fuses that are energized from both directions, provide disconnects to independently disconnect the fuse from all sources of power.

Provide disconnects to open all ungrounded conductors which are readily accessible, externally operated, have ON/OFF indications, and have appropriate interrupt ratings. Manually operated switches and circuit breakers are allowed to fulfill these requirements per NEC 690.17.

4. Construction

- 4.1. **Installation.** Provide equipment that utilizes the latest available techniques for design and construction with a minimum number of parts, subassemblies, and modules to maximize standardization and commonality.
- 4.2. **System Configuration.** Configure and fully integrate the equipment to provide a fully operational system.
- 4.3. **General.** Furnish and install all materials, including support, calibration and test equipment, to ensure an operating and functional solar power system. Install power and data cables, power grounding and lightning suppression systems. Prior to beginning installation, inspect each site to verify suitability of the design for installation, grounding and lightning protection. Provide written documentation to the Engineer for approval prior to installation.
- 4.4. Configure and setup the solar power system to assure connection and electric power delivery to the field equipment as indicated in the plans. Locate and mount all equipment as detailed in the plans and as directed by the Engineer.
- 4.5. **Wiring.** Provide wiring that meets the requirements of the NEC. Provide wires that are cut to proper length before assembly. Provide cable slacks to facilitate removal and replacement of assemblies, panels, and modules. It is not acceptable to “double-back” wire to take up slack. Lace wires neatly with nylon lacing or plastic straps. Secure cables with clamps. Provide service loops at connections.
- 4.6. Size all conductors for a de-rated ampacity of at least 125% of the maximum currents calculated. De-rating factors include high ambient temperatures and number of conductors run together within a conduit or cable, per NEC 690.8(B), 310.15(B) and 310.16. Single-conductor cables in sizes 16 AWG and 18 AWG are permitted for module interconnections if they meet the ampacity requirements.

- 4.7. Protect all conductors operating at more than 30 V and installed in readily accessible locations with conduit, per NEC 690.31(A).
- Provide conductors rated for 194°F (90°C) and wet service per NEC 690.31(B).
- Run PV source- and output-circuit conductors separately from conductors of other systems per NEC 690.31(B).
- Color code all wiring. Mark grounded conductors white or gray. Use green, green/yellow or bare grounding conductors, per NEC 310.12.
- Provide strain relief or conduit on all conductors per NEC 300.4.
- 4.8. **Poles.** Mount all PV units and cabinets on poles as shown on plans Provide poles as shown on plans for the height specified. Coordinate location of PV system pole with location of batch outlet structure. Ensure poles are located a maximum of 100m (330ft) from batch outlet structure.
- 4.9. **Testing.** Perform testing in accordance with, Special Specification 6005, "Testing, Training, Documentation, Final Acceptance, and Warranty. Test the system at the factory and in the field to assure proper function operation.

ATTACHMENT "G" –

INSPECTION, MAINTENANCE, REPAIR, & RETROFIT PLAN

Maintenance Plan and Schedule for Best Management Practices (Batch Detention)

Batch Detention:

Inspections:

Inspections should take place a minimum of twice a year. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. The remaining inspections should occur between storm events so that manual operation of the valve and controller can be verified. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. The outlet structure and the trash screen should be inspected for signs of clogging. Debris and sediment should be removed from the orifice and outlet(s) as described in previous sections. Debris obstructing the valve should be removed. During each inspection, erosion areas inside and downstream of this BMP should be identified and repaired/revegetated immediately.

Mowing:

The basin, basin side-slopes, and embankment of the basin must be mowed to prevent woody growth and control weeds. A mulching mower should be used, or the grass clippings should be caught and removed. Mowing should take place at least twice a year, or more frequently if vegetation exceeds 18 inches in height. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas.

Litter & Debris Removal:

Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin. Particular attention should be paid to floatable debris around the outlet structure. The outlet should be checked for possible clogging or obstructions and any debris removed.

Erosion control:

The basin side slopes and embankment all may periodically suffer from slumping and erosion. To correct these problems, corrective action, such as regrading and revegetation, may be necessary. Correction of erosion control should take place whenever required based on the periodic inspections.

Nuisance Control:

Standing water or soggy conditions may occur in the basin. Some standing water may occur after a storm event since the valve may close with 2 to 3 inches of water in the basin. Some flow into the basin may also occur between storms due to spring flow and residential water use that enters the storm sewer system. Twice a year, the facility should be evaluated in terms of nuisance control (insects, weeds, odors, algae, etc.).

Structural Repairs & Replacement:

With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced.

Sediment Removal:

A properly designed batch detention basin will accumulate quantities of sediment over time. The accumulated sediment can detract from the appearance of the facility and reduce the pollutant removal performance of the facility. The sediment also tends to accumulate near the outlet structure and can interfere with the level sensor operation. Sediment shall be removed from the basin at least every 5 years, when sediment depth exceeds 6 inches, when the sediment interferes with the level sensor or when the basin does not drain within 48 hours. Care should be taken not to compromise the basin lining during maintenance.

Logic Controller:

The Logic Controller should be inspected as part of the twice yearly investigations. Verify that the external indicators (active, cycle in progress) are operating properly by turning the controller off and on, and by initiating a cycle by triggering the level sensor in the basin. The valve should be manually opened and closed using the open/close switch to verify valve operation and to assist in inspecting the valve for debris. The solar panel should be inspected and any dust or debris on the panel should be carefully removed. The controller and all other circuitry and wiring should be inspected for signs of corrosion, damage from insects, water leaks, or other damage. At the end of the inspection, the controller should be reset.

Record Keeping:

During construction the project superintendent shall have a log for entering site inspections for all regular and rainfall events. Results of inspections, including damage and any recommended remedial action, shall be noted along with inspection personnel data and date of completion of any action. The log shall be made available for review by TCEQ, if requested. "Proper" disposal of accumulated silt shall be accomplished following TCEQ and Local Authority guidelines and specifications.

Responsible Party for Maintenance: Shahriar Khan
Berry Creek Townhomes, LLC
4229 N. FM 620, Box 101 Unit 336
Austin, Texas 78734

Signature of Responsible Party:



Printed Name of Responsible Party:

SHAHRIAR KHAN (MANAGER)



09/05/2025



Waeltz & Prete, Inc.
CIVIL ENGINEERS
211 n. a.w. grimes blvd.
Round Rock, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308

ATTACHMENT "H" –
PILOT-SCALE FIELD TESTING PLAN

Not applicable for this project. The BMP was designed using the "Complying with the Edwards Aquifer Rules: Technical Guidance for BMPs".

ATTACHMENT "I" –

MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

No surface streams are located on this project.

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

I Shahriar Khan,
Print Name
Manager
Title - Owner/President/Other
of Berry Creek Townhomes, LLC,
Corporation/Partnership/Entity Name
have authorized Antonio A. Prete, P.E.
Print Name of Agent/Engineer
of Waeltz & Prete, Inc.
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:

Shahriar Khan
Applicant's Signature

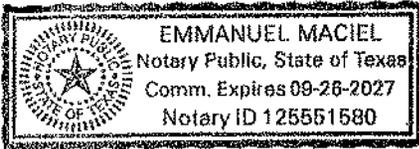
9/12/2025
Date

THE STATE OF Texas §

County of Harris §

BEFORE ME, the undersigned authority, on this day personally appeared Shahriar Khan 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 12 day of September, 2025



Emmanuel Maciel
NOTARY PUBLIC

Emmanuel maciel
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: SEPT 26, 2027

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Shell Road Office Warehouse

Regulated Entity Location: 3601 Shell Rd - Georgetown, Texas 78628

Name of Customer: Berry Creek Townhomes, LLC

Contact Person: Shahriar Khan

Phone: 641-781-1933

Customer Reference Number (if issued): CN _____

Regulated Entity Reference Number (if issued): RN _____

Austin Regional Office (3373)

Hays

Travis

Williamson

San Antonio Regional Office (3362)

Bexar

Medina

Uvalde

Comal

Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment.** This payment is being submitted to:

Austin Regional Office

San Antonio Regional Office

Mailed to: TCEQ - Cashier

Overnight Delivery to: TCEQ - Cashier

Revenues Section

Mail Code 214

P.O. Box 13088

Austin, TX 78711-3088

12100 Park 35 Circle

Building A, 3rd Floor

Austin, TX 78753

(512)239-0357

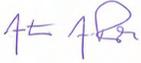
Site Location (Check All That Apply):

Recharge Zone

Contributing Zone

Transition Zone

<i>Type of Plan</i>	<i>Size</i>	<i>Fee Due</i>
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	\$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	10.001 Acres	\$ 6,500
Sewage Collection System	L.F.	\$
Lift Stations without sewer lines	Acres	\$
Underground or Aboveground Storage Tank Facility	Tanks	\$
Piping System(s)(only)	Each	\$
Exception	Each	\$
Extension of Time	Each	\$

Signature: 

Date: 09/04/2025

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

<i>Project</i>	<i>Project Area in Acres</i>	<i>Fee</i>
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, multi-family residential, schools, and other sites where regulated activities will occur)	< 1	\$3,000
	1 < 5	\$4,000
	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

<i>Project</i>	<i>Fee</i>
Exception Request	\$500

Extension of Time Requests

<i>Project</i>	<i>Fee</i>
Extension of Time Request	\$150



TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input checked="" type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Change in Regulated Entity Ownership	
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).			
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:	
Berry Creek Townhomes, LLC			
7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
11. Type of Customer:	<input type="checkbox"/> Corporation	<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Sole Proprietorship	<input type="checkbox"/> Other:	
12. Number of Employees		13. Independently Owned and Operated?	
<input checked="" type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following:			
<input checked="" type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Owner & Operator			
<input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> Voluntary Cleanup Applicant <input type="checkbox"/> Other:			
15. Mailing Address:	4229 N. FM 620, Box 101 Unit 336		
	City	Austin	State TX ZIP 78734 ZIP + 4
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
		shahriar@massive.capital	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	
(641) 781-1933		() -	

SECTION III: Regulated Entity Information

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

23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	3601 Shell Rd							
	City	Georgetown	State	TX	ZIP	78628	ZIP + 4	
24. County	Williamson							
Enter Physical Location Description if no street address is provided.								
25. Description to Physical Location:								
26. Nearest City	Georgetown				State	TX	Nearest ZIP Code	78628
27. Latitude (N) In Decimal:	30.719469			28. Longitude (W) In Decimal:	-97.679443			
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds			
30	43	10.089	-97	40	45.997			
29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)		32. Secondary NAICS Code (5 or 6 digits)				
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>								
34. Mailing Address:								
	City	Goergetown	State	TX	ZIP	78626	ZIP + 4	
35. E-Mail Address:	shahriar@massive.capital							
36. Telephone Number	37. Extension or Code			38. Fax Number <i>(if applicable)</i>				
(641) 781-1933				() -				

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

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

SECTION IV: Preparer Information

40. Name:	Antonio A. Prete, P.E.	41. Title:	President
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 505-8953		() -	tony@w-pinc.com

SECTION V: Authorized Signature

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

Company:	Waeltz & Prete, Inc.	Job Title:	President
Name <i>(In Print)</i> :	Antonio A. Prete, P.E.	Phone:	(512) 505-8953
Signature:		Date:	09/04/2025

SITE PLAN IMPROVEMENTS FOR: SHELL RD OFFICE WAREHOUSE

S11535 - SHELL WEST RESERVE, LOT 3, ACRES 10.001
3601 SHELL RD,
GEORGETOWN, TEXAS 78628

SEPTEMBER 2025

DESIGN PROFESSIONALS:

CIVIL ENGINEER/ APPLICANT: ARCHITECT:
ANTONIO A. PRETE, P.E. CHRISTOPHER CUASO
WAELTZ & PRETE, INC. CUASO DESIGN STUDIO
211 N. A.W. GRIMES, BLVD. 12600 HILL COUNTRY BLVD.
ROUND ROCK, TX 78665 SUITE R275
PH: (512) 505-8953 BEE CAVE, TX 78738
EMAIL: tony@w-pinc.com PH: (512) 348-8078
WEBSITE: w-pinc.com EMAIL: chris@cuasodesignstudio.com
WEBSITE: cuasodesignstudio.com

SITE DATA:

EXISTING ZONING: NO ZONING
PROPOSED USE: OFFICE/WAREHOUSE & RETAIL
DWELLINGS: 8 ~ INDUSTRIAL BUILDINGS
1 ~ RETAIL BUILDING
TOTAL OF 9 UNITS

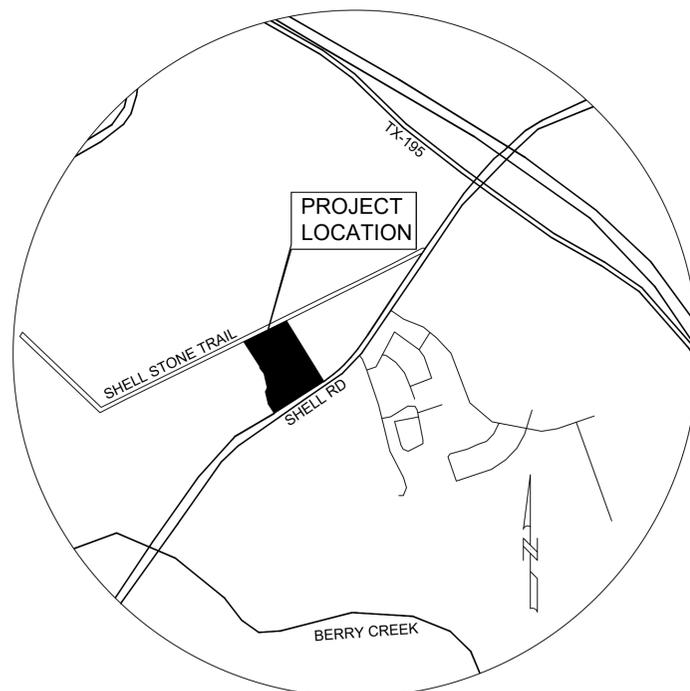
SITE AREA: 10.001 AC (±435,643 SF)
EX. IMPERVIOUS COVER: (0 SF) 0.00 AC (0.00%)
TOTAL IMPERVIOUS COVER POST PROJECT: (284,223 SF) ±6.52 AC (65.20%)
LIMITS OF CONSTRUCTION (441,892 SF): 10.1444 AC

UTILITY CONTACTS

UTILITY SERVICE	PROVIDER WEBSITE	PHONE NUMBER	ADDRESS
ELECTRIC	CITY OF GEORGETOWN georgetown.org	930-2572	300 INDUSTRIAL AVE. #1
WATER	CITY OF GEORGETOWN georgetown.org	930-2572	300 INDUSTRIAL AVE. #1

NOTES:

- THESE PLANS ARE NOT TO BE CONSIDERED FINAL FOR CONSTRUCTION UNTIL ACCEPTED BY THE CITY. CHANGES MAY BE REQUIRED PRIOR TO APPROVAL.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY, AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- THERE ARE NO AREAS WITHIN THE BOUNDARIES OF THIS PROPERTY IN THE 100 YEAR FLOODPLAIN AS DEFINED BY FIRM MAP NUMBER 48491C0285F, EFFECTIVE DATE OF DECEMBER 20, 2019.
- ANY HERITAGE TREE NOTED ON THIS SITE DEVELOPMENT PLAN IS SUBJECT, IN PERPETUITY, TO THE MAINTENANCE, CARE, PRUNING AND REMOVAL REQUIREMENTS OF THE UNIFIED DEVELOPMENT CODE.
- THE COGT GENERAL SITE DEVELOPMENT PLAN NOTES HAVE BEEN INCLUDED IN SHEET C-2.



LOCATION MAP
SCALE: 1" = 1000'



SHEET INDEX

SHT. No.	DESCRIPTION	SHT. No.	DESCRIPTION
C-1	COVER SHEET	C-33	DETENTION POND PLAN
C-2	GEN-NOTES	C-34	DETENTION POND DETAILS (1 OF 3)
C-3	PLAT (1 OF 2)	C-35	DETENTION POND DETAILS (2 OF 3)
C-4	PLAT (2 OF 2)	C-36	DETENTION POND DETAILS (3 OF 3)
C-5	EXISTING CONDITIONS & DEMOLITION PLAN	C-37	ESC DETAILS (1 OF 2)
C-6	SITE & DIMENSIONAL CONTROL PLAN	C-38	ESC DETAILS (2 OF 2)
C-7	ESC & TREE PROTECTION PLAN	C-39	SITE DETAILS (1 OF 3)
C-8	OVERALL GRADING PLAN	C-40	SITE DETAILS (2 OF 3)
C-9	GRADING PLAN (1 OF 4)	C-41	SITE DETAILS (3 OF 3)
C-10	GRADING PLAN (2 OF 4)	C-42	WATER DETAILS (1 OF 3)
C-11	GRADING PLAN (3 OF 4)	C-43	WATER DETAILS (2 OF 3)
C-12	GRADING PLAN (4 OF 4)	C-44	WATER DETAILS (3 OF 3)
C-13	OVERALL UTILITY PLAN	C-45	WASTEWATER DETAILS (1 OF 2)
C-14	WATER PLAN (1 OF 4)	C-46	WASTEWATER DETAILS (2 OF 2)
C-15	WATER PLAN (2 OF 4)	C-47	STORM SEWER DETAILS
C-16	WATER PLAN (3 OF 4)	C-48	TXDOT DRAINAGE STANDARD
C-17	WATER PLAN (4 OF 4)	C-49	TRAFFIC CONTROL PLAN
C-18	WASTEWATER PROFILE (1 OF 3)	C-50-61	TRAFFIC CONTROL STANDARDS
C-19	WASTEWATER PROFILE (2 OF 3)	C-62	METAL BEAM GUARD FENCE DETAIL
C-20	WASTEWATER PROFILE (3 OF 3)	C-63	METAL BEAM GUARD FENCE (MOW STRIP) DETAIL
C-21	STORM SEWER PLAN		
C-22	STORM SEWER PROFILE (1 OF 7)		
C-23	STORM SEWER PROFILE (2 OF 7)		
C-24	STORM SEWER PROFILE (3 OF 7)		
C-25	STORM SEWER PROFILE (4 OF 7)		
C-26	STORM SEWER PROFILE (5 OF 7)		
C-27	STORM SEWER PROFILE (6 OF 7)		
C-28	STORM SEWER PROFILE (7 OF 7)		
C-29	STORM SEWER CALCULATIONS		
C-30	EXISTING & PROPOSED DRAINAGE AREA MAP		
C-31	ON-SITE DRAINAGE AREA MAP		
C-32	PAVING, SIGNAGE, & STRIPING PLAN		

STATE OF TEXAS

COUNTY OF WILLIAMSON

I, ANTONIO A. PRETE, P.E., DO HEREBY CERTIFY THAT THE PUBLIC WORKS AND DRAINAGE IMPROVEMENTS DESCRIBED HEREIN HAVE BEEN DESIGNED IN COMPLIANCE WITH THE SUBDIVISION AND BUILDING REGULATION ORDINANCES AND STORMWATER DRAINAGE POLICY ADOPTED BY THE CITY OF GEORGETOWN, TEXAS.



ANTONIO A. PRETE, P.E.
STATE OF TEXAS #93759

05 Sept 25

DATE

JOB NO.: 213-001

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN ACCEPTING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

ACCEPTED FOR CONSTRUCTION:
CERTIFICATE OF COMPLIANCE NO.: XXXX-XXXX-COC

WILLIAMSON COUNTY - ESD #8 DATE

REVIEWED FOR COMPLIANCE WITH COUNTY REQUIREMENTS (EWCSR 2021B):

WILLIAMSON COUNTY - COUNTY REQUIREMENTS DATE

OWNER:

BERRY CREEK TOWNHOMES LLC
4229 N. FM 620 BOX 101 #UNIT 336
AUSTIN, TEXAS 78734
CONTACT: SHAHRIAR KHAN
PH: (641) 781-1933
EMAIL: shariar@massive.capital

ENGINEER:



WAELTZ & PRETE, INC.
CIVIL ENGINEERS
211 N.A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308

REVISIONS:

No.	Date	Revision	ACC.	DATE
		9/5/2025		
		100% SUBMITTAL FOR REVIEW ONLY		
		NOT FOR CONSTRUCTION		



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



10/27/25
05 Sept 25

PROJECT:

SHELL RD. OFFICE
WAREHOUSE

3601 SHELL RD
GEORGETOWN, TX

CLIENT:

BERRY CREEK
TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
DRAWN: GNV DATE: 9/5/25

NO.	DATE	REVISIONS
		9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE:

PLAT (1 OF 2)

WP PROJECT NO.:

213-001

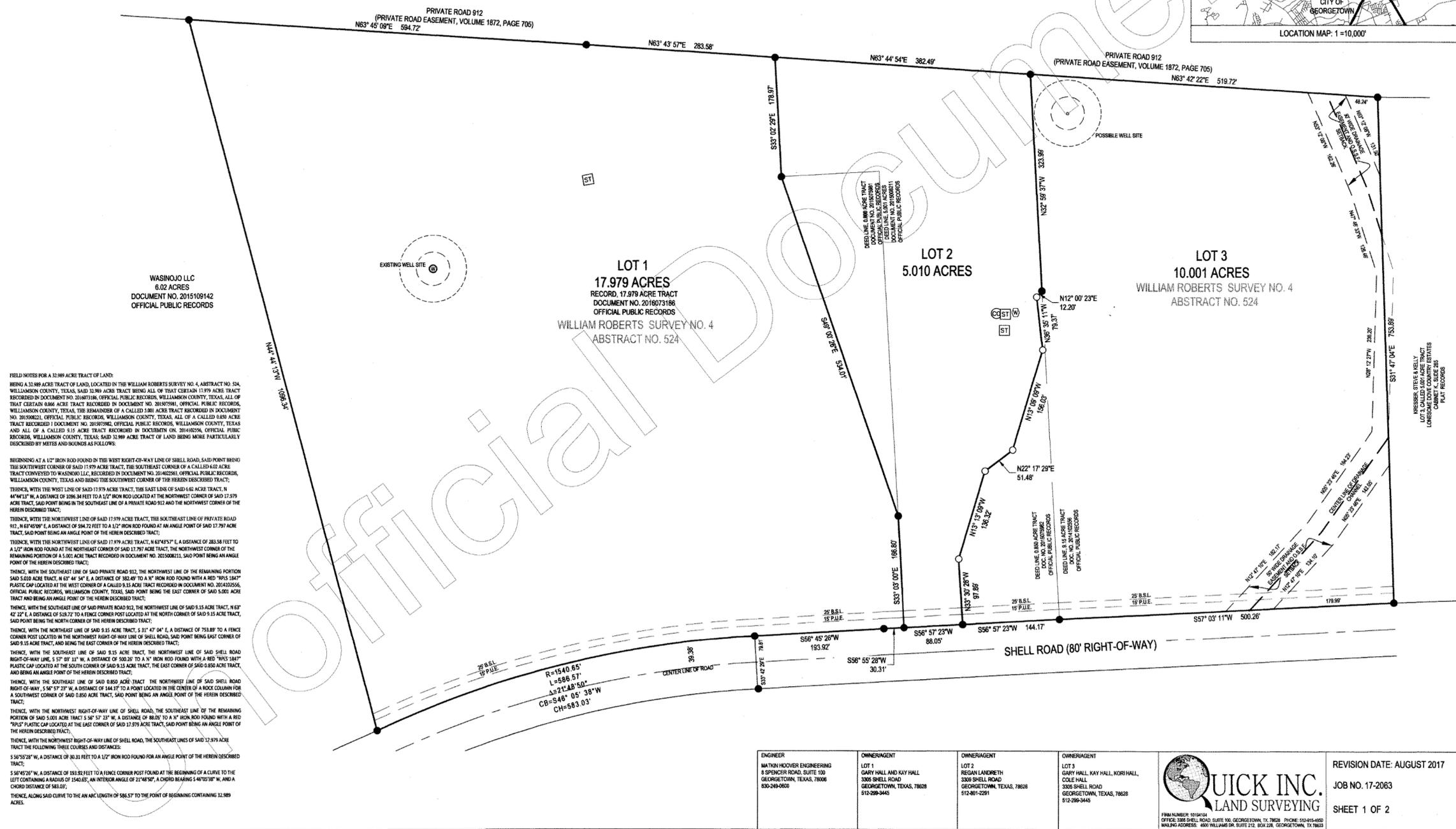
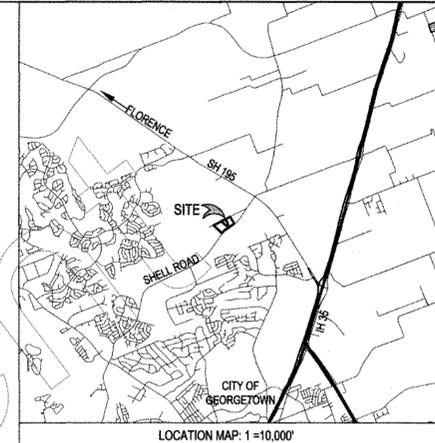
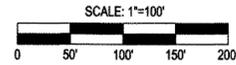
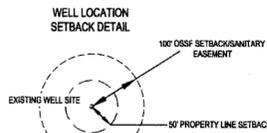
SHEET NO.:

C-3

FINAL PLAT SHELL WEST RESERVE

BEING A 32.989 ACRE TRACT OF LAND, LOCATED IN THE WILLIAM ROBERTS SURVEY NO. 4, ABSTRACT NO. 524, WILLIAMSON COUNTY, TEXAS, SAID 32.989 ACRE TRACT BEING ALL OF THAT CERTAIN 17.979 ACRE TRACT RECORDED IN DOCUMENT NO. 2016073186, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF THAT CERTAIN 0.866 ACRE TRACT RECORDED IN DOCUMENT NO. 2015075981, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, THE REMAINDER OF A CALLED 5.001 ACRE TRACT RECORDED IN DOCUMENT NO. 2015008221, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF A CALLED 0.850 ACRE TRACT RECORDED I DOCUMENT NO. 2015075982, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS AND ALL OF A CALLED 9.15 ACRE TRACT RECORDED IN DOCUMENT NO. 2014102556, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS; SAID 32.989 ACRE TRACT OF LAND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

NOTES:
1) FIELD WORK PERFORMED ON: APRIL 2017
2) BASIS OF BEARING: NAD 83, TEXAS CENTRAL ZONE, STATE PLANNED
3) THIS SURVEY WAS DONE WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT, THEREFORE ALL SETBACKS, EASEMENTS, ENCUMBRANCES AND RESTRICTIONS MAY NOT BE SHOWN HEREON. THE SURVEYOR DID NOT COMPLETE AN ABSTRACT OF TITLE.
FEMA FLOOD ACCORDING TO THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR WILLIAMSON COUNTY, TEXAS, MAP NUMBER 48481C028E, EFFECTIVE DATE SEPTEMBER 26, 2008, THIS PROPERTY LIES IN ZONE X, WHICH IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN. THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP IS FOR USE IN ADMINISTERING THE NATIONAL FLOOD INSURANCE PROGRAM. IT DOES NOT NECESSARILY IDENTIFY ALL AREAS SUBJECT TO FLOODING, PARTICULARLY FROM LOCAL DRAINAGE SOURCES OF SMALL SIZE, OR ALL PLANIMETRIC FEATURES OUTSIDE SPECIAL FLOOD HAZARD AREAS. THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY AND/OR STRUCTURES LOCATED THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. THE FLOOD HAZARD AREA IS SUBJECT TO CHANGE AS DETAILED STUDIES OCCUR AND/OR WATERSHED OR CHANNEL CONDITIONS CHANGE. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.



FIELD NOTES FOR A 32.989 ACRE TRACT OF LAND:
BEING A 32.989 ACRE TRACT OF LAND, LOCATED IN THE WILLIAM ROBERTS SURVEY NO. 4, ABSTRACT NO. 524, WILLIAMSON COUNTY, TEXAS, SAID 32.989 ACRE TRACT BEING ALL OF THAT CERTAIN 17.979 ACRE TRACT RECORDED IN DOCUMENT NO. 2016073186, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF THAT CERTAIN 0.866 ACRE TRACT RECORDED IN DOCUMENT NO. 2015075981, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, THE REMAINDER OF A CALLED 5.001 ACRE TRACT RECORDED IN DOCUMENT NO. 2015008221, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, ALL OF A CALLED 0.850 ACRE TRACT RECORDED I DOCUMENT NO. 2015075982, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS AND ALL OF A CALLED 9.15 ACRE TRACT RECORDED IN DOCUMENT NO. 2014102556, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS; SAID 32.989 ACRE TRACT OF LAND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:
BEGINNING AT A 1/2" IRON ROD FOUND IN THE WEST RIGHT-OF-WAY LINE OF SHELL ROAD, SAID POINT BEING THE SOUTHWEST CORNER OF SAID 17.979 ACRE TRACT, THE SOUTHWEST CORNER OF A CALLED 6.02 ACRE TRACT CONVEYED TO WASHINGTON LLC, RECORDED IN DOCUMENT NO. 2014020556, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS AND BEING THE SOUTHWEST CORNER OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE WEST LINE OF SAID 17.979 ACRE TRACT, THE EAST LINE OF SAID 6.02 ACRE TRACT, N 44°41'11" W, A DISTANCE OF 2096.34 FEET TO A 1/2" IRON ROD FOUND AT THE NORTHWEST CORNER OF SAID 17.979 ACRE TRACT, SAID POINT BEING THE SOUTHWEST CORNER OF A PRIVATE ROAD 912 AND THE NORTHWEST CORNER OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE NORTHWEST LINE OF SAID 17.979 ACRE TRACT, THE SOUTHWEST LINE OF PRIVATE ROAD 912, N 63°45'09" E, A DISTANCE OF 594.72 FEET TO A 1/2" IRON ROD FOUND AT AN ANGLE POINT OF SAID 17.979 ACRE TRACT, SAID POINT BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE NORTHWEST LINE OF SAID 17.979 ACRE TRACT, N 67°49'57" E, A DISTANCE OF 283.58 FEET TO A 1/2" IRON ROD FOUND AT THE NORTHEAST CORNER OF SAID 17.979 ACRE TRACT, THE NORTHWEST CORNER OF THE REMAINING PORTION OF A 5.001 ACRE TRACT RECORDED IN DOCUMENT NO. 2015008221, SAID POINT BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE SOUTHWEST LINE OF SAID PRIVATE ROAD 912, THE NORTHWEST LINE OF THE REMAINING PORTION SAID 5.001 ACRE TRACT, N 63°45'09" E, A DISTANCE OF 382.49 TO A 1/2" IRON ROD FOUND WITH A RED "9015 1847" PLASTIC CAP LOCATED AT THE WEST CORNER OF A CALLED 9.15 ACRE TRACT RECORDED IN DOCUMENT NO. 2014102556, OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS, SAID POINT BEING THE EAST CORNER OF SAID 5.001 ACRE TRACT AND BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE SOUTHWEST LINE OF SAID PRIVATE ROAD 912, THE NORTHWEST LINE OF SAID 9.15 ACRE TRACT, N 63°45'09" E, A DISTANCE OF 528.72 TO A FENCE CORNER POST LOCATED AT THE NORTH CORNER OF SAID 9.15 ACRE TRACT, SAID POINT BEING THE NORTH CORNER OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE NORTHEAST LINE OF SAID 9.15 ACRE TRACT, S 31°47'04" E, A DISTANCE OF 753.89 TO A FENCE CORNER POST LOCATED IN THE NORTHWEST RIGHT-OF-WAY LINE OF SHELL ROAD, SAID POINT BEING EAST CORNER OF SAID 9.15 ACRE TRACT, AND BEING THE EAST CORNER OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE SOUTHWEST LINE OF SAID 9.15 ACRE TRACT, THE NORTHWEST LINE OF SAID SHELL ROAD RIGHT-OF-WAY LINE, S 57°08'11" W, A DISTANCE OF 500.26 TO A 1/2" IRON ROD FOUND WITH A RED "9015 1847" PLASTIC CAP LOCATED AT THE SOUTH CORNER OF SAID 9.15 ACRE TRACT, THE EAST CORNER OF SAID 9.15 ACRE TRACT, AND BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE SOUTHWEST LINE OF SAID 0.850 ACRE TRACT, THE NORTHWEST LINE OF SAID SHELL ROAD RIGHT-OF-WAY LINE, S 57°08'11" W, A DISTANCE OF 144.17 TO A POINT LOCATED IN THE CENTER OF A ROCK COLUMN FOR A SOUTHWEST CORNER OF SAID 0.850 ACRE TRACT, SAID POINT BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE NORTHWEST RIGHT-OF-WAY LINE OF SHELL ROAD, THE SOUTHWEST LINE OF THE REMAINING PORTION OF SAID 5.001 ACRE TRACT, S 67°21'21" W, A DISTANCE OF 80.22 TO A 1/2" IRON ROD FOUND WITH A RED "9015 1847" PLASTIC CAP LOCATED AT THE SOUTH CORNER OF SAID 5.001 ACRE TRACT, SAID POINT BEING AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
THENCE, WITH THE NORTHWEST RIGHT-OF-WAY LINE OF SHELL ROAD, THE SOUTHWEST LINE OF SAID 17.979 ACRE TRACT, THE FOLLOWING THREE COURSES AND DISTANCES:
S 53°52'28" W, A DISTANCE OF 30.31 FEET TO A 1/2" IRON ROD FOUND FOR AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
S 56°42'29" E, A DISTANCE OF 178.97 FEET TO A 1/2" IRON ROD FOUND FOR AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
S 56°57'23" W, A DISTANCE OF 88.05 FEET TO A 1/2" IRON ROD FOUND FOR AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
S 56°57'23" W, A DISTANCE OF 144.17 FEET TO A 1/2" IRON ROD FOUND FOR AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
S 57°03'11" W, A DISTANCE OF 500.26 FEET TO A 1/2" IRON ROD FOUND FOR AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;
S 57°08'11" W, A DISTANCE OF 500.26 FEET TO A FENCE CORNER POST FOUND AT THE BEGINNING OF A CURVE TO THE LEFT CONTAINING A RADIUS OF 1540.65', AN INTERIOR ANGLE OF 21°48'50", A CHORD BEARING S 49°05'38" W, AND A CHORD DISTANCE OF 583.03';
THENCE, ALONG SAID CURVE TO THE AN ARC LENGTH OF 586.57 TO THE POINT OF BEGINNING CONTAINING 32.989 ACRES.

