Water Pollution Abatement Plan

&

Organized Sewage Collection System Plan

for

Rivery Crossing Phase 2

April 2024

PREPARED FOR:

Ewing Development Company, LLC

PREPARED BY:

Timothy E. Haynie, P.E.

Texas Registered Professional Engineer No. 36942

206 E. Janis Drive

Georgetown, Texas 78628



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: Rivery Crossing Phase 2						**2. Regulated Entity No.:** 11695524			
3. Customer Name: Ewing Development Company, LLC						**4. Customer No.:** 604594721			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			3.451
9. Application Fee:	Paid		**10. Permanent BMP(s):**			Batch Detention			
11. SCS (Linear Ft.):	613		**12. AST/UST (No. Tanks):**						
13. County:	Williamson		**14. Watershed:**			San Gabriel River – North Branch			

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.)	___	___	x
Region (1 req.)	___	___	x
County(ies)	___	___	x
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence _x_Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Timothy E. Haynie
Print Name of Customer/Authorized Agent
5/14/2024
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: Timothy E. Haynie, P.E.

Date: 5/14/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Rivery Crossing Phase 2
2. County: Williamson
3. Stream Basin: San Gabriel
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☒ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Timothy E. Haynie
   Entity: Ewing Development Company LLC
   Mailing Address: 309 Palmetto Drive
   City, State: Georgetown, Texas Zip: 78633
   Telephone: 512-784-6670 FAX: _____
   Email Address: tehaynie45@gmail.com

8. Agent/Representative (If any):

   Contact Person: Kevin Mercer
   Entity: Matkin Hoover Engineering& Surveying
   Mailing Address: 1701 Williams Drive
   City, State: Georgetown, Texas Zip: 78628
   Telephone: 512-844-6885 FAX: _____
   Email Address: kmercer@matkinhoover.com

9. Project Location:

   ☒ The project site is located inside the city limits of Georgetwon.
   ☐ 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.

    The project site is a strip of land that runs between E. Janis Drive and Rivery Blvd. in Georgetown Texas. The property is about 150' East of Park Lane, North of Rivery Blvd., and about 550' West of Northwest Boulevard, south of E. Janis Drive. Ryan Lane dead ends at the property and will be connected to this project.

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: 12/21/2022

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:

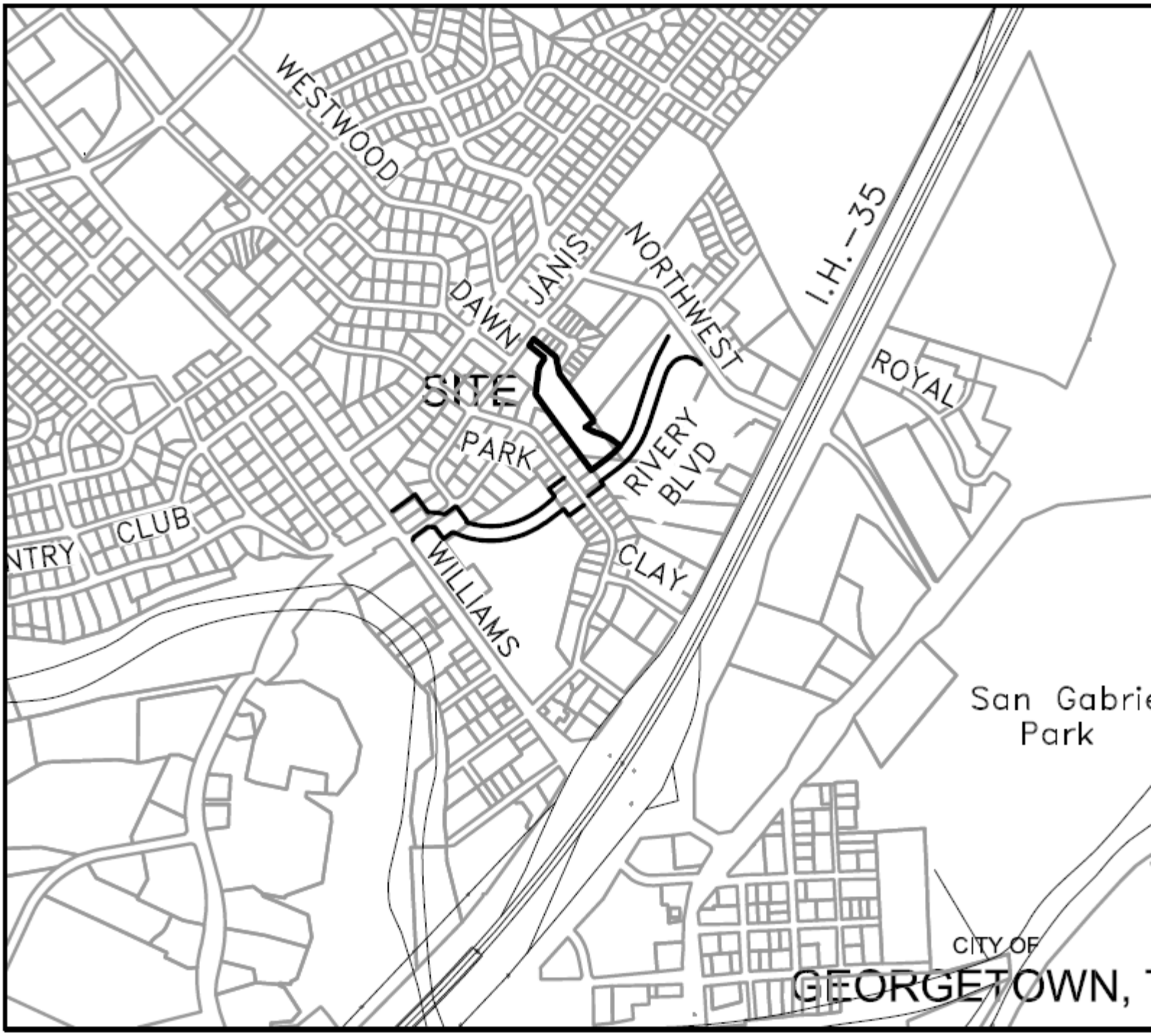
☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility 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.



LOCATION MAP
SCALE: 1" = 2,000'

ATTACHMENT B

USGS / Edwards Recharge Zone Map

EDWARDS AQUIFER RECHARGE ZONE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEORGETOWN QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

TRANSITION ZONE

TRANSITION ZONE

PROPOSED PARKSIDE CROSSING DEVELOPMENT

CONVEYANCE DIRECTION

CONVEYANCE DIRECTION

LAKE GEORGETOWN

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 26 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown

Areas covered by dashed light blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

3097-313

GEORGETOWN, TEX.
NW/4 ROUND ROCK 15' QUADRANGLE
N3037.5–W9737.5/7.5

1982

DMA 6445 II NW–SERIES V882

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 26 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

3097-314

WEIR, TEX.
NE/4 ROUND ROCK 15' QUADRANGLE
N3037.5–W9730/7.5

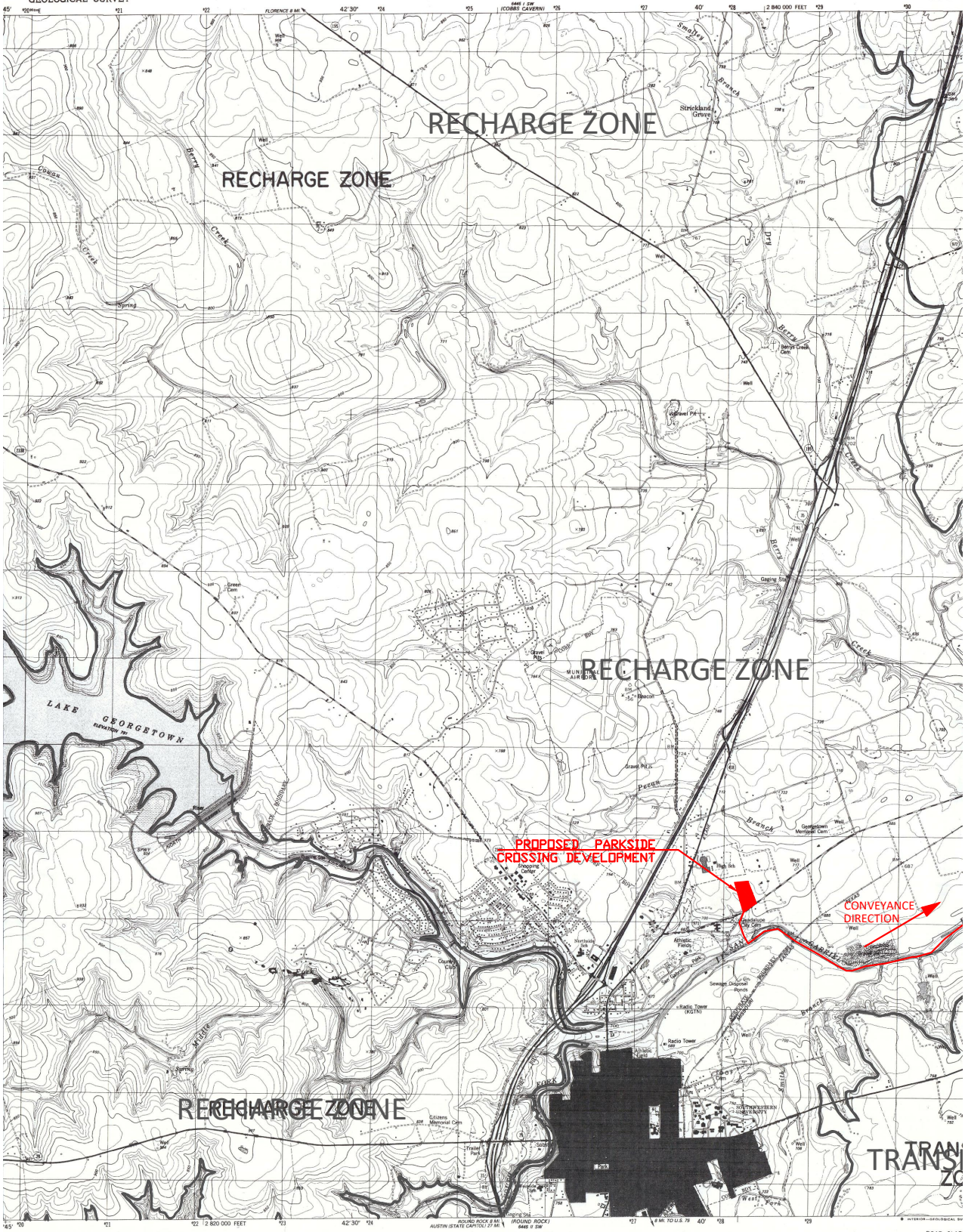
1982

DMA 6445 II NE–SERIES V882

RECEIVED
JUN 27 2006
BY:

RECEIVED
JUN 27 2006
BY:

EDWARDS AQUIFER RECHARGE ZONE



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEORGETOWN
TEXAS-WILLIAMSON CO.
7.5 MINUTE SERIES
NW/4 ROUNDROCK 15 QUAD

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown

Areas covered by dashed light blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

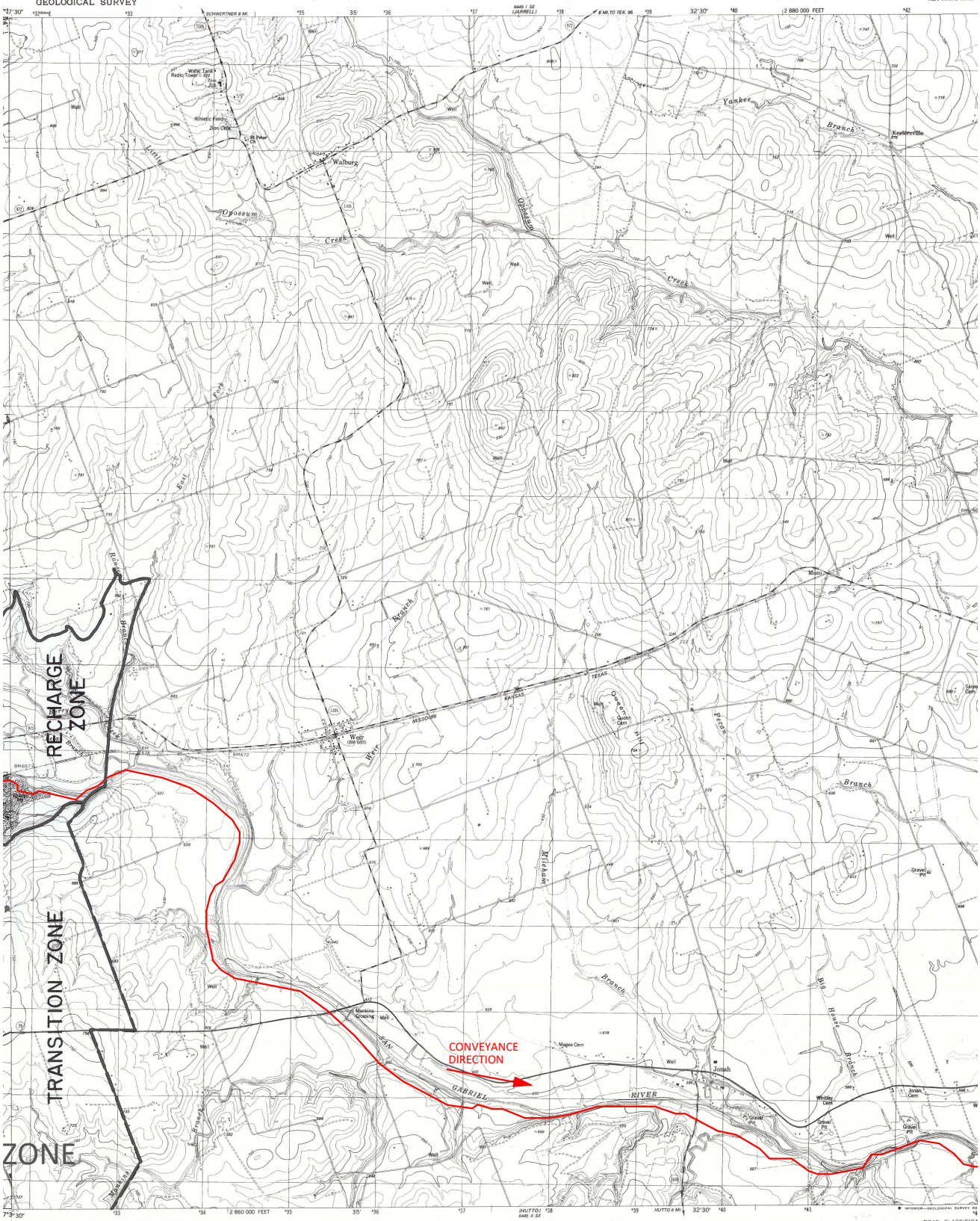
QUADRANGLE LOCATION

ROAD CLASS
Primary highway, hard surface
Secondary highway, hard surface
Interstate Route

3097-313

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUAD
TEXAS–WILLI
7.5 MINUTE SERIES
NE/4 ROUND ROCK



Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum

To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3097-314

ROAD CLASSIFICA

Primary highway, hard surface — Light-c improv

Secondary highway, hard surface — Unimp

Interstate Route — U. S. Ro

NE/4 RO
N

DMA

Attachment C

Project Description

This project is a proposed new construction of a single-family townhome zero-lot line residential subdivision with a total site area of approximately 3.389-acres which will require 80% removal rate of pollutant loads to comply with Texas Commission for Environmental Quality (TCEQ) Standards, and 85% TSS removal to comply with City of Georgetown ordinances. The entire site lies within the Edwards Aquifer Recharge Zone and Georgetown's City Limits.

The proposed single-family residential project will include 30 townhomes in seven different buildings (3 six-plexus, 1 five-plex, 2 tri-plexus and 1stand-alone townhouse). There is a proposed public street that will run between Rivery Boulevard and Ryan Lane from the Ryan's Cove subdivision, northwest to southeast. The development of this property will include grading, public streets, driveways, sidewalks, stormwater inlets and pipes, public wastewater lines that connect to Georgetown Utility Systems (GUS), and public waterlines that also connect to GUS. This site is currently undeveloped with 0.00% impervious cover.

Proposed impervious cover after all construction is complete will be approximately 1.720-acres, or 49.84% of the site. All improvements to the site will be accounted for and treated using a Batch Detention Pond as the permanent BMP. Storm flows for this development will flow through inlets and storm pipes that lead to the proposed pond. The batch detention System will account for more than the 80% required pollutant load removal, with a 91% removal rate. There are approximately 4 acres of flow through this site, of which approximately 0.5 acres of off-site acres flowing through the proposed permanent BMP. The Total Capture Volume (required water quality volume x 1.2) is 8954 cubic feet. The Batch Detention System will meet the minimum requirements to address the expected pollutant load. This site has not been developed in the past.

TOTAL SITE IMPERVIOUS COVER CALCULATIONS

Total Site Area=	150,326	S.F.			=	3.451	Acres
Allowable Impervious Cover=	3.451	Acres	X	50%	=	1.7205	Acres
Area of Roofs/Buildings=	31,500	S.F.			=	0.723	Acres
Area of Street Pavement=	24,684	S.F.			=	0.556	Acres
Area of Flatwork/Driveways=	9,724	S.F.			=	0.223	Acres
Total of Sidewalks =	9,032	S.F.			=	0.207	Acres
Total Pervious Area =	75,386	S.F.			=	1.731	Acres
Total Proposed I.C. =	74.940	S.F.			=	1.720	Acres
Note: Impervious Cover includes Buildings,Sheds, Sidewalks, Drives and Flatwork							

CAPITOL
ENVIRONMENTAL

February 22, 2016

180 Holly Street Inc.
c/o: Mr. Tim Haynie
1010 Provident Lane
Round Rock, Texas 78644

SUBJECT:
Geologic Assessment
206 E. Janis Drive
3.093 Acre Tract
AW0497 – Porter, N. Sur.
Georgetown, Williamson County,
Texas

Dear Mr. Haynie:

Capitol Environmental (Capitol), is pleased to submit the enclosed Geologic Assessment conducted at the above referenced site to 180 Holly Street Inc. (Client). This assessment addresses an approximately 3.093 acres, more or less, tract of land located at 206 E. Janis Drive in Georgetown, Williamson County, Texas. This Geologic Assessment (GA) reflects the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Recharge Zone regulations, which became effective September 1, 2003. This study was prepared in accordance with applicable sections of Title 30 of the Texas Administration Code Chapter 213: Permanent Rules for the Edwards Aquifer. Information found in this assessment address site conditions that were observed on February 19, 2016.

We appreciate the opportunity to perform these services for 180 Holly Street Inc. Please, contact us if you have questions regarding this information or if we can be of further service.

Respectfully,

D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

Copies Submitted: (1) 180 Holly Street Inc.

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

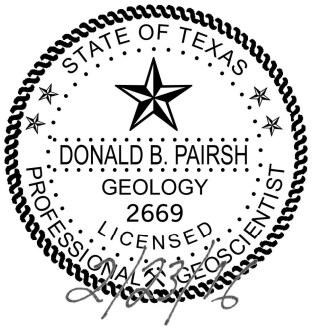
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: D Bryan Pairsh Telephone: 512-535-4368

Date: 02/22/2016 Fax: 512-535-4451

Representing: Capitol Environmental, Inc TBPG Firm Registration #50389 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: 206 E Janis Drive

Project Information

1. Date(s) Geologic Assessment was performed: February 19, 2016
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ 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)

Soil Name	Group*	Thickness(feet)
Georgetown (GsB) 0 to 2% slopes	D	1-5'
Crawford (CfB) 1 to 3% slopes	D	1-5'
Fairlie (FaB) 1 to 2 % slopes	D	1-5'

** 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" = 40'
   Site Geologic Map Scale: 1" = 40'
   Site Soils Map Scale (if more than 1 soil type): 1" = 40'

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 A – Geologic Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: 206 E JANIS DRIVE

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
			To the extent that conditions were assessed on February 19, 2016, no geologic features were identified.																	