ENGINEER	OWNER/AGENT	OWNER/AGENT	OWNER/AGENT
MATIN HOOPER ENGINEERING 8 SPENCER ROAD, SUITE 100 GEORGETOWN, TEXAS, 78608 850-249-6000	LOT 1 GARY HALL AND KAY HALL 3305 SHELL ROAD GEORGETOWN, TEXAS, 78628 912-299-3445	LOT 2 REGAN LANDRETH 3305 SHELL ROAD GEORGETOWN, TEXAS, 78628 912-801-2291	LOT 3 GARY HALL, KAY HALL, KORI HALL, COLE HALL 3305 SHELL ROAD GEORGETOWN, TEXAS, 78628 912-299-3445

QUICK INC.
LAND SURVEYING
FIRM NUMBER: 1019104
OFFICE: 3305 SHELL ROAD, SUITE 100, GEORGETOWN, TX, 78608 PHONE: 850-249-6000
MAILING ADDRESS: 4600 WILLIAMS DR. SUITE 212, BOX 228, GEORGETOWN, TX 78633

REVISION DATE: AUGUST 2017
JOB NO. 17-2063
SHEET 1 OF 2



WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25

PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

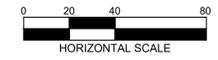
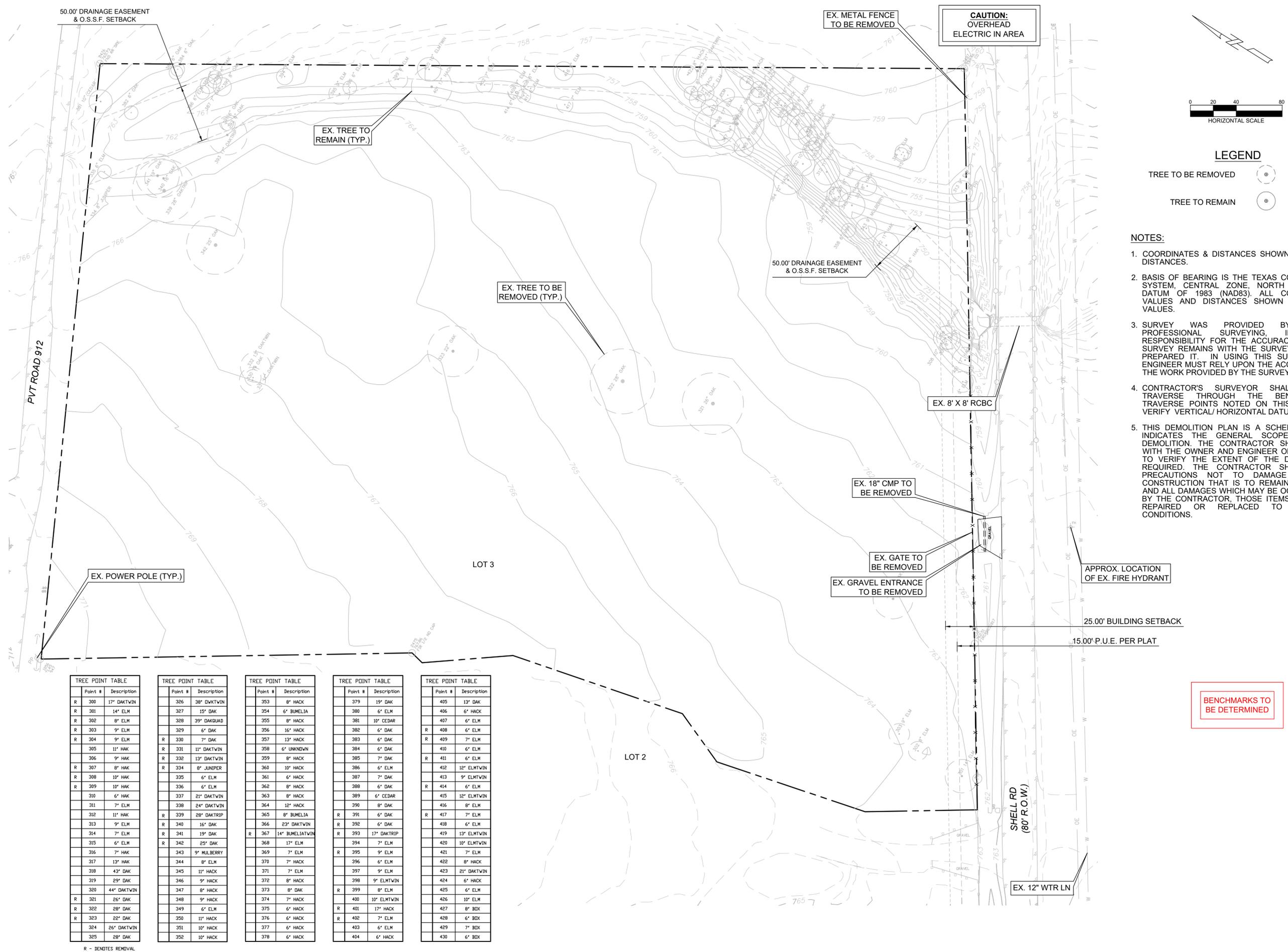
DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.
9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

WP PROJECT NO.:
213-001

SHEET NO.:
C-5



- LEGEND**
- TREE TO BE REMOVED (Symbol: circle with a dot)
 - TREE TO REMAIN (Symbol: circle with a dot)

- NOTES:**
- COORDINATES & DISTANCES SHOWN ARE GRID DISTANCES.
 - BASIS OF BEARING IS THE TEXAS COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83). ALL COORDINATE VALUES AND DISTANCES SHOWN ARE GRID VALUES.
 - SURVEY WAS PROVIDED BY TEXAS PROFESSIONAL SURVEYING, INC. ALL RESPONSIBILITY FOR THE ACCURACY OF THIS SURVEY REMAINS WITH THE SURVEYORS WHO PREPARED IT. IN USING THIS SURVEY, THE ENGINEER MUST RELY UPON THE ACCURACY OF THE WORK PROVIDED BY THE SURVEYOR.
 - CONTRACTOR'S SURVEYOR SHALL LEVEL/TRaverse THROUGH THE BENCHMARKS/TRaverse POINTS NOTED ON THIS PLAN TO VERIFY VERTICAL/HORIZONTAL DATUM.
 - THIS DEMOLITION PLAN IS A SCHEMATIC AND INDICATES THE GENERAL SCOPE OF THE DEMOLITION. THE CONTRACTOR SHALL MEET WITH THE OWNER AND ENGINEER ON THE SITE TO VERIFY THE EXTENT OF THE DEMOLITION REQUIRED. THE CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO DAMAGE EXISTING CONSTRUCTION THAT IS TO REMAIN. FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR, THOSE ITEMS SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITIONS.

Point #	Description
R 300	17" DAKTWIN
R 301	14" ELM
R 302	8" ELM
R 303	9" ELM
R 304	9" ELM
R 305	11" HAK
R 306	9" HAK
R 307	8" HAK
R 308	10" HAK
R 309	10" HAK
R 310	6" HAK
R 311	7" ELM
R 312	11" HAK
R 313	9" ELM
R 314	7" ELM
R 315	6" ELM
R 316	7" HAK
R 317	13" HAK
R 318	43" DAK
R 319	29" DAK
R 320	44" DAKTWIN
R 321	26" DAK
R 322	28" DAK
R 323	22" DAK
R 324	26" DAKTWIN
R 325	28" DAK

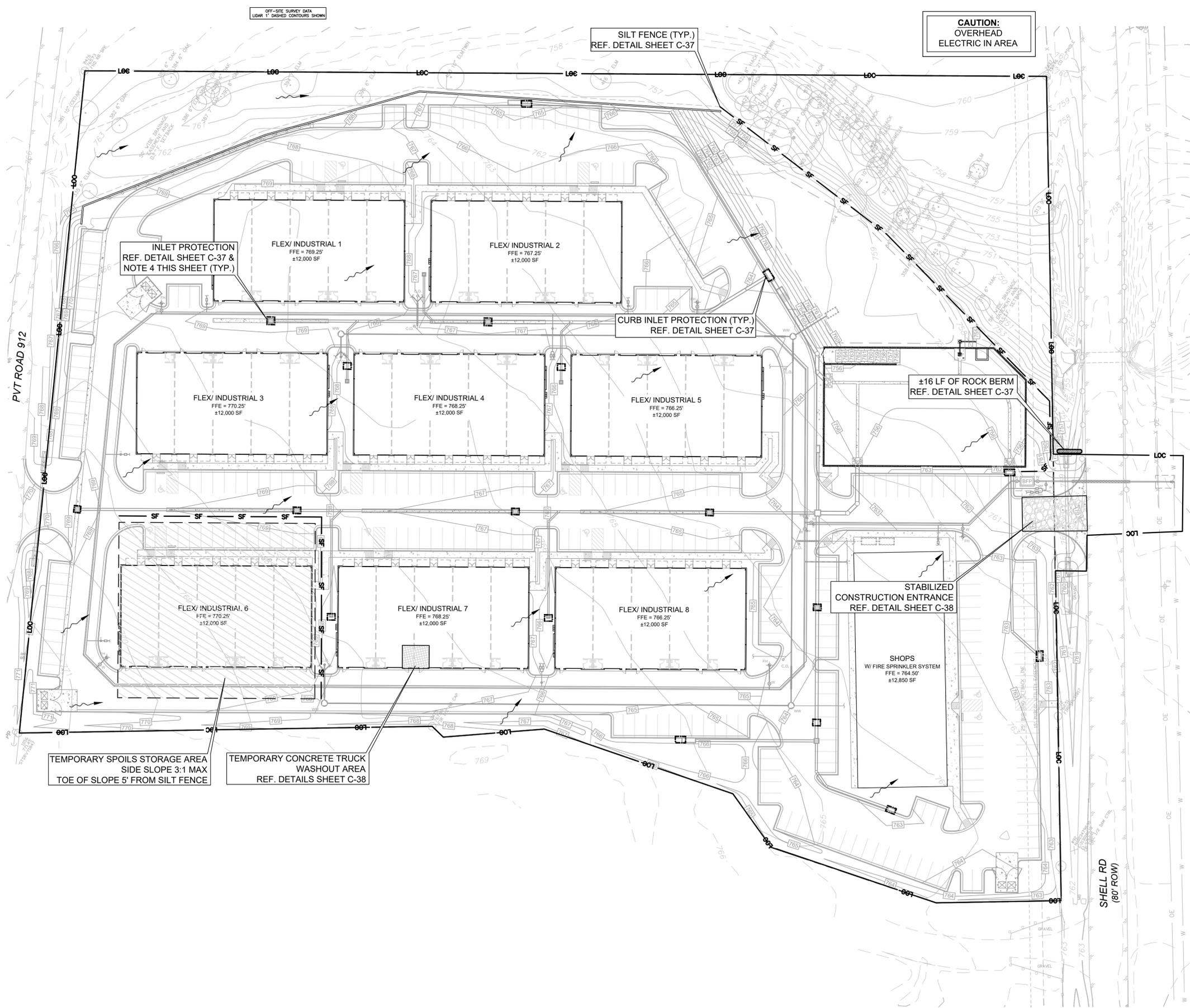
Point #	Description
R 326	38" DAKTWIN
R 327	15" DAK
R 328	39" DAKQUAD
R 329	6" DAK
R 330	7" DAK
R 331	11" DAKTWIN
R 332	13" DAKTWIN
R 333	8" JUNIPER
R 334	6" ELM
R 335	6" ELM
R 336	6" ELM
R 337	21" DAKTWIN
R 338	24" DAKTWIN
R 339	28" DAKTRIP
R 340	16" DAK
R 341	19" DAK
R 342	25" DAK
R 343	9" MULBERRY
R 344	8" ELM
R 345	11" HAK
R 346	9" HAK
R 347	8" HAK
R 348	9" HAK
R 349	6" ELM
R 350	11" HAK
R 351	10" HAK
R 352	10" HAK

Point #	Description
R 353	8" HACK
R 354	6" BUMELIA
R 355	8" HACK
R 356	16" HACK
R 357	13" HACK
R 358	6" UNKNOWN
R 359	8" HACK
R 360	10" HACK
R 361	6" HACK
R 362	8" HACK
R 363	8" HACK
R 364	12" HACK
R 365	8" BUMELIA
R 366	23" DAKTWIN
R 367	14" BUMELIA/TWIN
R 368	17" ELM
R 369	7" ELM
R 370	7" HACK
R 371	7" ELM
R 372	8" HACK
R 373	8" DAK
R 374	7" HACK
R 375	6" HACK
R 376	6" HACK
R 377	6" HACK
R 378	6" HACK

Point #	Description
R 379	19" DAK
R 380	6" ELM
R 381	10" CEDAR
R 382	6" DAK
R 383	6" DAK
R 384	6" ELM
R 385	7" DAK
R 386	6" ELM
R 387	7" DAK
R 388	6" DAK
R 389	6" CEDAR
R 390	8" DAK
R 391	6" DAK
R 392	6" DAK
R 393	17" DAKTRIP
R 394	7" ELM
R 395	9" ELM
R 396	6" ELM
R 397	9" ELM
R 398	9" ELMTWIN
R 399	8" ELM
R 400	10" ELMTWIN
R 401	17" HACK
R 402	7" ELM
R 403	6" ELM
R 404	6" HACK

Point #	Description
R 405	13" DAK
R 406	6" HACK
R 407	6" ELM
R 408	6" ELM
R 409	7" ELM
R 410	6" ELM
R 411	6" ELM
R 412	12" ELMTWIN
R 413	9" ELMTWIN
R 414	6" ELM
R 415	12" ELMTWIN
R 416	8" ELM
R 417	7" ELM
R 418	6" ELM
R 419	13" ELMTWIN
R 420	10" ELMTWIN
R 421	7" ELM
R 422	8" HACK
R 423	21" DAKTWIN
R 424	6" HACK
R 425	6" ELM
R 426	10" ELM
R 427	8" BOX
R 428	6" BOX
R 429	7" BOX
R 430	6" BOX

R - DENOTES REMOVAL



WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

NO.	DATE	REVISIONS
	9/5/2025	100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION



- LEGEND**
- SILT FENCE — SF —
 - TREE PROTECTION — TP — TP —
 - LIMITS OF CONSTRUCTION — LOC —
 - STABILIZED CONSTRUCTION ENTRANCE [Pattern]
 - TEMPORARY ROCK BERM [Pattern]
 - INLET PROTECTION [Symbol]
 - EROSION CONTROL BLANKET [Pattern]
 - DRAINAGE FLOW PATH [Arrow]

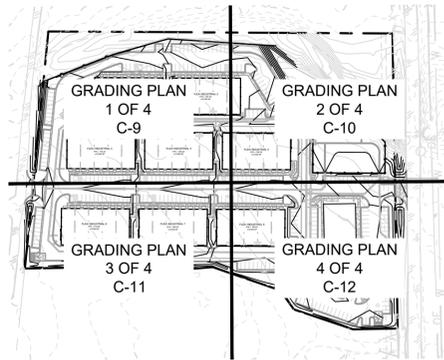
- NOTES:**
- ANY DIRT, MUD, DEBRIS, ETC., SPILLED TRACKED OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES, AND AREAS USED BY THE PUBLIC, SHALL BE IMMEDIATELY CLEANED UP.
 - THE CONTRACTOR MAY SUBMIT AN ALTERNATE PLAN FOR THE LOCATION OF THE STAGING & SPOILS AREA AND/OR THE CONCRETE TRUCK WASH OUT AREA.
 - ALL DISTURBED AREAS SHALL BE REVEGETATED.
 - POST THE INSTALLATION OF PROPOSED INLETS, INLET PROTECTION SHALL BE INSTALLED AS SOON AS PRACTICABLE.
 - THE CONTRACTOR SHALL BE REQUIRED TO COMPLY, MAINTAIN, REVISE, AND UPDATE THE PROJECT STORM WATER PREVENTION POLLUTION PLAN (SWPPP), AS REQUIRED IN ACCORDANCE WITH THE GENERAL PERMIT TXR 150000.

SHEET TITLE:
ESC & TREE PROTECTION PLAN

WP PROJECT NO.:
 213-001

SHEET NO.:
C-7

K:\CAD\213-001-Shell Road Office Warehouse\CAD\PLANS\213-001 ESC & TPP.dwg, Layout, 9/5/2025 4:36:54 PM, DWG To PDF.pc3, 1:1, GNV



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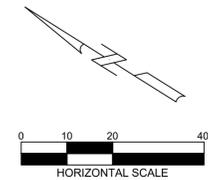
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LIDAR 1' DASHED CONTOURS SHOWN

LEGEND

DELINEATES ACCESSIBLE ROUTE

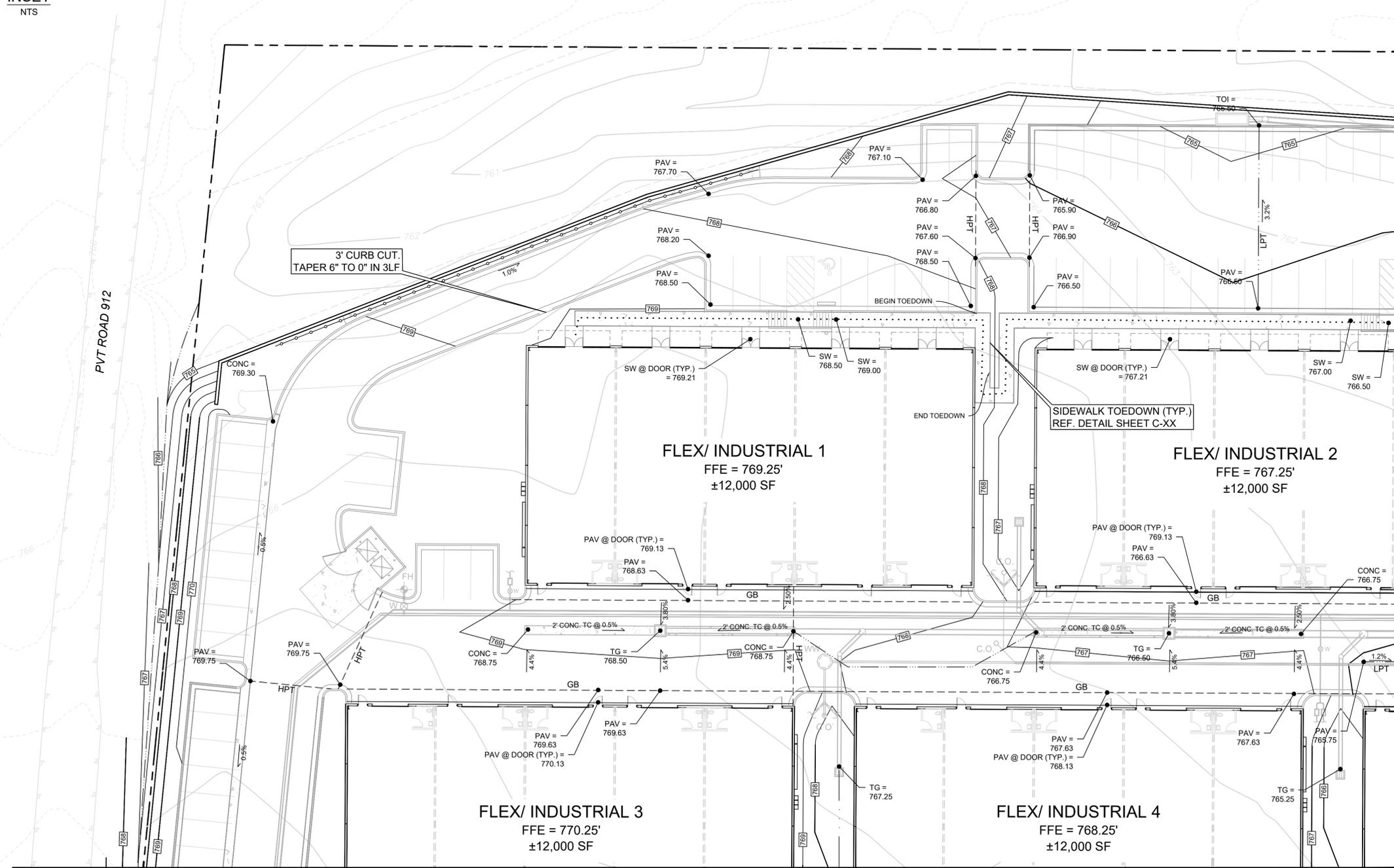
NOTES:

1. THE ACCESSIBLE ROUTE SHALL NOT EXCEED 2% CROSS SLOPE NOR 5% RUNNING SLOPE WITH THE EXCEPTION OF CURB RAMP, WHICH SHALL NOT EXCEED 2% CROSS SLOPE NOR 8.33% RUNNING SLOPE.



PVT ROAD 912

MATCHLINE REF. SHEET C-10



MATCHLINE REF. SHEET C-11



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25

PROJECT:

**SHELL RD. OFFICE
WAREHOUSE**

3601 SHELL RD
GEORGETOWN, TX

CLIENT:

**BERRY CREEK
TOWNHOMES, LLC**

DESIGNED: AAP APPROVED: AAP
DRAWN: GNV DATE: 9/5/25

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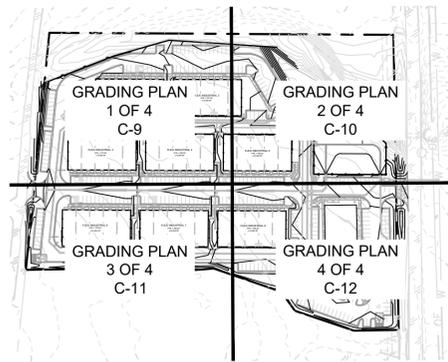
SHEET TITLE:

**GRADING PLAN
(1 OF 4)**

WP PROJECT NO.:
213-001

SHEET NO.:

C-9



INSET
NTS

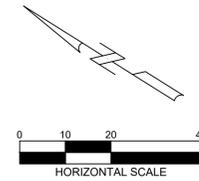
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LEGEND

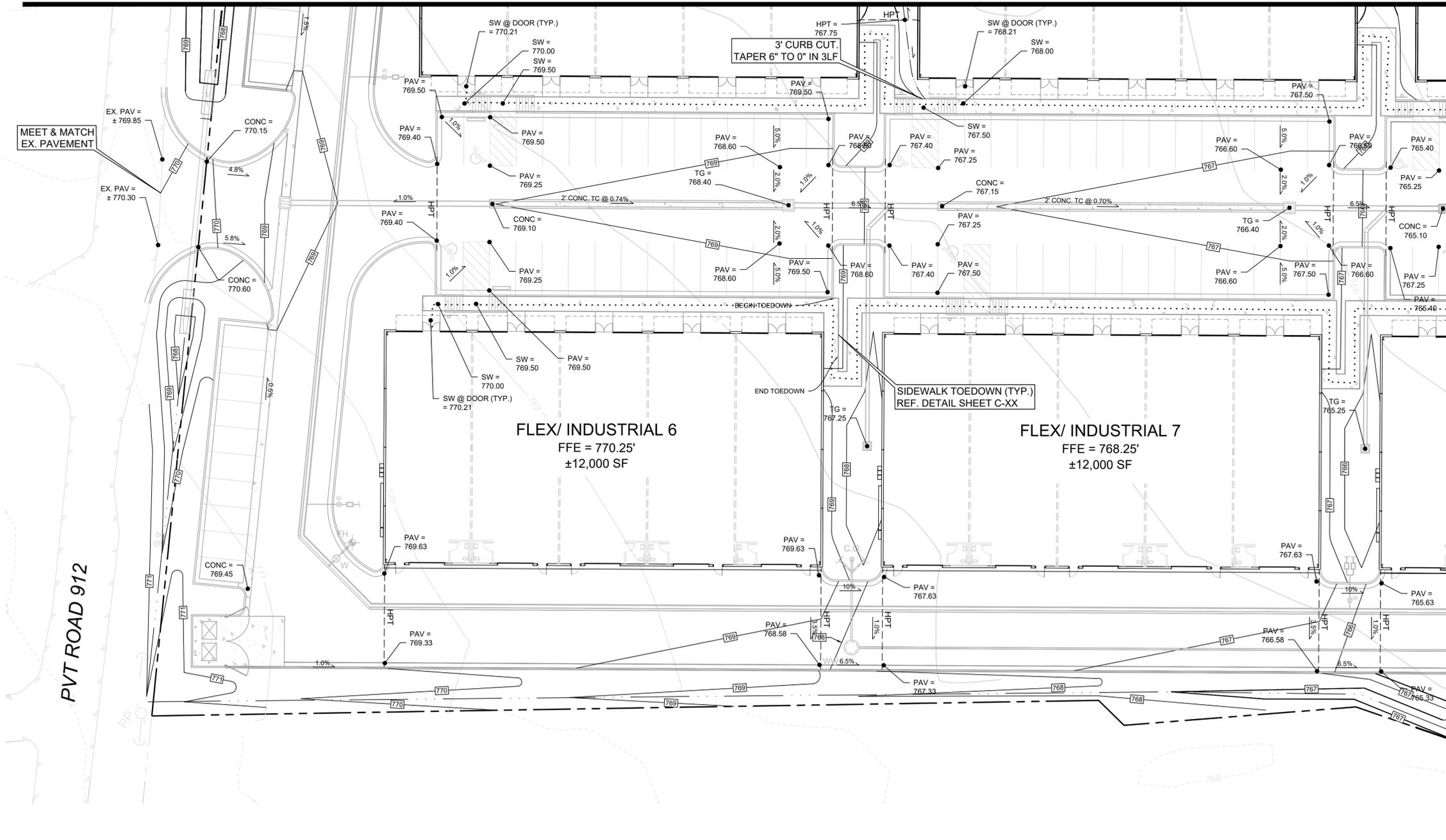
DELINEATES ACCESSIBLE ROUTE - - - - -

NOTES:

1. THE ACCESSIBLE ROUTE SHALL NOT EXCEED 2% CROSS SLOPE NOR 5% RUNNING SLOPE WITH THE EXCEPTION OF CURB RAMP, WHICH SHALL NOT EXCEED 2% CROSS SLOPE NOR 8.33% RUNNING SLOPE.



MATCHLINE REF. SHEET C-9



PVT ROAD 912

MATCHLINE REF. SHEET C-12



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
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FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25

PROJECT:

**SHELL RD. OFFICE
WAREHOUSE**

3601 SHELL RD
GEORGETOWN, TX

CLIENT:

**BERRY CREEK
TOWNHOMES, LLC**

DESIGNED: AAP

APPROVED: AAP

DRAWN: GNV

DATE: 9/5/25

NO.	DATE	REVISIONS
		9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE:

**GRADING PLAN
(3 OF 4)**

WP PROJECT NO.:

213-001

SHEET NO.:

C-11



WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



Ant Prete
 05 Sept 25

PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

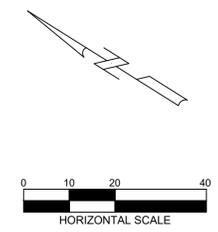
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REVISIONS	DATE	NO.	DESCRIPTION
9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION			

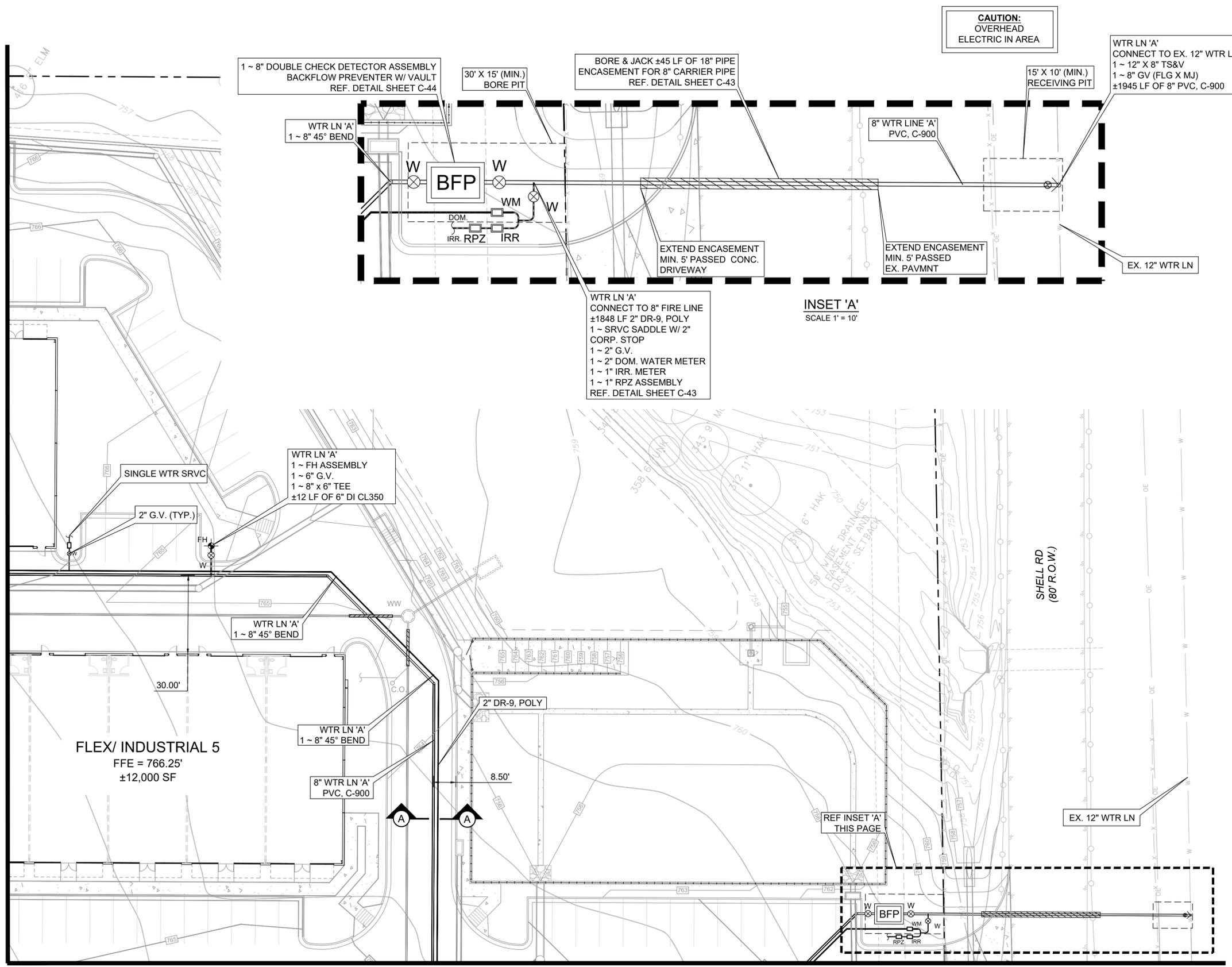
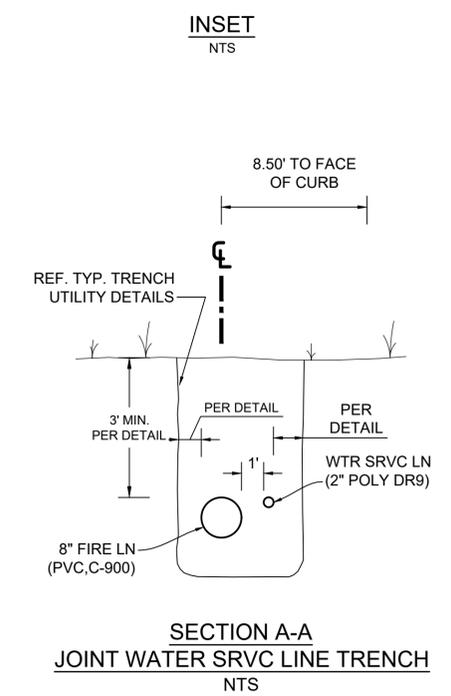
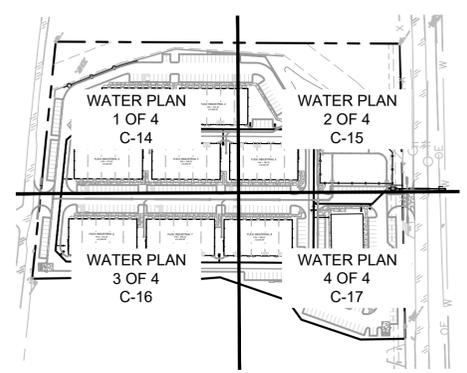
SHEET TITLE:
WATER PLAN (2 OF 4)

WP PROJECT NO.:
213-001

SHEET NO.:
C-15



NOTES:
 1. REFERENCE WATER NOTES ON SHEET C-13.



MATCHLINE REF. SHEET C-14

MATCHLINE REF. SHEET C-17

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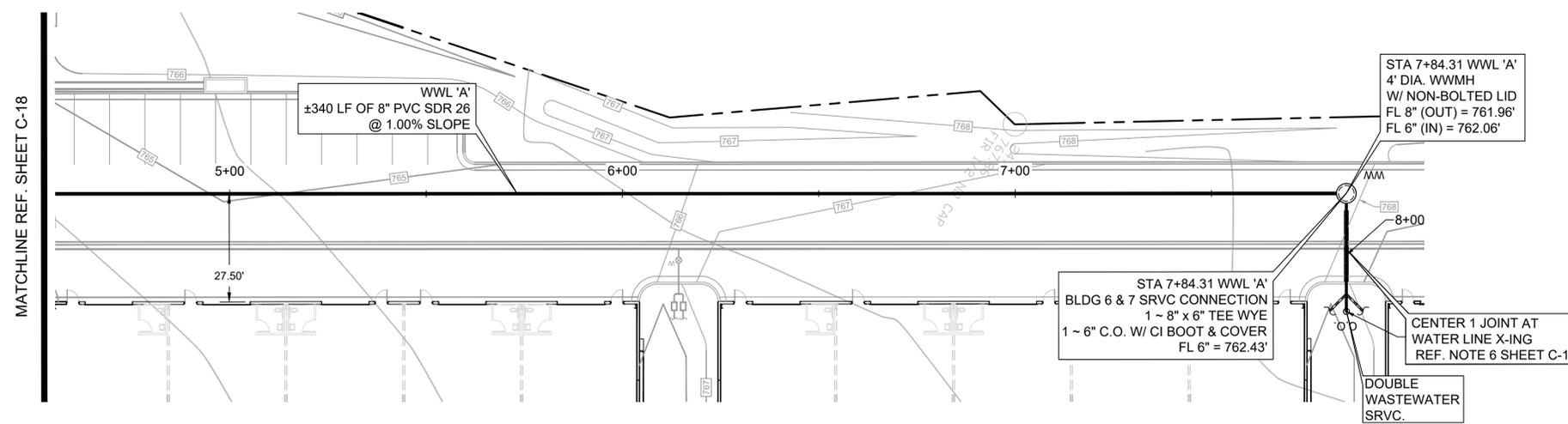
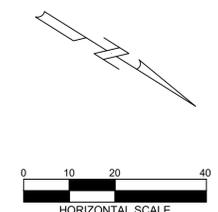


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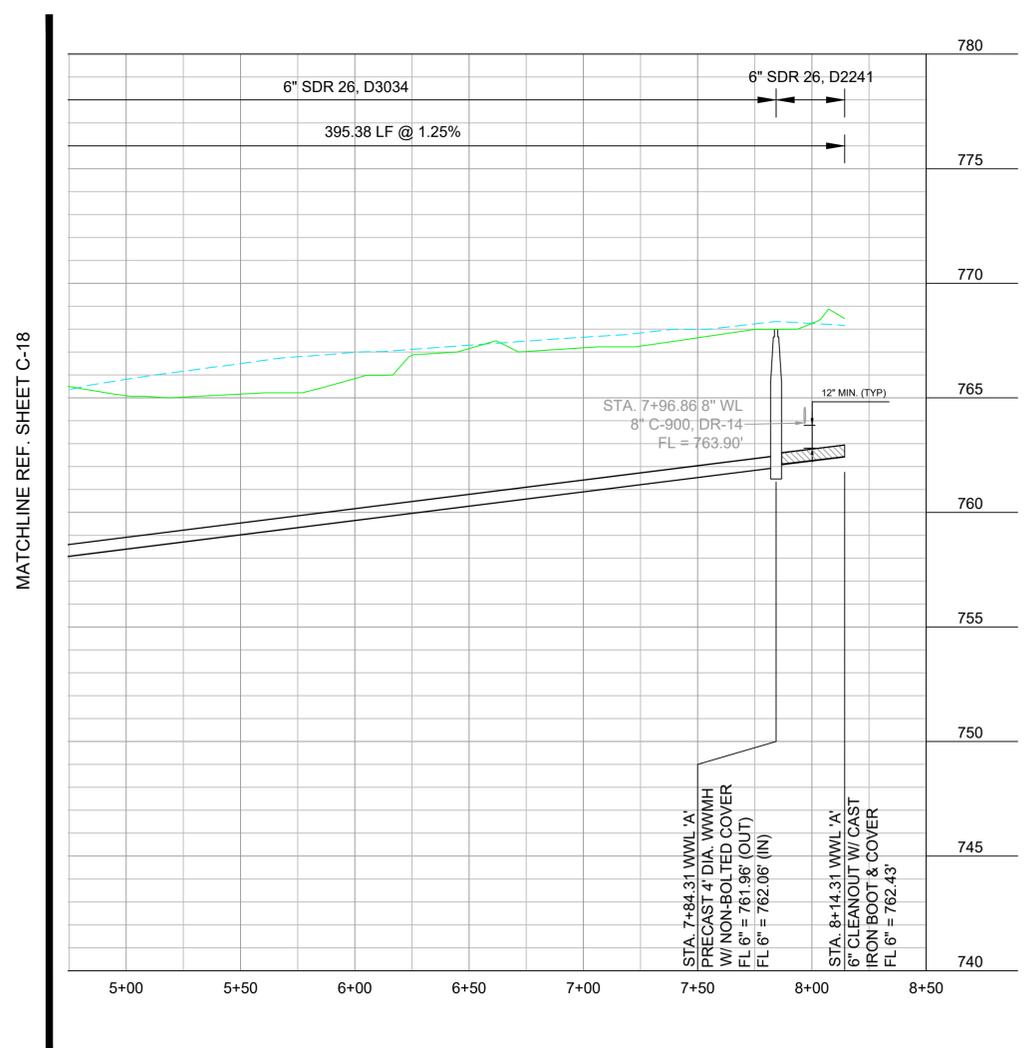
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ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25



- NOTES:**
- REFERENCE WASTEWATER NOTES ON SHEET C-13.



WASTEWATER LINE 'A' PROFILE
STA. 4+75.00 TO 8+14.31
SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

PROJECT:
SHELL RD. OFFICE WAREHOUSE
3601 SHELL RD
GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.
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SHEET TITLE:
WASTEWATER PROFILE (2 OF 3)

WP PROJECT NO.:
213-001

SHEET NO.:
C-19

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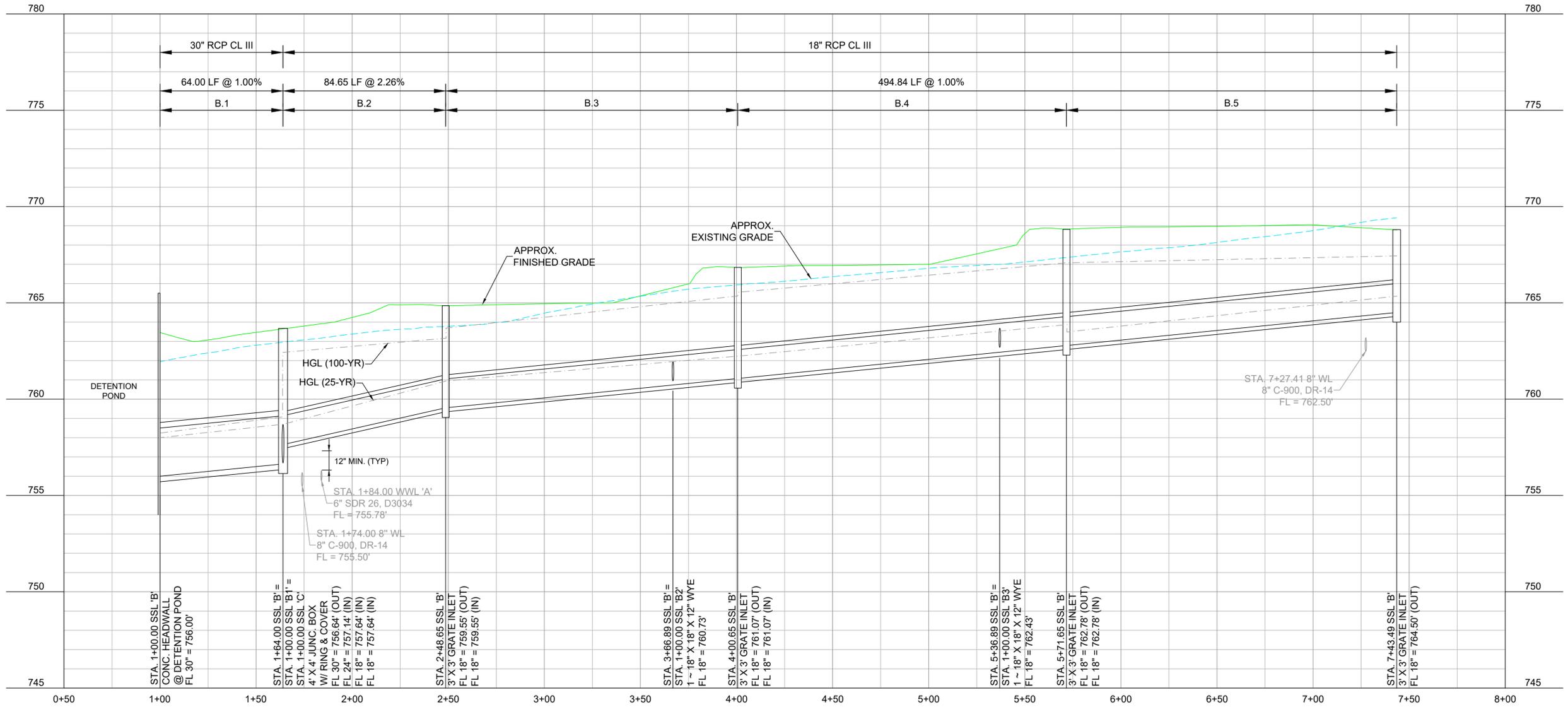


PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/16/25

REVISIONS	DATE	NO.
9/16/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		



STORM SEWER LINE 'B' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.

SHEET TITLE:
STORM SEWER PROFILE (2 OF 7)

WP PROJECT NO.:
213-001

SHEET NO.:
C-23

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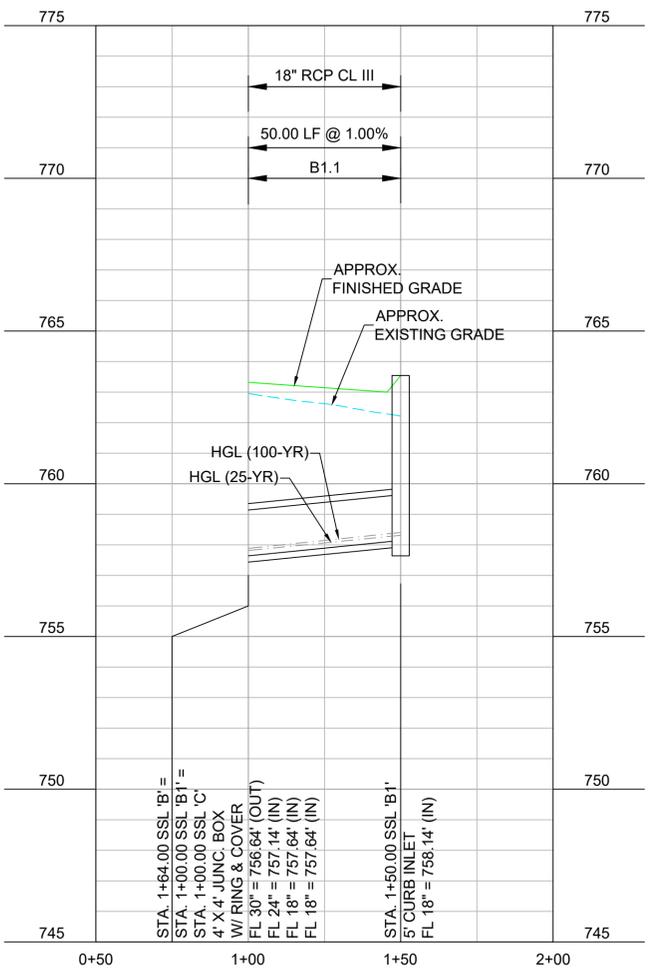


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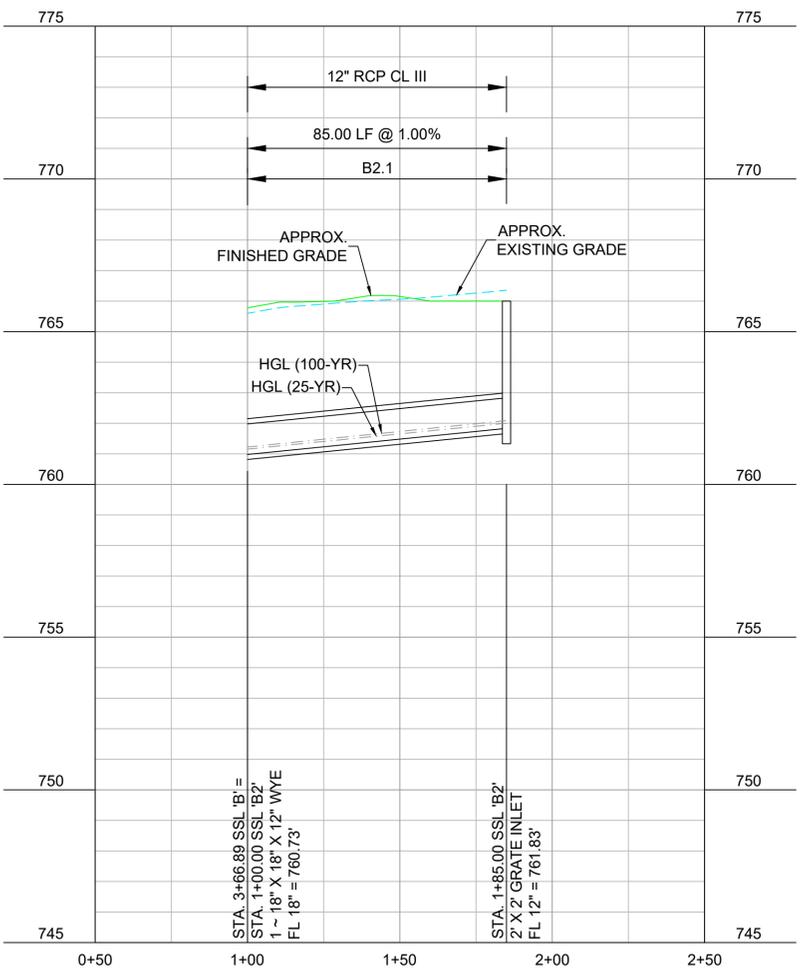
PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

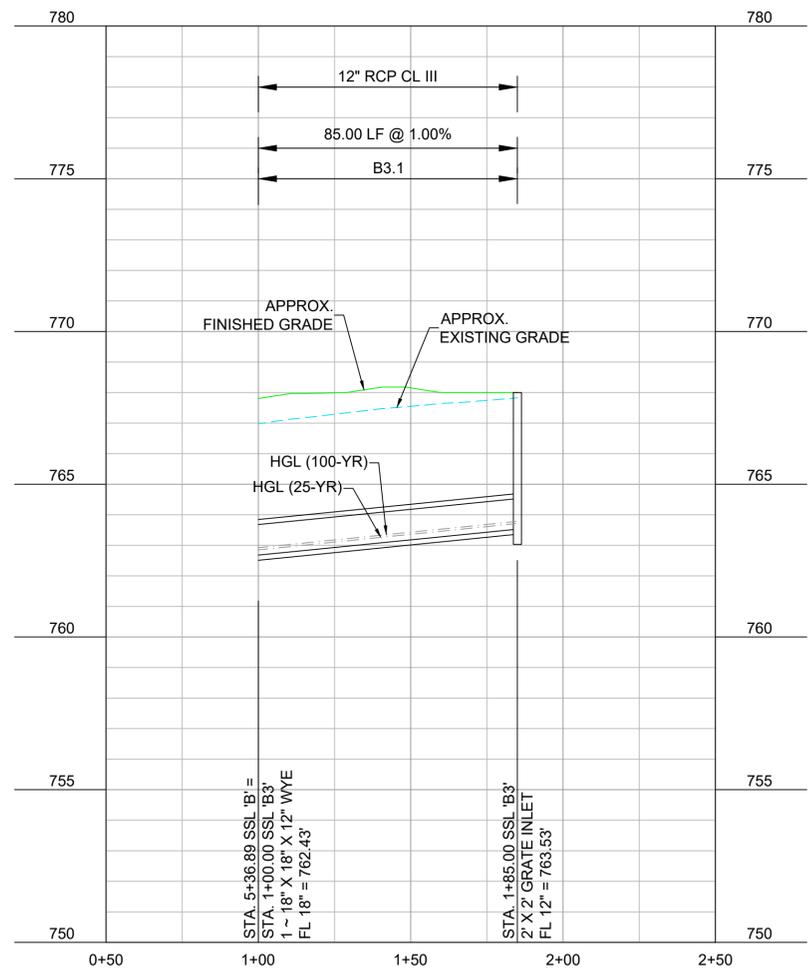
DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/16/25



STORM SEWER LINE 'B1' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.



STORM SEWER LINE 'B2' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.



STORM SEWER LINE 'B3' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.

REVISIONS
 DATE
 No.
9/16/2025
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SHEET TITLE:
STORM SEWER PROFILE (3 OF 7)

WP PROJECT NO.:
213-001

SHEET NO.:
C-24

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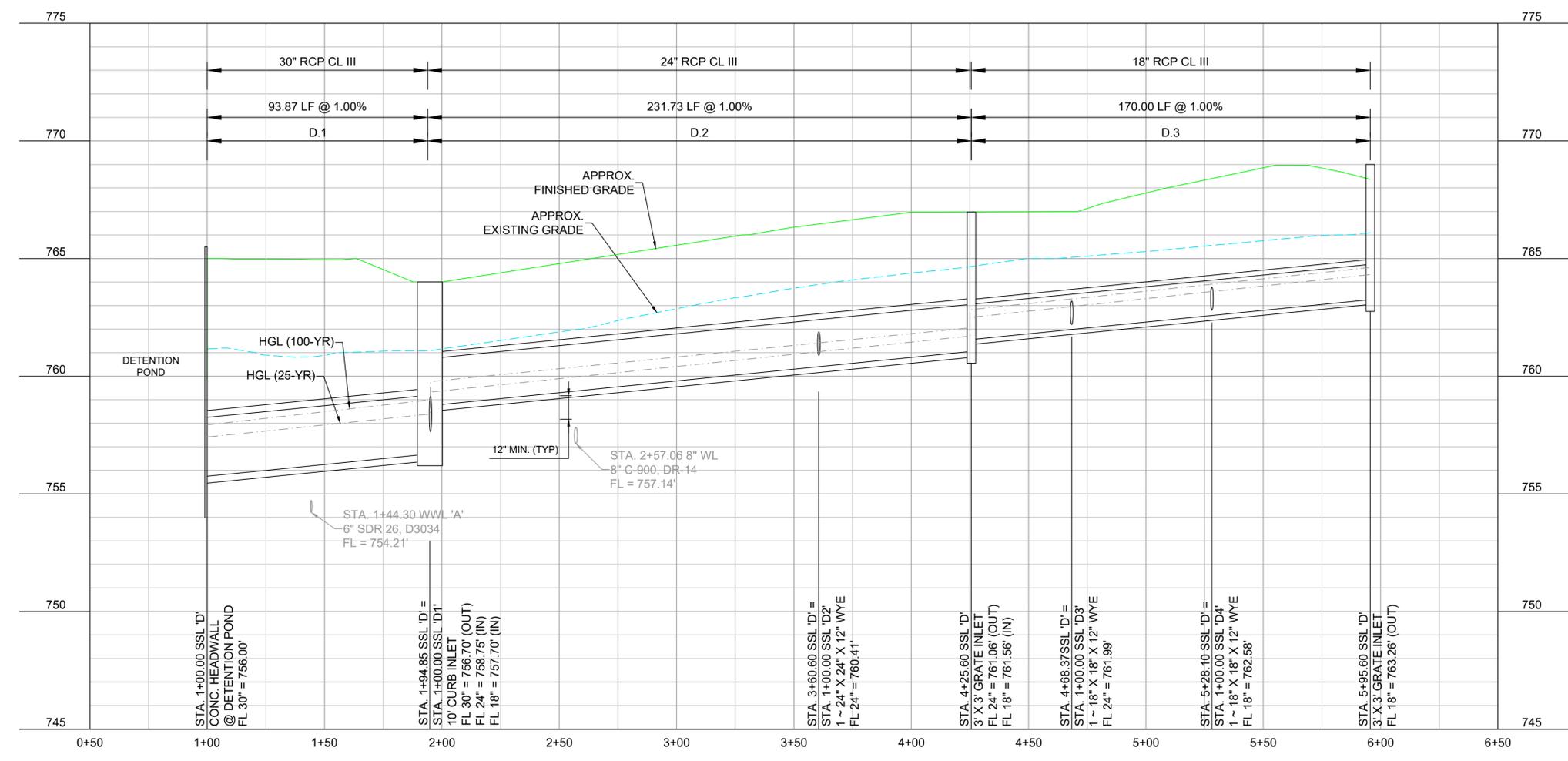


Handwritten signature and date: 05 Sept 25

PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/16/25



STORM SEWER LINE 'D' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.

REVISIONS	DATE	NO.
9/16/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

SHEET TITLE:
STORM SEWER PROFILE (5 OF 7)

WP PROJECT NO.:
213-001

SHEET NO.:
C-26

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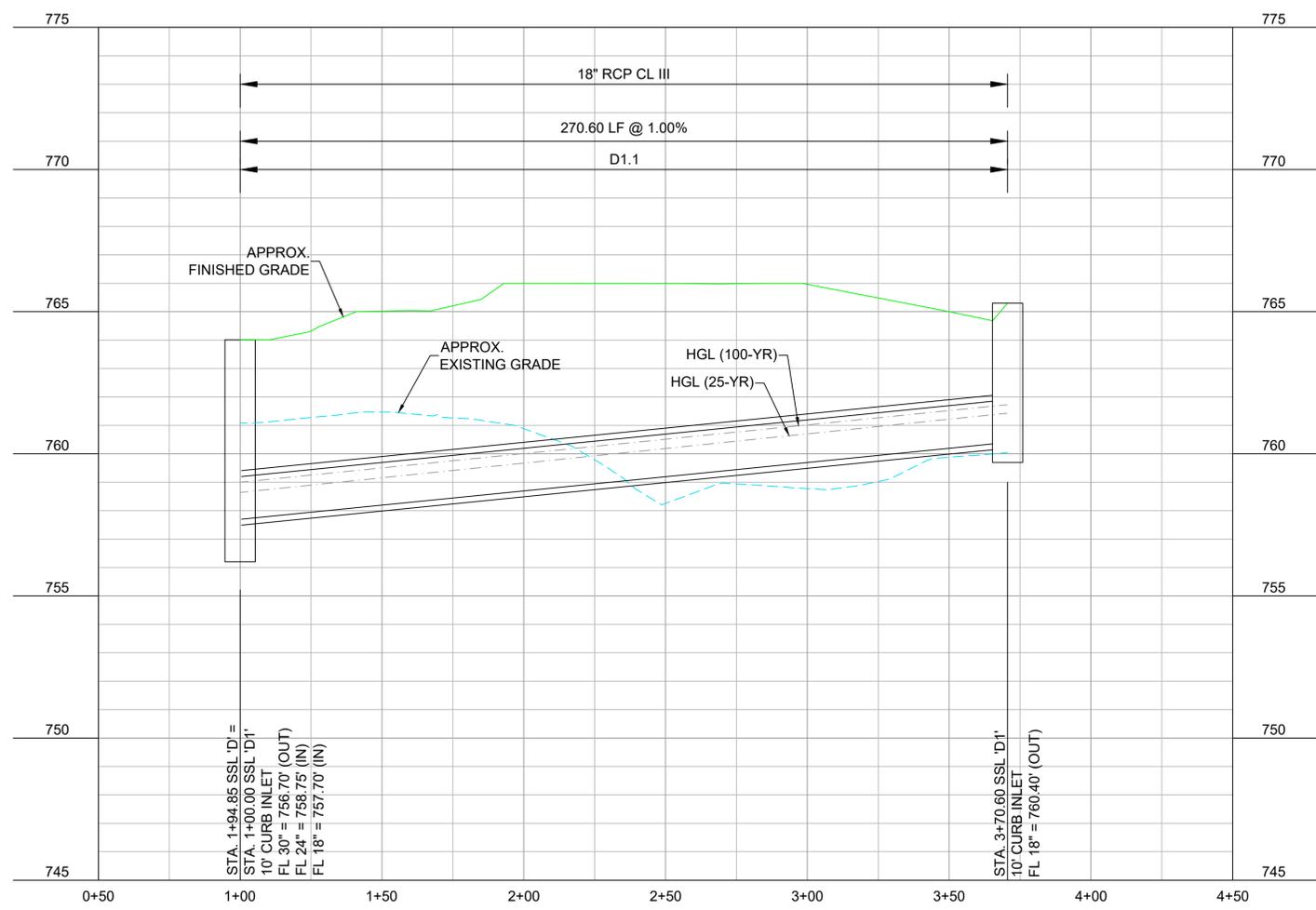
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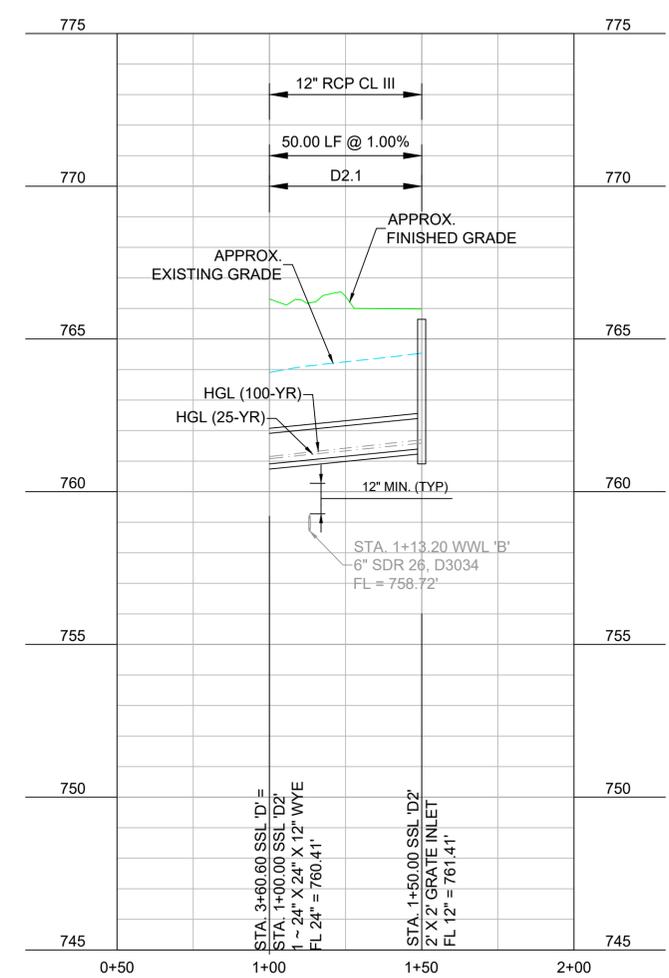
PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/16/25



STORM SEWER LINE 'D1' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.



STORM SEWER LINE 'D2' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.

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SHEET TITLE:
STORM SEWER PROFILE (6 OF 7)

WP PROJECT NO.:
213-001

SHEET NO.:
C-27

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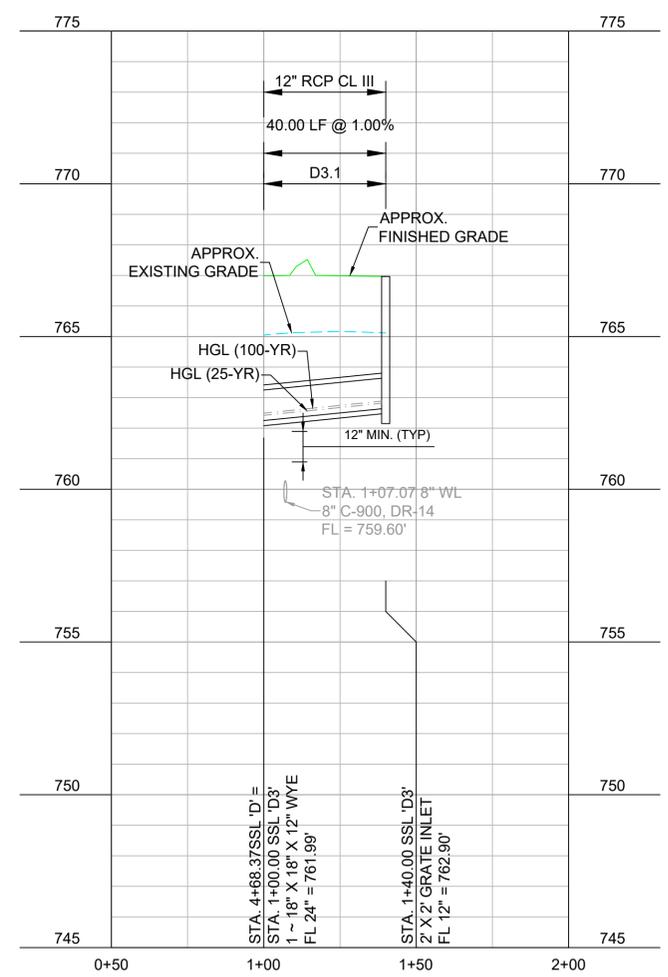


APR 25
05 Sept 25

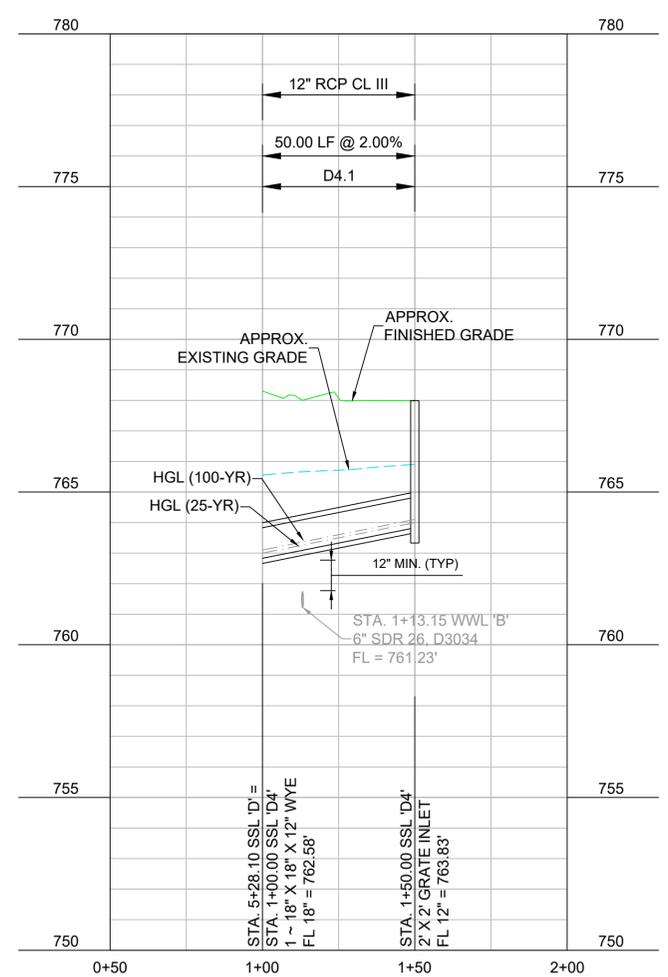
PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/16/25



STORM SEWER LINE 'D3' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.