***DATUM:** NAD 83 StatePlane Texas Central

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

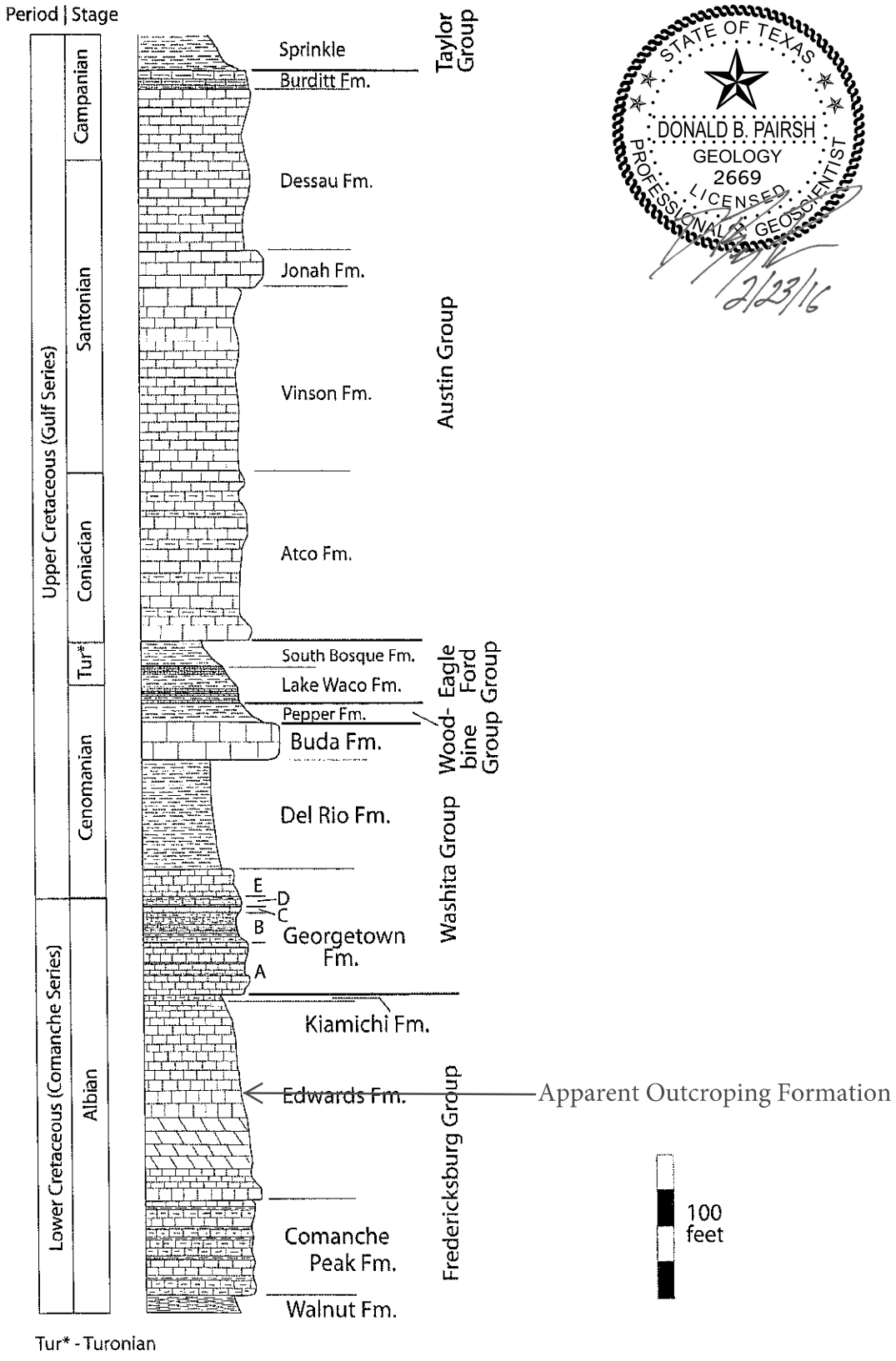
Date: 2/19/16

Sheet: 1 of 1

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

Attachment B – Stratigraphic Column

Generalized Stratigraphic Column of the Round Rock Area



STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

2/23/16

Source:
Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas
By: Todd B. Housh

Attachment C – Site Geology

NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY
206 E JANIS DRIVE
3.093 ACRE TRACT
GEORGETOWN, WILLIAMSON COUNTY, TEXAS
FEBRUARY 19, 2016

LOCATION

The subject site is an approximate 3.093 acres, more or less, tract of land located at 206 E Janis Drive in Georgetown, Williamson County, Texas at approximately 30.657093° North Latitude and approximately -97.680720° West Longitude. This location lies within the designated Edwards Aquifer Recharge Zone. Therefore, future intended development of the site must conform to criteria in accordance with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules in accordance with Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

EXPLANATION OF ASSESSMENT

This assessment follows general guidelines contained in Texas Commission on Environmental Quality (TCEQ) "*Instruction for Geologist for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones"* (TCEQ Guidance 0585). The site is located on an area of the recharge zone that may contain karst features formed by selective solutioning of limestone minerals by water. Karst features may be expressed as surface features but more commonly tend to persist with depth. This assessment documents the presence or absence of site conditions that were present at the time the site visit that was performed on February 19, 2016. The site visit consisted of a walk through survey that consisted of a non-intrusive visual observation or survey of readily accessible, easily visible surface property conditions that were present on the subject property at the time of the site visit. Intrusive subsurface testing such as excavation, cave mapping, infiltrometer test, geophysical studies or tracer studies are not required for the geologic assessment of any feature in accordance with this practice.

A sensitive geologic or manmade feature, for the purpose of this practice is a feature on the recharge zone or transition zone of the Edwards Aquifer with a <u>superficial</u> appearance that suggest a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer and that has the apparent potential for rapid infiltration into the subsurface.

PHYSICAL DESCRIPTION OF SITE

The subject site is currently undeveloped land.

SURFACE DRAINAGE

After reviewing the project site topographic survey, storm water runoff appears to flow toward the southeast.

SOIL DESCRIPTION

The site soil is composed of Georgetown clay loam 0-2 % slopes (GsB), Crawford clay 1-3 % slopes (CfB) and Fairlie clay 1-2 % slopes (FaB).

The Georgetown series consists of moderately deep, well drained, slowly permeable soils that have formed over indurated limestone of Cretaceous age. These soils are on nearly level to very gently sloping uplands. Slopes range from 0 to 3 percent. Well drained. Runoff is medium. Permeability is slow.

The Crawford series consists of moderately deep, well drained, very slowly permeable soils that formed in clayey sediments that are underlain by indurated limestone bedrock These soils are on broad nearly level or gently sloping uplands Slopes range from 0 to 5 percent. This soil is well drained. Permeability is very slow when the soil is saturated and rapid when it is dry and cracked. Runoff is medium on 1 to 3 percent slopes, and high on 3 to 5 percent slopes.

The Fairlie series consists of deep, moderately well drained, very slowly permeable soils. These soils are on nearly level to gently sloping uplands. The slope is typically 1 to 3 percent but ranges from 0 to 5 percent. Fairlie soils are moderately well drained and very slow permeability. Runoff is moderate on 1 to 3 percent slopes.

DESCRIPTION OF SITE GEOLOGY

The site is located on the Edwards Formation (Ked) in Williamson County.

Edwards and Associated Limestone Formation: The Edwards and Associated Limestone Formation is Cretaceous age and is composed of massively bedded limestone with local occurrences of chert nodules. The Edwards Formation in Williamson County has been differentiated into members on the basis of lithology and selected guide fossils for each member.

From bottom to top, the lower member consists of white to dark gray, occasionally dolomitic, course grained chert bearing, fossiliferous biostrome deposits. The middle member is describes as being a white to tan, chert bearing dolomite. The upper member consists of white to cream colored limestone containing moundlike masses of algae, coral and stromatolite features. For the purpose of this assessment, these members are identified as an undivided unit (Ked).

STRUCTURAL FEATURES:

The site is not located in the vicinity of mapped regional faulting. No surface expressions of local structural features were observed during this assessment.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS
Identified February 19, 2016

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on February 19, 2016, no geologic features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer.

OBSERVATIONS

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on February 19, 2016, no sensitive features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer.

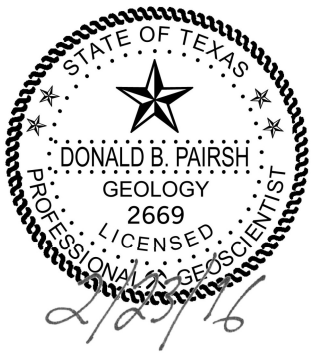
CONCLUDING STATEMENTS

The Client understands that no non-intrusive visual observation or survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This assessment does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Respectfully,



D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

DISCLAIMER:

Under standard geologic assessment practice, this assessment is an assessment of surface property conditions that were readily accessible and easily visible at the time of the assessment.

Services performed under this contract were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Under standard geologic assessment practice, information developed in this report represents an assessment of environmental conditions observed as present or absent on portions of the surface of the subject property at the time of the assessment. The field observations, measurements and research reported in this report are considered sufficient in detail and scope to form a contained assessment of discrete portions of the subject property. Capitol warrants that the findings and conclusions contained in this report have been prepared in accordance with generally accepted methods normal for the subject site described in this report.

Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the Client and information developed in the course of the inquiry. The Assessment has been developed to provide the Client with information regarding apparent indications of the presence of absence of geologic conditions relating to the surface of the subject site. The Geologic Assessment report is necessarily limited to the conditions observed and to the information available at the time the work was performed. Due to the limited nature of the work, there is a possibility that conditions may exist in connection with the subject site which could not be identified within the scope of this assessment practice or which were not easily visible or not disclosed at the time the report was prepared.

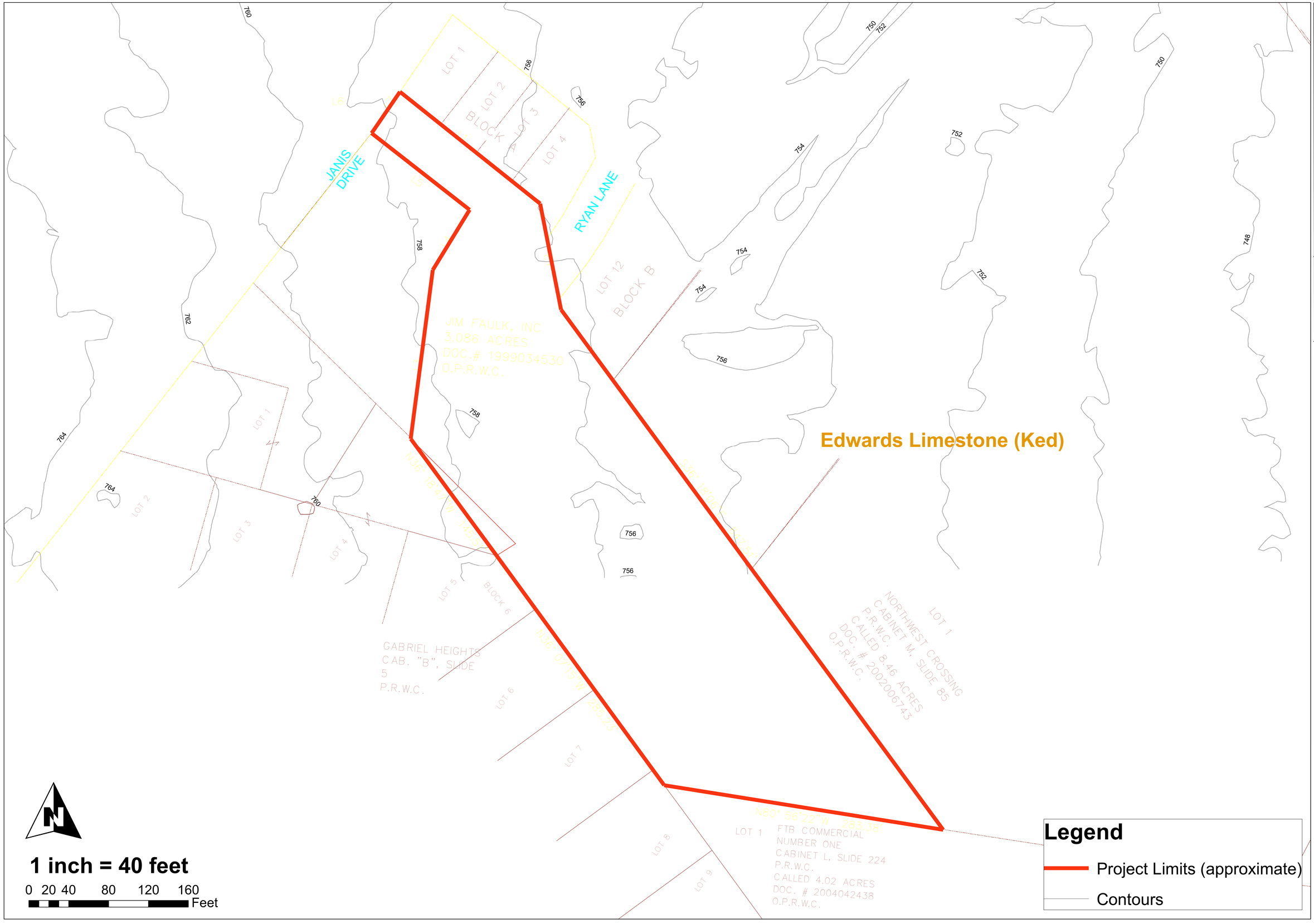
It is also possible that assessment methods employed at the time the report was prepared may be later superseded by more discrete assessment methods. The definition of a “sensitive geologic feature” and / or a “critical environmental feature” can also change statutorily over time. Capitol does not warrant the content or findings of this report in the event of changes in conditions in connection with the subject property; in the event of changes in assessment methods; or in the event of changes in statute that may apply to the subject property in the future.

In preparing this report, Capitol has relied on information derived from third party sources and personal interviews, as well as other investigative work. Except as set forth in this report, Capitol has made no independent investigation as to the accuracy or completeness of the information derived from third party sources.

This report does not address uncertainty about site conditions across those portions of the subject property not specifically assessed in this report. The Client understands that no surface assessment can wholly eliminate uncertainty regarding the possible presence of geologic conditions at depth in connection with the subject property. The Client should recognize that conditions elsewhere in the assessment area may differ from those at the study /sample locations, and that surface conditions described in the assessment practice herein may change at depth. This assessment should not to be used as a basis for engineering design.

This report was prepared for the Client, to identify the presence or absence of geologic conditions on surface portions of the subject property. Any use of this report for other purposes or any use of information presented in this report by other parties other than the Client is the Client’s responsibility.

Attachment D – Geologic Site Map
&
Soils Site Map



1 inch = 40 feet

0 20 40 80 120 160 Feet

Legend

- Project Limits (approximate)
- Contours

Geologic Site Map

206 E. Janis Dr Georgetown, TX 78628

Drawn By: Eric LaBouliere

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 2/22/2016

TBPG Firm Registration #50389

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512.535.4388

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PROFESSIONAL GEOLOGIST
2/22/16

Not For Construction or Building Purposes

Sheet No. 1 of 1

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

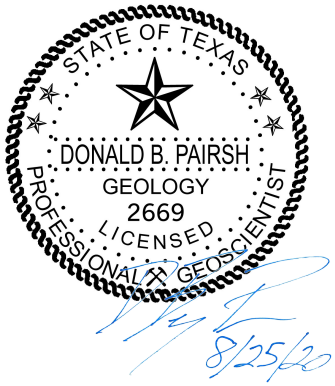
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: D Bryan Pairsh Telephone: 512-535-4368

Date: 08/25/2020 Fax: 512-535-4451

Representing: Capitol Environmental, Inc TBPG Firm Registration #50389 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: Rivery Crossing

Project Information

1. Date(s) Geologic Assessment was performed: August 13, 2020
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ 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)

Soil Name	Group*	Thickness(feet)
Crawford clay (CfB) 1-3% slope	D	1-10'
Fairlie clay (FaB) 1-2% slope	D	1-10'
Georgetown (GsB) 1-3% slope	D	1-10'

** 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" = 100'
   Site Geologic Map Scale: 1" = 100'
   Site Soils Map Scale (if more than 1 soil type): 1" = 100'

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 A – Geologic Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: RIVERY CROSSING

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
			To the extent that conditions were																	
			assessed on August 13, 2020, no																	
			geologic features were identified.																	

***DATUM:** NAD 83 StatePlane Texas Central

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

I have read, I understood, and I have followed the Texas Commission on Environmental Quality's Instructions to Geologists. The information presented here complies with that document and is a true representation of the conditions observed in the field.

My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Date: 8/25/2020

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

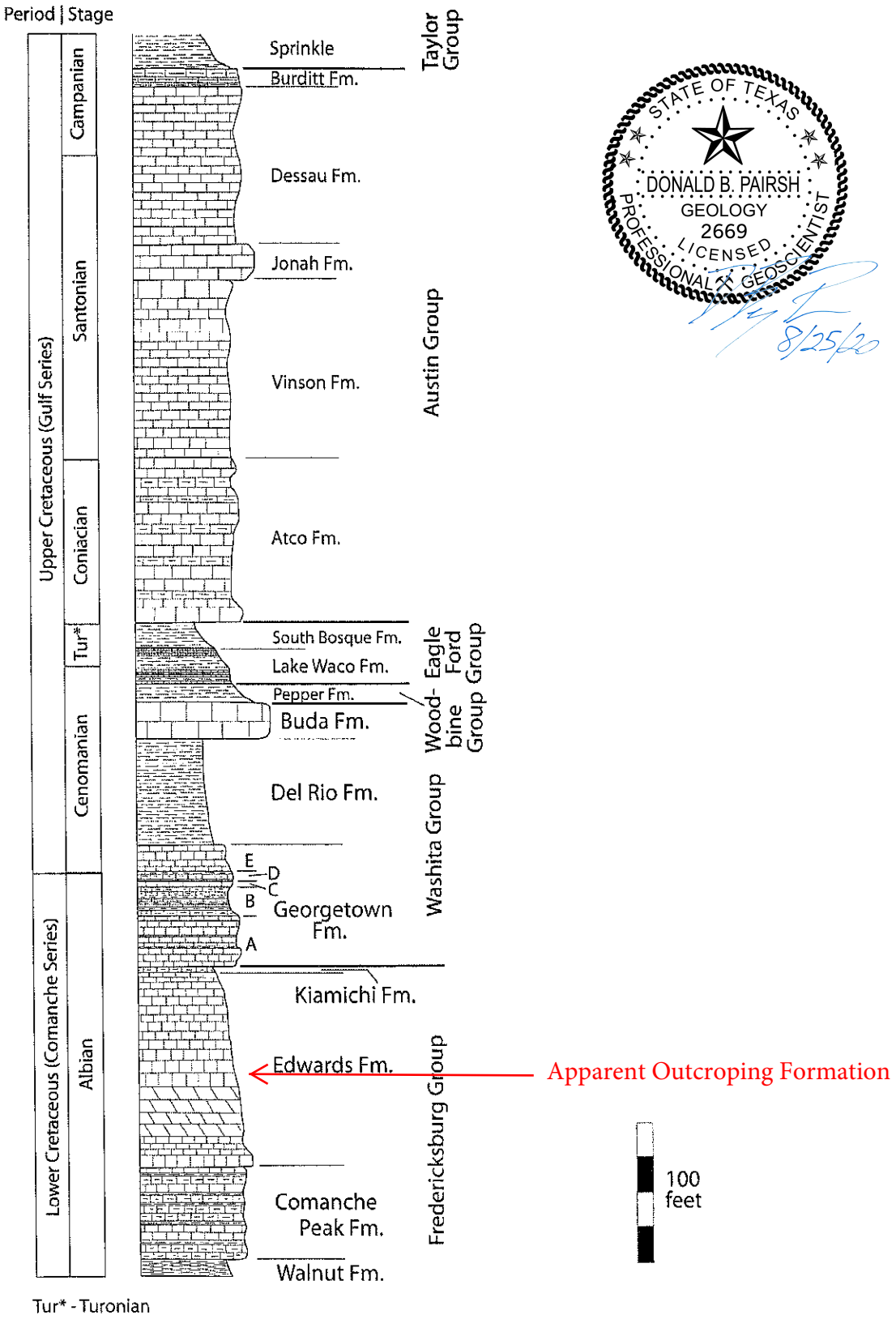
Sheet: 1 of 1

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

8/25/20

Attachment B – Stratigraphic Column

Generalized Stratigraphic Column of the Round Rock Area



Source:
Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas
By: Todd B. Housh

Attachment C – Site Geology

NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY
RIVERY CROSSING
3.153 ACRE TRACT
GEORGETOWN, WILLIAMSON COUNTY, TEXAS
08/13/2020

LOCATION

The subject site is an approximate 3.153 acres, more or less, tract of land located at in Georgetown, Williamson County, Texasat approximately 30.656441° North Latitude and approximately -97.679122° West Longitude. This location lies within the designated Edwards Aquifer Recharge Zone. Therefore, future intended development of the site must conform to criteria in accordance with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules in accordance with Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

EXPLANATION OF ASSESSMENT

This assessment follows general guidelines contained in Texas Commission on Environmental Quality (TCEQ) "*Instruction for Geologist for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones"* (TCEQ Guidance 0585). The site is located on an area of the recharge zone that may contain karst features formed by selective solutioning of limestone minerals by water. Karst features may be expressed as surface features but more commonly tend to persist with depth. This assessment documents the presence or absence of site conditions that were present at the time the site visit that was performed on 08/13/2020. The site visit consisted of a walk through survey that consisted of a non-intrusive visual observation or survey of readily accessible, easily visible surface property conditions that were present on the subject property at the time of the site visit. Intrusive subsurface testing such as excavation, cave mapping, infiltrometer test, geophysical studies or tracer studies are not required for the geologic assessment of any feature in accordance with this practice.