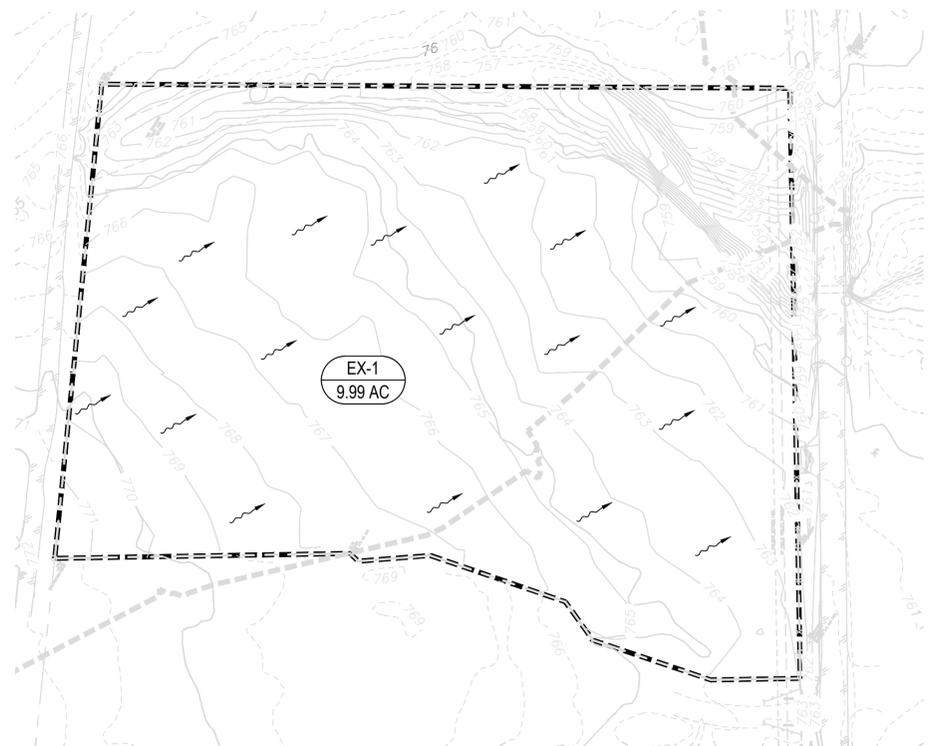
STORM SEWER LINE 'D4' PROFILE
 SCALE: 1" = 30' HORZ.
 1" = 3' VERT.

REVISIONS	DATE	NO.
9/16/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

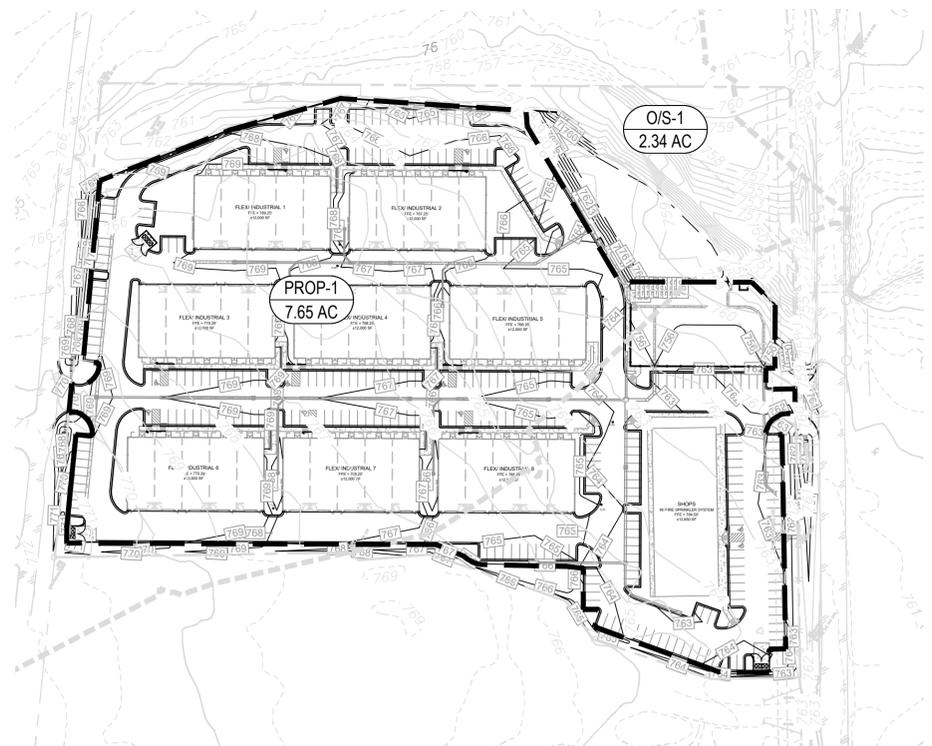
SHEET TITLE:
STORM SEWER PROFILE (7 OF 7)

WP PROJECT NO.:
213-001

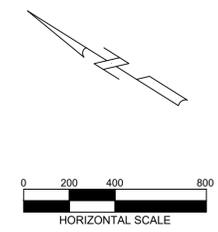
SHEET NO.:
C-28



EXISTING CONDITIONS
SCALE: 1" = 100'



PROPOSED CONDITIONS
SCALE: 1" = 100'



LEGEND

- EX. DRAINAGE BOUNDARY
- PROP. DRAINAGE BOUNDARY
- TIME OF CONCENTRATION
- FLOW DIRECTION
- EXISTING & PROPOSED IMPERVIOUS COVER
- 700--- EXISTING CONTOUR
- 760--- PROPOSED CONTOUR

NOTES:

1. EXISTING CONTOURS SHOWN ARE SOURCED FROM WILLIAMSON COUNTY LIDAR INFORMATION.
2. THESE CALCULATIONS DO NOT ACCOUNT FOR DETENTION EFFECTS OF PROPOSED DETENTION POND. REFERENCE POND CALCULATIONS SHEET C-21 FOR TOTAL RUNOFF FROM SITE WITH DETENTION EFFECTS.

TIMES OF CONCENTRATION CALCULATIONS (TR-55):

Drainage Sub Area	Sheet Flow				Shallow Concentrated Flow		Channel Flow		Pipe Flow		Shallow Channel/		Total Tc [min]	Total Tc LAG [min]
	Manning n	S [ft/ft]	L (<300) [ft]	P ₂ [in]	Paved or Unpaved	S [ft/ft]	L [ft]	L [ft]	Velocity [ft/sec]	L [ft]	Velocity [ft/sec]	Sheet Tc [min]		

EXISTING CONDITIONS:

DA-1	0.15	0.015	100	4.10	Unpaved	0.017	692	181	6	-	-	9.71	5.43	0.50	15.64	21.57
------	------	-------	-----	------	---------	-------	-----	-----	---	---	---	------	------	------	-------	-------

PROPOSED CONDITIONS:

DA-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.00
DA-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.00

*Minimum Tc lag used =5 min

HEC-HMS SUMMARY & INPUT VARIABLES:

DRAINAGE AREA BOUNDARY CONDITIONS SUMMARY:

SUB-BASIN [ID]	AREA [mi ²]	AREA [ac]	BASE CURVE # [HSG - D']	IC [%]	Tc [min]	Tc LAG [min]	SUBBASIN RUNOFF			
							2YR [cfs]	10YR [cfs]	25YR [cfs]	100YR [cfs]
EX DA-1	0.0156	9.99	80	0.00	15.64	9.38	23.76	44.80	58.95	82.27
PROP DA-1	0.0120	7.65	80	85.23	8.33	5.00	36.23	55.16	67.66	86.42
PROP DA-2	0.0037	2.34	80	0.00	8.33	5.00	7.10	13.39	17.64	24.66

*Minimum Tc lag used =5 min

SUMMARY TABLE: DETENTION POND #1

ATLAS-14 STORM NOAA 24hr	PEAK INFLOW TO POND	PEAK DISCHARGE FROM POND	PEAK STORAGE DET VOLUME	PEAK ELEVATION DET PND
[in]	[Event]	[cfs]	[ac-ft]	[ft]
3.94	2 year	36.23	13.88	1.24
6.29	10 year	55.16	24.27	1.62
8.02	25 year	67.66	29.11	1.83
11.20	100 year	88.42	36.02	2.19

SUMMARY OF EXISTING VS. PROPOSED RUNOFF AT SPECIFIC FLOW CONCENTRATION POINT:

ATLAS-14 STORM NOAA 24hr	EX PEAK DISCHARGE FC PT #1	PROP PEAK DISCHARGE FC PT #1
[Event]	[cfs]	[cfs]
2 year	23.76	17.95
10 year	44.8	33.22
25 year	58.95	41.91
100 year	82.27	54.79

* Refer to Drainage Area Maps for Concentration Flow Points (eg FC PT # X).

STAGE - STORAGE - DISCHARGE: DETENTION POND #1

STAGE [msl]	AREA [ft ²]	AVG. AREA [ft ²]	Δ ELEV. [ft]	STORAGE [ft ³]	CUMULATIVE [ft ³]	CUMULATIVE [ac-ft]	RECT. ORIFICE #1 [cfs]	EMERGENCY WEIR [cfs]	TOTAL DISCHARGE [cfs]
755.00	0	0	0.00	0	0	0.000	0.00	0.00	0.00
756.00	2,800	1,400	1.00	1,400	1,400	0.032	0.00	0.00	0.00
757.00	8,800	5,800	1.00	5,800	7,200	0.165	0.00	0.00	0.00
758.00	12,800	10,800	1.00	10,800	18,000	0.413	0.00	0.00	0.00
759.00	14,103	13,452	1.00	13,452	31,452	0.722	0.00	0.00	0.00
759.25	14,103	14,103	0.25	3,526	34,977	0.803	0.00	0.00	0.00
760.00	14,103	14,103	0.75	10,577	45,555	1.046	8.62	0.00	8.62
761.00	14,103	14,103	1.00	14,103	59,658	1.370	17.23	0.00	17.23
762.00	14,103	14,103	1.00	14,103	73,761	1.693	26.32	0.00	26.32
763.00	14,103	14,103	1.00	14,103	87,864	2.017	32.99	0.00	32.99
764.00	14,103	14,103	1.00	14,103	101,967	2.341	38.52	0.00	38.52
765.00	14,103	14,103	1.00	14,103	116,070	2.665	43.36	82.58	125.94

WQV Req'd = 32,290 cf @ 759.06'

2yr WSE = 760.61'
10yr WSE = 761.77'
25yr WSE = 762.42'
100yr WSE = 763.55'

Rect. Orifice #1 -> FL = 759.25, L = 2.00', H = 2.00', Orifice Coefficient = 0.62
Emergency Weir -> FL = 766.00', L = 25.00', Weir Coefficient = 3.33



WAELTZ & PRETE, INC.
CIVIL ENGINEERS
211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
3601 SHELL RD
GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP
DRAWN: GNV
APPROVED: AAP
DATE: 9/5/25

REVISIONS	DATE	NO.
9/5/2025		

EXISTING & PROPOSED DRAINAGE AREA MAP

WP PROJECT NO.:
213-001

SHEET NO.:
C-30

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 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

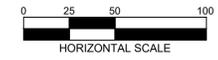
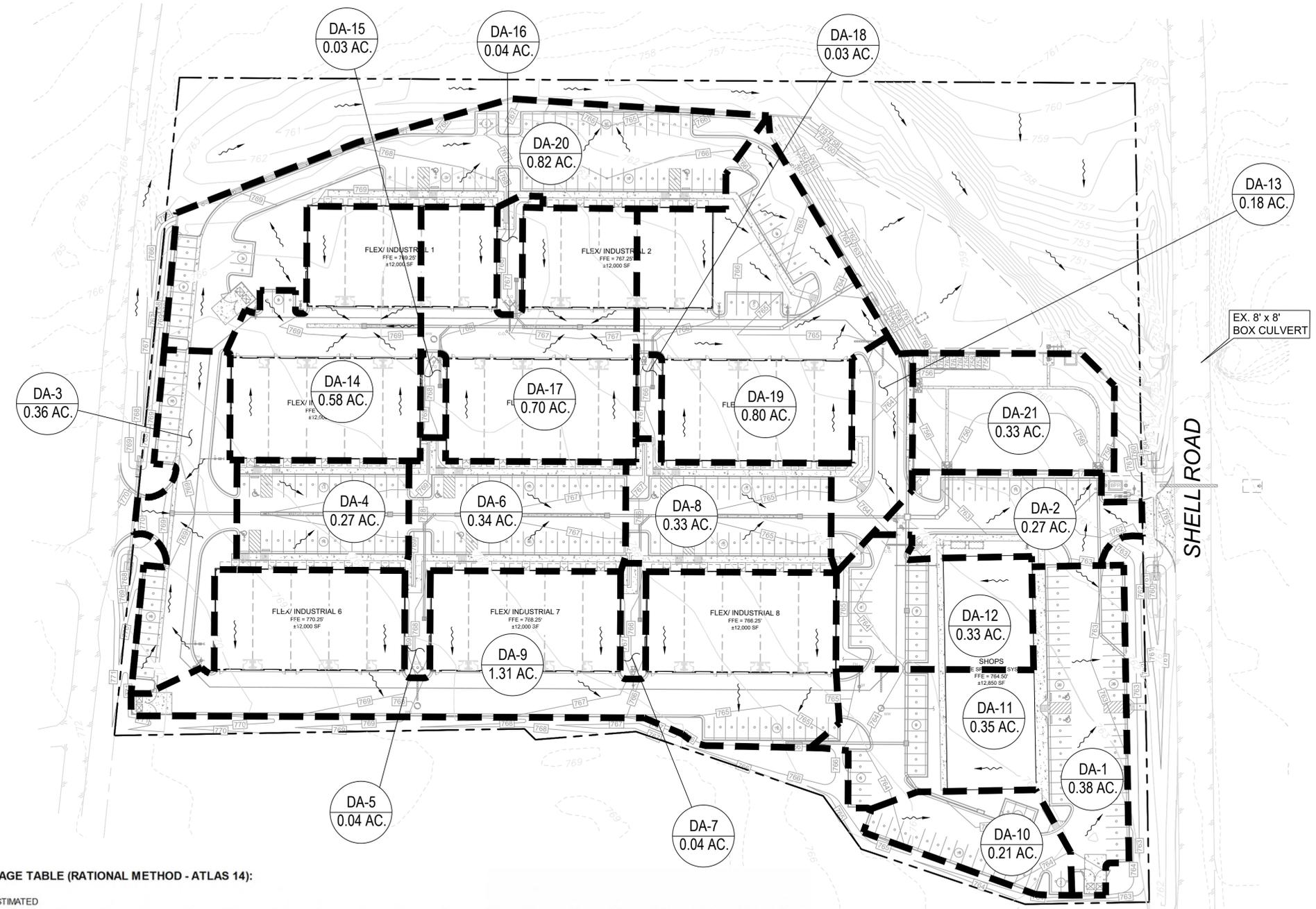
DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

NO.	DATE	REVISIONS
	9/5/2025	100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE:
ON-SITE DRAINAGE AREA MAP

WP PROJECT NO.:
213-001

SHEET NO.:
C-31



- LEGEND**
- EX. DRAINAGE BOUNDARY
 - - - PROP. DRAINAGE BOUNDARY
 - TIME OF CONCENTRATION
 - FLOW DIRECTION
 - EXISTING & PROPOSED IMPERVIOUS COVER
 - 700--- EXISTING CONTOUR
 - 700--- PROPOSED CONTOUR

- NOTES:**
- EXISTING CONTOURS SHOWN ARE SOURCED FROM WILLIAMSON COUNTY LIDAR INFORMATION.
 - THESE CALCULATIONS DO NOT ACCOUNT FOR DETENTION EFFECTS OF PROPOSED DETENTION POND. REFERENCE POND CALCULATIONS SHEET C-21 FOR TOTAL RUNOFF FROM SITE WITH DETENTION EFFECTS.

ON-SITE CONDITIONS DRAINAGE TABLE (RATIONAL METHOD - ATLAS 14):

SUB-BASIN DESIGNATION	AREA [acres]	T _c [min.]	ESTIMATED IMPERV. +/- [%]	C										I							Q				
				C ₂	C ₅	C ₁₀	C ₂₅	C ₅₀	C ₁₀₀	I ₂ [in/hr]	I ₅ [in/hr]	I ₁₀ [in/hr]	I ₂₅ [in/hr]	I ₅₀ [in/hr]	I ₁₀₀ [in/hr]	Q ₂ [cfs]	Q ₅ [cfs]	Q ₁₀ [cfs]	Q ₂₅ [cfs]	Q ₅₀ [cfs]	Q ₁₀₀ [cfs]				
DA-1	0.38	5.00	95.0	0.71	0.75	0.79	0.84	0.88	0.93	6.12	7.72	9.08	11.10	12.60	14.30	1.65	2.20	2.73	3.54	4.21	5.05				
DA-2	0.27	5.00	95.0	0.71	0.75	0.79	0.84	0.88	0.93	6.12	7.72	9.08	11.10	12.60	14.30	1.17	1.56	1.94	2.52	2.99	3.59				
DA-3	0.36	5.00	80.0	0.64	0.68	0.72	0.77	0.80	0.85	6.12	7.72	9.08	11.10	12.60	14.30	1.41	1.89	2.35	3.08	3.63	4.38				
DA-4	0.27	5.00	80.0	0.64	0.68	0.72	0.77	0.80	0.85	6.12	7.72	9.08	11.10	12.60	14.30	1.06	1.42	1.77	2.31	2.72	3.28				
DA-5	0.04	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.07	0.10	0.13	0.17	0.21	0.26				
DA-6	0.30	5.00	80.0	0.64	0.68	0.72	0.77	0.80	0.85	6.12	7.72	9.08	11.10	12.60	14.30	1.18	1.57	1.96	2.56	3.02	3.65				
DA-7	0.04	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.07	0.10	0.13	0.17	0.21	0.26				
DA-8	0.33	5.00	80.0	0.64	0.68	0.72	0.77	0.80	0.85	6.12	7.72	9.08	11.10	12.60	14.30	1.29	1.73	2.16	2.82	3.33	4.01				
DA-9	1.31	5.00	100.0	0.73	0.77	0.81	0.86	0.90	0.95	6.12	7.72	9.08	11.10	12.60	14.30	5.85	7.79	9.63	12.51	14.86	17.80				
DA-10	0.21	5.00	80.0	0.64	0.68	0.72	0.77	0.80	0.85	6.12	7.72	9.08	11.10	12.60	14.30	0.82	1.10	1.37	1.79	2.12	2.55				
DA-11	0.35	5.00	85.0	0.66	0.7	0.74	0.79	0.83	0.88	6.12	7.72	9.08	11.10	12.60	14.30	1.41	1.89	2.35	3.07	3.66	4.40				
DA-12	0.33	5.00	85.0	0.66	0.7	0.74	0.79	0.83	0.88	6.12	7.72	9.08	11.10	12.60	14.30	1.33	1.78	2.22	2.89	3.45	4.15				
DA-13	0.18	5.00	70.0	0.60	0.64	0.67	0.72	0.76	0.80	6.12	7.72	9.08	11.10	12.60	14.30	0.86	0.89	1.10	1.44	1.72	2.06				
DA-14	0.58	5.00	100.0	0.73	0.77	0.81	0.86	0.90	0.95	6.12	7.72	9.08	11.10	12.60	14.30	2.59	3.45	4.27	5.54	6.58	7.88				
DA-15	0.03	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.05	0.07	0.10	0.13	0.16	0.20				
DA-16	0.04	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.07	0.10	0.13	0.17	0.21	0.26				
DA-17	0.70	5.00	100.0	0.73	0.77	0.81	0.86	0.90	0.95	6.12	7.72	9.08	11.10	12.60	14.30	3.13	4.16	5.15	6.68	7.94	9.51				
DA-18	0.03	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.05	0.07	0.10	0.13	0.16	0.20				
DA-19	0.80	5.00	70.0	0.60	0.64	0.67	0.72	0.76	0.80	6.12	7.72	9.08	11.10	12.60	14.30	2.94	3.95	4.87	6.39	7.66	9.15				
DA-20	0.82	5.00	70.0	0.60	0.64	0.67	0.72	0.76	0.80	6.12	7.72	9.08	11.10	12.60	14.30	3.01	4.05	4.99	6.55	7.85	9.38				
DA-21	0.33	5.00	0.0	0.29	0.32	0.35	0.39	0.42	0.46	6.12	7.72	9.08	11.10	12.60	14.30	0.59	0.82	1.05	1.43	1.75	2.17				

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WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



Ant
05 Sept 25

PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

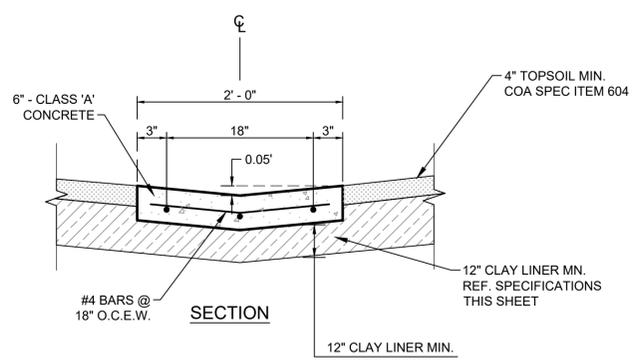
DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISION	DATE	NO.
9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

SHEET TITLE:
DETENTION POND PLAN

WP PROJECT NO.:
213-001

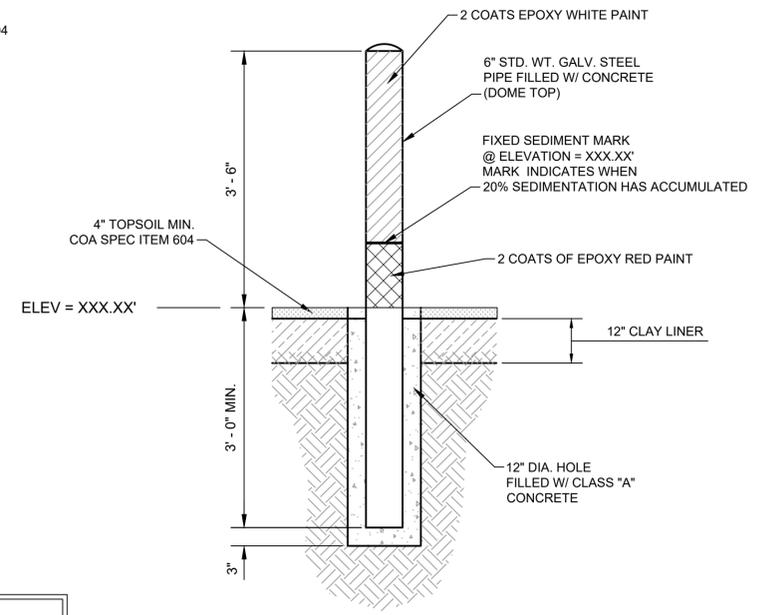
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C-33



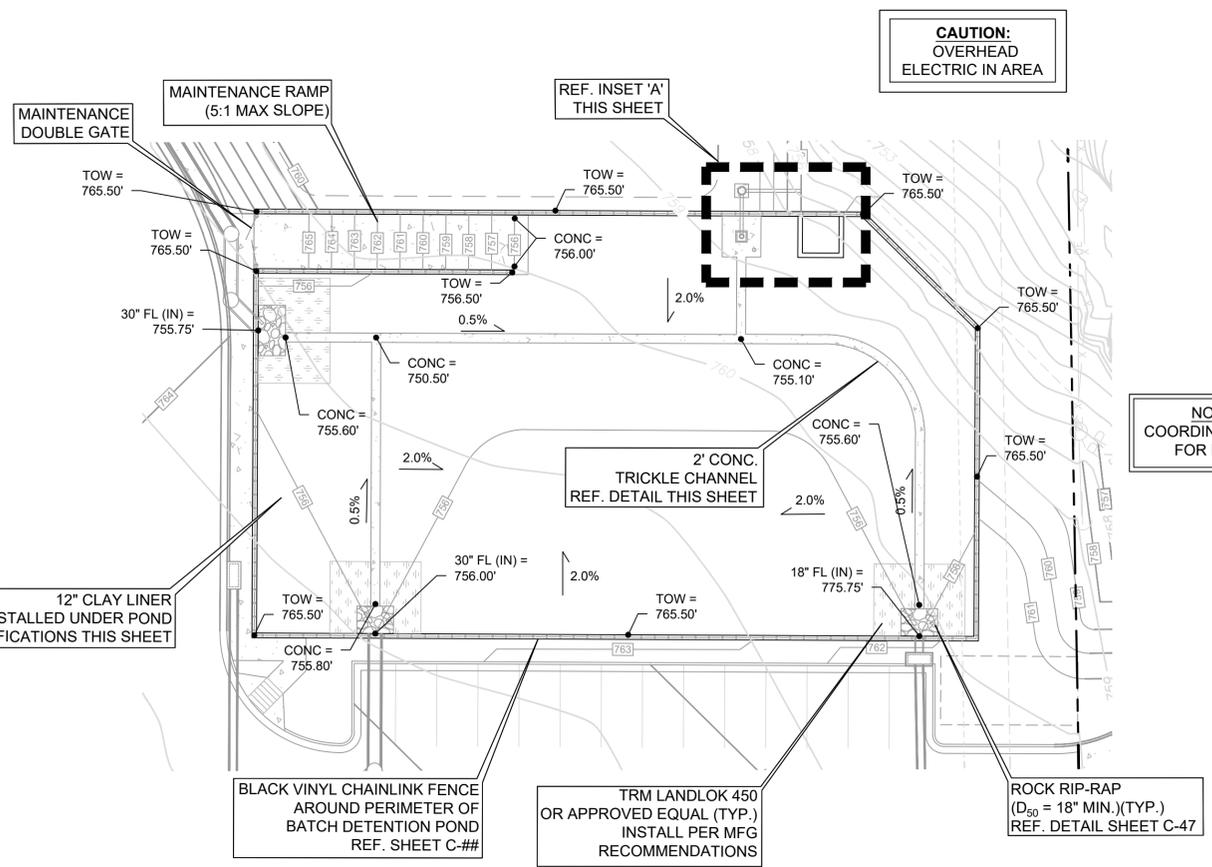
- ALL WORK AND MATERIAL SHALL CONFORM TO ASTM A615, A615M, C309 AND D1752. BROOM FINISH EXPOSED SURFACE.
- CONTROL JOINT SPACING SHALL NOT EXCEED 10' - 0".
- EXPANSION JOINTS AS PER STANDARD ASTM D-1752.
- EXPANSION JOINT INTERVALS SHALL NOT EXCEED 40' - 0".

BATCH DETENTION POND CONCRETE TRICKLE CHANNEL
 NTS

Property	Test Method	Unit	Specification
Permeability	ASTM D-2434	Cm/Sec	1×10^{-6}
Plasticity Index of Clay	ASTM D-423 & D-424	%	Not less than 15
Liquid Limit of Clay	ASTM D-2216	%	Not less than 30 Clay
Particles Passing	ASTM D-422	%	Not less than 30 Clay
Compaction	ASTM D-2216	%	95% of Standard Proctor Density



FIXED CONCRETE SEDIMENT MARKER
 NTS



CAUTION: OVERHEAD ELECTRIC IN AREA

NOTE TO CONTRACTOR:
 COORDINATE W/ FRANCHISE UTILITY FOR POWER POLE SUPPORT

SMARTPOND OUTFALL VALVE ASSEMBLY OUTLET CONTROL PANEL W/ SOLAR POWER UNIT AND BATTERY BACKUP OR APPROVED EQUAL. INSTALL PER MFG RECOMMENDATIONS

SMARTPOND TRASH CAGE, INTAKE RISER, AND POND LEVEL SENSOR OR APPROVED EQUAL. INSTALL PER MFG RECOMMENDATIONS

FIXED CONC. SEDIMENT MARKER
 REF. DETAIL THIS SHEET

INSET 'A'
 SCALE: 1" = 5'

BATCH DETENTION OUTLET STRUCTURE
 REF. DETAIL SHEET C-XX

XX" FL (OUT)
 = 755.00'

BLACK VINYL CHAINLINK FENCE AROUND PERIMETER OF BATCH DETENTION POND
 REF. SHEET C-##

TRM LANDLOK 450 OR APPROVED EQUAL (TYP.)
 INSTALL PER MFG RECOMMENDATIONS

ROCK RIP-RAP ($D_{50} = 18"$ MIN.)(TYP.)
 REF. DETAIL SHEET C-47

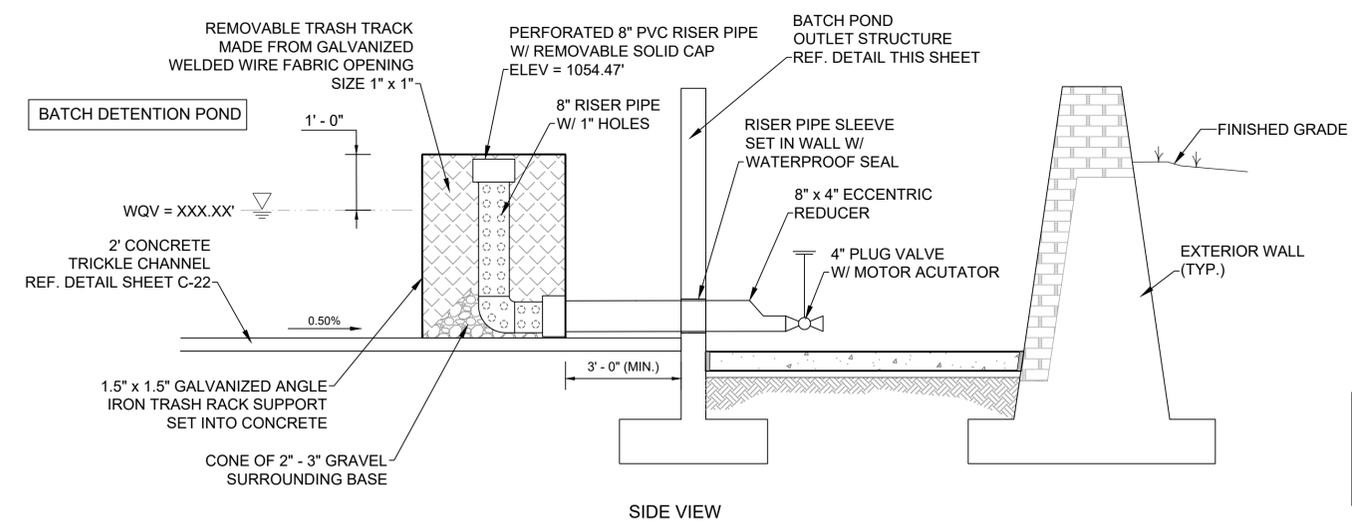
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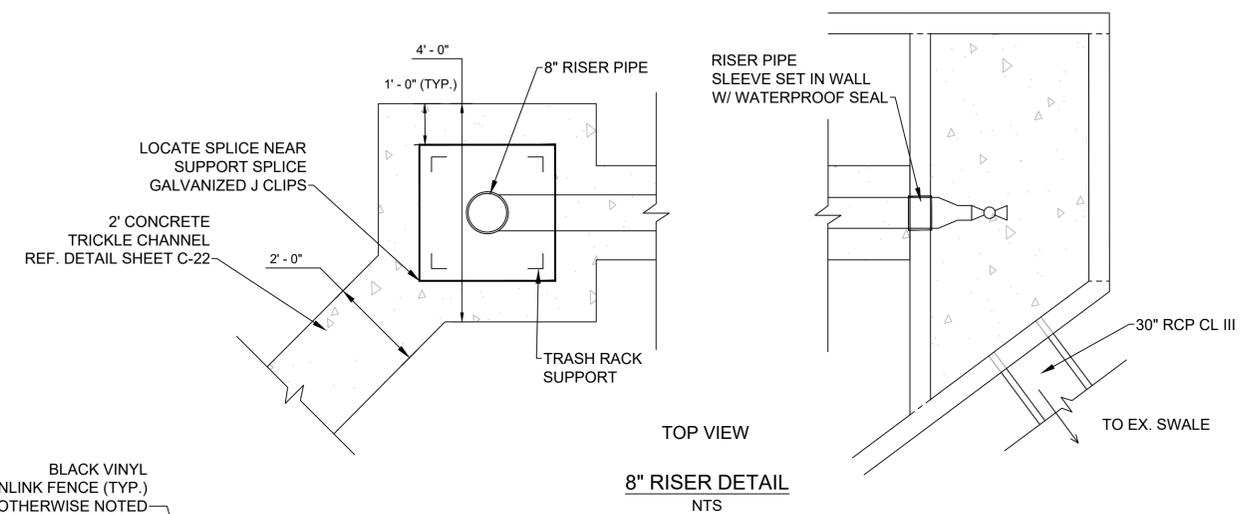
WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



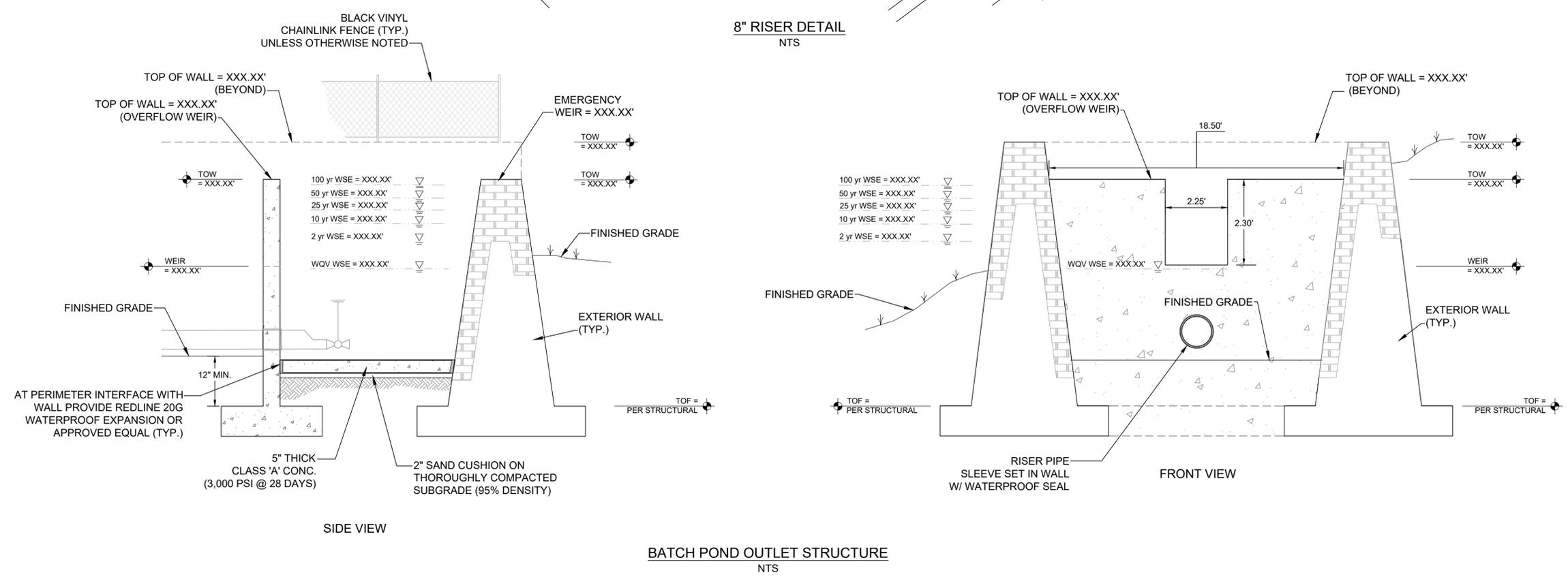
Ant
 05 Sept 25



NOTE TO CONTRACTOR:
 DETENTION POND WALL SECTIONS ARE SHOWN FOR INFORMATION ONLY. REF. STRUCTURAL PLANS FOR WALL DESIGN, DIMENSIONS, NOTES, & DETAILS.