A sensitive geologic or manmade feature, for the purpose of this practice is a feature on the recharge zone or transition zone of the Edwards Aquifer with a superficial appearance that suggest a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer and that has the apparent potential for rapid infiltration into the subsurface.

PHYSICAL DESCRIPTION OF SITE

The subject site is currently an undeveloped commercial tract(s).

SURFACE DRAINAGE

After reviewing the project site topographic survey, storm water runoff appears to flow toward the Southeast.

SOIL DESCRIPTION

The site soil is composed of:

Crawford clay, 1 to 3 percent slopes (CfB), Hydrologic Group D

The Crawford series consists of moderately deep, well drained, very slowly permeable soils that formed in clayey sediments that are underlain by indurated limestone bedrock. These soils are on broad nearly level or gently sloping uplands and slopes range from 0 to 5 percent. Mean annual air temperature is about degrees 18.9 degrees C (66 degrees F), and mean annual precipitation is about 864 mm (34 in). This soil is well drained. Permeability is very slow. Runoff is high on slopes less than 1 percent and very high on 1 to 5 percent slopes.

Fairlie clay, 1 to 2 percent slopes (FaB), Hydrologic Group D

The Fairlie series consists of deep, moderately well drained, very slowly permeable soils. These soils are on nearly level to gently sloping uplands. The slope is typically 1 to 3 percent but ranges from 0 to 5 percent. Fairlie soils are moderately well drained and very slow permeablility. Water enters the soil rapidly when it is dry and cracked, and very slow when the soil is saturated. Runoff is low on 0 to 1 percent slopes; moderate on 1 to 3 percent slopes; and high on 3 to 5 percent slopes.

Georgetown stony clay loam, 1 to 3 percent slopes (GsB), Hydrologic Group D

The Georgetown series consists of moderately deep, well drained, very slowly permeable soils that have formed over indurated limestone of Cretaceous age. These soils occur on nearly level to very gently sloping dissected plateaus. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 19 degrees C (66 degrees F), and mean annual precipitation is about 864 mm (34 in). Well drained. Runoff is very high. Permeability is very slow..

GEOLOGY

The site is located on the:

Edwards Limestone (Ked)

The Edwards Limestone consist of limestone, dolomite, and chert; limestone aphanitic to fine grained, massive to thin bedded, hard, brittle, in part rudistid biostromes, much miliolid biosparite; dolomite fine to very fine grained, porous, medium gray to grayish brown; chert, nodules and plates common, varies in amount from bed to bed, some intervals free of chert, mostly white to light gray; in zone of weathering considerably recrystallized, "honeycombed," and cavernous forming an aquifer; forms flat areas and plateaus bordered by scarps; thickness 60-350 feet, thins northward.

STRUCTURAL TREND and FEATURES:

The subject site is located on the Edwards Plateau within the Balcones / Ouachita structural province in central Texas. The Balcones / Ouachita structural province is an arcuate band of mostly down-to–the-coast normal faults that sub-parallels the Gulf of Mexico. In Williamson County, the regional structural trend of the Balcones / Ouachita province is generally southwest to northeast.

(Source: "*Lineament Analysis and Inference of Geologic Structure-Examples from the Balcones/Ouachita Trend of Texas."* Curan, Woodfruff, Jr, and Thompson, 1982)

The site is not located in the vicinity of mapped regional faulting. No surface expressions of local structural features were observed during this assessment.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS
Identified 08/13/2020

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on 08/13/2020 no geologic features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer

OBSERVATIONS

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on 08/13/2020 no sensitive features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer.

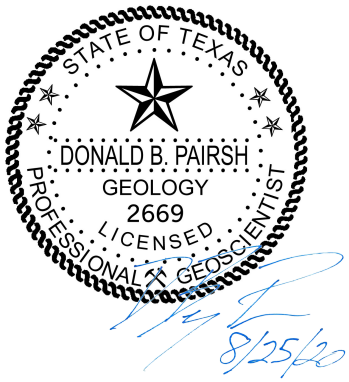
CONCLUDING STATEMENTS

The Client understands that no non-intrusive visual observation or survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This assessment does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Respectfully,



D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

DISCLAIMER:

Under standard geologic assessment practice, this assessment is an assessment of surface property conditions that were readily accessible and easily visible at the time of the assessment.

Services performed under this contract were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Under standard geologic assessment practice, information developed in this report represents an assessment of environmental conditions observed as present or absent on portions of the surface of the subject property at the time of the assessment. The field observations, measurements and research reported in this report are considered sufficient in detail and scope to form a contained assessment of discrete portions of the subject property. Capitol warrants that the findings and conclusions contained in this report have been prepared in accordance with generally accepted methods normal for the subject site described in this report.

Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the Client and information developed in the course of the inquiry. The Assessment has been developed to provide the Client with information regarding apparent indications of the presence of absence of geologic conditions relating to the surface of the subject site. The Geologic Assessment report is necessarily limited to the conditions observed and to the information available at the time the work was performed. Due to the limited nature of the work, there is a possibility that conditions may exist in connection with the subject site which could not be identified within the scope of this assessment practice or which were not easily visible or not disclosed at the time the report was prepared.

It is also possible that assessment methods employed at the time the report was prepared may be later superseded by more discrete assessment methods. The definition of a “sensitive geologic feature” and / or a “critical environmental feature” can also change statutorily over time. Capitol does not warrant the content or findings of this report in the event of changes in conditions in connection with the subject property; in the event of changes in assessment methods; or in the event of changes in statute that may apply to the subject property in the future.

In preparing this report, Capitol has relied on information derived from third party sources and personal interviews, as well as other investigative work. Except as set forth in this report, Capitol has made no independent investigation as to the accuracy or completeness of the information derived from third party sources.

This report does not address uncertainty about site conditions across those portions of the subject property not specifically assessed in this report. The Client understands that no surface assessment can wholly eliminate uncertainty regarding the possible presence of geologic conditions at depth in connection with the subject property. The Client should recognize that conditions elsewhere in the assessment area may differ from those at the study /sample locations, and that surface conditions described in the assessment practice herein may change at depth. This assessment should not to be used as a basis for engineering design.

This report was prepared for the Client, to identify the presence or absence of geologic conditions on surface portions of the subject property. Any use of this report for other purposes or any use of information presented in this report by other parties other than the Client is the Client’s responsibility.

Attachment D – Site Geologic Map
&
Site Soil Site Map



GEOLOGIC SITE MAP

RIVERY CROSSING

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 8/25/2020

TBPG Firm Registration #50389

CAPITOL ENVIRONMENTAL

512.535.4368

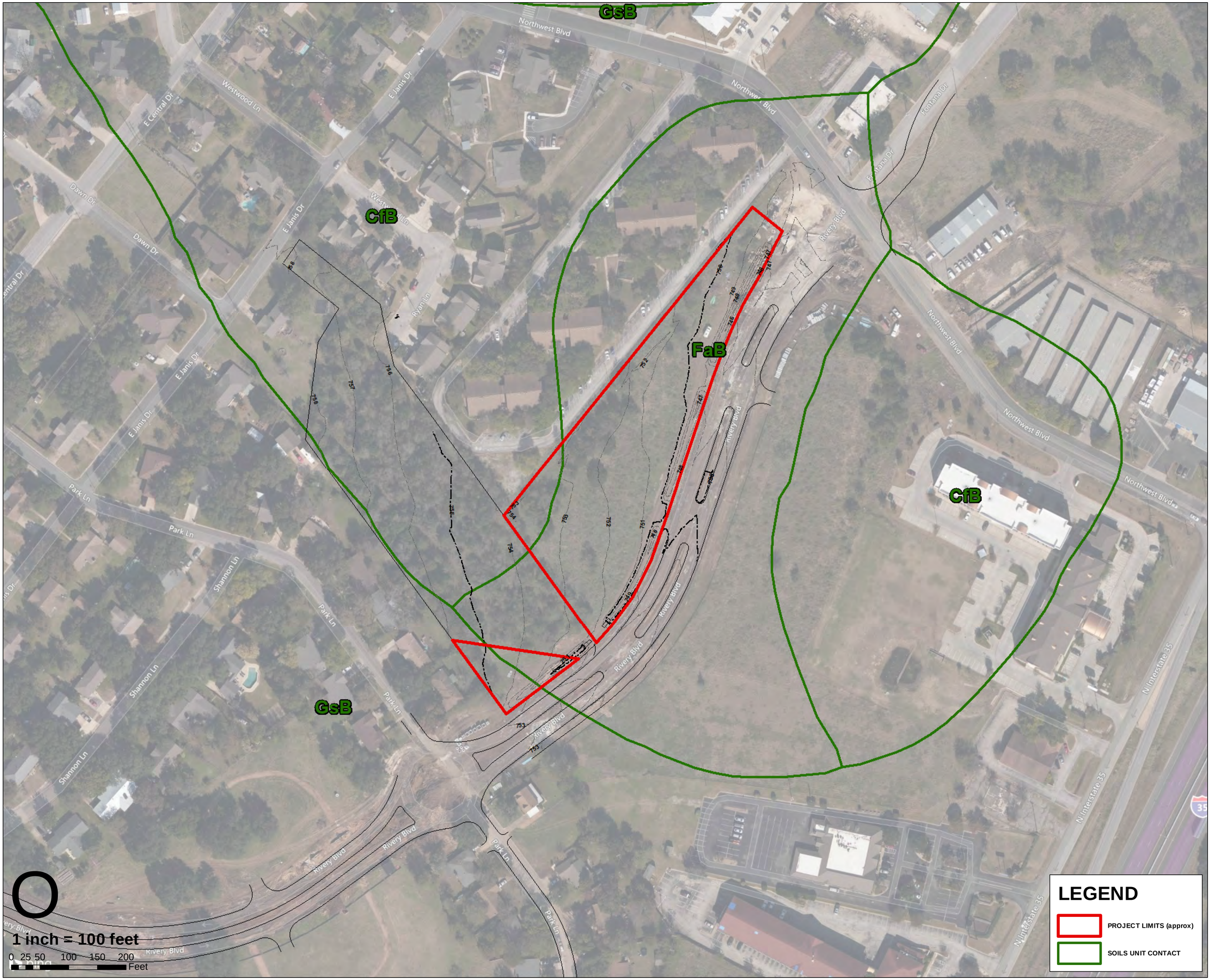
www.capitolenvironmental.com

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

8/25/20

Not For Construction or Building Purposes

Sheet No. 1 of 2



RIVERY CROSSING

SOILS SITE MAP

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 8/25/2020

TBPG Firm Registration #50389

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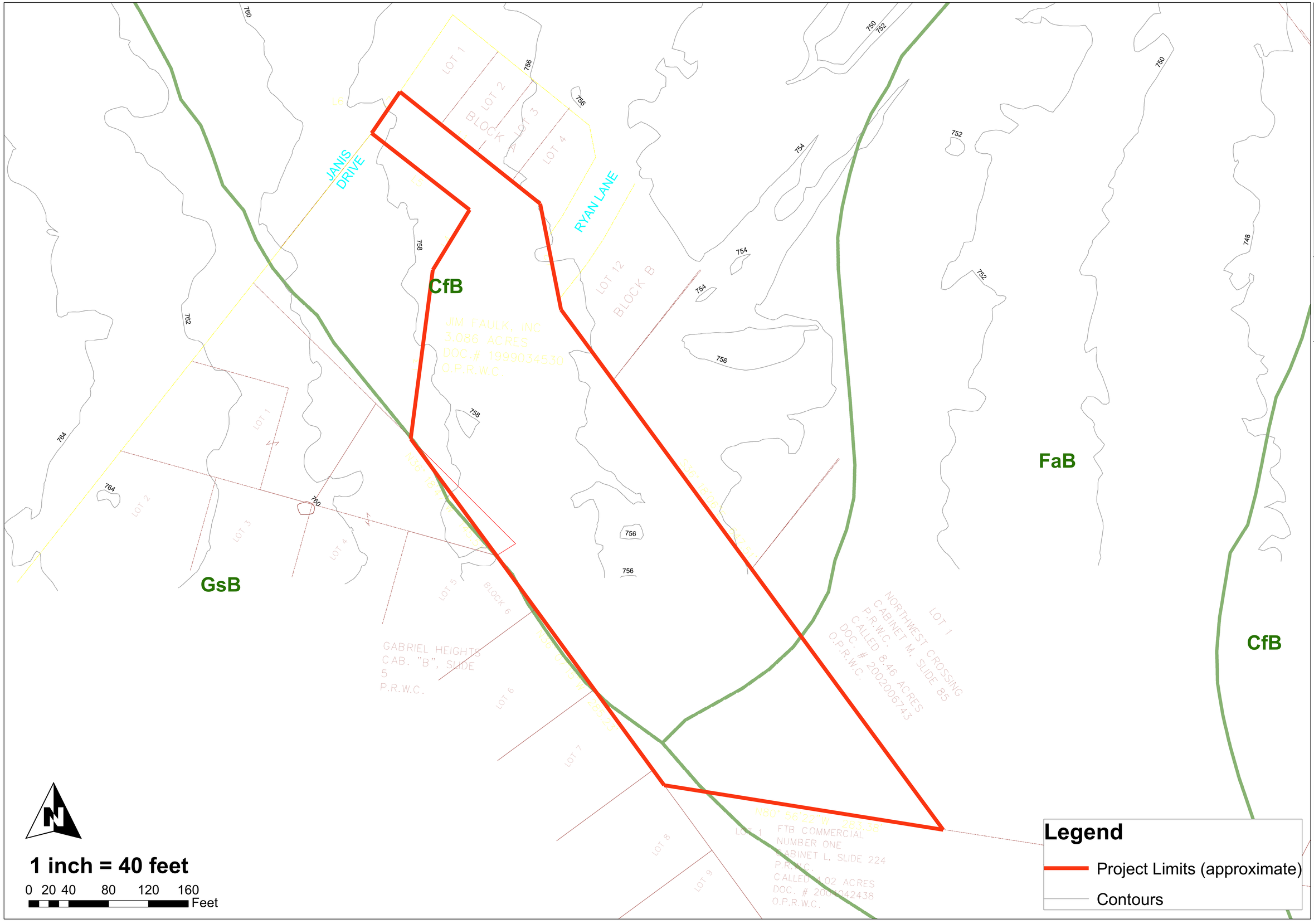
8/25/20

Not For Construction or Building Purposes

Sheet No. 2 of 2



206 E. Janis Dr Georgetown, TX 78628

Drawn By: Eric LaBouliere

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 2/22/2016

Soils Site Map

TBPG Firm Registration #50389

CAPITOL ENVIRONMENTAL

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STATE OF TEXAS
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2669
LICENSED
PROFESSIONAL GEOLOGIST
2/23/16

Not For Construction or Building Purposes

Sheet No. 1 of 1

Water Pollution Abatement Plan

&

Organized Sewage Collection System Plan

for

Rivery Crossing Phase 2

April 2024

PREPARED FOR:

Ewing Development Company, LLC

PREPARED BY:

Timothy E. Haynie, P.E.

Texas Registered Professional Engineer No. 36942

206 E. Janis Drive

Georgetown, Texas 78628



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: Rivery Crossing Phase 2						**2. Regulated Entity No.:** 11695524			
3. Customer Name: Ewing Development Company, LLC						**4. Customer No.:** 604594721			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			3.451
9. Application Fee:	Paid		**10. Permanent BMP(s):**			Batch Detention			
11. SCS (Linear Ft.):	613		**12. AST/UST (No. Tanks):**						
13. County:	Williamson		**14. Watershed:**			San Gabriel River – North Branch			

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.)	___	___	x
Region (1 req.)	___	___	x
County(ies)	___	___	x
Groundwater Conservation District(s)	___Edwards Aquifer Authority ___Barton Springs/ Edwards Aquifer ___Hays Trinity ___Plum Creek	___Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	___Austin ___Buda ___Dripping Springs ___Kyle ___Mountain City ___San Marcos ___Wimberley ___Woodcreek	___Austin ___Bee Cave ___Pflugerville ___Rollingwood ___Round Rock ___Sunset Valley ___West Lake Hills	___Austin ___Cedar Park ___Florence _x_Georgetown ___Jerrell ___Leander ___Liberty Hill ___Pflugerville ___Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	___	___	___	___	___
Region (1 req.)	___	___	___	___	___
County(ies)	___	___	___	___	___
Groundwater Conservation District(s)	___ Edwards Aquifer Authority ___Trinity-Glen Rose	___Edwards Aquifer Authority	___Kinney	___EAA ___Medina	___EAA ___Uvalde
City(ies) Jurisdiction	___Castle Hills ___Fair Oaks Ranch ___Helotes ___Hill Country Village ___Hollywood Park ___San Antonio (SAWS) ___Shavano Park	___Bulverde ___Fair Oaks Ranch ___Garden Ridge ___New Braunfels ___Schertz	NA	___San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review.
Timothy E. Haynie
Print Name of Customer/Authorized Agent
5/14/2024
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: Timothy E. Haynie, P.E.

Date: 5/14/2024

Signature of Customer/Agent:



Project Information

1. Regulated Entity Name: Rivery Crossing Phase 2
2. County: Williamson
3. Stream Basin: San Gabriel
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☐ Transition Zone

6. Plan Type:

   ☒ WPAP
   ☒ SCS
   ☐ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):

   Contact Person: Timothy E. Haynie
   Entity: Ewing Development Company LLC
   Mailing Address: 309 Palmetto Drive
   City, State: Georgetown, Texas Zip: 78633
   Telephone: 512-784-6670 FAX: _____
   Email Address: tehaynie45@gmail.com

8. Agent/Representative (If any):

   Contact Person: Kevin Mercer
   Entity: Matkin Hoover Engineering& Surveying
   Mailing Address: 1701 Williams Drive
   City, State: Georgetown, Texas Zip: 78628
   Telephone: 512-844-6885 FAX: _____
   Email Address: kmercer@matkinhoover.com

9. Project Location:

   ☒ The project site is located inside the city limits of Georgetwon.
   ☐ 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.

    The project site is a strip of land that runs between E. Janis Drive and Rivery Blvd. in Georgetown Texas. The property is about 150' East of Park Lane, North of Rivery Blvd., and about 550' West of Northwest Boulevard, south of E. Janis Drive. Ryan Lane dead ends at the property and will be connected to this project.