- NOTES:**
- CONTROL VALVE TO BE MOTOR ACTUATED VALVE. VALVE SHALL BE WIRED TO A CONTROLLER THAT OPENS VALVE 12 HOURS AFTER RAINFALL EVENT AND CLOSES VALVE ONCE POND HAS DRAINED DRY. CONTROLLER SHALL INCLUDE PROVISION FOR A MANUAL OVERRIDE SWITCH.
 - 8" PERFORATED RISER PIPE SHALL INCLUDE PERFORATIONS AT THE FLOWLINE OF THE PIPE.



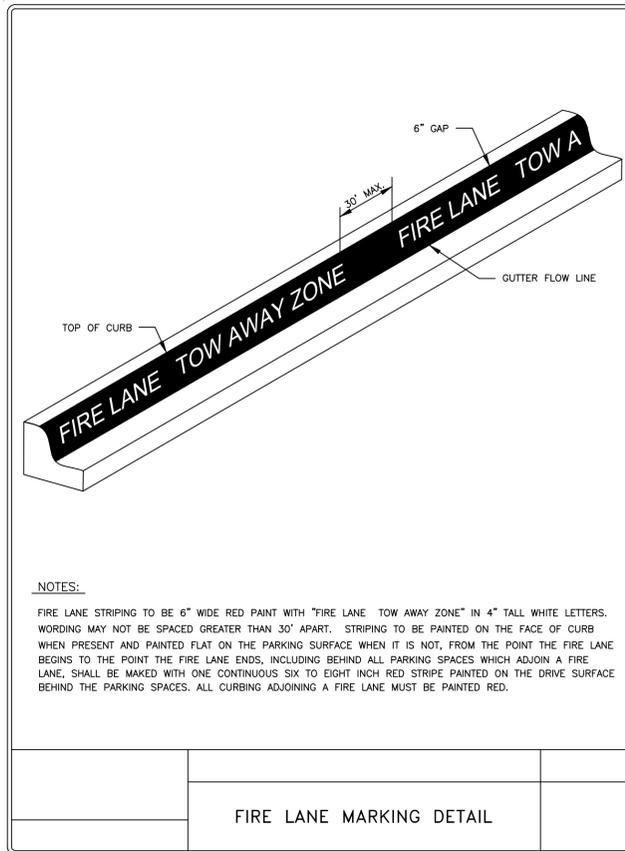
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**DETENTION POND
 DETAILS (1 OF 3)**

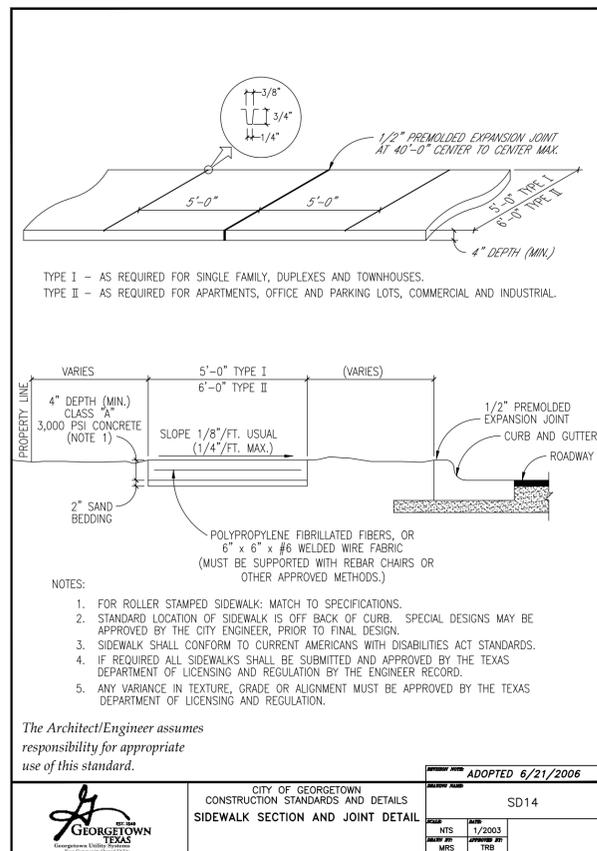
WP PROJECT NO.:
213-001

SHEET NO.:
C-34

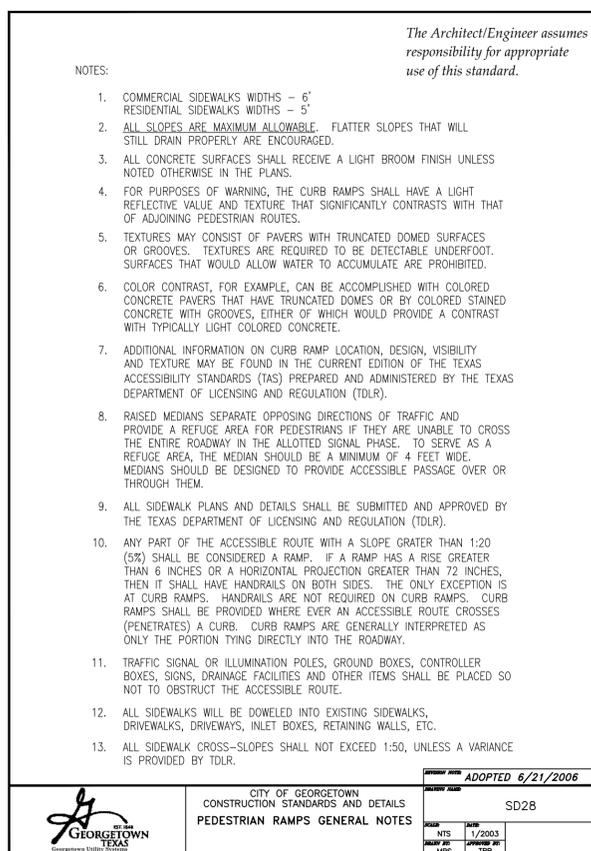
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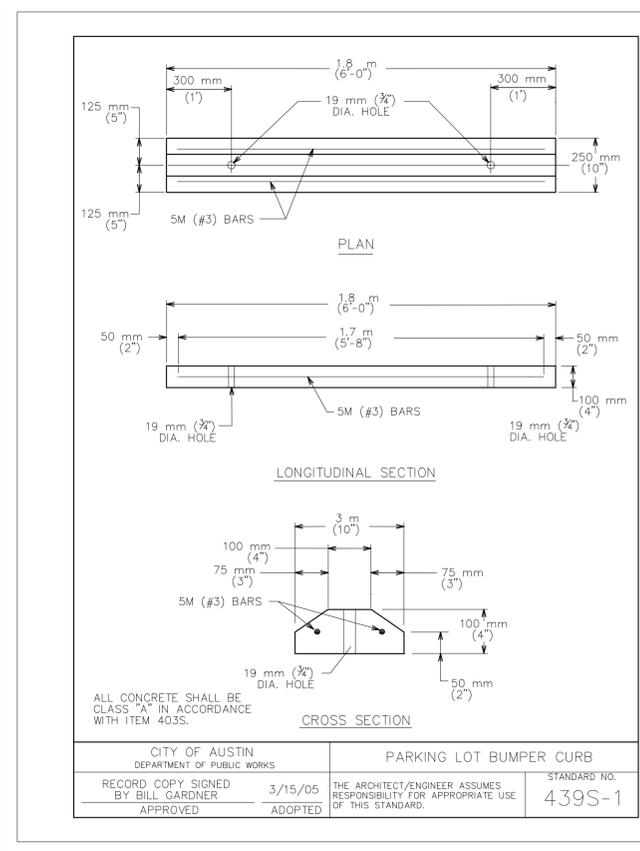
FIRE LANE MARKING
NTS



SIDEWALK
NTS



PEDESTRIAN RAMP NOTES
NTS



CONCRETE WHEEL STOP
NTS



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



PROJECT:

SHELL RD. OFFICE WAREHOUSE

3601 SHELL RD
GEORGETOWN, TX

CLIENT:

BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP
DRAWN: GNV
APPROVED: AAP
DATE: 9/5/25

REVISIONS	DATE	NO.
<p>9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION</p>		

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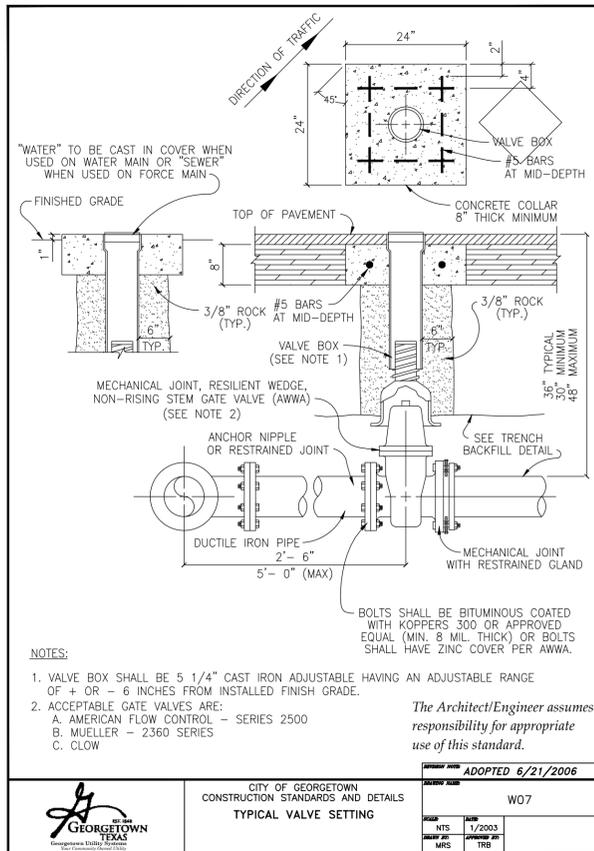
SITE DETAILS
(3 OF 3)

WP PROJECT NO.:

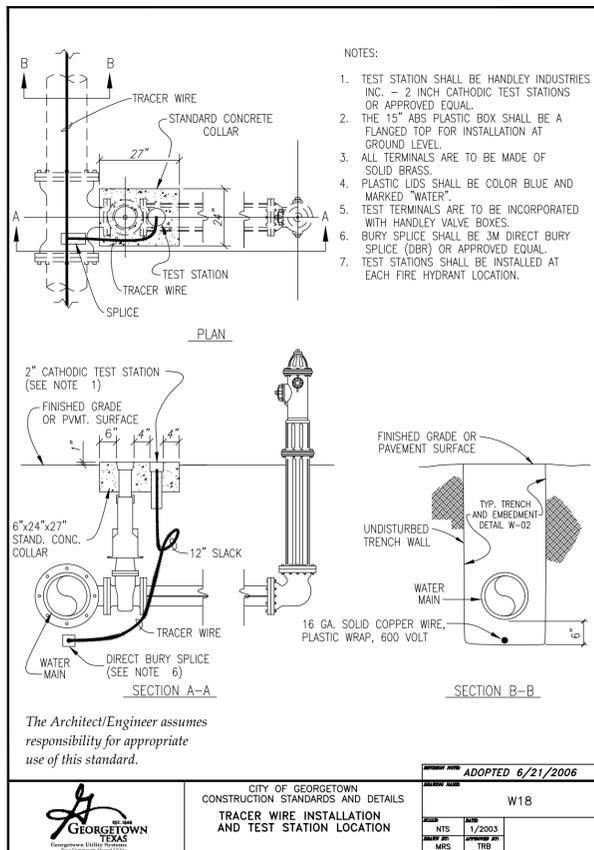
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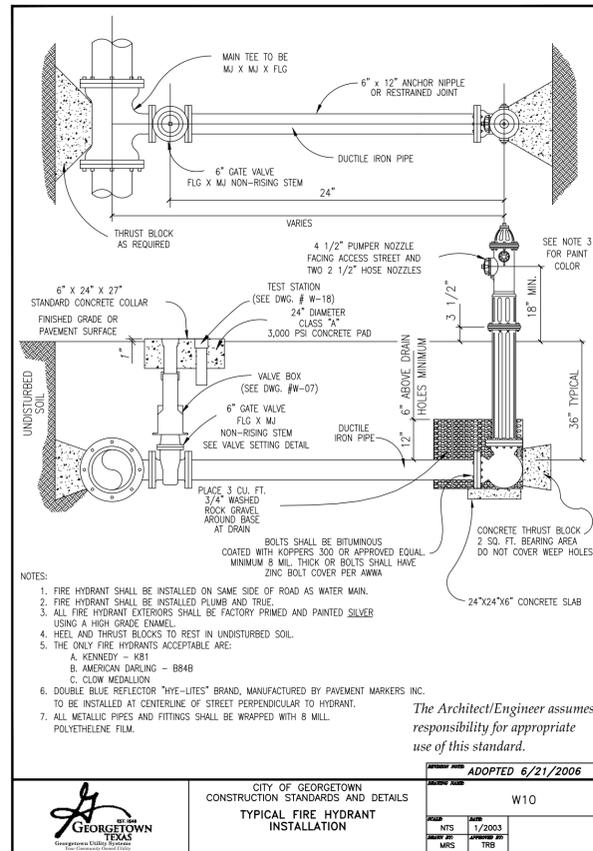
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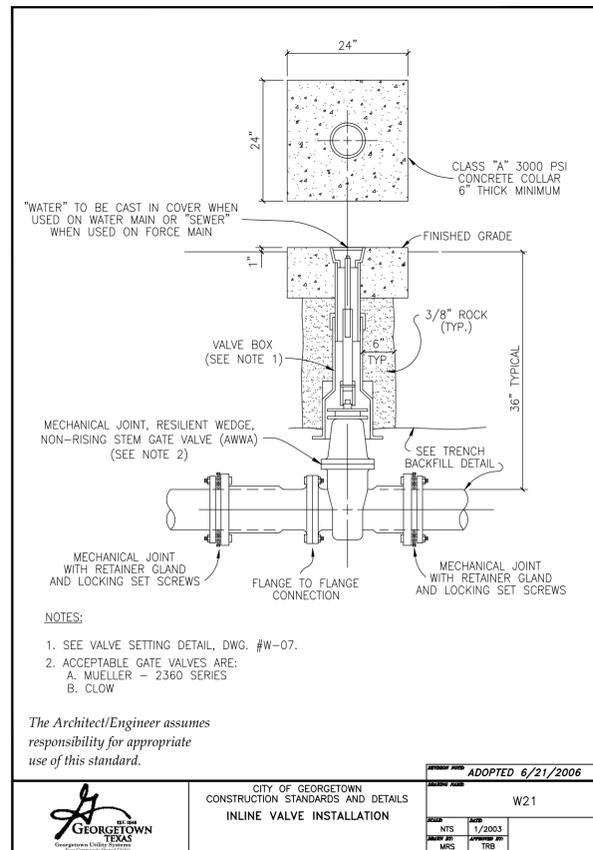
WATER VALVE SETTING
NTS



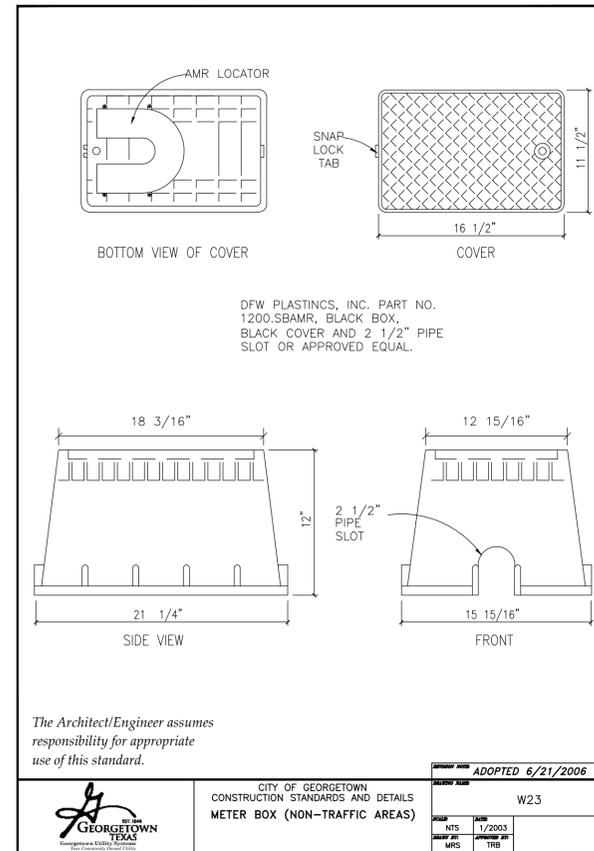
TRACER WIRE
NTS



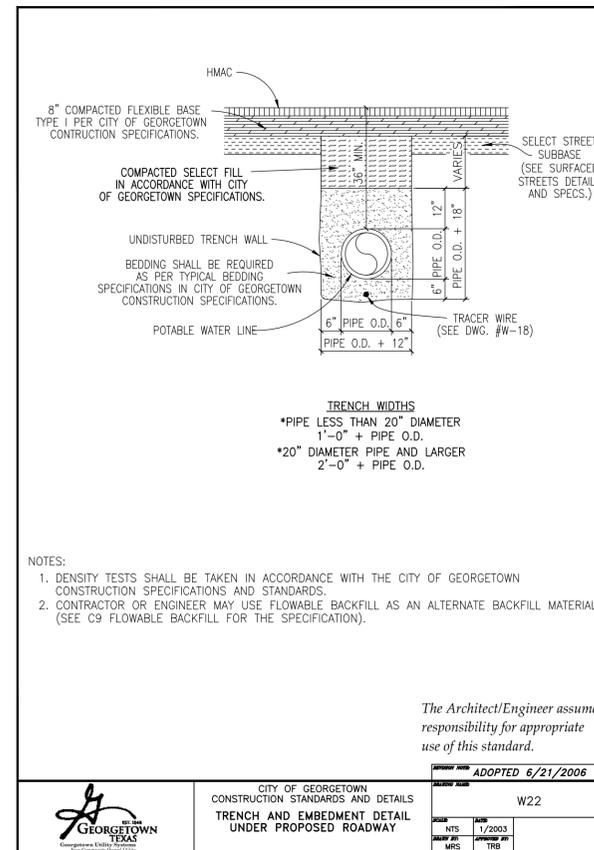
FIRE HYDRANT INSTALLATION
NTS



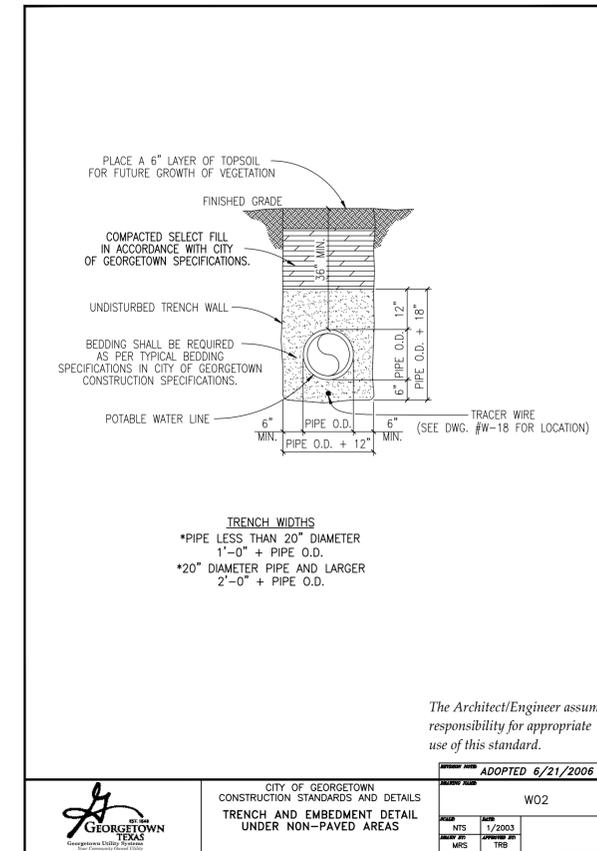
WATER VALVE INSTALLATION
NTS



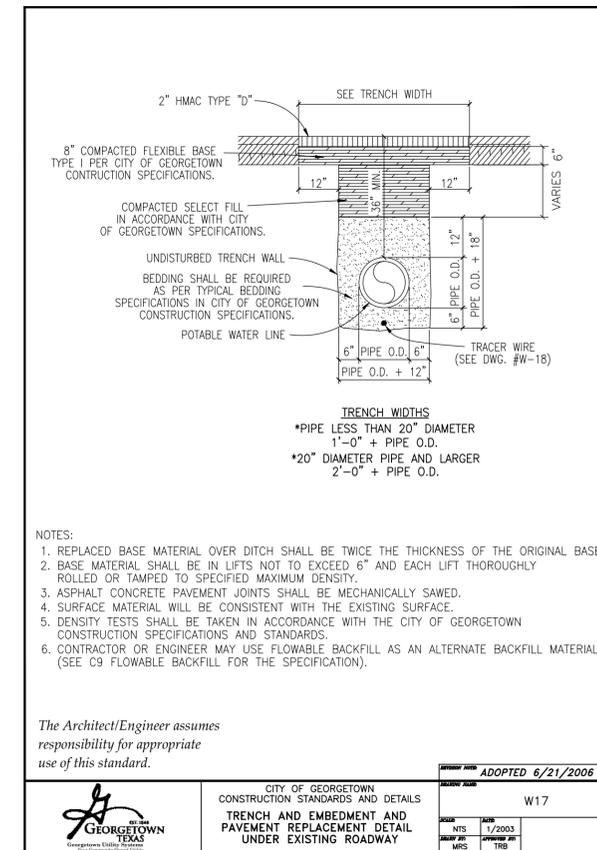
METER BOX
NTS



WATER LINE BEDDING AND SURFACE REPAIR
(PROPOSED ROADWAY)
NTS



WATER LINE BEDDING AND SURFACE REPAIR
(NON-PAVED SURFACE)
NTS



WATER LINE BEDDING AND SURFACE REPAIR
(EXISTING ROADWAY)
NTS



WAELTZ & PRETE, INC.
CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



PROJECT:

SHELL RD. OFFICE
WAREHOUSE

3601 SHELL RD
GEORGETOWN, TX

CLIENT:

BERRY CREEK
TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
DRAWN: GNV DATE: 9/5/25

REVISIONS	9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION
DATE	
No.	

SHEET TITLE:

WATER DETAILS
(1 OF 3)

WP PROJECT NO.:
213-001

SHEET NO.:

C-42

K:\CAD\13-001-Shell Road Office Warehouse4-CAD\PLANS\213-001 DETAILS.dwg, WTR1, 9/5/2025 4:27:51 PM, _DWG To PDF.pc3, 1:1, GNV



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CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
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10/27/25
 05 Sept 25

PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.
9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

SHEET TITLE:
WASTEWATER DETAILS (1 OF 2)

WP PROJECT NO.:
213-001

SHEET NO.:
C-45

STANDARD MANHOLE - PLAN

CITY OF GEORGETOWN NOTES:
 MANHOLE DETAILS SHALL REFLECT THE CITY'S MINIMUM SPECIFICATIONS, AS STATED BELOW:
 A. ALL MANHOLES SHALL BE 48" I.D., R.C.P., CLASS III, WITH RUBBER PROFILE GASKET - SINGLE OFF-SET JOINT CONFORMING TO ASTM C478, C433 AND C76.
 B. ALL MANHOLES SHALL HAVE FRAME AND COVER, AS MANUFACTURED BY EAST JORDAN IRON WORKS (AS PER DETAIL # WW-07) OR APPROVED EQUIVALENT.
 C. ALL MANHOLES SHALL BE CONCRETE WITH CAST IRON FRAME AND COVER.
 D. ALL MANHOLES SHALL HAVE AN ECCENTRIC CONE.
 E. MANHOLES MAY HAVE A FLAT LID IF APPROVED BY CITY OF GEORGETOWN, BEING 12" THICK WITH A MINIMUM 30" OPENING, AS MANUFACTURED BY HANSEN PIPE AND PRECAST OR APPROVED EQUAL M.F.G. CONFORMING TO ASTM C478, 5000 P.S.I. CONCRETE, TRAFFIC BEARING AND WITH PROFILE GASKET - SINGLE OFF-SET JOINT CONFORMING TO ASTM C443.
 F. INVERTS AND FLEXIBLE SEAL BOOTS, PER ASTM C-923, SHALL BE CAST INTO BASE SECTION.
 G. MINIMUM DROP BETWEEN INVERTS SHALL BE ONE-TENTH OF A FOOT (0.1').
 H. GRADE RINGS WITH AN I.D. TO MATCH FRAMES CLEAR OPENING WITH A MAXIMUM ADJUSTMENT OF 12" ARE ALLOWED.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STANDARD MANHOLE - PLAN		WW02
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

FLOW PATTERNS FOR INVERT CHANNELS

CITY OF GEORGETOWN NOTES:
 1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
 2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOW.
 3. CHANNELS FOR FUTURE CONSTRUCTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND, AND COVERED WITH 1" OF MORTAR.
 4. SLOPE MANHOLE ITSELF WITH A 1:2 SLOPE FROM MANHOLE WALL TO CHANNEL.
 5. INVERT SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR 4" DEEP.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
FLOW PATTERNS FOR INVERT CHANNELS		WW06
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

STANDARD MANHOLE - SECTION

CITY OF GEORGETOWN NOTES:
 1. MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET - SINGLE OFF-SET JOINTS.
 2. SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
 3. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
 4. AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
 5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
 6. MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE, REFERENCE MANHOLE VENT DETAIL.
 7. MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR 45-20 TRAFFIC LOADS.
 8. GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
 9. MANHOLE BASE BEDDING MATERIAL, SPECS. FOR 3/4" WASHED GRAVEL:
 SIEVE SIZE 2", PERCENT (%) RETAINED 0
 SIEVE SIZE 1 1/2", % RETAINED 0-10
 SIEVE SIZE 1", % RETAINED 45-80
 SIEVE SIZE 3/4", % RETAINED 85-100
 SIEVE SIZE 3/8", % RETAINED 95-100

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STANDARD MANHOLE - SECTION		WW03
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

INVERT FLOW PATTERNS

NTS

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN NOTES:
 1. BOLTED WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480APT V-1420/1480Z1PT, COVER TO BE STAMPED WITH "SANITARY SEWER".
 2. BOLTED WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
 3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 00148392 41420015.
 4. FOR STANDARD WASTEWATER MANHOLE SET REFER TO DETAIL WW07.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
BOLTED WASTEWATER MANHOLE SET		WW07A
DATE	REVISED	BY
NTS	1/2006	TRB
MRS		

WASTEWATER MANDREL

NTS

*MANDREL SHALL HAVE AN OUTSIDE DIAMETER (O.D.) EQUAL TO 95% OF THE INSIDE DIAMETER (I.D.) OF THE PIPE.

CITY OF GEORGETOWN NOTES:
 1. MANDREL SHALL BE CONSTRUCTED OF METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200PSI WITHOUT BEING DEFORMED.
 2. AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE DIAMETER DIMENSION FOR THE FULL LENGTH OF "B" TO 0.010".
 3. A PROVING RING SHALL BE PROVIDED AND USED FOR EACH SIZE MANDREL IN USE.
 4. MANDREL OD MUST BE EQUAL TO 95% OF THE ID OF THE PIPE
 5. MANDREL BARREL LENGTH "B" MUST BE EQUAL TO 75% OF THE ID OF THE PIPE
 6. ADJUSTABLE MANDREL IS NOT ACCEPTABLE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
FLEXIBLE "SEAL BOOT" CONNECTOR		WW10
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

WASTEWATER MANHOLE BOOT CONNECTOR

NTS

CITY OF GEORGETOWN NOTES:
 1. MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET - SINGLE OFF-SET JOINTS.
 2. SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
 3. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
 4. AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
 5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
 6. MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE, REFERENCE MANHOLE VENT DETAIL.
 7. MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR 45-20 TRAFFIC LOADS.
 8. GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
 9. MANHOLE BASE BEDDING MATERIAL, SPECS. FOR 3/4" WASHED GRAVEL:
 SIEVE SIZE 2", PERCENT (%) RETAINED 0
 SIEVE SIZE 1 1/2", % RETAINED 0-10
 SIEVE SIZE 1", % RETAINED 45-80
 SIEVE SIZE 3/4", % RETAINED 85-100
 SIEVE SIZE 3/8", % RETAINED 95-100

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STANDARD MANHOLE - SECTION		WW03
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

WASTEWATER MANDREL

NTS

*MANDREL SHALL HAVE AN OUTSIDE DIAMETER (O.D.) EQUAL TO 95% OF THE INSIDE DIAMETER (I.D.) OF THE PIPE.

CITY OF GEORGETOWN NOTES:
 1. MANDREL SHALL BE CONSTRUCTED OF METAL OR A RIGID PLASTIC MATERIAL THAT CAN WITHSTAND 200PSI WITHOUT BEING DEFORMED.
 2. AFTER WELDING IS COMPLETED, TRUE THE OUTSIDE DIAMETER DIMENSION FOR THE FULL LENGTH OF "B" TO 0.010".
 3. A PROVING RING SHALL BE PROVIDED AND USED FOR EACH SIZE MANDREL IN USE.
 4. MANDREL OD MUST BE EQUAL TO 95% OF THE ID OF THE PIPE
 5. MANDREL BARREL LENGTH "B" MUST BE EQUAL TO 75% OF THE ID OF THE PIPE
 6. ADJUSTABLE MANDREL IS NOT ACCEPTABLE.

The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STANDARD MANHOLE - SECTION		WW03
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

STANDARD MANHOLE - SECTION

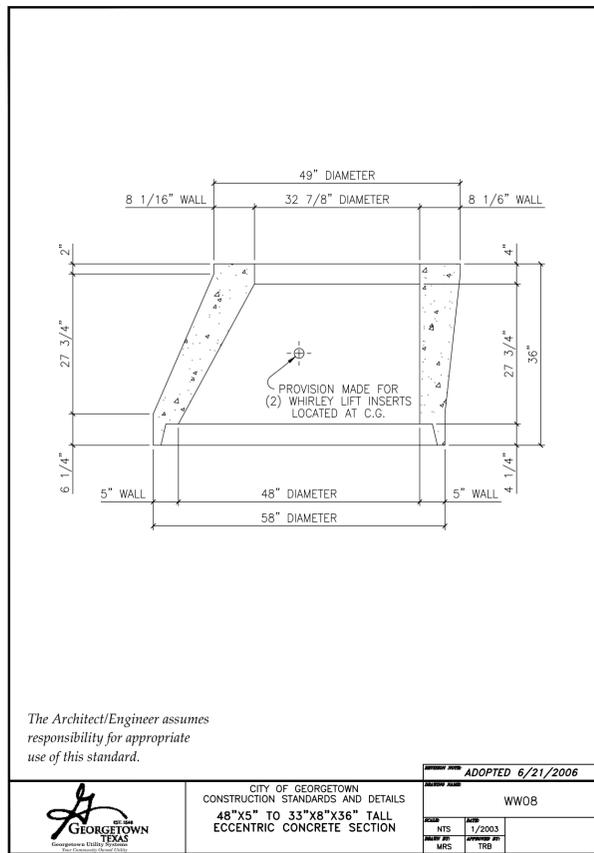
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CITY OF GEORGETOWN NOTES:
 1. MANHOLES SHALL BE PRECAST ASTM C-478 BELL AND SPIGOT WITH PROFILE GASKET - SINGLE OFF-SET JOINTS.
 2. SEE PLANS AND MANHOLE SCHEDULE, FOR MANHOLE SIZE, LOCATION, CONFIGURATION, TYPE OF TOP SECTION, VENTING REQUIREMENTS, PIPE SIZE AND TYPES.
 3. SEE SPECIFICATIONS ON MATERIALS AND CONSTRUCTION.
 4. AN 80 MIL. COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR SPRAY WALL EPOXY COATING, OR APPROVED EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS.
 5. ALL MANHOLE COVERS SHALL BE BOLTED AND GASKETED WHEN MANHOLES ARE LOCATED OUT FROM PAVEMENT.
 6. MANHOLES TO BE VENTED ARE IDENTIFIED ON MANHOLE SCHEDULE, REFERENCE MANHOLE VENT DETAIL.
 7. MANHOLES ARE TO BE DESIGNED TO RESIST LATERAL AND VERTICAL SOIL FORCES RESULTING FROM MANHOLE DEPTH. ADDITIONALLY, MANHOLES LOCATED IN PAVEMENT TO BE DESIGNED FOR 45-20 TRAFFIC LOADS.
 8. GROUT SHALL MEET THE REQUIREMENTS AS STATED BY THE COATING MANUFACTURER.
 9. MANHOLE BASE BEDDING MATERIAL, SPECS. FOR 3/4" WASHED GRAVEL:
 SIEVE SIZE 2", PERCENT (%) RETAINED 0
 SIEVE SIZE 1 1/2", % RETAINED 0-10
 SIEVE SIZE 1", % RETAINED 45-80
 SIEVE SIZE 3/4", % RETAINED 85-100
 SIEVE SIZE 3/8", % RETAINED 95-100

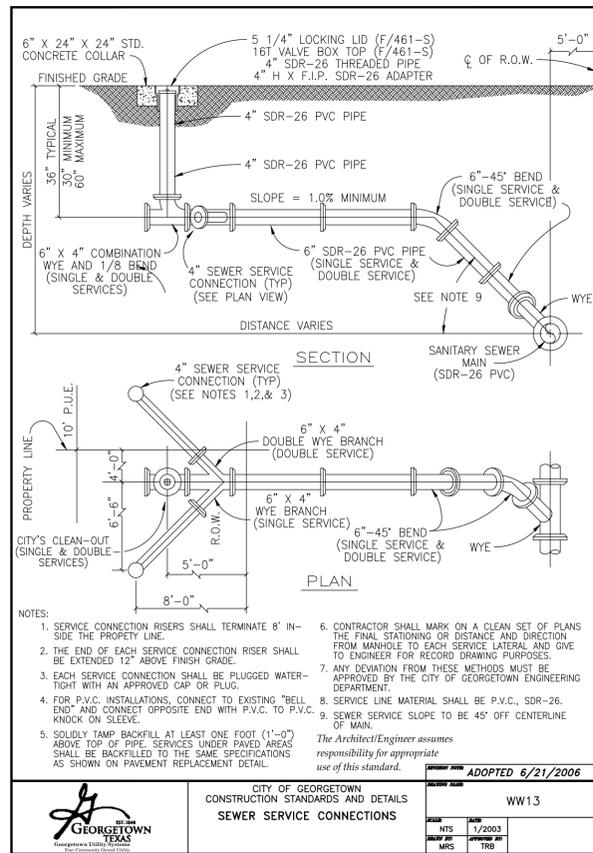
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS		ADOPTED 6/21/2006
STANDARD MANHOLE - SECTION		WW03
DATE	REVISED	BY
NTS	1/2003	TRB
MRS		

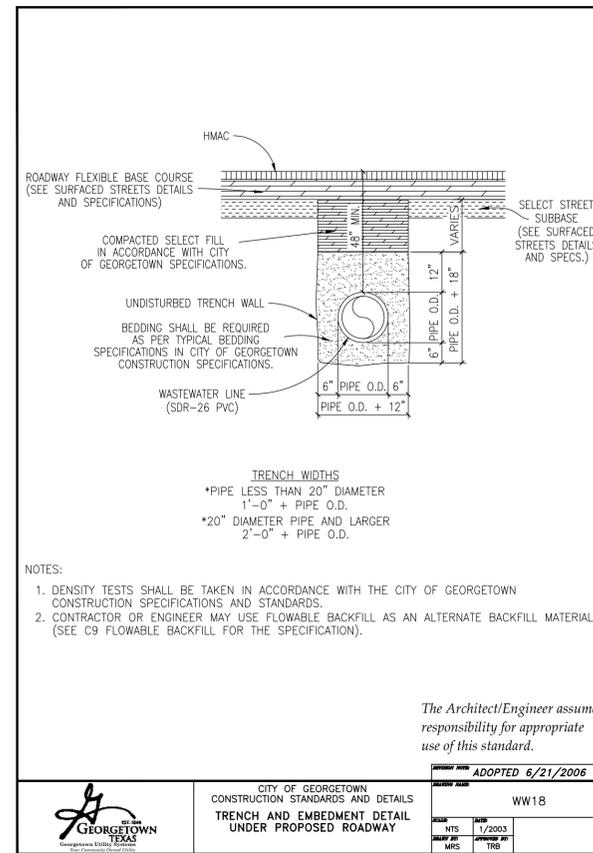
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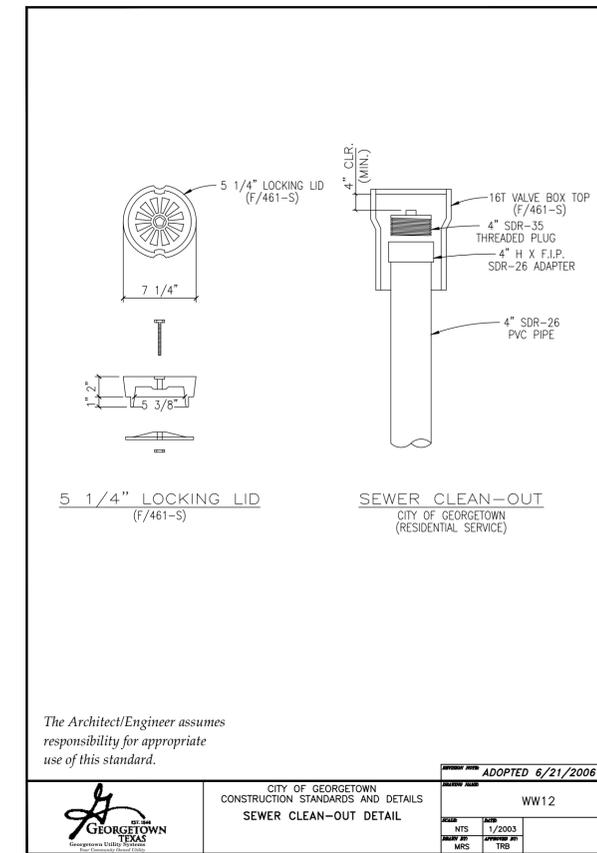
48"x5" TO 33"x8"x36" TALL
ECCENTRIC CONCRETE SECTION
NTS



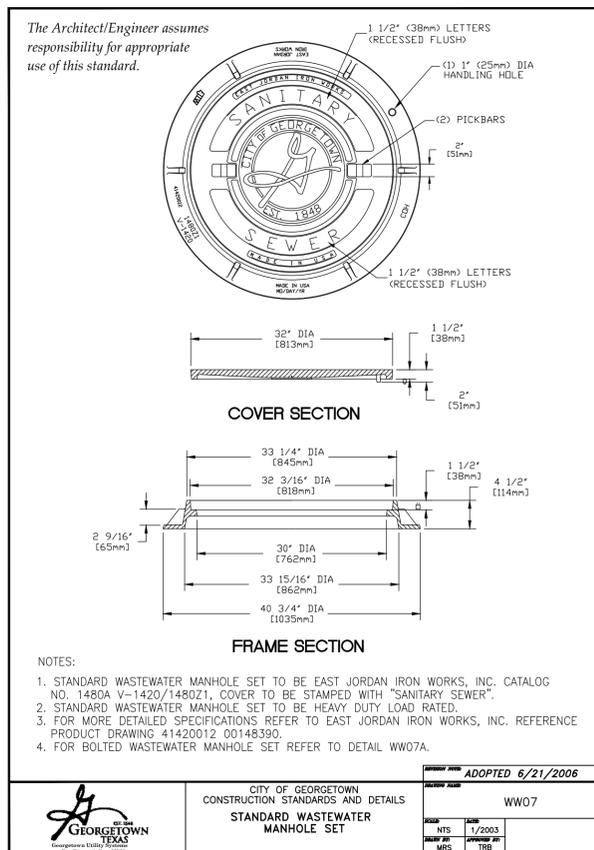
SEWER SERVICE CONNECTIONS
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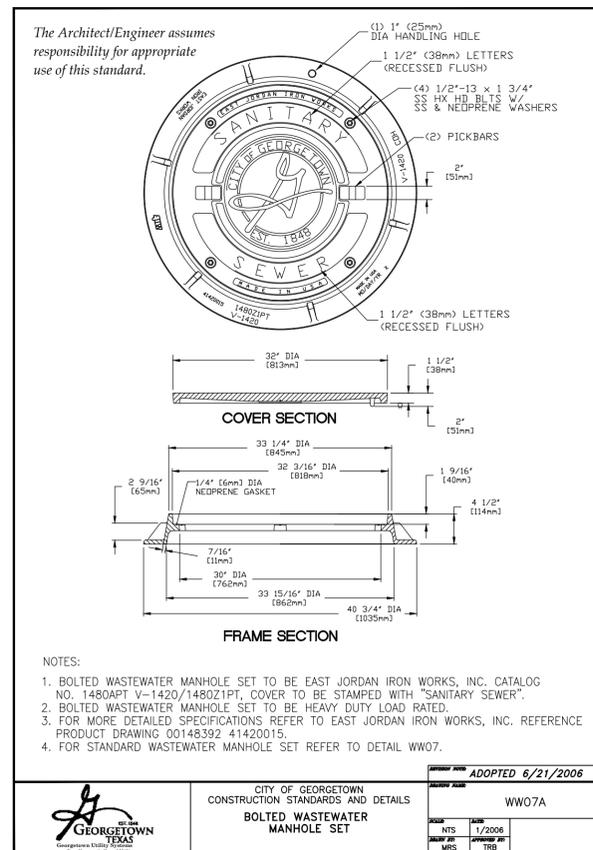
WASTEWATER LINE BEDDING AND SURFACE REPAIR
(UNDER PROPOSED ROADWAY)
NTS



CLEANOUT
NTS



STANDARD WASTEWATER MANHOLE SET
NTS



BOLTED WW MANHOLE COVER
NTS



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CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD.
ROUND ROCK, TX. 78665
PH (512) 505-8953
FIRM TX. REG. #F-10308



PROJECT:

SHELL RD. OFFICE
WAREHOUSE
3601 SHELL RD
GEORGETOWN, TX

CLIENT:

BERRY CREEK
TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
DRAWN: GNV DATE: 9/5/25

REVISIONS
 9/5/2025
 100% SET
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 NOT FOR CONSTRUCTION

SHEET TITLE:

WASTEWATER
DETAILS (2 OF 2)

WP PROJECT NO.:
213-001

SHEET NO.:

C-46

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CIVIL ENGINEERS
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PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

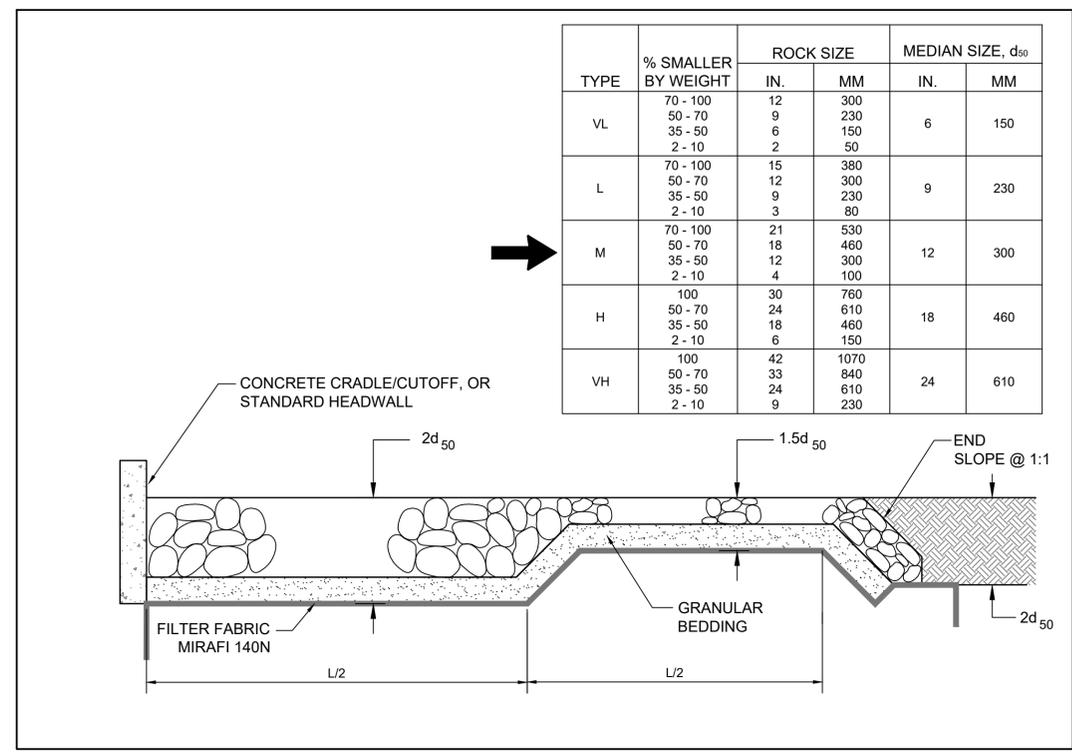
DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.
9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION		

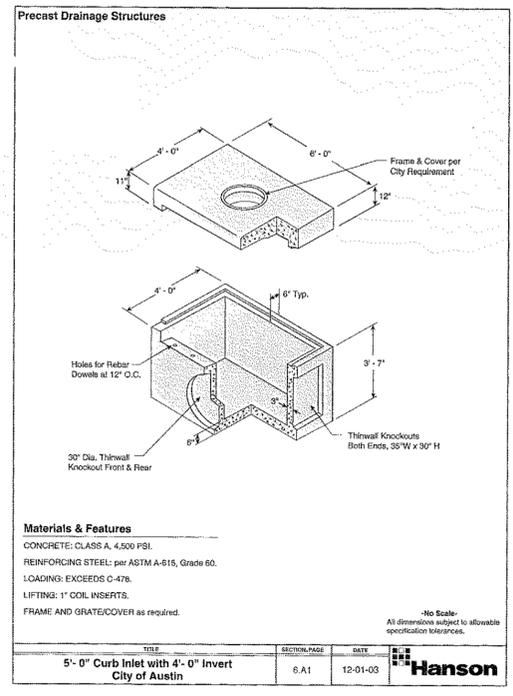
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STORM SEWER DETAILS

WP PROJECT NO.:
 213-001

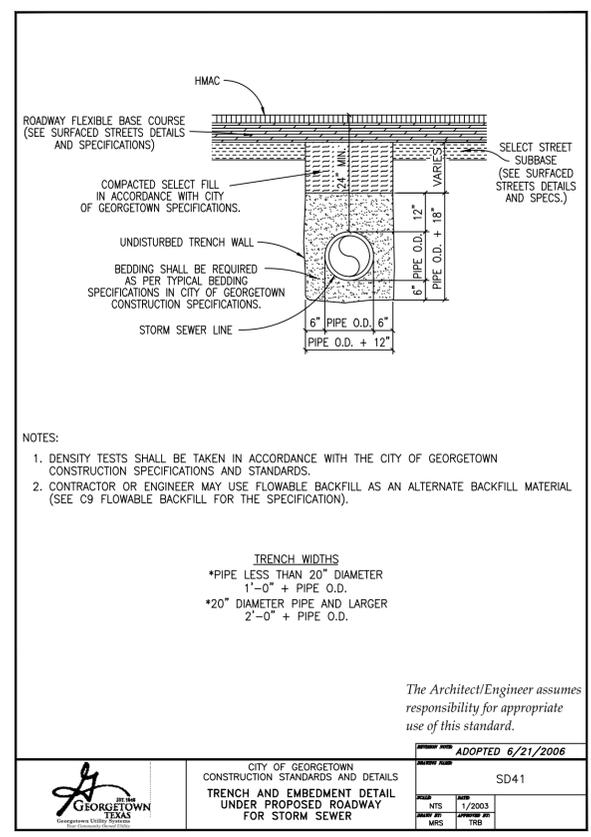
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C-47



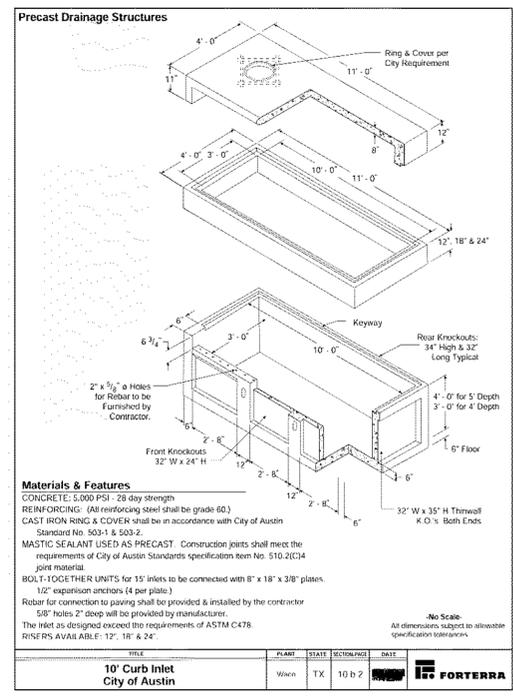
ROCK RIP-RAP
 NTS



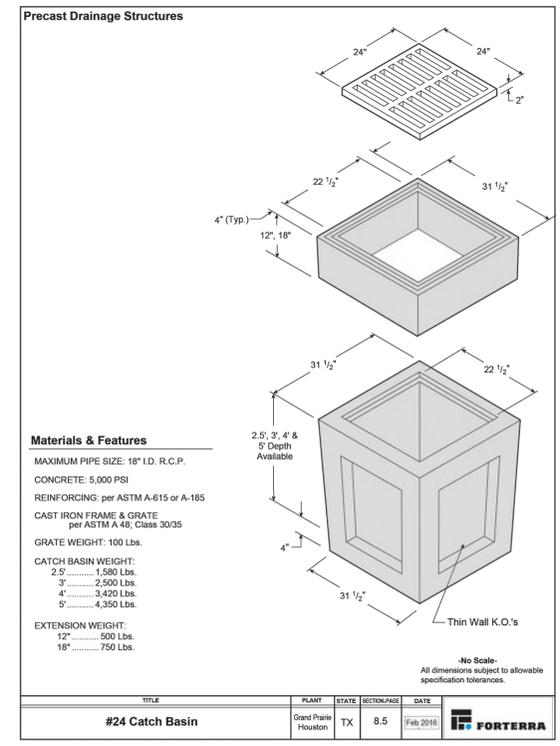
5' CURB INLET
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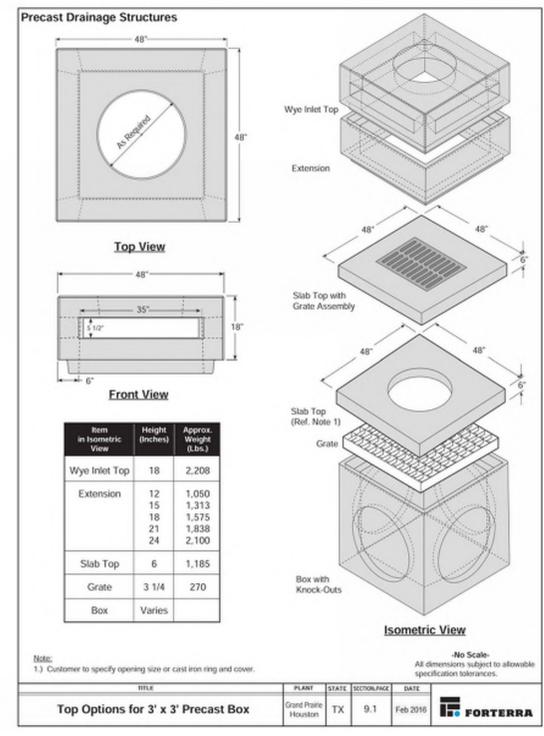
TRENCH AND BEDDING UNDER PROPOSED ROADWAY
 NTS



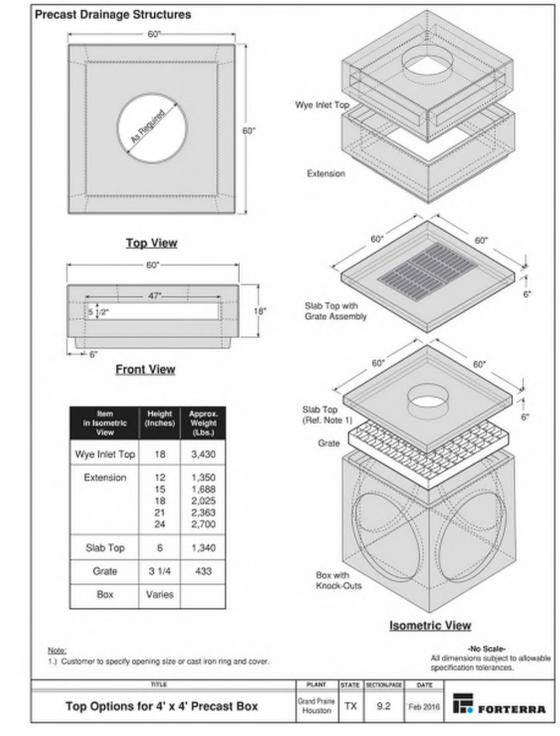
10' CURB INLET
 NTS



2' X 2' GRATE INLET
 NTS



3' X 3' GRATE INLET
 NTS



4' X 4' JUNCTION BOX
 NTS

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CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	NO.	DATE	DESCRIPTION

SHEET TITLE:
TXDOT DRAINAGE STANDARD

WP PROJECT NO.:
213-001

SHEET NO.:
C-48

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"	3 or more pipe culverts	3 1/2" Std (4.000" O.D.)
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"		
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	4" Std (4.500" O.D.)
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"		
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	5" Std (5.563" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"		
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"	All pipe culverts	5" Std (5.563" O.D.)
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

- The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.
- Provide cross pipes, except the first bottom pipe, of the size shown in the table. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.
- Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.
- Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."
- Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

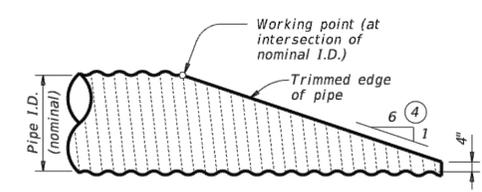
MATERIAL NOTES:
 Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.
 Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.
 Provide ASTM A307 bolts and nuts.
 Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:
 Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.
 Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.
 Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."
 Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Texas Department of Transportation
 Bridge Division Standard

SAFETY END TREATMENT FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE SETP-PD

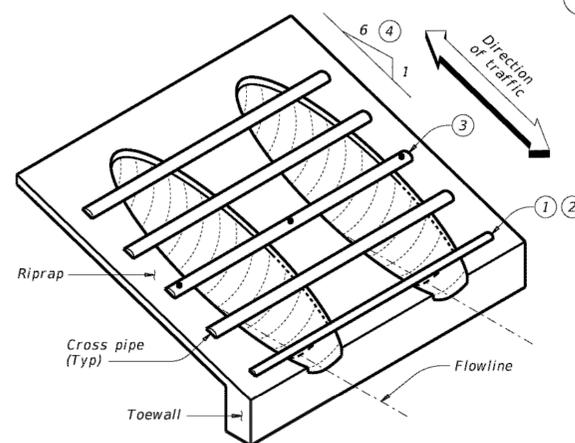
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 ©TXDOT February 2020 CONT SECT JOB HIGHWAY
 REVISIONS DIST COUNTY SHEET NO.



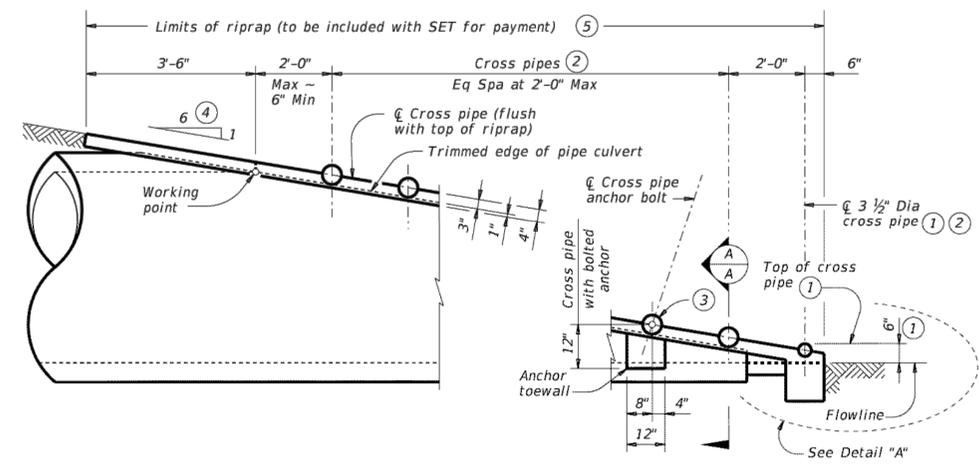
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details at reinforced concrete pipe (RCP) culvert are similar.)

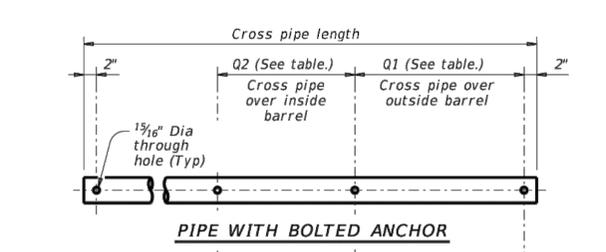


ISOMETRIC VIEW OF TYPICAL INSTALLATION

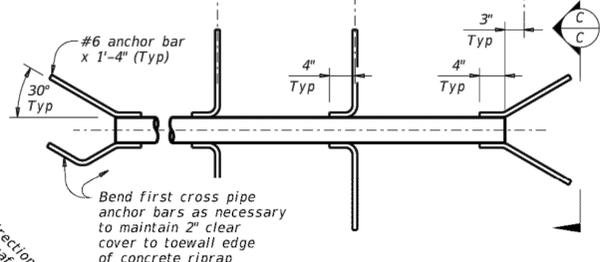


SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

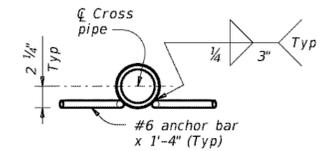
(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



PIPE WITH BOLTED ANCHOR

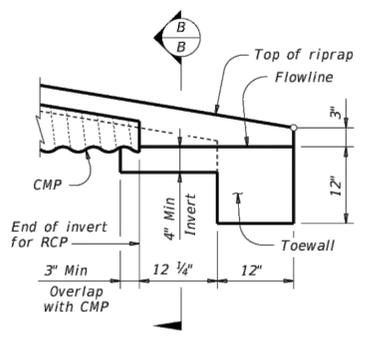


PIPE WITH ANCHOR BARS



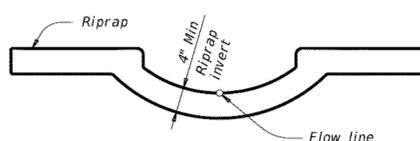
SECTION C-C

CROSS PIPE DETAILS



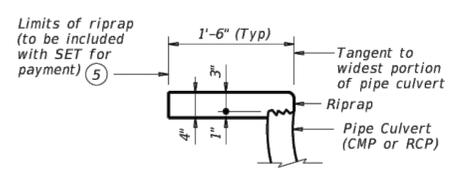
DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)

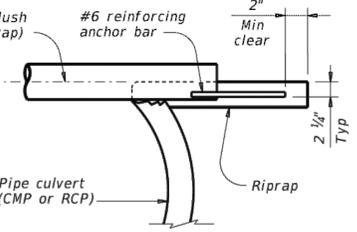


SECTION B-B

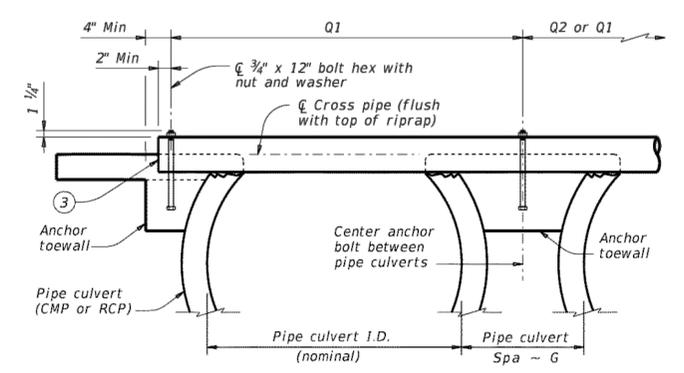
(Cross pipes not shown for clarity.)