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: 12/21/2022

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:

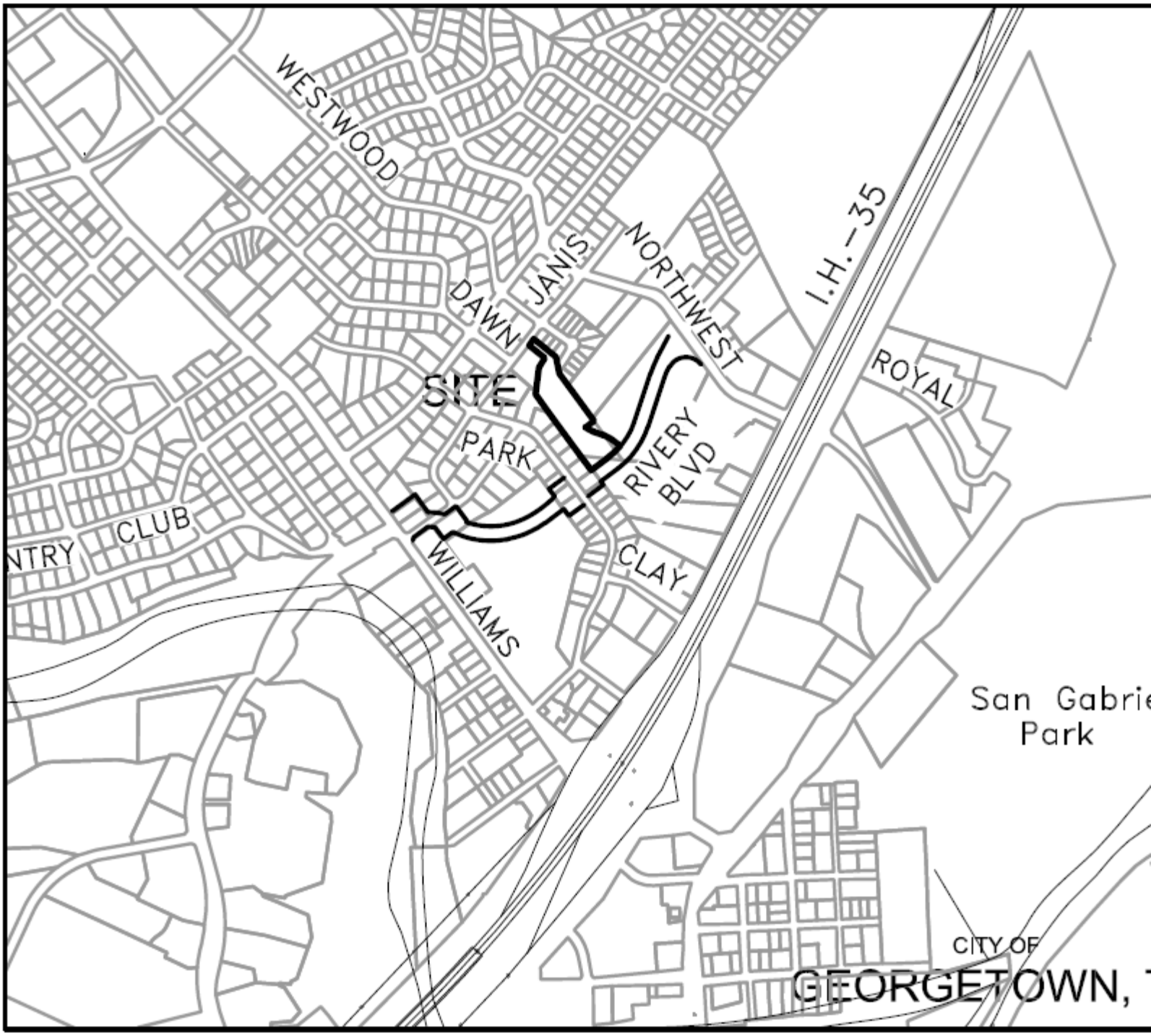
☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility 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.



LOCATION MAP
SCALE: 1" = 2,000'

ATTACHMENT B

USGS / Edwards Recharge Zone Map

EDWARDS AQUIFER RECHARGE ZONE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEORGETOWN QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUADRANGLE
TEXAS–WILLIAMSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

RECHARGE ZONE

TRANSITION ZONE

TRANSITION ZONE

PROPOSED PARKSIDE CROSSING DEVELOPMENT

CONVEYANCE DIRECTION

CONVEYANCE DIRECTION

LAKE GEORGETOWN

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 26 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown

Areas covered by dashed light blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

3097-313

GEORGETOWN, TEX.
NW/4 ROUND ROCK 15' QUADRANGLE
N3037.5–W9737.5/7.5

1982

DMA 6445 II NW–SERIES V882

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 26 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route

UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

3097-314

WEIR, TEX.
NE/4 ROUND ROCK 15' QUADRANGLE
N3037.5–W9730/7.5

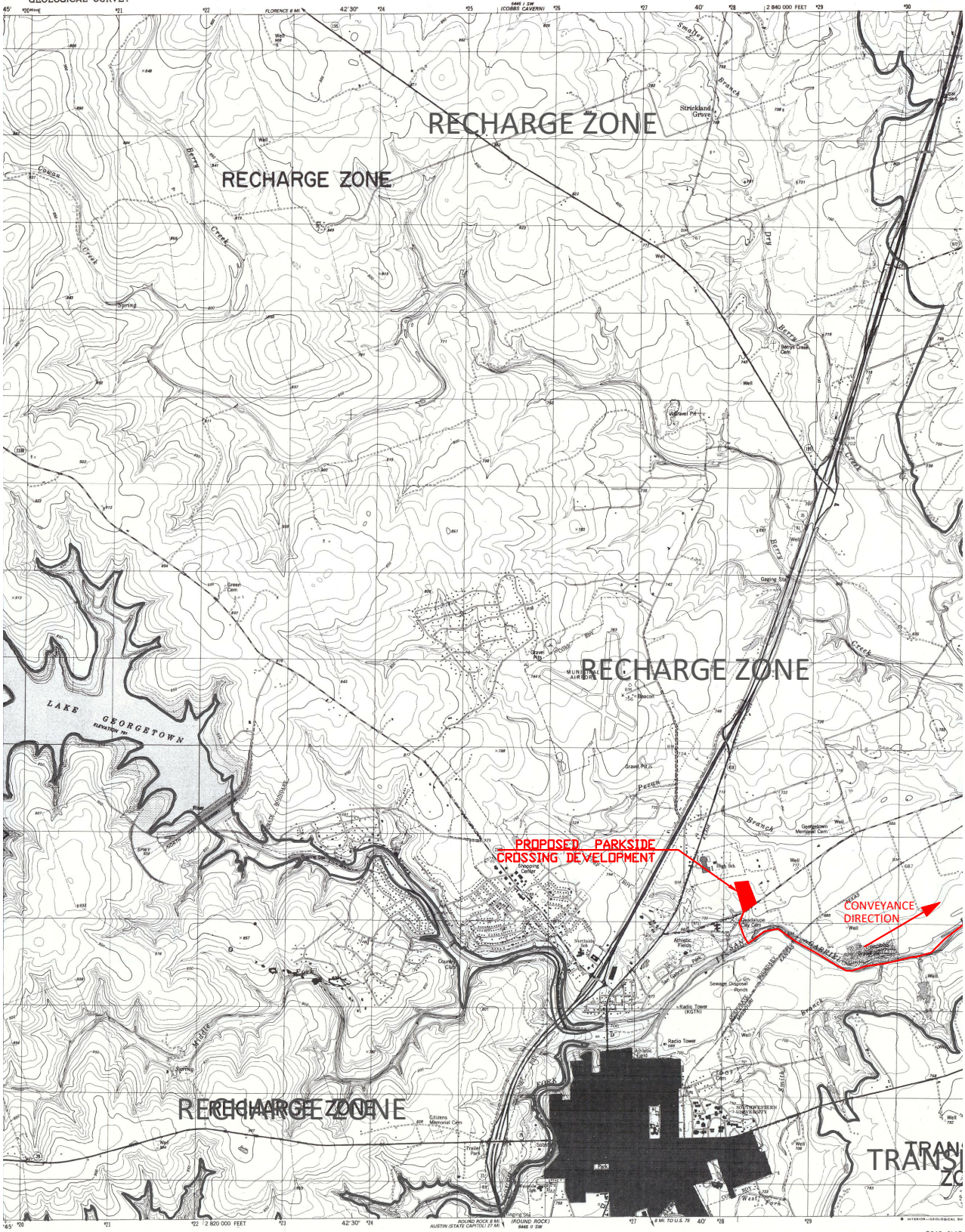
1982

DMA 6445 II NE–SERIES V882

RECEIVED
JUN 27 2006
BY:

RECEIVED
JUN 27 2006
BY:

EDWARDS AQUIFER RECHARGE ZONE



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEORGETOWN
TEXAS-WILLIAMSON CO.
7.5 MINUTE SERIES
NW/4 ROUNDROCK 15 QUAD

Mapped, edited, and published by the Geological Survey

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1975. Map edited 1982

Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum
To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

Red tint indicates areas in which only landmark buildings are shown

Areas covered by dashed light blue pattern are subject to controlled inundation

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

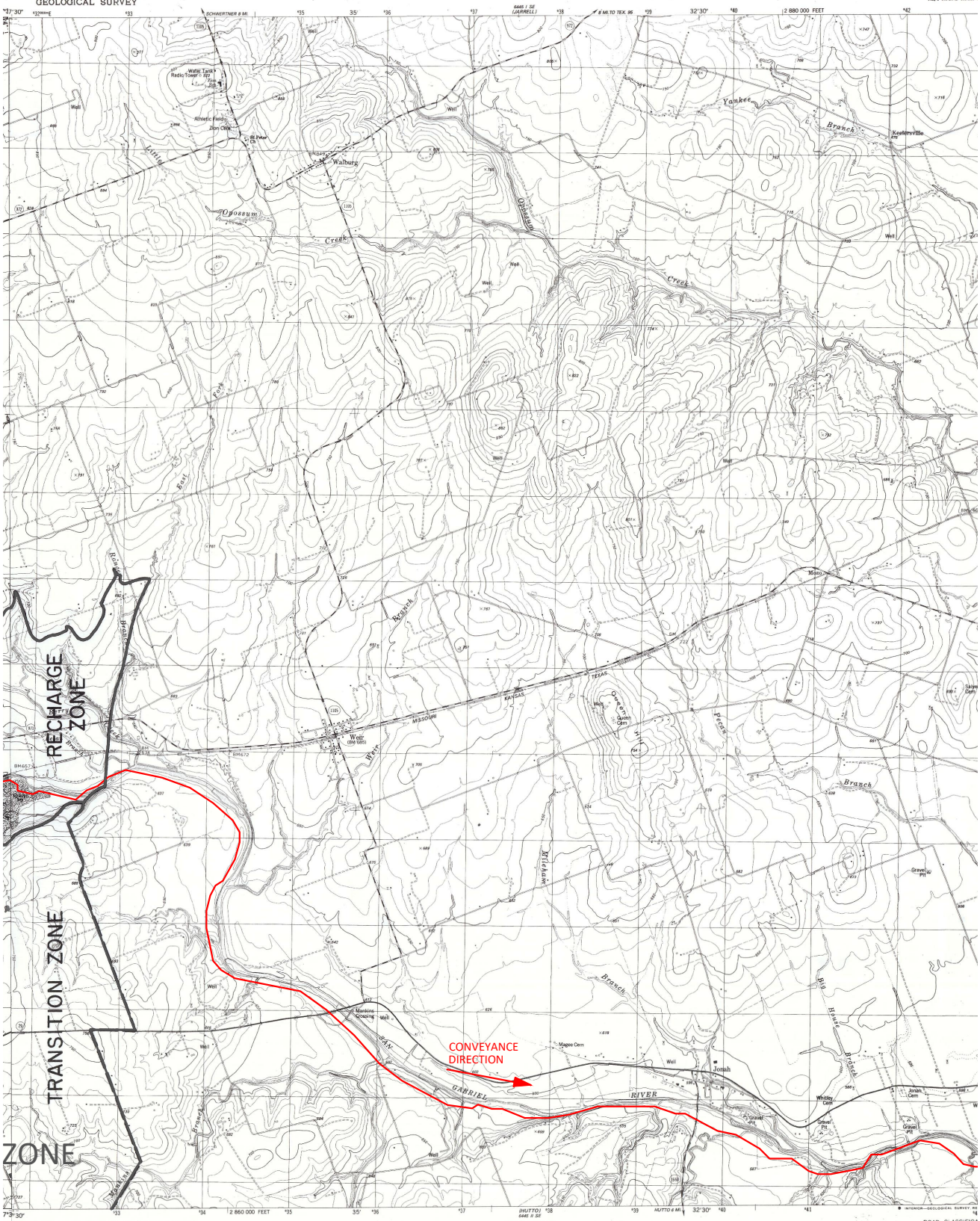
QUADRANGLE LOCATION

ROAD CLASS
Primary highway, hard surface
Secondary highway, hard surface
Interstate Route

3097-313

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WEIR QUAD
TEXAS–WILLI
7.5 MINUTE SERIES
NE/4 ROUND ROCK



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Projection and 10,000-foot grid ticks: Texas coordinate system, central zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 14
1927 North American datum

To place on the predicted North American Datum 1983 move the projection lines 17 meters south and 28 meters east as shown by dashed corner ticks

Fine red dashed lines indicate selected fence lines

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

3097-314

ROAD CLASSIFICA

Primary highway, hard surface — Light-c improv

Secondary highway, hard surface — Unimp

Interstate Route — U. S. Ro

NE/4 RO
N

DMA

Attachment C

Project Description

This project is a proposed new construction of a single-family townhome zero-lot line residential subdivision with a total site area of approximately 3.389-acres which will require 80% removal rate of pollutant loads to comply with Texas Commission for Environmental Quality (TCEQ) Standards, and 85% TSS removal to comply with City of Georgetown ordinances. The entire site lies within the Edwards Aquifer Recharge Zone and Georgetown's City Limits.

The proposed single-family residential project will include 30 townhomes in seven different buildings (3 six-plexus, 1 five-plex, 2 tri-plexus and 1stand-alone townhouse). There is a proposed public street that will run between Rivery Boulevard and Ryan Lane from the Ryan's Cove subdivision, northwest to southeast. The development of this property will include grading, public streets, driveways, sidewalks, stormwater inlets and pipes, public wastewater lines that connect to Georgetown Utility Systems (GUS), and public waterlines that also connect to GUS. This site is currently undeveloped with 0.00% impervious cover.

Proposed impervious cover after all construction is complete will be approximately 1.720-acres, or 49.84% of the site. All improvements to the site will be accounted for and treated using a Batch Detention Pond as the permanent BMP. Storm flows for this development will flow through inlets and storm pipes that lead to the proposed pond. The batch detention System will account for more than the 80% required pollutant load removal, with a 91% removal rate. There are approximately 4 acres of flow through this site, of which approximately 0.5 acres of off-site acres flowing through the proposed permanent BMP. The Total Capture Volume (required water quality volume x 1.2) is 8954 cubic feet. The Batch Detention System will meet the minimum requirements to address the expected pollutant load. This site has not been developed in the past.

TOTAL SITE IMPERVIOUS COVER CALCULATIONS

Total Site Area=	150,326	S.F.			=	3.451	Acres
Allowable Impervious Cover=	3.451	Acres	X	50%	=	1.7205	Acres
Area of Roofs/Buildings=	31,500	S.F.			=	0.723	Acres
Area of Street Pavement=	24,684	S.F.			=	0.556	Acres
Area of Flatwork/Driveways=	9,724	S.F.			=	0.223	Acres
Total of Sidewalks =	9,032	S.F.			=	0.207	Acres
Total Pervious Area =	75,386	S.F.			=	1.731	Acres
Total Proposed I.C. =	74.940	S.F.			=	1.720	Acres
Note: Impervious Cover includes Buildings,Sheds, Sidewalks, Drives and Flatwork							

CAPITOL
ENVIRONMENTAL

February 22, 2016

180 Holly Street Inc.
c/o: Mr. Tim Haynie
1010 Provident Lane
Round Rock, Texas 78644

SUBJECT:
Geologic Assessment
206 E. Janis Drive
3.093 Acre Tract
AW0497 – Porter, N. Sur.
Georgetown, Williamson County,
Texas

Dear Mr. Haynie:

Capitol Environmental (Capitol), is pleased to submit the enclosed Geologic Assessment conducted at the above referenced site to 180 Holly Street Inc. (Client). This assessment addresses an approximately 3.093 acres, more or less, tract of land located at 206 E. Janis Drive in Georgetown, Williamson County, Texas. This Geologic Assessment (GA) reflects the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Recharge Zone regulations, which became effective September 1, 2003. This study was prepared in accordance with applicable sections of Title 30 of the Texas Administration Code Chapter 213: Permanent Rules for the Edwards Aquifer. Information found in this assessment address site conditions that were observed on February 19, 2016.

We appreciate the opportunity to perform these services for 180 Holly Street Inc. Please, contact us if you have questions regarding this information or if we can be of further service.

Respectfully,

D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

Copies Submitted: (1) 180 Holly Street Inc.

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

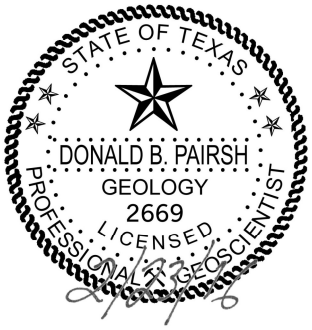
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: D Bryan Pairsh Telephone: 512-535-4368

Date: 02/22/2016 Fax: 512-535-4451

Representing: Capitol Environmental, Inc TBPG Firm Registration #50389 (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:



Regulated Entity Name: 206 E Janis Drive

Project Information

1. Date(s) Geologic Assessment was performed: February 19, 2016
2. Type of Project:
   - ☒ WPAP
   - ☐ SCS
   - ☐ AST
   - ☐ 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)

Soil Name	Group*	Thickness(feet)
Georgetown (GsB) 0 to 2% slopes	D	1-5'
Crawford (CfB) 1 to 3% slopes	D	1-5'
Fairlie (FaB) 1 to 2 % slopes	D	1-5'

** 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" = 40'
   Site Geologic Map Scale: 1" = 40'
   Site Soils Map Scale (if more than 1 soil type): 1" = 40'

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 A – Geologic Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: 206 E JANIS DRIVE

LOCATION			FEATURE CHARACTERISTICS												EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11		12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DIM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
			To the extent that conditions were assessed on February 19, 2016, no geologic features were identified.																	