SHOWING TYPICAL PIPE CULVERT AND RIPRAP



SHOWING CROSS PIPE WITH ANCHOR BAR



SECTION A-A

SHOWING CROSS PIPE WITH BOLTED ANCHOR

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DATE: FILE:

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CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

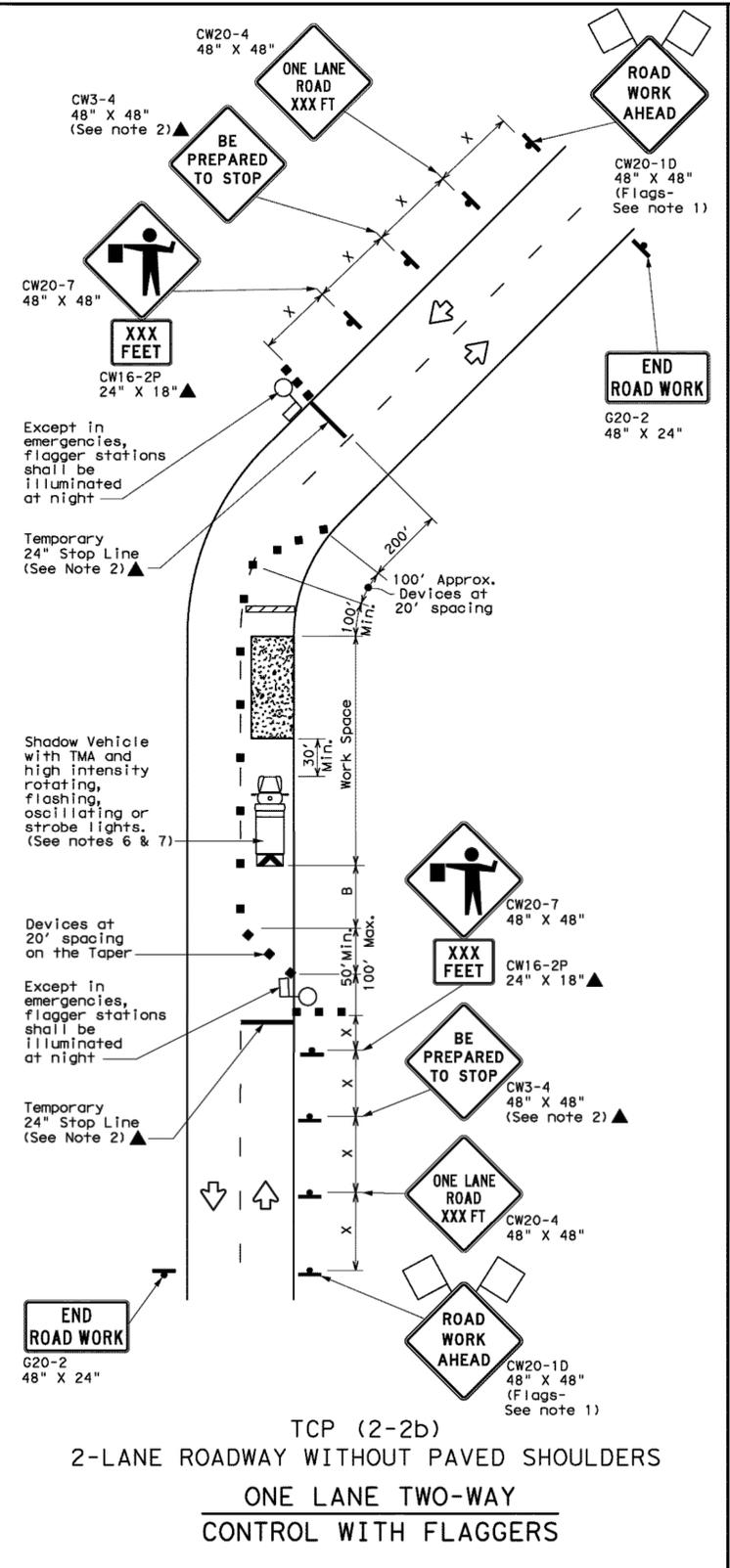
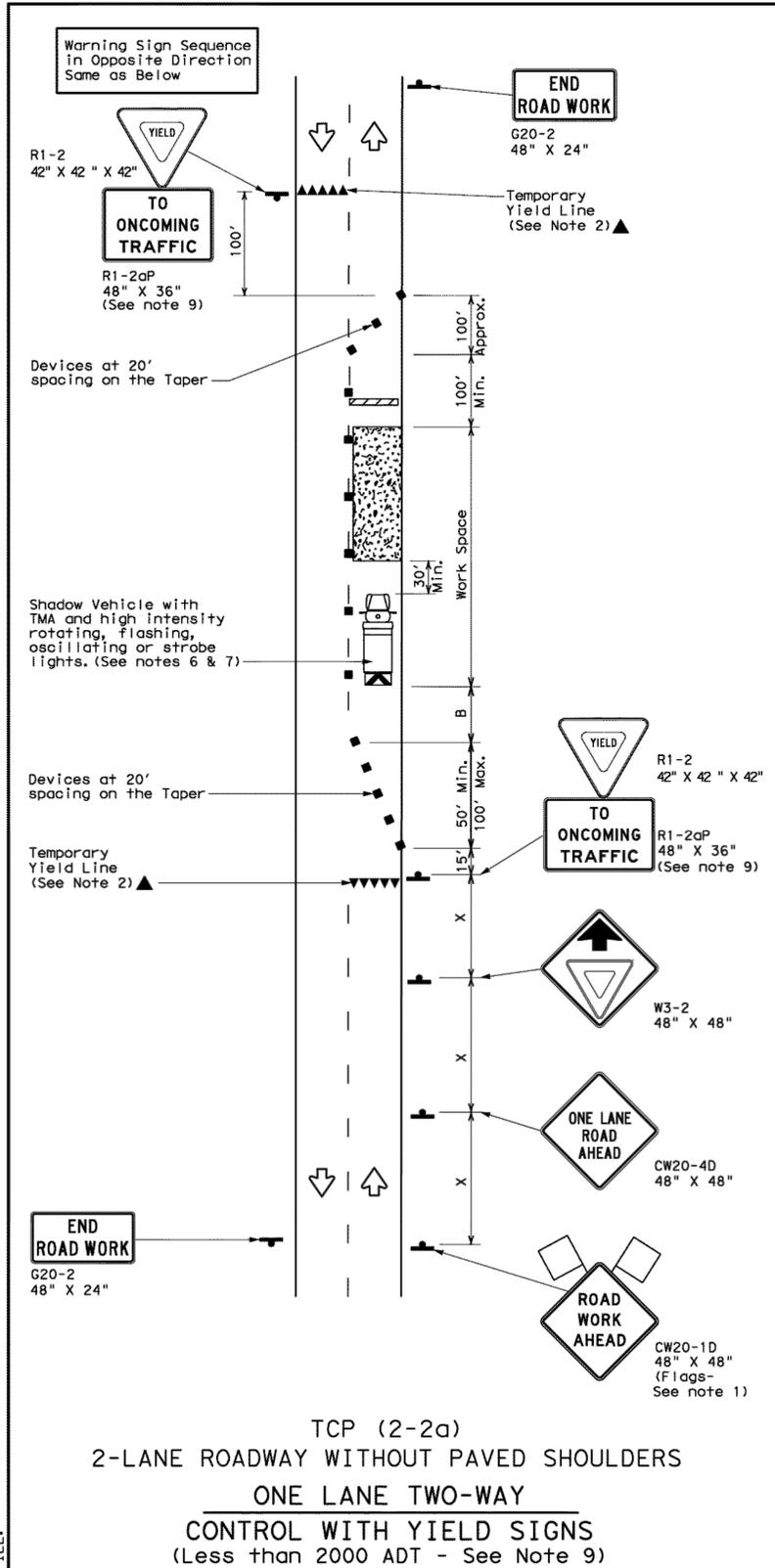
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 9/5/2025
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SHEET TITLE:
TRAFFIC CONTROL PLAN

WP PROJECT NO.:
 213-001

SHEET NO.:
C-49

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LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x"	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40	L = WS	265'	295'	320'	40'	80'	240'	155'	305'
45		450'	495'	540'	45'	90'	320'	195'	360'
50	L = WS	500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60	L = WS	600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70	L = WS	700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)**
- The RI-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The RI-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation
 Traffic Operations Division

TRAFFIC CONTROL PLAN
 ONE-LANE TWO-WAY
 TRAFFIC CONTROL

TCP (2-2) - 12

© TxDOT December 1985	DN: TXDOT	CK1: TXDOT	DN: TXDOT	CK1: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
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1-97				
4-98				
3-03				
162				

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211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25

PROJECT:

SHELL RD. OFFICE WAREHOUSE

3601 SHELL RD GEORGETOWN, TX

CLIENT:

BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- 1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

- 1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

- 1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov

Table listing document sources: COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD), DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS), MATERIAL PRODUCER LIST (MPL), ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)", STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD), TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), TRAFFIC ENGINEERING STANDARD SHEETS

SHEET 1 OF 12



BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC (1) - 21

Table with columns: FILE, DWN, TXDOT, CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO.

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DATE: FILE:

WP PROJECT NO.:

213-001

SHEET NO.:

C-50



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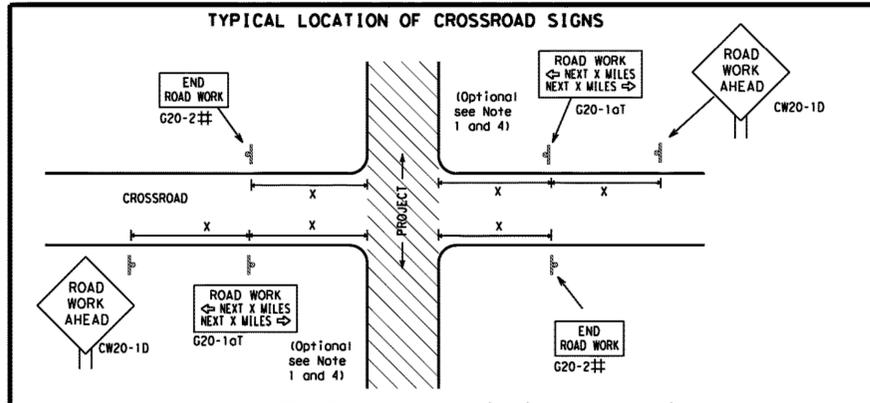
PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

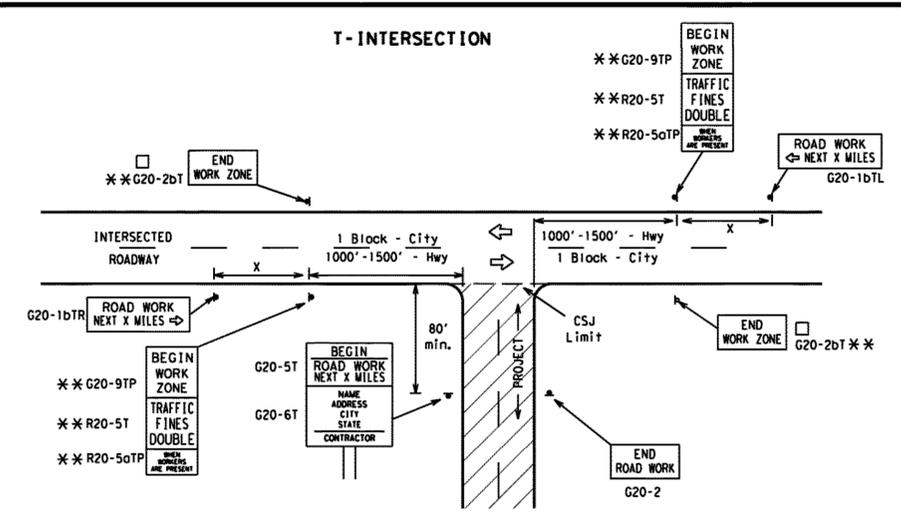
DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS table with columns for No., DATE, and REVISIONS. Includes a large red stamp: '9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION'

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- 1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign... 2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads...



- CSJ LIMITS AT T-INTERSECTION 1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection. 2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure...

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

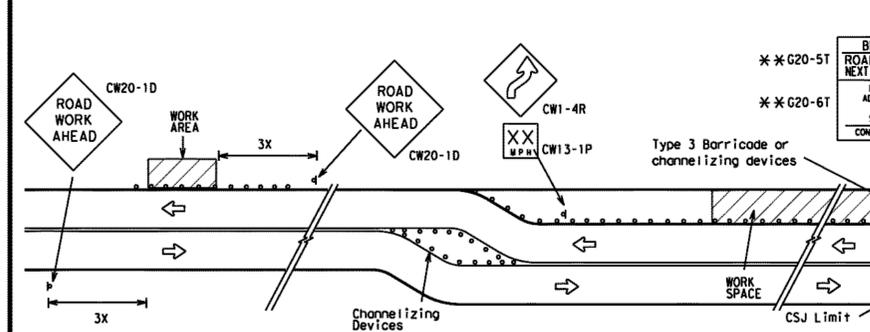
Table with columns: Sign Number or Series, Conventional Road, Expressway/Freeway, Posted Speed, Sign Spacing "X". Lists sign series like CW20-4, CW21, CW22, CW23, CW25, CW1, CW2, CW7, CW8, CW9, CW11, CW14, CW3, CW4, CW5, CW6, CW8-3, CW10, CW12.

* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets. Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

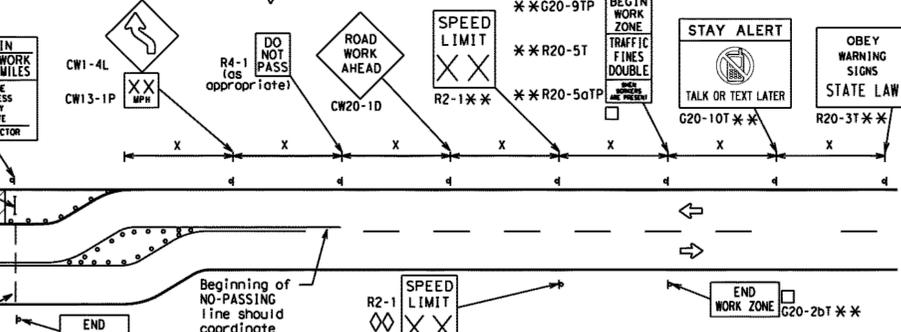
- 1. Special or larger size signs may be used as necessary. 2. Distance between signs should be increased as required to have 1500 feet advance warning. 3. Distance between signs should be increased as required to have 1/2 mile or more advance warning. 4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs". 5. Only diamond shaped warning sign sizes are indicated. 6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



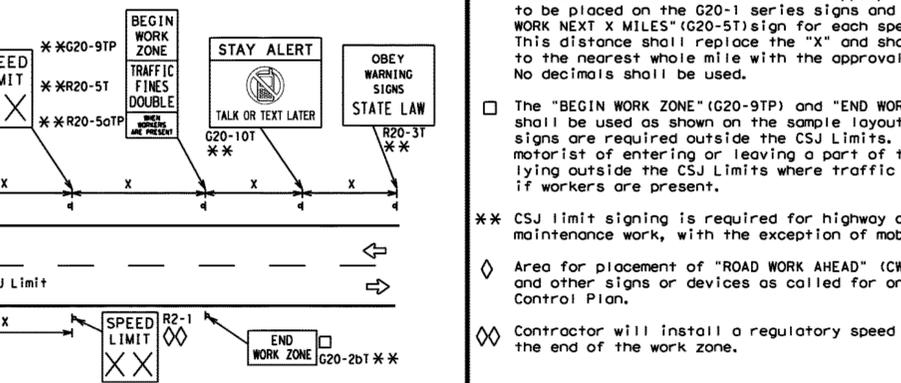
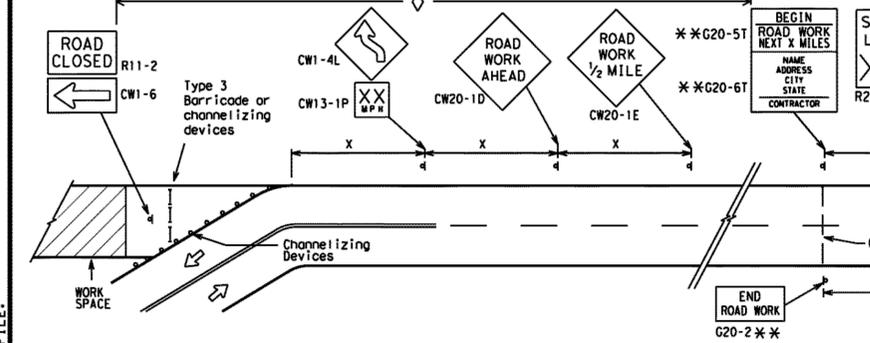
When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



Beginning of NO-PASSING line should coordinate with sign location

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



- NOTES The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used. The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present. CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations. Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan. Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND table: Type 3 Barricade, Channelizing Devices, Sign, See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

SHEET 2 OF 12 Texas Department of Transportation Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

Table with columns: FILE#, DATE, DWN, CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO. Includes project details like bc-21.dgn, November 2002, and sheet number 96.

TxDOT STANDARD BC (2) - 21

WP PROJECT NO.: 213-001

SHEET NO.: C-51



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211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



Handwritten signature and date: 05 Sept 25

PROJECT:

SHELL RD. OFFICE WAREHOUSE

3601 SHELL RD GEORGETOWN, TX

CLIENT:

BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE:

TXDOT STANDARD BC (3)- 21

WP PROJECT NO.:

213-001

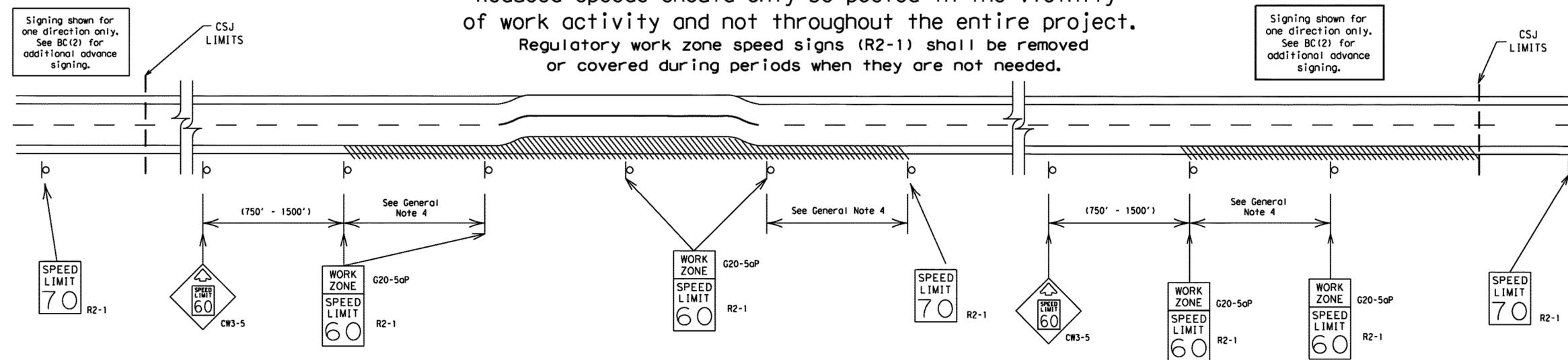
SHEET NO.:

C-52

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present.

Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

GENERAL NOTES

- 1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be: 40 mph and greater 0.2 to 2 miles; 35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to: A. Low enforcement. B. Flagger stationed next to sign. C. Portable changeable message sign (PCMS). D. Low-power (drone) radar transmitter. E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

SHEET 3 OF 12



BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC (3) - 21

Table with columns: FILE#, DWN, CK, DWR, CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO.

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WAELTZ & PRETE, INC. CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS table with columns for No., DATE, and REVISIONS. Includes a red stamp: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE: TXDOT STANDARD BC (6) - 21

WP PROJECT NO.: 213-001

SHEET NO.: C-55

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES (The Engineer may approve other messages not specifically covered here.)

WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

- 1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS). 2. Messages on PCMS should contain no more than 8 words... 17. If disabled, the PCMS should default to an illegible display that will not alarm motorists...

Table with 4 columns: WORD OR PHRASE, ABBREVIATION, WORD OR PHRASE, ABBREVIATION. Lists various roadwork terms and their abbreviations.

Roadway designation # IH-number, US-number, SH-number, FM-number

Phase 1: Condition Lists

Table with 4 columns: Road/Lane/Ramp Closure List, Other Condition List, ROADWORK XXX FT, ROAD REPAIRS XXXX FT. Lists various road conditions and closures.

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Table with 4 columns: Action to Take/Effect on Travel List, Location List, Warning List, ** Advance Notice List. Lists various actions, locations, warnings, and advance notices.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

- 1. Only 1 or 2 phases are to be used on a PCMS. 2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List". 3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".

WORDING ALTERNATIVES

- 1. The words RIGHT, LEFT and ALL can be interchanged as appropriate. 2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate. 3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

- 1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above. 2. When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.

SHEET 6 OF 12



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

Table with columns: FILE#, DSN, TXDOT, CK, TXDOT, DR, TXDOT, CK, TXDOT. Includes revision dates and sheet information.

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211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS table with columns for No., DATE, REVISIONS, and RECORDS. Includes handwritten note: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

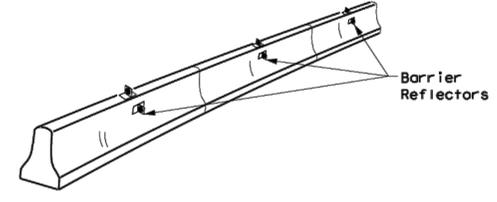
SHEET TITLE: TXDOT STANDARD BC (7) - 21

WP PROJECT NO.: 213-001

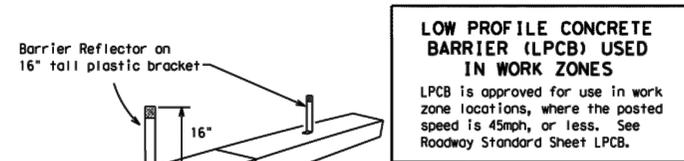
SHEET NO.: C-56

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- 1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

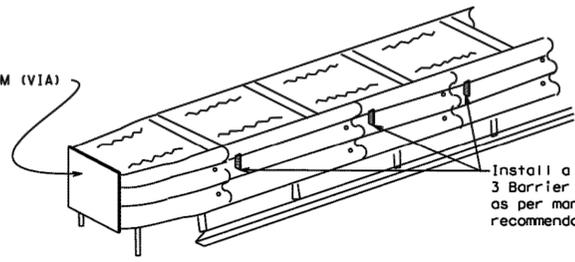
LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

- 3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

See D & OM (VIA)

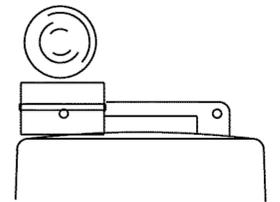


DELINEATION OF END TREATMENTS

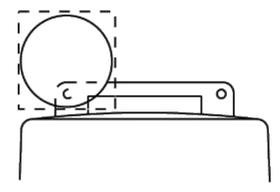
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

- 1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

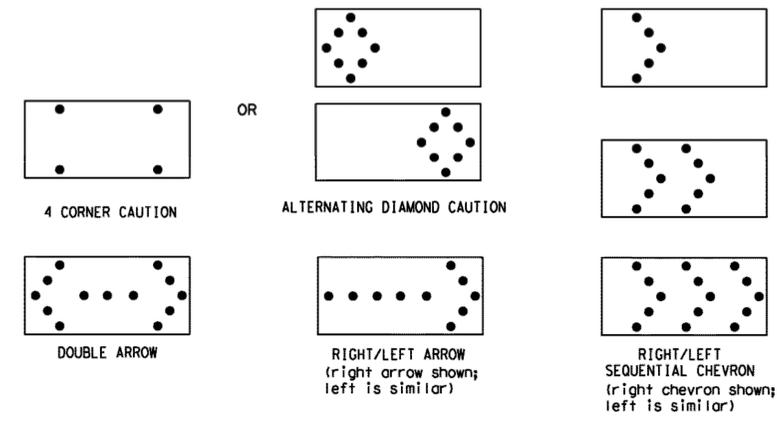
- 1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

- 1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- 1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



- 5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage.
8. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
9. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
10. The sequential arrow display is NOT ALLOWED.
11. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
12. A Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

Table with columns: TYPE, MINIMUM SIZE, MINIMUM NUMBER OF PANEL LAMPS, MINIMUM VISIBILITY DISTANCE. Rows: B (30 x 60, 13, 3/4 mile), C (48 x 96, 15, 1 mile)

ATTENTION: Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- 1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.



BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) - 21

Table with columns: FILE#, DSN, CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO. Includes revision history: 9-07 8-14 7-13 5-21

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WAELTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.
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SHEET TITLE:
TXDOT STANDARD BC (8) - 21

WP PROJECT NO.:
213-001

SHEET NO.:
C-57

GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

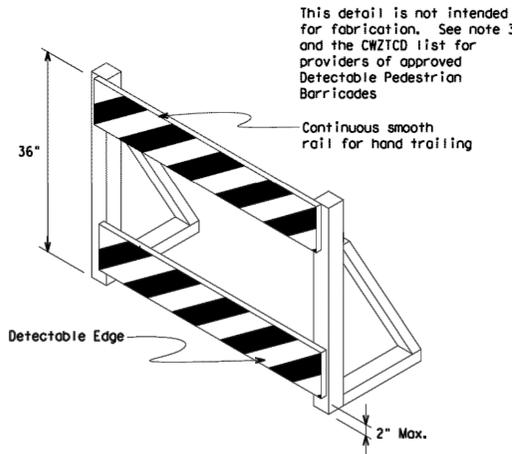
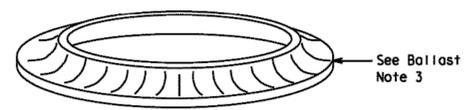
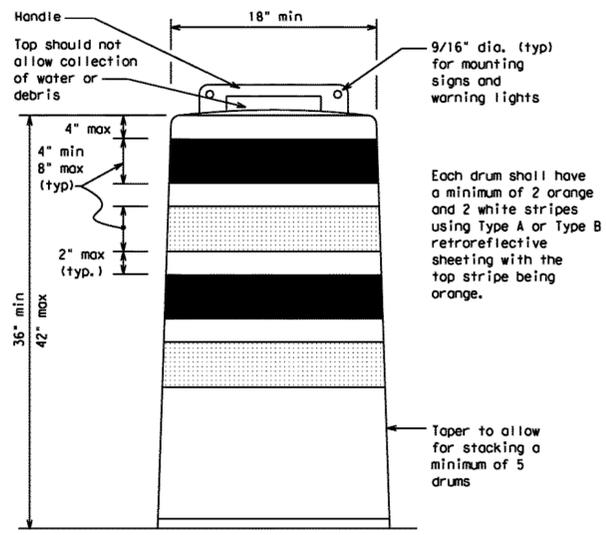
- Pre-qualified plastic drums shall meet the following requirements:
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
 - The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
 - Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
 - Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
 - The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
 - The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectORIZED space between any two adjacent stripes shall not exceed 2 inches in width.
 - Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow bases to be held down while separating the drum body from the base.
 - Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
 - Drum body shall have a maximum unballasted weight of 11 lbs.
 - Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

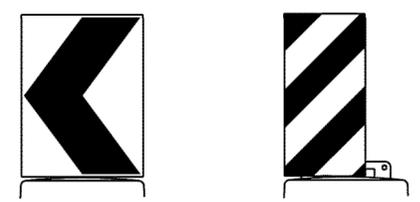
BALLAST

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.



DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign (Maximum Sign Dimension)
 Chevron CWI-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer

12" x 24" Vertical Panel
 mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{PL} or Type C_{PL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than an every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES			
BC (8) - 21			
FILE: bc-21.dgn	DN: TXDOT	CR: TXDOT	DR: TXDOT
© TXDOT November 2002	CONT	SECT	JOB
4-03 8-14	DIST	COUNTY	SHEET NO.
9-07 5-21			
7-13			

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DATE: FILE:



WAELTZ & PRETE, INC. CIVIL ENGINEERS

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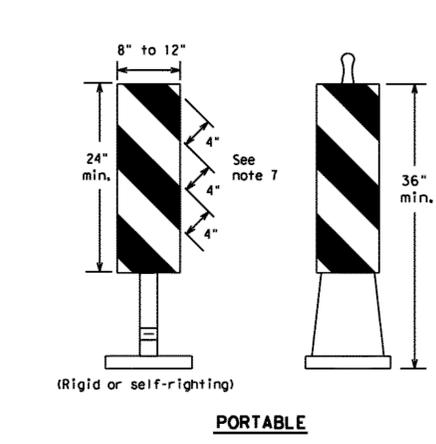
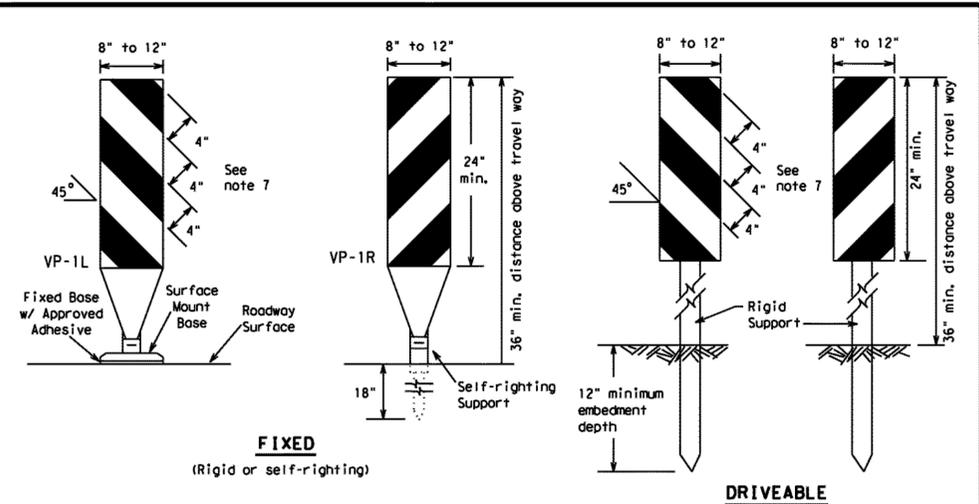
PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

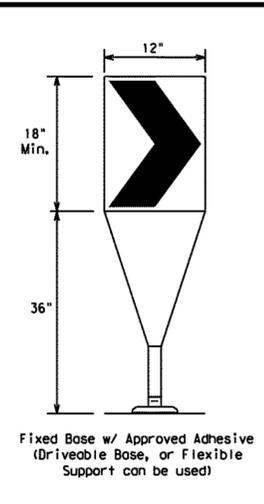
DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS table with columns for No., DATE, and REVISIONS. Includes a large red stamp: '9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION'

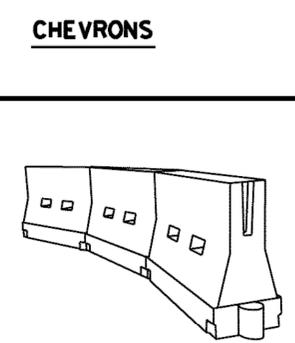
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- 1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base.
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



- 1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

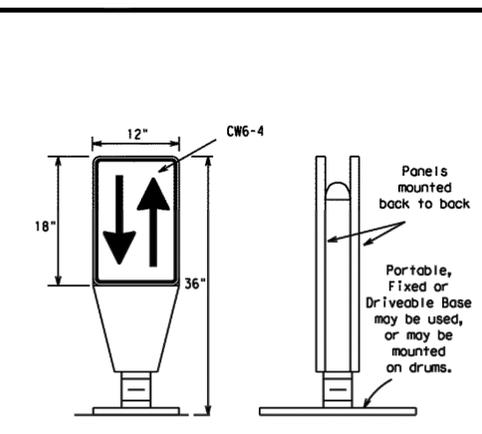
- 1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

- 1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long cones and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS



OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

- 1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise.

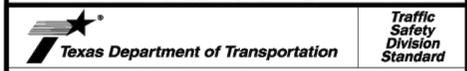
GENERAL NOTES

- 1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways.
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles.
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices as required.
5. Portable bases shall be fabricated from virgin and/or recycled rubber.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces.