***DATUM:** NAD 83 StatePlane Texas Central

2A TYPE	TYPE	2B POINTS
C	Cave	30
SC	Solution cavity	20
SF	Solution-enlarged fracture(s)	20
F	Fault	20
O	Other natural bedrock features	5
MB	Manmade feature in bedrock	30
SW	Swallow hole	30
SH	Sinkhole	20
CD	Non-karst closed depression	5
Z	Zone, clustered or aligned features	30

8A INFILLING	
N	None, exposed bedrock
C	Coarse - cobbles, breakdown, sand, gravel
O	Loose or soft mud or soil, organics, leaves, sticks, dark colors
F	Fines, compacted clay-rich sediment, soil profile, gray or red colors
V	Vegetation. Give details in narrative description
FS	Flowstone, cements, cave deposits
X	Other materials

12 TOPOGRAPHY
Cliff, Hilltop, Hillside, Drainage, Floodplain, Streambed

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

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

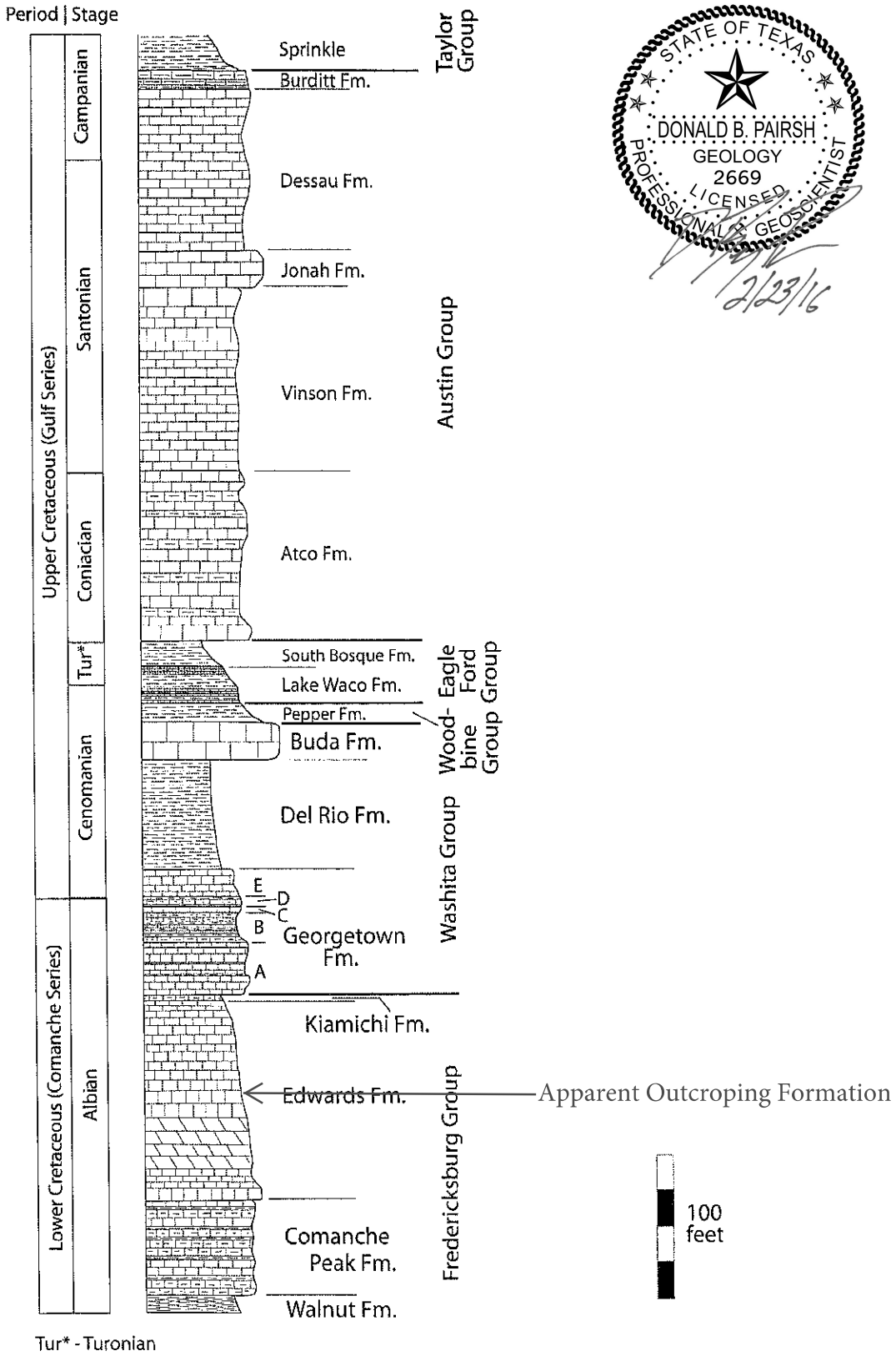
Date: 2/19/16

Sheet: 1 of 1

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

Attachment B – Stratigraphic Column

Generalized Stratigraphic Column of the Round Rock Area



STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOSCIENTIST

2/23/16

Source:
Bedrock Geology of Round Rock and Surrounding Areas, Williamson and Travis Counties, Texas
By: Todd B. Housh

Attachment C – Site Geology

NARRATIVE DESCRIPTION OF SITE SPECIFIC GEOLOGY
206 E JANIS DRIVE
3.093 ACRE TRACT
GEORGETOWN, WILLIAMSON COUNTY, TEXAS
FEBRUARY 19, 2016

LOCATION

The subject site is an approximate 3.093 acres, more or less, tract of land located at 206 E Janis Drive in Georgetown, Williamson County, Texas at approximately 30.657093° North Latitude and approximately -97.680720° West Longitude. This location lies within the designated Edwards Aquifer Recharge Zone. Therefore, future intended development of the site must conform to criteria in accordance with the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program Rules in accordance with Title 30 of the Texas Administrative Code, Section 213 (30 TAC§ 213).

EXPLANATION OF ASSESSMENT

This assessment follows general guidelines contained in Texas Commission on Environmental Quality (TCEQ) "*Instruction for Geologist for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones"* (TCEQ Guidance 0585). The site is located on an area of the recharge zone that may contain karst features formed by selective solutioning of limestone minerals by water. Karst features may be expressed as surface features but more commonly tend to persist with depth. This assessment documents the presence or absence of site conditions that were present at the time the site visit that was performed on February 19, 2016. The site visit consisted of a walk through survey that consisted of a non-intrusive visual observation or survey of readily accessible, easily visible surface property conditions that were present on the subject property at the time of the site visit. Intrusive subsurface testing such as excavation, cave mapping, infiltrometer test, geophysical studies or tracer studies are not required for the geologic assessment of any feature in accordance with this practice.

A sensitive geologic or manmade feature, for the purpose of this practice is a feature on the recharge zone or transition zone of the Edwards Aquifer with a <u>superficial</u> appearance that suggest a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer and that has the apparent potential for rapid infiltration into the subsurface.

PHYSICAL DESCRIPTION OF SITE

The subject site is currently undeveloped land.

SURFACE DRAINAGE

After reviewing the project site topographic survey, storm water runoff appears to flow toward the southeast.

SOIL DESCRIPTION

The site soil is composed of Georgetown clay loam 0-2 % slopes (GsB), Crawford clay 1-3 % slopes (CfB) and Fairlie clay 1-2 % slopes (FaB).

The Georgetown series consists of moderately deep, well drained, slowly permeable soils that have formed over indurated limestone of Cretaceous age. These soils are on nearly level to very gently sloping uplands. Slopes range from 0 to 3 percent. Well drained. Runoff is medium. Permeability is slow.

The Crawford series consists of moderately deep, well drained, very slowly permeable soils that formed in clayey sediments that are underlain by indurated limestone bedrock These soils are on broad nearly level or gently sloping uplands Slopes range from 0 to 5 percent. This soil is well drained. Permeability is very slow when the soil is saturated and rapid when it is dry and cracked. Runoff is medium on 1 to 3 percent slopes, and high on 3 to 5 percent slopes.

The Fairlie series consists of deep, moderately well drained, very slowly permeable soils. These soils are on nearly level to gently sloping uplands. The slope is typically 1 to 3 percent but ranges from 0 to 5 percent. Fairlie soils are moderately well drained and very slow permeability. Runoff is moderate on 1 to 3 percent slopes.

DESCRIPTION OF SITE GEOLOGY

The site is located on the Edwards Formation (Ked) in Williamson County.

Edwards and Associated Limestone Formation: The Edwards and Associated Limestone Formation is Cretaceous age and is composed of massively bedded limestone with local occurrences of chert nodules. The Edwards Formation in Williamson County has been differentiated into members on the basis of lithology and selected guide fossils for each member.

From bottom to top, the lower member consists of white to dark gray, occasionally dolomitic, course grained chert bearing, fossiliferous biostrome deposits. The middle member is describes as being a white to tan, chert bearing dolomite. The upper member consists of white to cream colored limestone containing moundlike masses of algae, coral and stromatolite features. For the purpose of this assessment, these members are identified as an undivided unit (Ked).

STRUCTURAL FEATURES:

The site is not located in the vicinity of mapped regional faulting. No surface expressions of local structural features were observed during this assessment.

SITE SPECIFIC GEOLOGIC FEATURE DESCRIPTIONS
Identified February 19, 2016

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on February 19, 2016, no geologic features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer.

OBSERVATIONS

To the extent that surface property features were readily accessible and observable at the time the site was evaluated on February 19, 2016, no sensitive features were identified on the subject tract of land that has observed potential to affect recharge to the Edwards Aquifer.

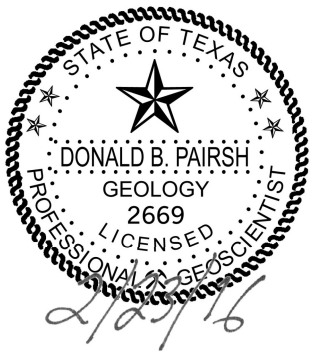
CONCLUDING STATEMENTS

The Client understands that no non-intrusive visual observation or survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This assessment does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Respectfully,



D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc
TBPG Firm Registration #50389
Austin, Texas

DISCLAIMER:

Under standard geologic assessment practice, this assessment is an assessment of surface property conditions that were readily accessible and easily visible at the time of the assessment.

Services performed under this contract were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions. Under standard geologic assessment practice, information developed in this report represents an assessment of environmental conditions observed as present or absent on portions of the surface of the subject property at the time of the assessment. The field observations, measurements and research reported in this report are considered sufficient in detail and scope to form a contained assessment of discrete portions of the subject property. Capitol warrants that the findings and conclusions contained in this report have been prepared in accordance with generally accepted methods normal for the subject site described in this report.

Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the Client and information developed in the course of the inquiry. The Assessment has been developed to provide the Client with information regarding apparent indications of the presence of absence of geologic conditions relating to the surface of the subject site. The Geologic Assessment report is necessarily limited to the conditions observed and to the information available at the time the work was performed. Due to the limited nature of the work, there is a possibility that conditions may exist in connection with the subject site which could not be identified within the scope of this assessment practice or which were not easily visible or not disclosed at the time the report was prepared.

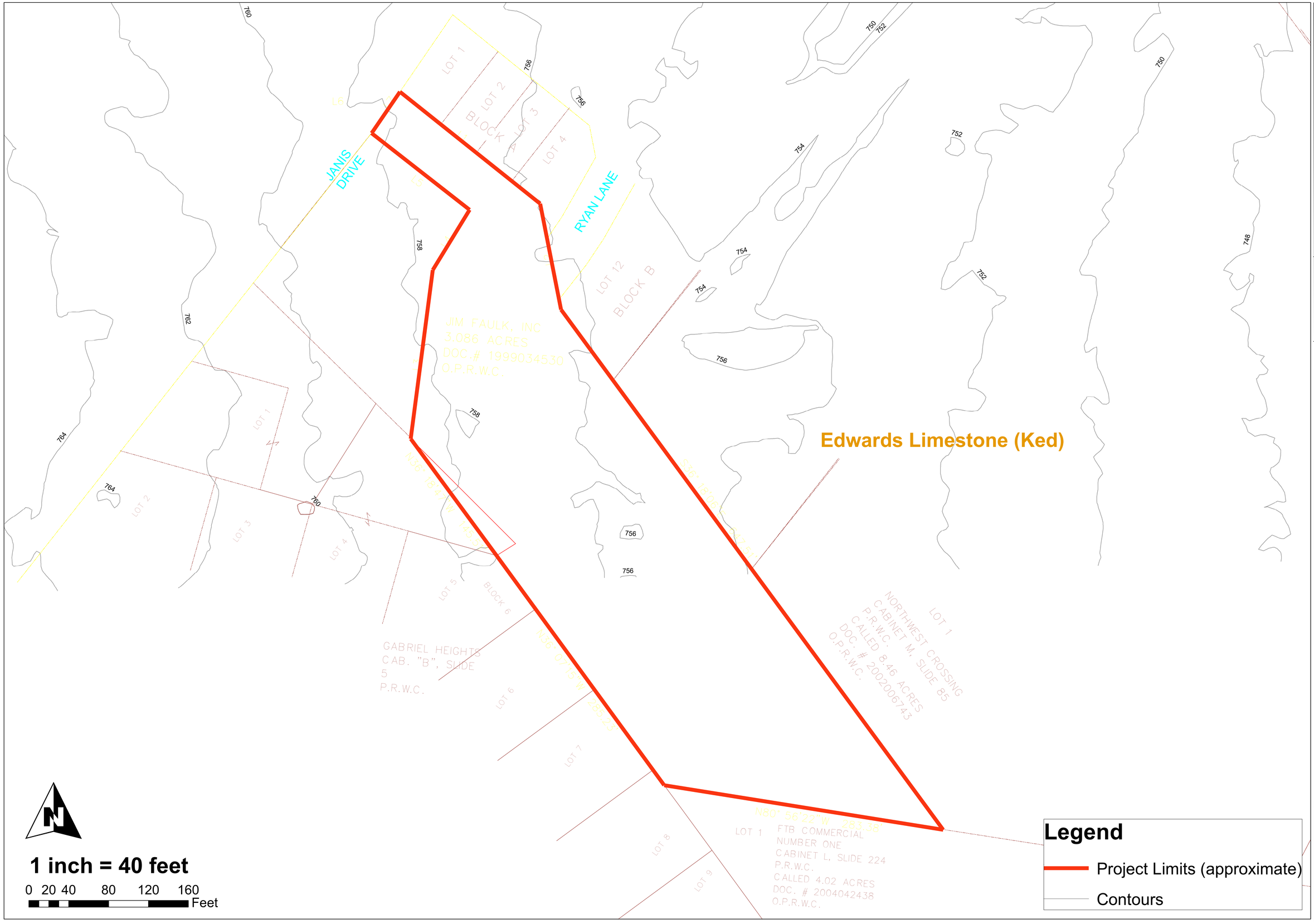
It is also possible that assessment methods employed at the time the report was prepared may be later superseded by more discrete assessment methods. The definition of a “sensitive geologic feature” and / or a “critical environmental feature” can also change statutorily over time. Capitol does not warrant the content or findings of this report in the event of changes in conditions in connection with the subject property; in the event of changes in assessment methods; or in the event of changes in statute that may apply to the subject property in the future.

In preparing this report, Capitol has relied on information derived from third party sources and personal interviews, as well as other investigative work. Except as set forth in this report, Capitol has made no independent investigation as to the accuracy or completeness of the information derived from third party sources.

This report does not address uncertainty about site conditions across those portions of the subject property not specifically assessed in this report. The Client understands that no surface assessment can wholly eliminate uncertainty regarding the possible presence of geologic conditions at depth in connection with the subject property. The Client should recognize that conditions elsewhere in the assessment area may differ from those at the study /sample locations, and that surface conditions described in the assessment practice herein may change at depth. This assessment should not to be used as a basis for engineering design.

This report was prepared for the Client, to identify the presence or absence of geologic conditions on surface portions of the subject property. Any use of this report for other purposes or any use of information presented in this report by other parties other than the Client is the Client’s responsibility.

Attachment D – Geologic Site Map
&
Soils Site Map



1 inch = 40 feet

0 20 40 80 120 160 Feet

Legend

- Project Limits (approximate)
- Contours

Geologic Site Map

206 E. Janis Dr Georgetown, TX 78628

Drawn By: Eric LaBouliere

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 2/22/2016

TBPG Firm Registration #50389

CAPITOL ENVIRONMENTAL

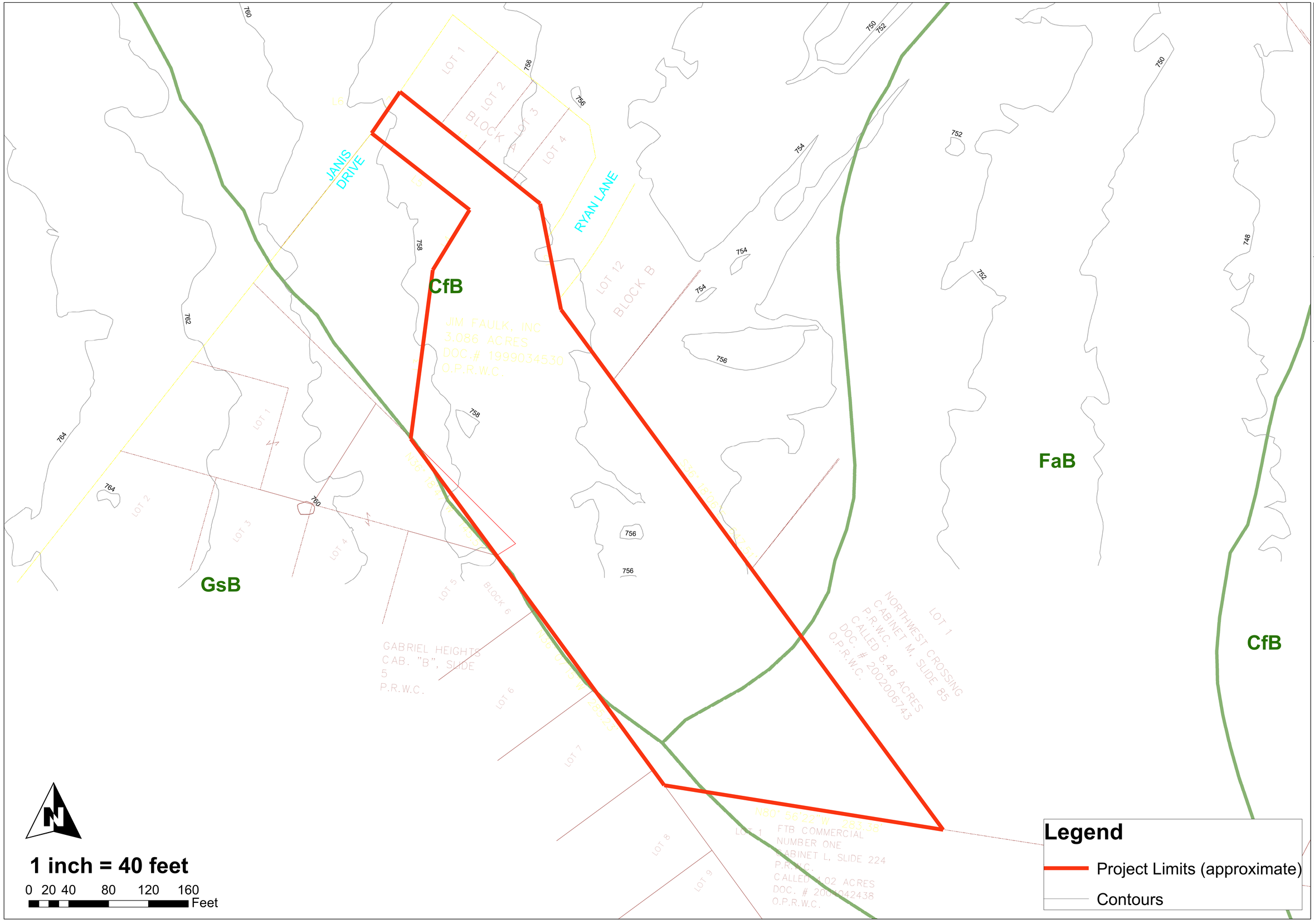
512.535.4388

www.capitolenvironmental.com

STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
LICENSED
PROFESSIONAL GEOLOGIST
2/22/16

Not For Construction or Building Purposes

Sheet No. 1 of 1



206 E. Janis Dr Georgetown, TX 78628

Drawn By: Eric LaBouliere

Prepared under the supervision of: D. Bryan Pairsh, P. G.

Date: 2/22/2016

Soils Site Map

TBPG Firm Registration #50389

CAPITOL ENVIRONMENTAL

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STATE OF TEXAS
DONALD B. PAIRSH
GEOLOGY
2669
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PROFESSIONAL GEOLOGIST
2/23/16

Not For Construction or Building Purposes

Sheet No. 1 of 1

CAPITOL
ENVIRONMENTAL

February 22, 2016

180 Holly Street Inc.
c/o: Mr. Tim Haynie
1010 Provident Lane
Round Rock, Texas 78644

Re: Additional Investigation
City of Georgetown
Edwards Aquifer Recharge Zone Water Quality Ordinance
206 E Janis Drive
Georgetown, Williamson County, Texas

Dear Mr. Haynie:

Capitol Environmental, Inc. (Capitol) appreciates the opportunity to submit this report in accordance with the City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance (The Ordinance).

Please, contact us if you have questions regarding this information or if we can be of further service.