Table with columns: Posted Speed, Formula, Minimum Desirable Taper Lengths, and Suggested Maximum Spacing of Channelizing Devices. Includes a note: 'Taper lengths have been rounded off. L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)'

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

Table with columns: FILE#, DATE, CONT, SECT, JOB, HIGHWAY, DIST, COUNTY, SHEET NO. Includes revision history for 9-07 and 7-13.

WP PROJECT NO.: 213-001

SHEET NO.: C-58

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WAELTZ & PRETE, INC. CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

REVISIONS table with columns for REVISIONS, DATE, and NO. Includes a large red stamp: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE: TXDOT STANDARD BC (10) - 21

WP PROJECT NO.: 213-001

SHEET NO.: C-59

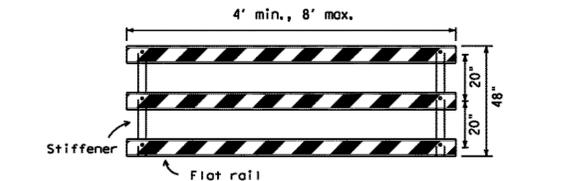
TYPE 3 BARRICADES

- 1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring.
4. Stripping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, stripping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

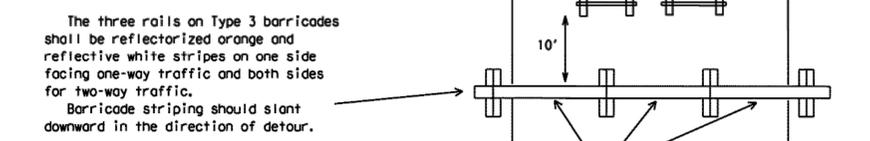
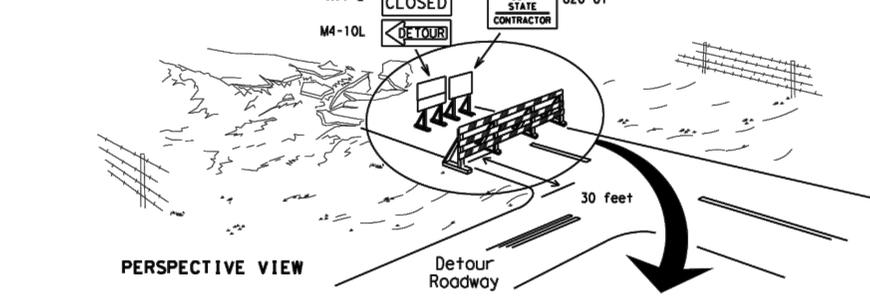


TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



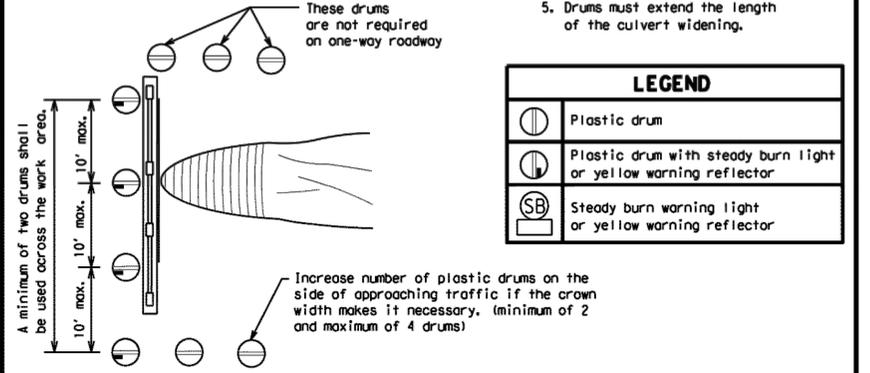
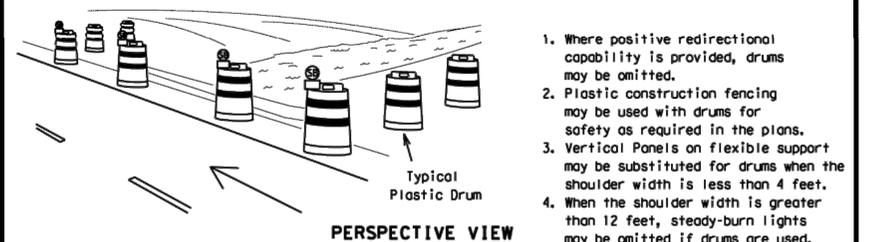
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



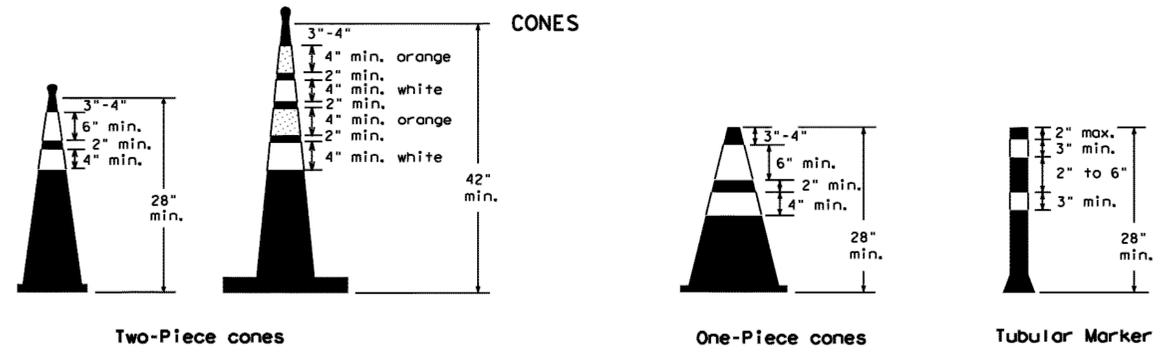
- 1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



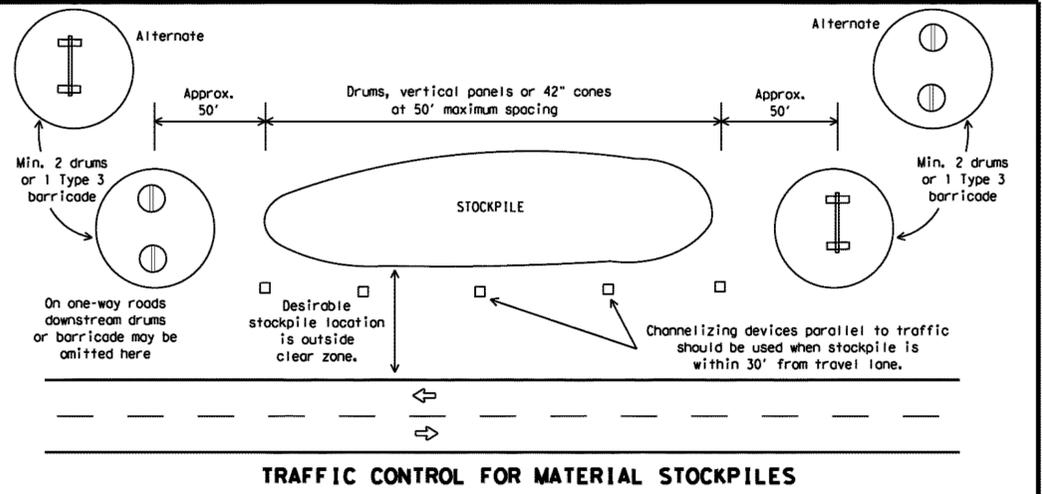
LEGEND table with symbols for Plastic drum, Plastic drum with steady burn light or yellow warning reflector, and Steady burn warning light or yellow warning reflector.

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

- 1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined in BC(4).
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12, Texas Department of Transportation logo, BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES, BC (10) - 21, FILE: bc-21.dgn, DATE: 9-07 8-14 7-13 5-21

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WALTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

REVISIONS	DATE	NO.

SHEET TITLE:
TXDOT STANDARD BC (11) - 21

WP PROJECT NO.:
213-001

SHEET NO.:
C-60

WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
- When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

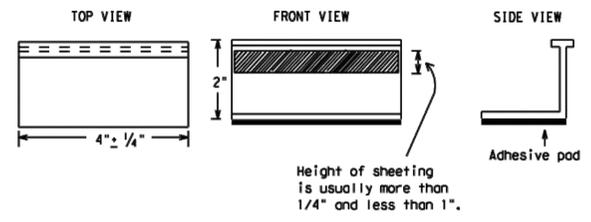
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
- The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
- Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ (STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
 - All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
 - Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.
- Guidemarks shall be designated as:
 YELLOW - (two amber reflective surfaces with yellow body).
 WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC (11) - 21

FILE: bc-21.dgn	DN: TxDOT	CR: TxDOT	DR: TxDOT	CR: TxDOT
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REVISIONS	DIST	COUNTY	SHEET NO.	
2-98 9-07 5-21				
1-02 7-13				
11-02 8-14				

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WAELTZ & PRETE, INC. CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

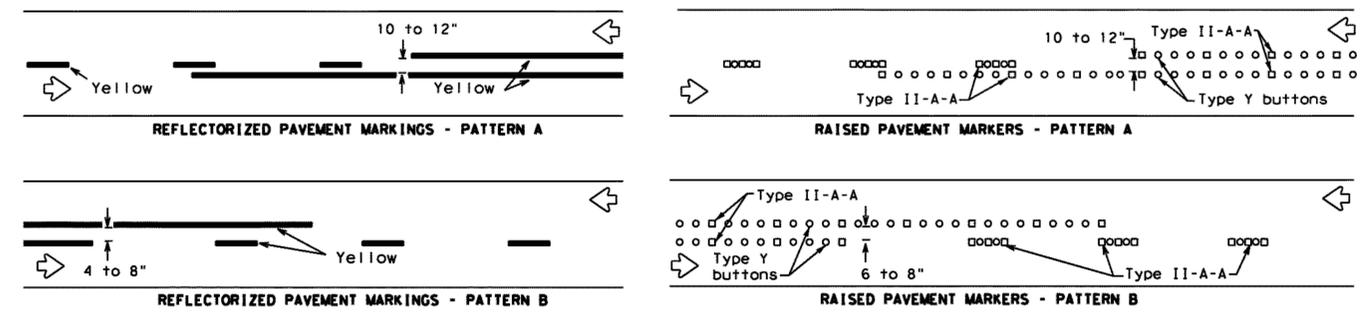
Table with columns for REVISIONS, DATE, and No. Includes a red stamp: 9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION

SHEET TITLE: TXDOT STANDARD BC (12) -21

WP PROJECT NO.: 213-001

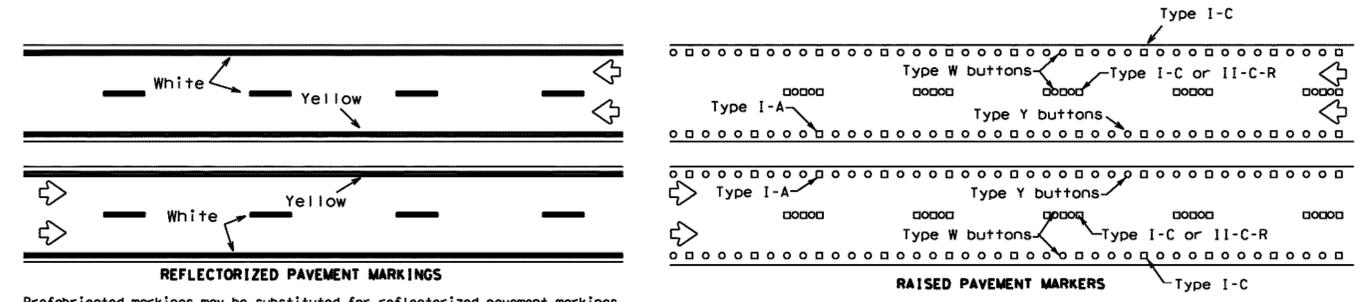
SHEET NO.: C-61

PAVEMENT MARKING PATTERNS



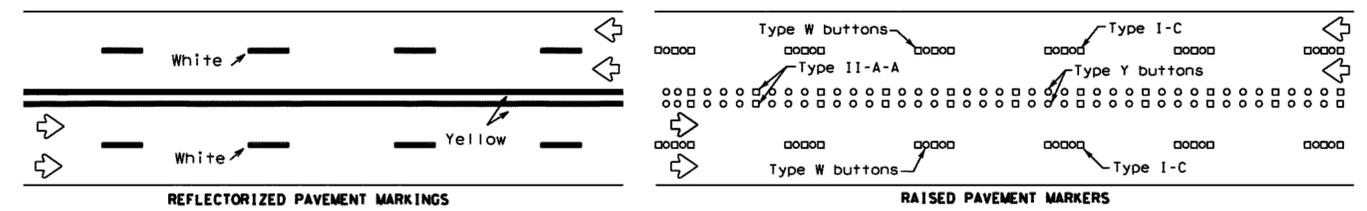
Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



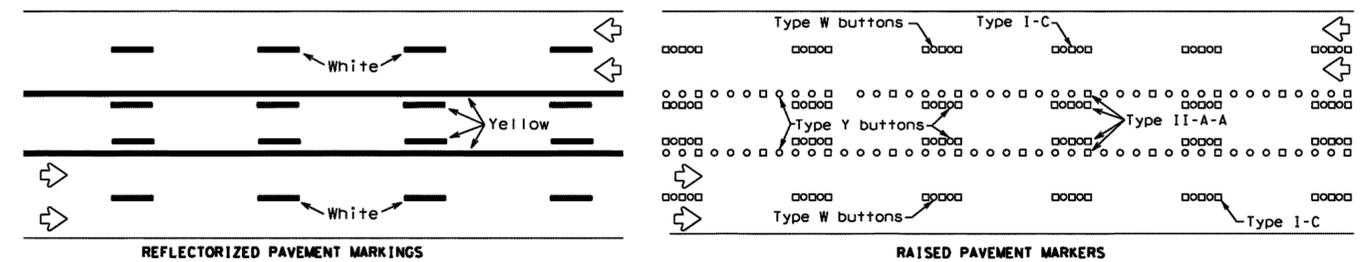
Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



Prefabricated markings may be substituted for reflectorized pavement markings.

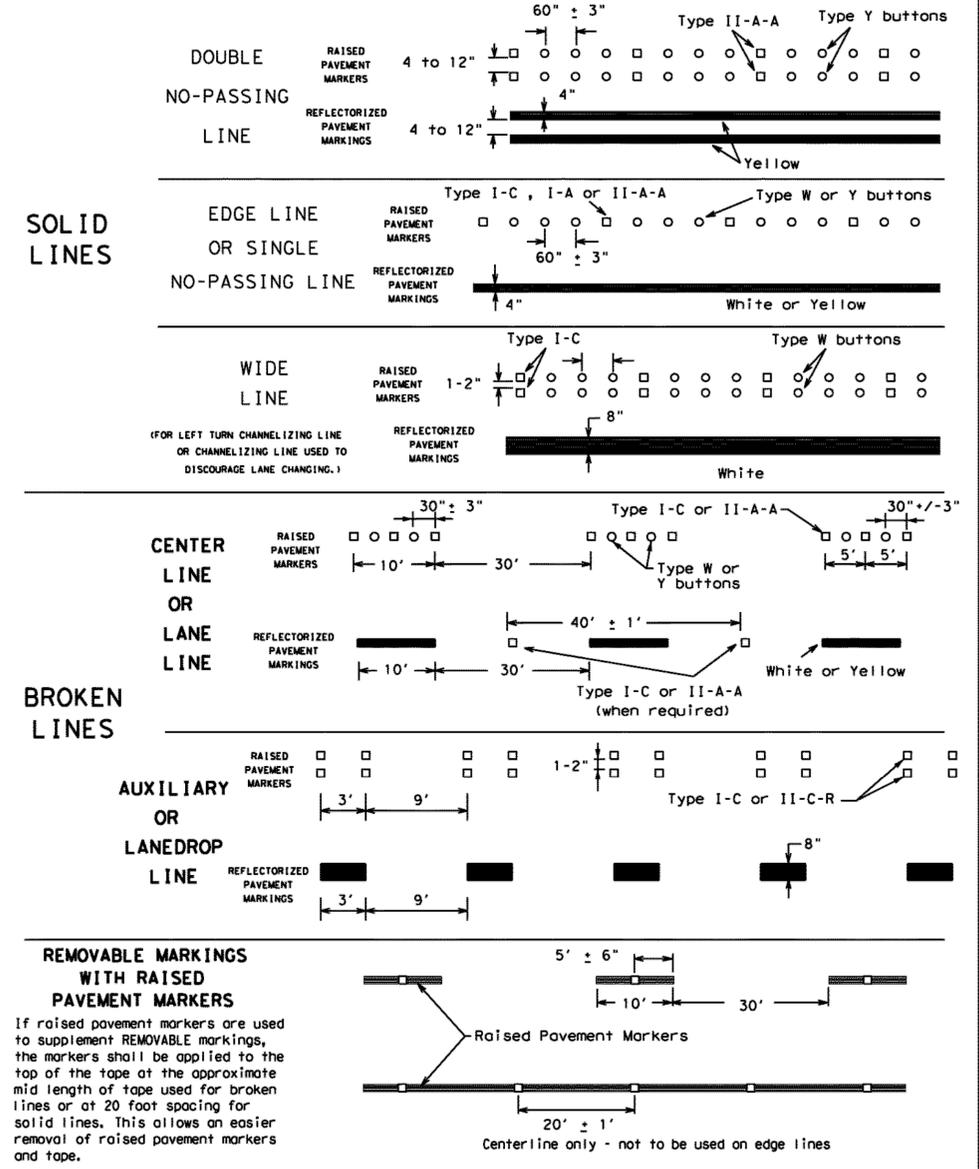
LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



Boxed note: Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

SHEET 12 OF 12

Header for Texas Department of Transportation Traffic Safety Division Standard, BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS BC (12) -21, including revision table and file information.

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DATE: FILE:

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WAELTZ & PRETE, INC. CIVIL ENGINEERS

211 N. A.W. GRIMES BLVD. ROUND ROCK, TX. 78665 PH (512) 505-8953 FIRM TX. REG. #F-10308



PROJECT: SHELL RD. OFFICE WAREHOUSE 3601 SHELL RD GEORGETOWN, TX

CLIENT: BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP DRAWN: GNV DATE: 9/5/25

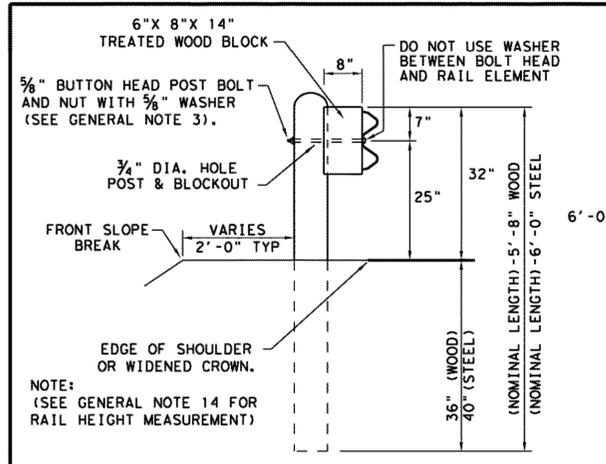
REVISIONS table with columns for NO., DATE, REVISIONS, and RECORD. Includes a large red stamp: '9/5/2025 100% SET FOR REVIEW ONLY NOT FOR CONSTRUCTION'

SHEET TITLE: METAL BEAM GUARD FENCE FENCE DETAIL

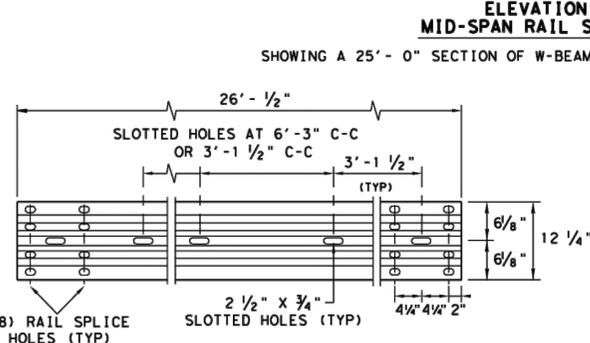
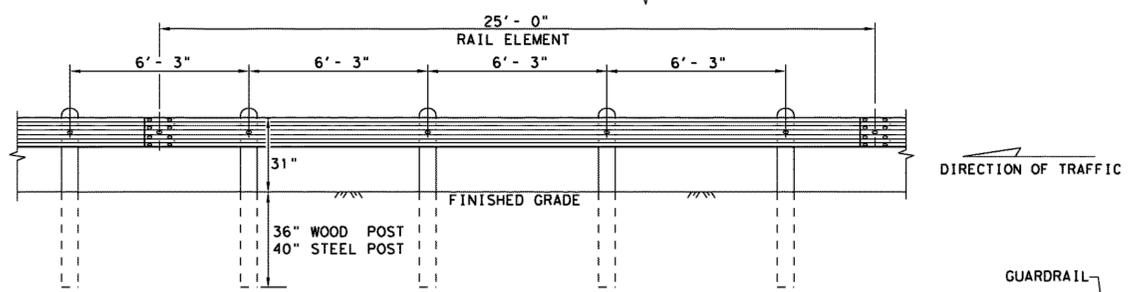
WP PROJECT NO.: 213-001

SHEET NO.: C-62

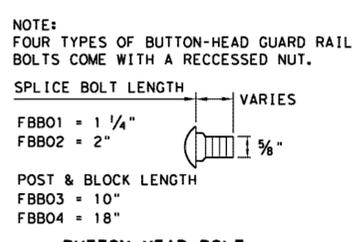
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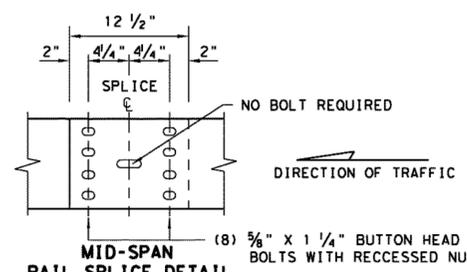
NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS. MBSG LENGTH OF NEED (L)



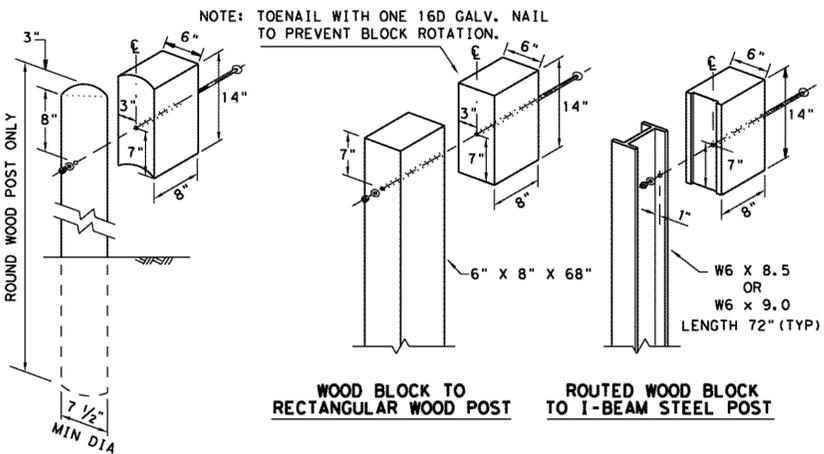
NOTE: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES. SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



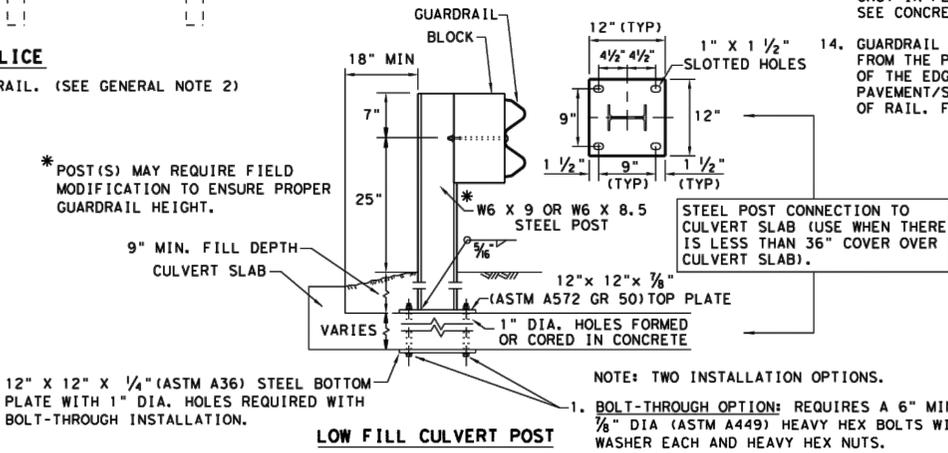
NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



NOTE: GF (31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.



WOOD BLOCK TO RECTANGULAR WOOD POST ROUTED WOOD BLOCK TO I-BEAM STEEL POST



NOTE: TWO INSTALLATION OPTIONS. 1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 5/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS. NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN. 2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 3/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF (31)LS STANDARD FOR "LONG SPAN" OPTION.

GENERAL NOTES

- 1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'-0" OR 12'-6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC160) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

Texas Department of Transportation Design Division Standard METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT GF (31)-19

Table with columns: FILE: gf3119.dgn, DN: TXDOT, CK: KM, DW: VP, CK: CGL/AG, DATE: NOVEMBER 2019, CONT: SECT, JOB: HIGHWAY, DIST: COUNTY, SHEET NO.

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WALTZ & PRETE, INC.
CIVIL ENGINEERS
 211 N. A.W. GRIMES BLVD.
 ROUND ROCK, TX. 78665
 PH (512) 505-8953
 FIRM TX. REG. #F-10308



As of Sept 25

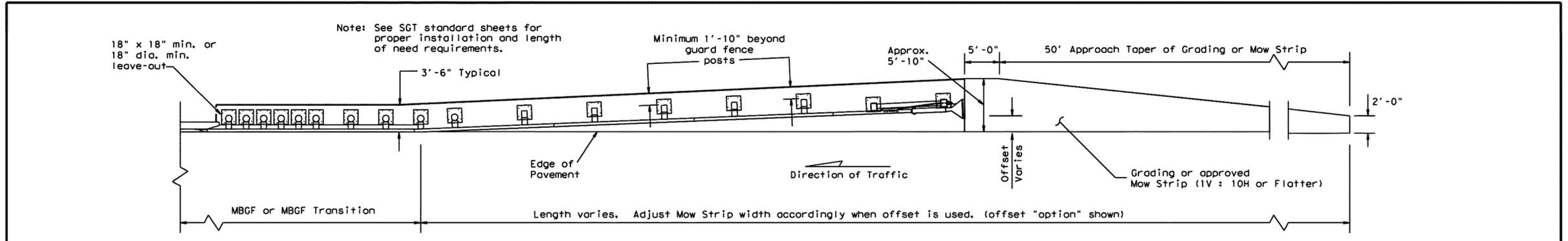
PROJECT:
SHELL RD. OFFICE WAREHOUSE
 3601 SHELL RD
 GEORGETOWN, TX

CLIENT:
BERRY CREEK TOWNHOMES, LLC

DESIGNED: AAP APPROVED: AAP
 DRAWN: GNV DATE: 9/5/25

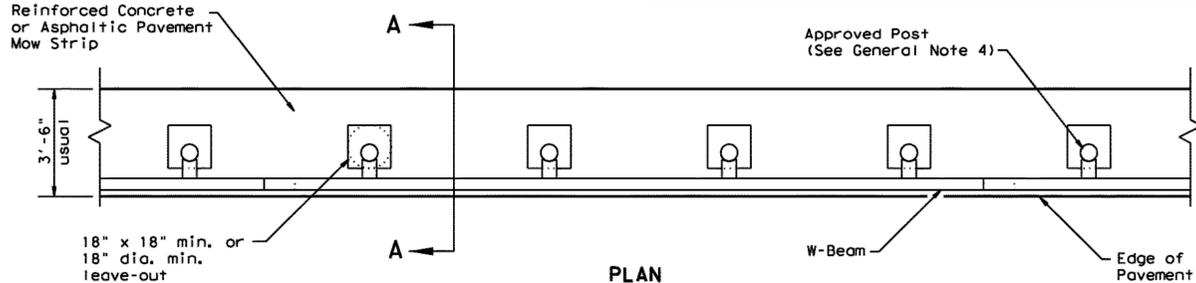
REVISIONS	RECORD
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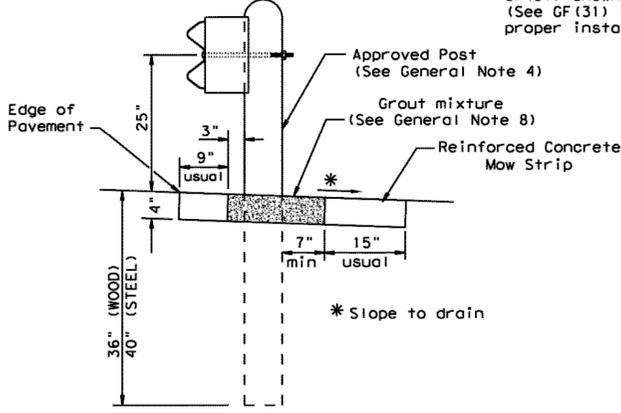
GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS

Note: Site Condition(s)
 Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.
 Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

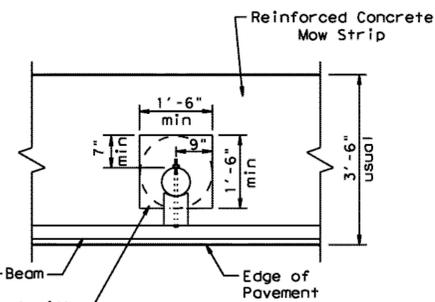


PLAN

GF (31) shown with Mow Strip (See GF (31) standard sheet for proper installation)

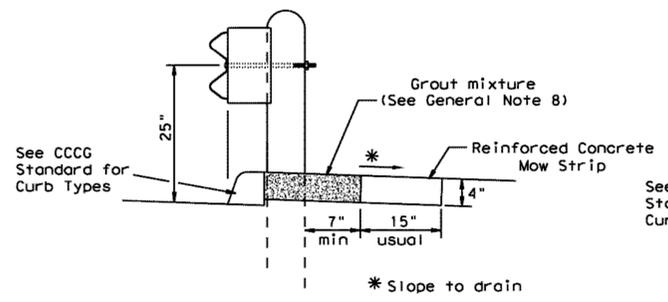


SECTION A-A
Typical



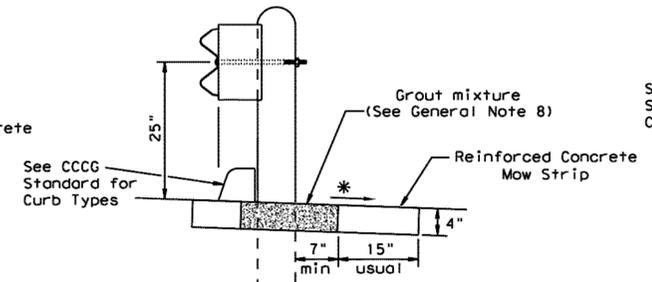
MOW STRIP DETAIL

Reinforced Concrete Mow Strip with 18" x 18" Square or 18" Dia. minimum leave-out.



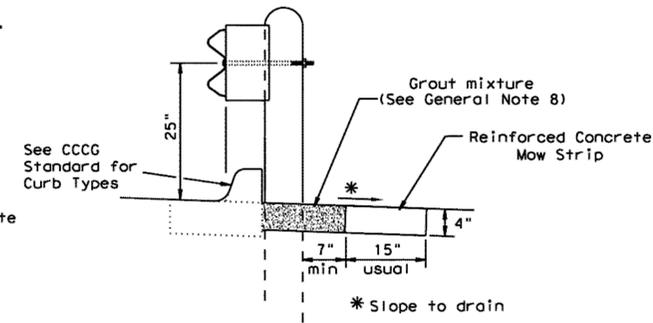
CURB OPTION (1)

This option will increase the post embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF (31) MBGF or GF (31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 1/2" Dia. round wood posts are acceptable for use in the mow strip. See GF (31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type I or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

		Design Division Standard	
METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT GF (31)MS-19			
FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP
© TxDOT: NOVEMBER 2019	CONT: SECT	JOB: HIGHWAY	
REVISIONS			
DIST	COUNTY	SHEET NO.	

SHEET TITLE:
METAL BEAM GUARD FENCE (MOW STRIP) DETAIL

WP PROJECT NO.:
 213-001

SHEET NO.:
C-63

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