Respectfully,

D. Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc.
TBPG Firm Registration #50389
Austin, Texas

Copies Submitted: (1) 180 Holly Street Inc.

NARRATIVE DESCRIPTION OF ADDITIONAL INVESTIGATION
206 E JANIS DRIVE
3.093 ACRE TRACT
CITY OF GEORGETOWN
EDWARDS AQUIFER RECHARGE ZONE WATER QUALITY ORDINANCE
FEBRUARY 19, 2016

PROJECT INFORMATION

The subject site is an approximate 3.093 acres, more or less, tract of land located at 206 E Janis Drive in Georgetown, Williamson County, Texas at approximately 30.657093° North Latitude and approximately -97.680720° West Longitude. This proposed development project location lies within the designated Edwards Aquifer Recharge Zone and the mapped limits of the City of Georgetown.

The City of Georgetown recently adopted the Edwards Aquifer Recharge Zone Water Quality Ordinance (the Ordinance). The Ordinance applies to all property within the corporate limits of the City of Georgetown and the within the limit of its ETJ. The Ordinance adopted local regulations intended to protect water quality for spring and stream features in the Edwards Aquifer recharge zone and to identify and protect habitat of the Georgetown Salamander.

City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance:

Information found in this assessment addresses site conditions that were observed by Capitol Environmental on February 19, 2016.

In accordance with the City of Georgetown Edwards Aquifer Recharge Zone Water Quality Ordinance (Ordinance), the following matters are respectfully addressed:

[a] Identify the presence or absence of all springs and streams on the subject property or; Certify that no springs or streams exist as “Springs” and “Streams” as these terms are defined in the Ordinance.

Comment: No “Springs” or “Streams” are identified in connection with the subject property.

[b] Describe, if any, each spring and/or stream on a site as defined in the Ordinance, including determining the location of any spring outlet or stream.

Comment: No “Springs” or “Streams” are identified in connection with the subject property.

[c] For Occupied Sites identified in Section 2 of the Ordinance, delineate the No-Disturbance Zone and the Minimal- Disturbance Zone as described in Section 4 of The Ordinance.

Comment: The subject property is not located within an “Occupied Site” as defined in the Ordinance and as shown on Exhibit A, attached thereto.

Comment: The subject property, therefore, is not located within a City of Georgetown mapped No-Disturbance Zone (Red Zone), therefore, the establishment of a City of Georgetown "Minimal-Distance Zone (Orange Zone) is not warranted.

[d] Spring Buffer and Stream Buffer Protection of Non-Occupied Sites. The subject property is identified as a "Non-Occupied Site" as defined in the Ordinance and as shown on Exhibit A, attached thereto.

Comment: No "Springs" or "Streams" are identified in connection with the subject property. Therefore, a stream buffer coincidental with the FEMA 1% Floodplain to protect water quality for spring and stream features in the Edwards Aquifer Recharge Zone in accordance with the Ordinance is not warranted.

[e] All Red Zones, Orange Zones and spring and stream buffers as required in the Ordinance will be shown on all Plats, Site Plan and infrastructure Construction Plans.

Comment: Based on the above conditions, no spring and / or stream buffers are required to be shown on Plats, Site Plan and infrastructure Construction Plans.

CONCLUDING STATEMENTS

This Letter Report is prepared in response to City of Georgetown Ordinance Number 2013-59. As such, it is necessarily a stand apart document that does not conform to, nor is it a required part of a Geologic Assessment as required by Title 30, Texas Administrative Code Chapter 213.5.

The Client understands that no survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This investigation does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Prepared by:



D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc.
TBPG Firm Registration #50389
Austin, Texas

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Timothy E. Haynie, P.E.

Date: 5/14/2024

Signature of Customer/Agent:



Regulated Entity Name: Rivery Crossing Phase 2

Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☒ Residential: Number of Living Unit Equivalents:30
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):3.451

3. Estimated projected population:74

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	31,500	÷ 43,560 =	0.723
Parking	34,408	÷ 43,560 =	0.790
Other paved surfaces	9,032	÷ 43,560 =	0.207
Total Impervious Cover	74,940	÷ 43,560 =	1.720

Total Impervious Cover 1.720 **÷ Total Acreage** 3.451 **X 100 =** 49.85**% 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 = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/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:

100 % Domestic	3528 Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day

TOTAL gallons/day 3528

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 San Gabriel (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" = 50'.

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): FEMA PANELS 48491C0291F & 48491C0293F 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 affecting water quality include oil and grease that becomes detached from the asphalt pavement, and normal silt build-up. Temporary BMP's will be implemented to retain sediment and trash from construction activities.

The permanent water quality best management practices (BMP) in this project will include a batch detention pond with a minimum TSS removal of 85%. Actual TSS removal of 91%, as described the TCEQ's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices" (RG-348), dated June 1999.

The batch detention pond is also designed to detain and control the outflow rates for the 2-, 10-, 25- and 100-year design storms.

The Rivery Phase 2 development will connect to existing City of Georgetown infrastructure for wastewater disposal.

Storm water runoff from this proposed project ultimately run-off flows into the San Gabriel River, a tributary of the Brazos River Basin.

ATTACHMENT "B"

Volume and Character of Storm Water

Stormwater Quality

The pollutant loads from the development are expected to be sediment transported from disturbed soils during construction. To counter the probable loading into the surface streams, silt fence and rock berms have been strategically placed to capture, filter and remove these potential sediment loads before reaching the surface streams downstream of the disturbed areas. Undisturbed property downstream of these measures will also help to remove any escaping sediment with natural grass coverage.

The existing soil within the project limits is undeveloped pasture, comprised of USGS soils groups B and D. Installation of the proposed improvements will increase the pollutant loads. Runoff contaminants may include oil and grease. The proposed permanent wet basin and vegetative filter strips were designed according to the TCEQ's RG-348 Technical Manual titled Complying with the Edwards Aquifer Rules, Technical Guidance on Best Management Practices, July 2005. Calculations for the permanent wet basin are shown on Plan Sheet 24. A maximum of 58 feet (direction of flow) of sheet flow will be directed across the 15 foot wide engineered vegetative filter strips with a min of 1% and max of 2% slope. These BMPs will provide water quality treatment for the proposed improvements.

C(ex) = (3.451 acres undeveloped)/(3.451 acres total) x 0.03 = **0.03**
C(dev) = (1.72 acres IC)/(3.451 acres total) x 0.90 = **0.45**

Stormwater Quantity

Runoff, in excess of the water quality volume, will be directed to the proposed permanent batch detention pond. The batch detention pond has been designed to treat impervious cover from Area A, but will detain required volumes for the entire site. The quantity of stormwater will increase with the addition of the impervious cover of the existing and proposed improvements. The wet basin storage is 1.2 times the water quality volume. The actual water quality volume will release over 48 hours, per actuator valve on a timer. The proposed wet basin / detention pond will release stormwater runoff below existing runoff rates for the 2-, 10-, 25- and 100-year design storms.

ATTACHMENT "C"

Suitability Letter from Authorized Agent

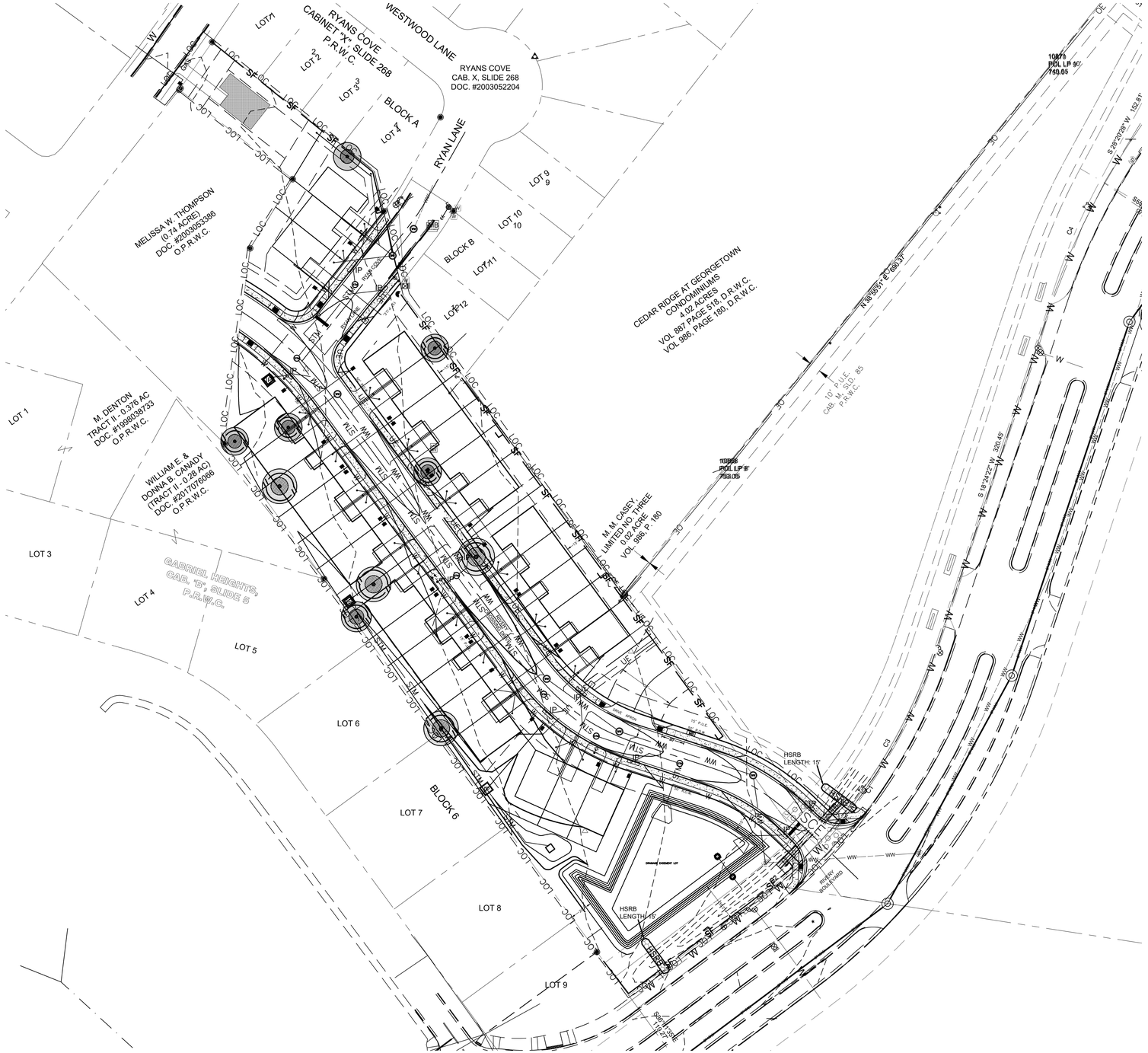
Not applicable as there are no proposed on-site sewage systems.

ATTACHMENT "D"

Exception to the Required Geological Assessment

Not applicable as a geological assessment was conducted for this property. The assessment results indicate no sensitive geological or manmade features exist on the property.

SITE PLAN



0 50 100 Feet

SCALE 1" = 50'

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- TREES TO BE PROTECTED
- CONCRETE WASHOUT STATION
- PROPERTY/ROW LINE
- HIGH SERVICE ROCK BERM
- INLET PROTECTION
- DROP INLET PROTECTION
- SILT FENCE
- LIMITS OF CONSTRUCTION
- TREE PROTECTION FENCE

5' 5'

"J" HOOK SILT FENCE DETAIL

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revision #	Description	Approval

Date:	09-May-2024
Scale:	
Project No:	002-20-01
Designed By:	
Drawn By:	KS, TED
Checked By:	TH
Revised By:	

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EROSION & SEDIMENTATION
CONTROL PLAN
CITY OF GEORGETOWN

SHEET NO.

13 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\13 EROSION & SEDIMENTATION CONTROL PLAN.dwg May 09, 24 4:03 pm

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

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

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

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

Regulated Entity Name: Rivery Crossing Phase 2

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

Customer Information

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

   Contact Person: Timothy E. Haynie
   Entity: Ewing Development Company, LLC
   Mailing Address: 309 Palmetto Drive
   City, State: Georgetown, TX Zip: 78633
   Telephone: 512-784-6670 Fax: _____
   Email Address: tehaynie45@yahoo.com
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

   Contact Person: Timothy E. Haynie, P.E.
   Texas Licensed Professional Engineer's Number: 36982
   Entity: Haynie Consulting, Inc.
   Mailing Address: 309 Palmetto Drive
   City, State:Georgetown, Texas Zip: 78633
   Telephone:512-784-6670 Fax:_____
   Email Address:tehaynie45@yahoo.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☒ Residential: Number of single-family lots: 30
   ☐ Multi-family: Number of residential units:
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

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

100% Domestic	7320 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 7320

6. Existing and anticipated infiltration/inflow is 3,890 gallons/day. This will be addressed by: City of Georgetown.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on 5/15/2024, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	613	PVC, SDR 26	ASTM D2321

Total Linear Feet: 613

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the San Gabriel (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

    ☒ The City of Georgetown standard specifications.
    ☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

    ☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

    ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

    ☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
A	41 Of 52	1+00.00	Manhole (existing)
A	41 Of 52	1+76.59	Manhole (proposed)
A	41 Of 52	2+98.66	Manhole (proposed)
A	41 Of 52	3+76.37	Manhole (proposed)
A	42 Of 52	6+82.67	Manhole (proposed)
B	43 Of 52	1+29.51	Manhole (proposed)
B	43 Of 52	1+00	Manhole (existing)

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

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

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

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

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

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

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 20'.

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

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
A	1+36.32	Crossing	N/A	24"

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☒ The placement and markings of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	45 of 52
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	44 of 52
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	44 of 52
Typical trench cross-sections **[Required]**	45 of 52
Bolted manholes **[Required]**	45 of 52
Sewer Service lateral standard details **[Required]**	44 of 52
Clean-out at end of line **[Required, if used]**	N/A of N/A
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	45 of 52
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	45 of 52

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of N/A

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☒ Survey staking was completed on this date: 5/21/2024

38. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

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

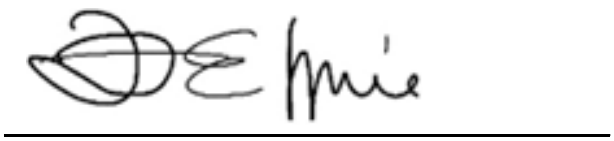
Print Name of Licensed Professional Engineer: Timothy E. Haynie, P.E.

Date: 5/14/2024

Place engineer's seal here:



Signature of Licensed Professional Engineer:



Appendix A-Flow Velocity Table

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

Table 10 - Slope Velocity

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

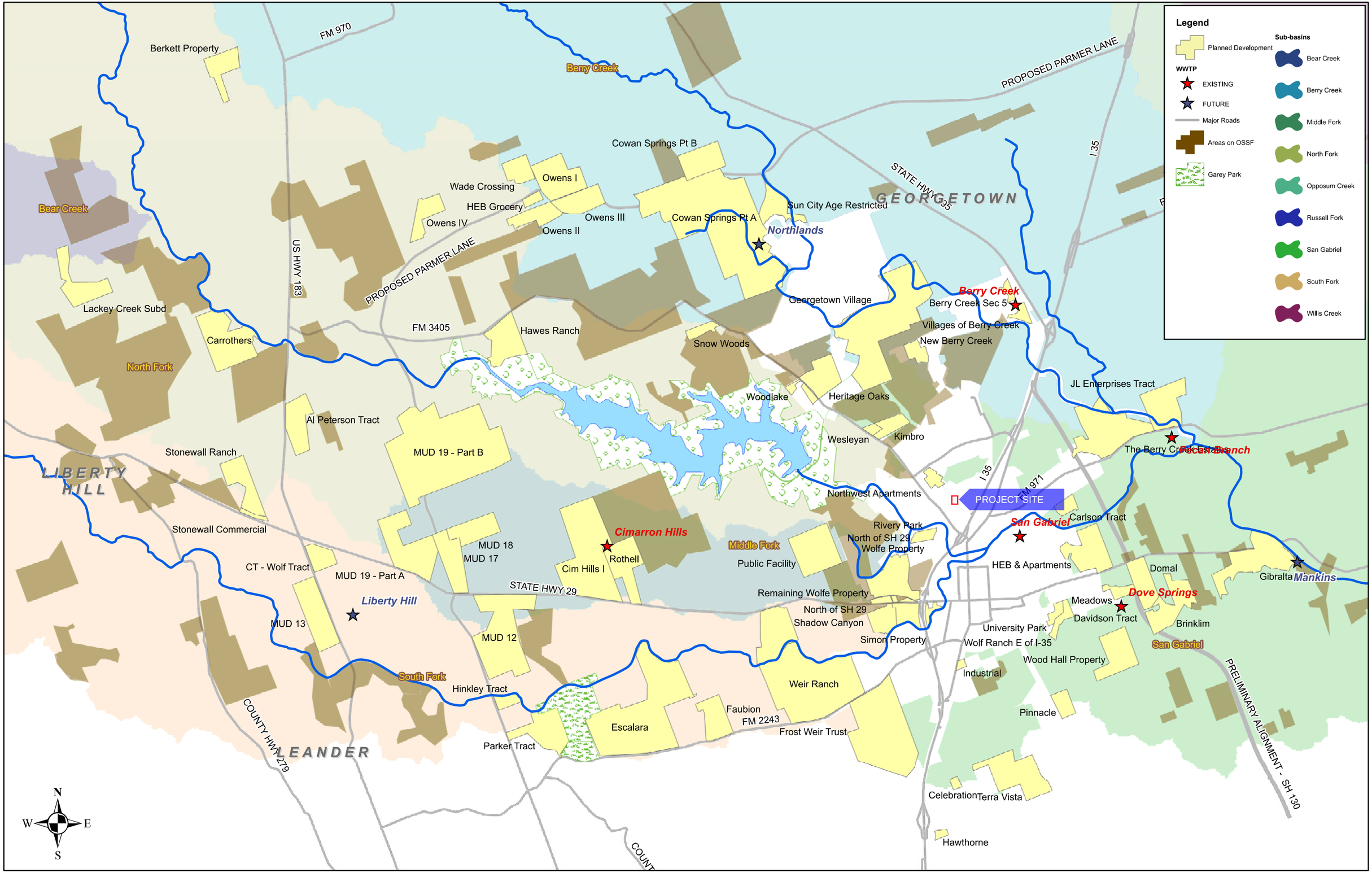
**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

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

Figure 1 - Manning's Formula

Where:

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



MELANCONPA AUSSVR1\GIS\bra\SGWWMPPhII\Figures\Figure2-1.mxd 11/4/2005

Figure 2-1. **Planned Development in the San Gabriel Basin**

PROJECT: RIVERY CROSSING PHASE 2 (3427)
SYSTEM: WASTEWATER FLOW CALCULATIONS

Inflow/Infiltration:

RDII (gal/acre/day)	Contributing Acreage (Ac.)	Conversion Factor	RDII (gpm)
1000	3.40	1440	2.36

Residential

Development Type	Total # of Units	Total LUE's	Gallons per day (BWF + GWI) (gpd)	Convert to MGD	DWF (gpm)	Peaking Factor	Peak DWF (gpm)	
Residential	30	30	7500	0.00750	5.2	4.01	20.9	

*Residential peaking factor per section 2.1.2 of the Georgetown Wastewater Design Criteria

20.9	Total Peak DWF (gpm)	
23.2	Total Design Flow (gpm)	

*Total design flow is the sum of the peak DWF and RDII

Capacity Analysis:
Maximum Allowable Flow
Assumed "n-value" = 0.013

Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Q max (gpm)	
8	7.921	0.5	0.34	0.17	0.30	0.071	0.83	80.00	299.58	Adequate

*Maximum allowable flow is derived from the Hazen Williams Equation based on AWWA C-900 Pipe

0 10' 20' 40'

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683

LEGEND

- PROPOSED CENTERLINE
- EXISTING CENTERLINE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revision #	Description	Approval

Date: 14-May-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER COLLECTION PLAN

CITY OF GEORGETOWN

SHEET NO.

40 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\42 WASTEWATER COLLECTION PLAN.dwg May 14, 24 10:30 am

The following Engineering Design Report for the Rivery Crossing Phase 2 Sewer Sewage Collection System, is in compliance with the 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report", and 30 TAC Chapter 217, Subchapter C, Rule 217.55 "Manholes and Related Structures". Information provided on this form will follow the order provided by item (e) "The report for a wastewater collection system must include the following:", located in 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report". The intent of the design report is to meet the Texas Commission on Environmental Quality (TCEQ) plan review of SCS applications.

This project consists of 613 LF of proposed sewer line into the existing San Gabriel Wastewater Treatment Plant. The sewage collection system will service approximately 7,320 GPD.

(e-1)__**X**__ Map showing the current service area, the proposed service area, and any area proposed for future expansion.

- Attachment - "**Wastewater Collection System**"- shows the current service area for the San Gabriel WWTP.

(e-2) __**X**__ The topographical features of the current, the proposed, and any future service areas. (Refer to Attachment **"Wastewater Collection Plan"** and "**Rivery Crossing Phase 2 Sanitary Sewer Plan and Profile Sheets: 41-43** for Topographic details)

(e-3) __**X**__ A description of how the design flow was determined. (Attachment – **"Capacity Design"**)

The design flow for Rivery Crossing Phase 2, SCS, was derived using the CDM Smith "Water Design Guide" 2014 section C.2.

- Inflow/Infiltration rates are derived from section C.2.1.3 which includes an approximation of 1000 gallons/acre/day. This provides a multiplier of 0.022957 gpd/ft^2, for a contributing area of ± 3.4 acres.

- Peak dry weather flow calculations are derived from formula provided by section C.2 Refer to attachment for subdivision residential, and the associated flow values used for design.

- Peak wet weather flow is obtained by adding inflow and infiltration to the peak dry weather flow. These calculations were derived from formula provided by section C.2. Refer to attachment for subdivision residential, and the associated flow values used for design.

(e-4) __**X**__ The minimum and maximum grades for each size and type of pipe. (Refer to Attachment **"Capacity Design – Minimum and Maximum Slope Table"**)

Pipe sizing and minimum/maximum grades for Rivery Crossing Phase 2 SCS, was derived using the CDM Smith "Water Design Guide" 2014 section C.2.2.

- **C.2.2 "Percent Pipe Full at Design Flow"**, requires a minimum diameter of eight (8) inches for all gravity lines sewer mains. Rivery Crossing Phase 2 sanitary sewer system contains 8" lines. Minimum

allowable slopes for mains in the conform with the CDM Smith table provided and shown on (Refer to Attachment **"Capacity Design – Minimum and Maximum Slope Table")**

(e-5) __**X**__ Calculations of expected minimum and maximum velocities in the system for each size and type of a pipe. (Refer to attachment **"Capacity Design –Flow Velocity Table"**)

Minimum maximum velocities for Rivery Crossing Phase 2 SCS, was derived using CDM SMITH TABLE C-8 2014, "Minimum and Maximum Slope for Gravity Sewer".

- **2.9.3, B-3, "Design Velocities"** requires a minimum design velocity calculated using the Peak Dry Weather flow not be less than two (2) feet per second (fps). The maximum design velocity calculated using the Peak Wet Weather Flow should not exceed ten (10) fps. Slopes per pipe diameter size comply with Appendix A, listed above to meet minimum and maximum velocity requirements.

(e-6) __**X**__ The proposed system's effect on an associated existing system's capacity.

- The proposed system for the entire system will discharge at peak wet weather flow rate of 23 gpm (Refer to attachment - **"Capacity Design"**).

(e-7) __**X**__ The existing and anticipated inflow and infiltration, the hydraulic effect of the inflow and infiltration on the proposed and existing systems, any inflow and infiltration flow rate monitoring, and any inflow and infiltration abatement measures.

- The Rivery Crossing Phase 2 sanitary sewer design complies with design standards to prevent infiltration into the system. This is will be prevented through sealing manholes (where required), by means of gasketing and bolts shown in the utility detail sheets attached.

(e-8) __**N/A**__ A description of the ability of the existing and proposed trunk and interceptor wastewater collection systems and lift stations to handle the peak flow.

(e-9) __**X**__ The capability of the receiving treatment facility to receive and adequately treat the anticipated peak flow. The proposed system for the entire subdivision will discharge at peak wet weather flow rate of 23 gpm (Refer to attachment - **"Capacity Design"**).

(e-10) __**X**__ An engineering analysis showing compliance with structural design, minimization of odor-causing conditions, and the pipe design requirements of 217.55 of this title (relating to Manholes and Related Structures)

30 TAC 217, Subchapter C, Rule 217.55 Manholes and Related Structures

217.55(a) Manholes for the proposed wastewater system are included at all points of change in alignment, grade, size, intersection of all pipes, and at the end of all pipes that may be extended at a future date. **(Complied – Refer to Sewage Collection Site Plan)**

217.55(b) Manholes placed at the end of a wastewater collection system pipe that may be extended in the future must include pipe stub outs with plugs **(Complied – Refer to Sewage Collection Site Plan)**

217.55(c) A clean-out with watertight plugs may be installed in lieu of a manhole at the end of a wastewater collection system pipe if no extensions are anticipated. **(N/A)**

217.55(d) Cleanout installations must pass all applicable testing requirements outlined for gravity collection pipes in 217.57 of this title (relating to Testing Requirements for Installation of Gravity Collection System Pipes). **(N/A)**

217.55(e) A manhole must be made of monolithic, cast-in-place concrete, fiberglass, pre-cast concrete, high density polyethylene, or equivalent material that provides adequate structural integrity. **(Pre-cast Concrete. Per detail sheets 44-45, City of Georgetown Standard details and specifications.)**

217.55(f) The use of bricks to adjust a manhole cover to grade or construct a manhole is prohibited. **(Complied)**

217.55(g) Manholes may be spaced no further apart than the distances specified in the following table for a wastewater collection system with straight alignment and uniform grades, unless a variance based on the availability of cleaning equipment that is capable of servicing greater distances is granted by the executive director.

The maximum manhole spacing allowed by the TCEQ are as follows:

Pipe Diameter (in)	Maximum Manhole Spacing (ft)
6 - 15	500
18 - 30	800
36 - 48	1000
54 or Larger	2000

Indicate what the maximum spacing in this project will be for each proposed diameter of pipe.
Pipe Diameter: **8”** Max. Spacing: **306.30’**

217.55(h) Tunnels are exempt from manhole spacing requirements because of construction constraints. **(N/A)**

217.55(i) An intersection of three or more collection pipes must have a manhole. **(Complied)**

217.55(j) A manhole must not be located in the flow path of a watercourse, or in an area where ponding of surface water is probable. **(See below)**
Manhole covers which lie within a 100-year flood plain must be sealed and gasketed or otherwise provided with adequate protection against inflow. Such measures should also be provided to any manholes lying in drainage ways or streets subject to carrying drainage flows. Will this requirement be met? **N/A**

(k) The inside diameter of a manhole must be no less than 48 inches. A manhole diameter must be sufficient to allow personnel and equipment to enter, exit, and work in the manhole and to allow proper joining of the collection system pipes in the manhole wall.
(1) Manhole Covers:
(A) A manhole where personnel entry is anticipated requires at least a 30 inch diameter clear opening. **(Complied – Refer to Sheet 44)**

(B) A manhole located within a 100-year flood plain must have a means of preventing inflow. **(N/A – No manholes are within the 100-year flood plain. Refer to FEMA F.I.R.M. Maps #48491C0291f and #48491C0293F dated 12-20-2019).**

(C) A manhole cover construction must be constructed of impervious material. **(Complied)**

(D) A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials standard M-306 for load bearing. **(Complied)**

(2) Manhole Inverts:

(A) The bottom of a manhole must contain a U-shaped channel that is a smooth continuation of the inlet and outlet pipes. **(Complied – Refer to Sheet 45)**

(B) A manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe's diameter. **(Complied – Refer to Sheet 45)**

(C) A manhole connected to a pipe at least 15 inches in diameter but not more than 24 inches in diameter must have a channel depth equal to at least three-fourths of the largest pipe's diameter. **(N/A)**

(D) A manhole connected to a pipe greater than 24 inches in diameter must have a channel depth equal to at least the largest pipe's diameter. **(N/A)**

(E) A manhole with pipes of different sizes must have the tops of the pipes at the same elevation and flow channels in the invert sloped on an even slope from pipe to pipe. **(Complied)**

(F) A bench provided above a channel must slope at a minimum of 0.5 inch per foot. **(Complied)**

(G) An invert must be filleted to prevent solids from being deposited if a wastewater collection system pipe enters a manhole higher than 24 inches above a manhole invert. **(Complied)**

(H) A wastewater collection system pipe entering a manhole more than 24 inches above an invert must have a drop pipe. **(Complied)**

(m) The inclusion of steps in a manhole is prohibited. **(N/A)**

(n) Connections. A manhole-pipe connection must use watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. **(Complied Refer to sheet 44)**

(o) Venting. An owner must use an alternate means of venting if manholes are at more than 1,500 foot intervals and gasketed manhole covers are required for more than three manholes in sequence. **(N/A)**

(p) Cleanouts. The size of a cleanout must be equal to the size of the wastewater collection system main. **(N/A)**

Structural Analysis of Wastewater System, 30 TAC, 217.53 Pipe Design.

Proposed Pipe Information:

S-1) List all the pipe diameters proposed for this project. Specify the total linear feet of pipe proposed for each listed diameter, the pipe material proposed for each diameter, the national standard specifications (ASTM, AWWA, ANSI, etc...) which govern each proposed pipe material and the appropriate national standard specifications for joints which correspond to each of these proposed materials.

Pipe Diameter	Linear Feet	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
8”	593	PVC SDR 26	ASTM D-3034	ASTM D-3212
8”	20	PVC SDR 26	ASTM D-2241	ASTM D-3139

Utility Trench Information:

S-2) For purposes of TCEQ review, flexible materials include, but are not limited to, plastics, PVC, ABS, fiberglass, and, polyethylene. If the design does not include flexible pipe, skip to T13. If the design includes flexible pipe materials, the specified bedding must comply with ASTM D-2321 class IA, IB, II or III for materials and densification. A minimum of 6 inches of bedding is required for all pipe. Will the proposed project comply with these requirements? **Yes**

S-3) The trench width must be minimized while still allowing adequate width for proper compaction of backfill, and while still ensuring that at least 6 inches of backfill exists on each side of the pipe. Will this be accomplished? **Yes**

S-4) For each diameter of pipe, indicate minimum and maximum trench width:
Pipe Diameter: **8”** Min. Trench Width: **24”** Max. Trench Width: **36”**

S-5) Will the trench walls be vertical to at least one foot above the pipe? **Yes**

Refer to sheets **44-45**

S-6) Will the backfill be free of stones greater than 6 inches in diameter and free of organic or any other unstable material? **Yes**

General Requirements: 30 TAC 217.53

Structural Analysis: 30 TAC 217.53(k)
Flexible Pipe Design

Live Load Analysis:

For the purposes of this application, the minimum depth of burial for gravity sanitary sewer pipe, from the ground surface to the crown of the pipe (H) is 2 feet. Does the submitted design comply with this minimum H? **Yes**

Live Load due to H-25 or HS-25 vehicle loading per AASHTO Table 5-3 (N/A)

(L_v) = 7.34 cover = 3.40 psi

Live Load due to 100-yr surface water elevation in water quality pond (See Attachment for L_l calculation) **N/A**

S-7) Indicate maximum anticipated L_l as determined in T63: **N/A**

S-8) Are all proposed flexible pipe materials capable of supporting this L_l? **N/A**

S-9) Indicate source of maximum L_l: **N/A**

Buckling Analysis:

S-10) Calculate allowable and predicted buckling pressure based on Moser's book. Predicted and allowable buckling pressures must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, the buckling analysis must be performed using the method outlined below. The method of calculating allowable buckling pressure provided below is only valid for lines which are installed at depths of 2 ft ≤ H ≤ 80 feet, and where the groundwater elevation is below the ground surface.

a) Calculate allowable bucking pressure as follows:
(Areas where groundwater elevation is below the ground surface)

$$q_a = 0.4\sqrt[2]{32 * R_W * B' * (E * \frac{I}{D^3})} \qquad \text{Equation (1)}$$

$$q_a = 0.4\sqrt[2]{32 * 1.00 * 0.69 * (400{,}000 * \frac{0.00281}{8.4^3})} = 115.9 \text{ (8" PVC SDR 26 115 PSI)}$$

$$q_a = 0.4\sqrt[2]{32 * 1.00 * 0.69 * (400{,}000 * \frac{0.00305}{8.625^3})} = 116.08 \text{ (8" PVC SDR 26 160 PSI)}$$

See attachment for q_a calculation.

$$R_W = 1 - 0.33 * \left(\frac{h_W}{h}\right) \quad \text{Equation (2)}$$

For unsaturated: $R_W = 1 - 0.33 * \left(\frac{0}{123.74}\right) = 1.00$ (8" PVC SDR 26 115 PSI)

For unsaturated: $R_W = 1 - 0.33 * \left(\frac{0}{123.74}\right) = 1.00$ (8" PVC SDR 26 160 PSI)

For fully saturated hw = h: $R_w = 1 - 0.33 * (1) = 0.67$ **N/A**

$$B' = \frac{1}{1+4*e^{-0.213H}} \quad \text{Equation (3)}$$

See attachment for B' calculation.*

$$I = (\frac{t^3}{12})(\frac{inches^4}{inch_{Linear}}) \quad \text{Equation (4)}$$

See attachment for I calculation.

q_a = allowable buckling pressure, pounds per square inch (psi)

h = height of soil surface above top of pipe in inches (in)

h_w = height of water surface above top of pipe in inches (in) (groundwater elevation)

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

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

B' = Empirical coefficient of elastic support

E_b = modulus of soil reaction for the bedding material (psi)

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

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

t = pipe structural wall thickness (in)

D = mean pipe diameter (in)

b) Calculate pressure applied to pipe under installed conditions:

$$q_P = \gamma_w * h_w + R_w * \left(\frac{W_c}{D}\right) + L_1 \quad \text{Equation (5)}$$

$q_P = 0.0361 * 0 + 1 * \left(\frac{74.50}{8}\right) + 0 = 9.31$ ("Worst Case" Max. Depth - 8" PVC SDR 26 115 PSI)

$q_P = 0.0361 * 0 + 1 * \left(\frac{74.58}{8}\right) + 0 = 9.32$ ("Worst Case" Max. Depth - 8" PVC SDR 26 160 PSI)

$$W_c = \gamma_s * H * \frac{(D+t)}{144} \quad \text{Equation (6)}$$

$$W_c = 125 * 10.31 * \frac{8+0.323}{144} = 74.50 \text{ ("Worst Case" Max. Depth - 8" PVC SDR 26 115 PSI)}$$
$$W_c = 125 * 10.31 * \frac{8+0.332}{144} = 74.58 \text{ ("Worst Case" Max. Depth - 8" PVC SDR 26 160 PSI)}$$

q_P = pressure applied to pipe under installed conditions (psi)

γ_w = 0.0361 pounds per cubic inch (pci), specific weight of water

γ_s = specific weight of soil in pounds per cubic foot (pcf)

W_c = vertical soil load on the pipe per unit length in pounds per linear inch (lb/in)

L_l = Live load as determined in T63 (see attached Capacity Design)

S-11) Report qa and qp for each pipe diameter proposed and for each type of pipe material proposed:

γ_s = 125 pcf ; h_w = 0; t = 0.323" (8" PVC SDR 26 115 PSI);

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 115 PSI** q_a:**115.90** q_P: **9.31**

γ_s = 125 pcf ; h_w = 0; t = 0.332" (8" PVC SDR 26 160 PSI);

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 115 PSI** q_a:**116.08** q_P: **9.32**

S-12) If $q_a \geq q_p$, specified pipe is acceptable for the proposed installation. If $q_a \leq q_P$, the wall thickness of the pipe must be increased and/or a pipe with a larger modulus of elasticity (E) must be used. Make the appropriate modifications and repeat the buckling analysis, showing that for the upgraded pipe, $q_a \geq q_P$. Does all the pipe proposed for this project meet these requirements? **Yes**

Wall Crushing:

S-13) If no concrete cradled flexible pipe is proposed for the submitted project, skip to T73. If any flexible pipe will be installed in rigid cradle (e.g. concrete), calculate the maximum depth that the pipe can be buried before wall crushing (or failure by ring compression) will occur using the method outlined below. It should be noted that cement stabilized sand or soil is not considered a rigid cradle for purposes of TCEQ review: No concrete cradle proposed, calculations shown for information only.

$$H = \frac{24*P_C*A}{\gamma_S*D_o} \quad \text{Equation (7)}$$

$$H = \frac{24*4000*3.876}{125*8.4} = 354.38' \textbf{ (8" PVC SDR 26 115 PSI)}$$
$$H = \frac{24*4000*3.984}{125*8.625} = 354.75' \textbf{ (8" PVC SDR 26 160 PSI)}$$

D_o = outside pipe diameter, in.

P_c = compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.

A = surface area of the pipe wall, $\frac{in^2}{ft}$

γ_s = specific weight of soil in pounds per cubic foot (pcf)

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

24 = conversions and coefficients

S-14) Will all pipe installations proposed for this project have an H less than or equal to the maximum allowable H calculated in S-13 and greater than or equal to 2 feet? **Yes** Report maximum allowable H, (H_a), and the maximum H which is proposed, (H), for each proposed pipe diameter and each type of flexible pipe material. **N/A**

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 ASTM D-3034** H_a: **354.38 ft** H: **10.31 ft**
Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 ASTM D-2241** H_a: **354.75 ft** H: **10.31 ft**

Tensile Strength:

S-15) The project specifications need to indicate minimum allowable tensile **strength** in psi for each flexible pipe material. If PVC pipe is proposed, specify cell class:

Pipe Material: **PVC SDR 26** Tensile Strength: **7,000** Cell Class (PVC only): **12364/12454**
"Handbook of PVC Pipe, Design and Construction" Table 2.1 pg. 14-15.
Pipe Material: **PVC SDR 26 CL 160** Tensile Strength: **7,000** Cell Class (PVC only): **12364/12454**
"Handbook of PVC Pipe, Design and Construction" Table 2.1 pg. 14-15.

Strain:

S-16) Are the conditions of this installation such that strain-related failure will not be a problem? **Yes** If any proposed flexible pipe material is considered to be susceptible to strain-related failure at less than 5% long-term deflection provide analysis for predicted strain due to hoop stress and bending strain.

Deflection Analysis:

S-17) Indicate E_b (modulus of soil reaction for the bedding material) in psi. If E_b is greater than 750 psi, justification must be provided: **2,000 psi**

How was E_b determined or estimated? **"AWWA , M23 Manual" Table 4-5 pg. 30.**

S-18) Indicate E'n (modulus of soil reaction for the in-situ soil) in psi: **5,000 psi**

How was E'n determined or estimated? **"Table 5 – E'native for Various Native Soil Conditions" (Reference: American Concrete Pipe Association, Page 20)**

S-19) Calculate the ratio of bedding modulus to soil modulus:

Eb/E'n = $\frac{2{,}000\ psi}{5{,}000\ psi}$ = **0.40**

If this ratio is greater than 1.25, a zeta factor must be calculated, where zeta is a factor which corrects for the effect of in-situ soil on pipe stability. If the ratio of bedding modulus to soil modulus is less than or equal to 1.25, assume zeta = **1.0**.

S-20) Where native soil is significantly weaker than bedding material, or where predicted deflection approaches 5%, the effect of native soil must be quantified using Leonhardt's Zeta factor. Zeta must be determined for each diameter of pipe and corresponding trench width. Zeta may be estimated graphically or calculated directly. If zeta is estimated graphically, identify the source for tables, figures, etc...(including page numbers and table numbers or figure numbers for each source) which were used to estimate zeta.

Calculations:

$$zeta = \frac{1.44}{f+(1.44-f)*(\frac{E_b}{E'_n})} \qquad \text{Equation (8)}$$

$$zeta = \frac{1.44}{0.98+(1.44-0.98)*(\frac{2{,}000}{5{,}000})} = 1.00 \quad \text{8" PIPE}$$

$$f = \frac{\frac{b}{d_a}-1}{1.154+0.444*(\frac{b}{d_a}-1)} \qquad \text{Equation (9)}$$

$$f = \frac{\frac{24}{8}-1}{1.154+0.444*(\frac{24}{8}-1)} = 0.98 \qquad \text{8" PIPE}$$

f = pipe/trench width coefficient

b = trench width

d_a = pipe diameter

E_b = modulus of soil reaction for the bedding material (psi)

E'_n = modulus of soil reaction for the in-situ soil (psi)

S-21) For each size of pipe, report zeta factor determined:

Pipe Diameter: **8"** Trench Width: **24"** zeta: **1.00**
Pipe Diameter: **8"** Trench Width: **24"** zeta: **1.00**

S-22) Determine pipe stiffness (P_s) in psi. P_s can be determined either by parallel plate test at 5% deflection, based on manufacturer's data or national reference standards; or, calculated using either equation 10 or equation 11. As an example, the minimum pipe stiffness at 5% deflection for PVC pipe less than 15 inches in diameter meeting ASTM D 3034, is 46 psi for SDR-35 and 115 psi for SDR 26. If equation 11 is used, the ring stiffness constant (RSC) is provided by the pipe manufacturer. Show calculations, or provide proper references, for each size of pipe and for each flexible pipe material.

$$P_s = \frac{EI}{0.149 * r^3} \qquad \text{Equation (10)}$$

or

$$P_s = 0.80 * RSC * (\frac{8.337}{D}) \qquad \text{Equation (11)}$$

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

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

D = mean pipe diameter (in)

r = mean radius (in)

S-23) Report P_s for each pipe size and each type of flexible pipe material as determined.

Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-3034** P_s: **115 psi**
Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-2241** P_s: **160 psi**

S-24) Because the terms in the denominator of the modified Iowa formula (Equation 13) are added, it is theoretically possible to have zero pipe stiffness (P_s=0) and still predict flexible pipe deflections less than 5%. In order to ensure that the stiffness being provided to the installation has a reasonable contribution from pipe stiffness, and does not rely solely on the stiffness provided by the soil stiffness factor (SSF), the ratio of P_s/SSF must be calculated. If P_s/SSF < 0.15, S-22 and S-23 must be repeated such that a higher stiffness pipe is chosen for each portion of the project where P_s/SSF < 0.15. The P_s/SSF ratio(s) must then be recalculated for the new higher stiffness pipe. This process must be repeated until P_s/SSF ≥ 0.15 exists for all proposed pipe sizes and for all types of flexible pipe materials.

$$\frac{P_s}{SSF} = \frac{P_s}{(0.061 * zeta * E_b)} \geq 0.15 \qquad \text{Equation (12)}$$

$$\frac{P_s}{SSF} = \frac{115}{(0.061 * 1 * 2{,}000)} = 0.94 \geq 0.15 \quad \text{(8” PVC SDR 26 115 PSI)}$$
$$\frac{P_s}{SSF} = \frac{160}{(0.061 * 1 * 2{,}000)} = 1.31 \geq 0.15 \quad \text{(8” PVC SDR 26 160 PSI)}$$

E_b = modulus of soil reaction for the bedding material (psi) [from T76]

zeta = 1.0, or a value calculated with the method in T79

SSF = soil stiffness factor (0.061*zeta*E_b)

S-25) Indicate the final values calculated for P_s/SSF for each diameter of pipe and for each pipe material:

Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-3034** P_s/SSF: **0.94**
Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-2241** P_s/SSF: **1.31**

S-26) Do all proposed pipe sizes and flexible pipe materials have a pipe stiffness to soil stiffness factor ratio of greater than or equal to 0.15? **Yes**

S-27) Calculate and report predicted deflection. Predicted deflection must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, predicted deflection must be calculated using the method outlined below. Show calculations and report calculated maximum deflection for each size of pipe and type of flexible pipe material. Maximum allowable deflection in installed lines is 5%, as determined by the deflection analysis and verified by a mandrel test. Some conservatism should be employed in determining allowable predicted deflections. This conservatism is necessary to allow for variability in the quality of installation.

$$\frac{\Delta Y}{D(\%)} = \frac{K*(L_p+L_1)*100}{(0.149*P_s)+(0.061*zeta*E_b)} \qquad \text{Equation (13)}$$

$$\frac{\Delta Y}{D(\%)} = \frac{0.11*(13.43+0.00)*100}{(0.149*115)+(0.061*1.00*2{,}000)} = 1.06\% \qquad \text{(8” PVC SDR 26 115 PSI)}$$

$$\frac{\Delta Y}{D(\%)} = \frac{0.11*(13.43+0.00)*100}{(0.149*160)+(0.061*1.00*2{,}000)} = 1.01\% \qquad \text{(8” PVC SDR 26 160 PSI)}$$

See attachment for calculation.

$\frac{\Delta Y}{D(\%)}$ = Predicted % vertical deflection under load.

ΔY = Change in vertical pipe diameter under load

D = Undeflected mean pipe diameter (in)

$$L_p = \frac{\gamma_s*H}{144} * 1.5 \qquad \text{Equation (14)}$$

$$L_p = \frac{125*10.31}{144} * 1.5 = 13.43 \qquad \text{(8" PVC SDR 26 115 PSI, H=10.31 ft)}$$

$$L_p = \frac{125*10.31}{144} * 1.5 = 13.43 \qquad \text{(8" PVC SDR 26 160 PSI, H=10.31 ft)}$$

K = Bedding angle constant. Assumed to be 0.110 unless otherwise justified.

γ_s = Unit weight of soil (pcf). γ_s less than 120 pcf must be justified.

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

L_p = Prism load (psi). If prism load is calculated using Marston's load formula, or other formulas less conservative than the one provided above, the load should be multiplied by a deflection lag factor $D_L = 1.5$ to account for long-term deflection of the pipe as the bedding consolidates S-27) Report the final pipe diameters, types of pipe material proposed for each diameter, type of pipe material, pipe stiffness for each pipe material (P_s), zeta factors assumed or calculated for each pipe diameter, modulus of the pipe bedding material (E_b) and % deflection predicted for each pipe size and type of pipe material.

	Type of Pipe Material	P_s (psi)	zeta Factor Assumed or Calculated	E_b (psi)	% Deflection
Pipe Diameter 1	8" PVC SDR 26/ASTM D-3034	115	1.00	2,000	1.06
Pipe Diameter 2	8" PVC SDR 26/ASTM D-2241	160	1.00	2,000	1.01

S-28) Do all pipes proposed for this project have a maximum predicted deflection of 5.0%? **Yes**

217.10(e)(11) **X** A description of the areas not initially served by a project, and the projected means of providing service to these areas, including special provisions incorporated in the present plans for future expansion.

- Refer to Attachment - **"No future areas served by this development."**

- 217.10(e)(12) **N/A** The calculations and curves showing the operating characteristics of all system lift stations at minimum, maximum, and design flows during both present and future conditions.

217.10(e)(13) **N/A** The safety considerations incorporated into a project design, including ventilation, entrances, working areas, and explosion prevention

Place engineer's seal here:

Timothy E. Haynie, P.E.
Print Name of Licensed Professional Engineer

Signature of Licensed Professional Engineer Date

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: Timothy E. Haynie, P.E.

Date: 5-14-2024

Signature of Customer/Agent:



Regulated Entity Name: Rivery Crossing Phase 2 (Subdivision)

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: None

   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: San Gabriel River

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

The most likely instances of a spill of hydrocarbons or hazardous substances are:

1. Refueling construction equipment.

2. Performing operator-level maintenance, including adding petroleum, oils, or lubricants.

3. Unscheduled or emergency repairs, such as hydraulic fluid leaks.

Every effort will be taken to be cautious and prevent spills. In the event of a fuel or hazardous substance spill as defined by the Reportable Quantities in Table 1 (page 3) of the TCEQ's Small-Business Handbook for Spill Response (RG-285, June 1997,), the contractor is required to clean up the spill and notify the TCEQ as required in RG-285. During business hours report spills to the TCEQ's Austin Regional Office at (512) 339-2929, after business hours call 1-800-832-8224, the Environmental Response Hotline or (512) 463-7727, the TCEQ Spill Reporting Hotline, which is also answered 24 hours a day.

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

1.00 MATERIALS COVERED

The following materials or substances with known hazardous properties are expected to be present onsite during construction:

Cleaning solvents	Concrete	Concrete Additives
Asphalt	Wastewater	Flushing Water
Detergents	Acids/Bases	Fertilizers
Petroleum based products	Paints	Pesticides
Paint solvents	Soil stabilization additives	

1.01 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

1.01.1 Good Housekeeping - The following good housekeeping practices will be followed onsite during the construction project.

A. An effort will be made to store (onsite) only enough product required to do the job.

B. All materials stored onsite will be stored in a neat, orderly manner and will be stored under a roof or other enclosure.

C. Products will be kept in their original resealable containers with the original manufacturer's label in legible condition.

D. Substances will not be mixed with one another unless recommended by the manufacturer.

E. Whenever possible, all of a product will be used up before disposing of the container.

F. Manufacturer's recommendations for proper use and disposal will be followed.

G. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

1.01.2 Hazardous Products Handling

These practices will be used to reduce the risks associated with hazardous materials.

A. Products will be kept in original resealable containers with the original labels in legible condition.

B. Original labels and material safely data sheets (MSDS's) will be procured and used for each material and maintained onsite during construction.

C. If surplus product must be disposed of, the manufacturers' or local/state/federal recommended methods for proper disposal will be followed.

D. A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

E. All of the product in a container will be used before the container is disposed of in compliance with state/federal requirements.. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

1.01.3 Product Specific Practices

The following product specific practices will be followed on the job site.

A. Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to minimize the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

B. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Materials will be stored in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

C. Paints, Paint Solvents, and Cleaning Solvents

All the product in a container will be used before the container is disposed of in compliance with state/federal requirements. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

D. Concrete Trucks/Asphalt Trucks

Concrete delivery trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or in locations where waste concrete can be poured into forms to make riprap or other useful concrete products. The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. The job site superintendent will be responsible for following these procedures.

1.01.4 Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

A. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite in a spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, rakes, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.).

C. All spills will be cleaned up immediately upon discovery.

D. The Spill area will be kept well ventilated, and personnel will wear appropriate protective equipment to prevent injury from contact with the hazardous substances.

E. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 via) will be immediately reported to the EPA National Response Center, telephone at 1-800-424-8802. Reportable Quantities of some substances which may be used at the job site are as follows:

Spills: Reportable Quantities

The Reportable Quantity depends on the substance released and where released. Use this table to determine whether you must report and under what rule.

In Texas, upon determining that a reportable discharge or spill has occurred, the responsible person must notify the state. The threshold quantity that triggers the requirement to report a spill is called the **reportable quantity (RQ).** The reportable quantity depends on the type of substance released and where released (e.g. into water vs. on land); different kinds of spills are subject to different provisions of state and federal rules.

Kind of spill	Where discharged	Reportable quantity	Rule, statute, or responsible agency
Hazardous substance	onto land	"Final RQ" in Table 302.4 in 40 CFR 302.4 (PDF)	30 TAC 327
	into water	"Final RQ" or 100 lbs, whichever is **less**	
Any oil	coastal waters	as required by the Texas General Land Office	Texas General Land Office
Crude oil, oil that is neither a petroleum product nor used oil	onto land	210 gallons (five barrels)	30 TAC 327
	directly into water	enough to create a sheen	
Petroleum product, used oil	onto land, from an exempt PST facility	210 gallons (five barrels)	30 TAC 327

	onto land, or onto land from a non-exempt PST facility	25 gallons	
	directly into water	enough to create a sheen	
Associated with the exploration, development and production of oil, gas, or geothermal resources	under the jurisdiction of the Railroad Commission of Texas	as required by the Railroad Commission of Texas	**Railroad Commission of Texas**
Industrial solid waste or other substances	into water	100 lbs	**30 TAC 327**
From petroleum storage tanks, underground or aboveground	into water	enough to create a sheen on water	**30 TAC 334**
From petroleum storage tanks, underground or aboveground	onto land	25 gallons or equal to the RQ under **40 CFR 302**	**30 TAC 327**
Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution if discharged into water in the state	into water	100 lbs	**30 TAC 327**

Note: Copies of relevant statutes will be kept onsite and available for inspection.

F. The SPCC plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. If the spill exceeds a Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.

G. The job site superintendent will be the spill prevention and cleanup coordinator. He will designate the individuals who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

Attachment *B*

Potential Sources of Contamination

Situations contributing to a hazardous material spill may occur during scheduled maintenance of construction equipment. A refueling staging area shall be designated by the contractor. Caution is to be exercised to prevent any existing ground surfaces, or newly disturbed ground surfaces from becoming contaminated. Once the refueling staging area is no longer needed, the area is to be returned to its original condition, or better. Concrete curing compound(s) and fuel leakage shall be contained downstream of the onsite storm water conveyance system. Contractors shall follow the steps below in preventing and responding to spills as outlined in TCEQ publication RG-348, *Technical Guidance on Best Management Practices* (Revised July 2005).

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, promptly 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 storm water 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 dilute 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 provisions 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, locked 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.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the site of the spill.
(2) Use absorbent materials on small spills rather than washing 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:
    (a) Contain the spread of the spill.
    (b) Recover spilled materials.
    (c) 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) 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 available 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 within 24 hours.
(4) The services of a spills contractor or a hazmat team should be engaged immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff 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.

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
(2) Regularly inspect onsite vehicles and equipment for leaks and repair leaks immediately
(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking

vehicles or equipment to remain onsite.
(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
(5) Place drip pans or absorbent materials under paving equipment when not in use.
(6) Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
(7) Promptly transfer used fluids to the proper waste or recycling drums. Do not leave full drip pans or other open containers onsite.
(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled.
(9) Store cracked batteries in a non- leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
(2) Discourage "topping off" of fuel tanks.
(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.

Concrete Washout Areas

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes:

(1) Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
(2) Avoid mixing excess amounts of fresh concrete.
(3) Perform washout of concrete trucks in designated areas only.
(4) Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
(5) Do not allow excess concrete to be dumped onsite, except in designated areas.
For onsite washout:

(a) Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
(b) Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil thick polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

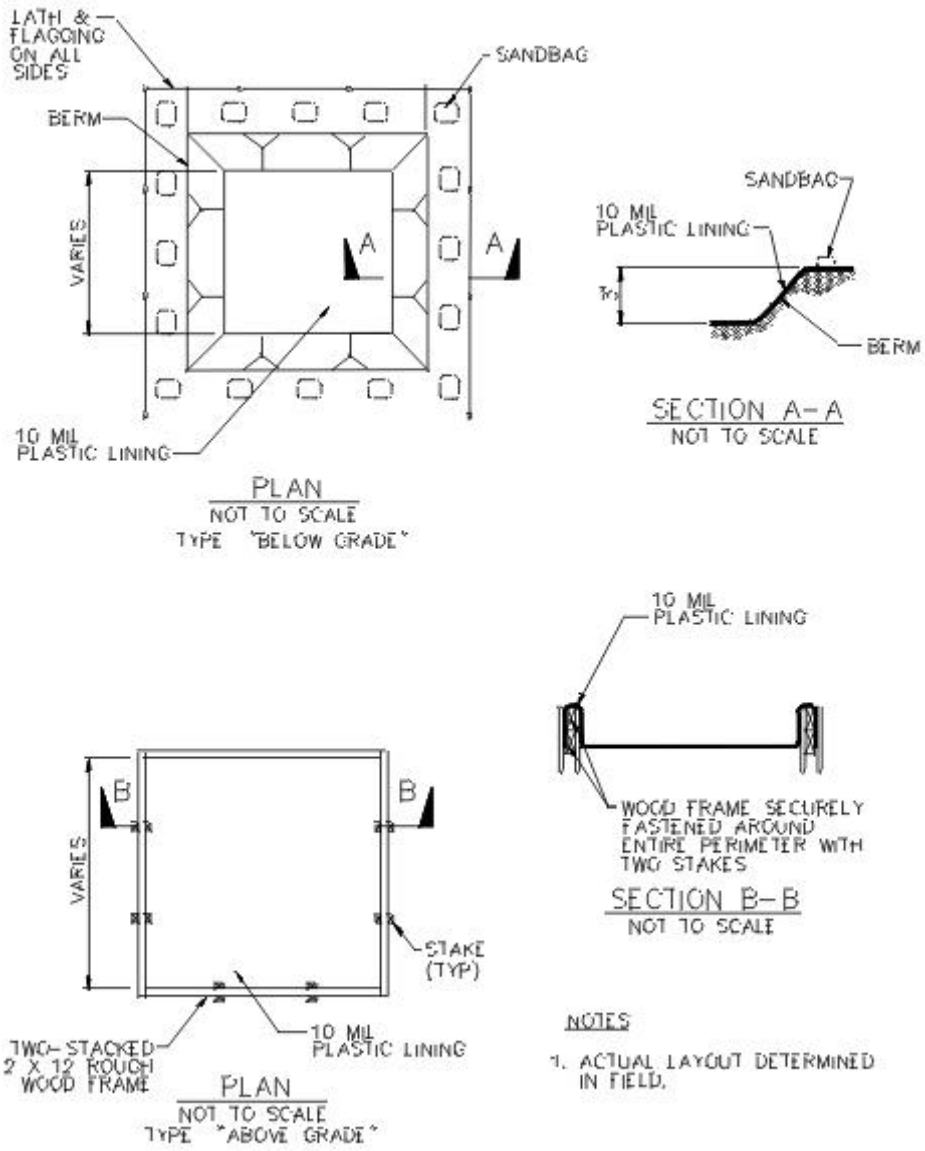


Figure: Schematics of Concrete Washout Areas

Attachment *C*

Sequence of Major Activities

During all construction activities, temporary BMP's are to be maintained, and adjusted to provide optimal erosion, and sediment infiltration protection.

Sequence of major activities includes and is not limited to:

1. Attend pre-construction meeting. (0.00 acres)
2. Place and maintain all temporary Traffic Control devices required for a construction work zone. (0.07 acres)
3. Place and maintain all erosion and sediment control devices. (3.38 acres)
4. Clear and grub proposed limits of construction. (3.38 acres)
5. Construct new batch detention pond (0.28 acres)
6. Rough Cut Street subgrade (0.60 acres)
7. Construct Wastewater System (0.16 acres)
8. Construct Storm Sewer System (0.21 acres)
9. Construct Water System (0.21 acres)
10. Grade building pads, place subgrade, curbing and final pavement (1.32 acres)
11. Fertilizing of disturbed areas (1.23 acres).
12. Maintenance of all Temporary BMP's.
13. Remove Temporary BMP's after acceptance of the construction by the City. (0.05 acres)
14. Remove all traffic control devices. (0.07 acres)

ATTACHMENT *D*

Temporary Best Management Practices and Measures

Onsite storm water runoff is currently sheet flow and planned to be intercepted by open silt fence and diverted to street low points. Rock berms shall intercept concentrated flows exceeding contributing areas of 5 acres or more. Natural run off conditions are to be preserved through construction, and compliment or enhance existing conveyances. The following temporary BMP's are to be placed in accordance with the plans at proper locations to minimize erosion, retain sediment, and other pollutant sources on site to the extent possible.

- temporary sediment control fences
- rock berms where volume of runoff may be too great for effective use of silt fence
- placement of temporary stabilized construction entrance/exits
- Area and Curb Inlet Protection maintenance
- Debris and silt control in Batch Detention Pond to be controlled
- prevent and remove any solid material being discharged on to roadway
- construction debris, construction chemicals, and litter are to be controlled
- BMP inspections are to be performed at least once every 14 calender days, and within 24 hours of the end of an 0.5 inch or greater rain event

ATTACHMENT *E*

Request to Temporarily Fill Feature

Not applicable – No request to temporarily fill any sensitive feature is being made currently.

ATTACHMENT "F"

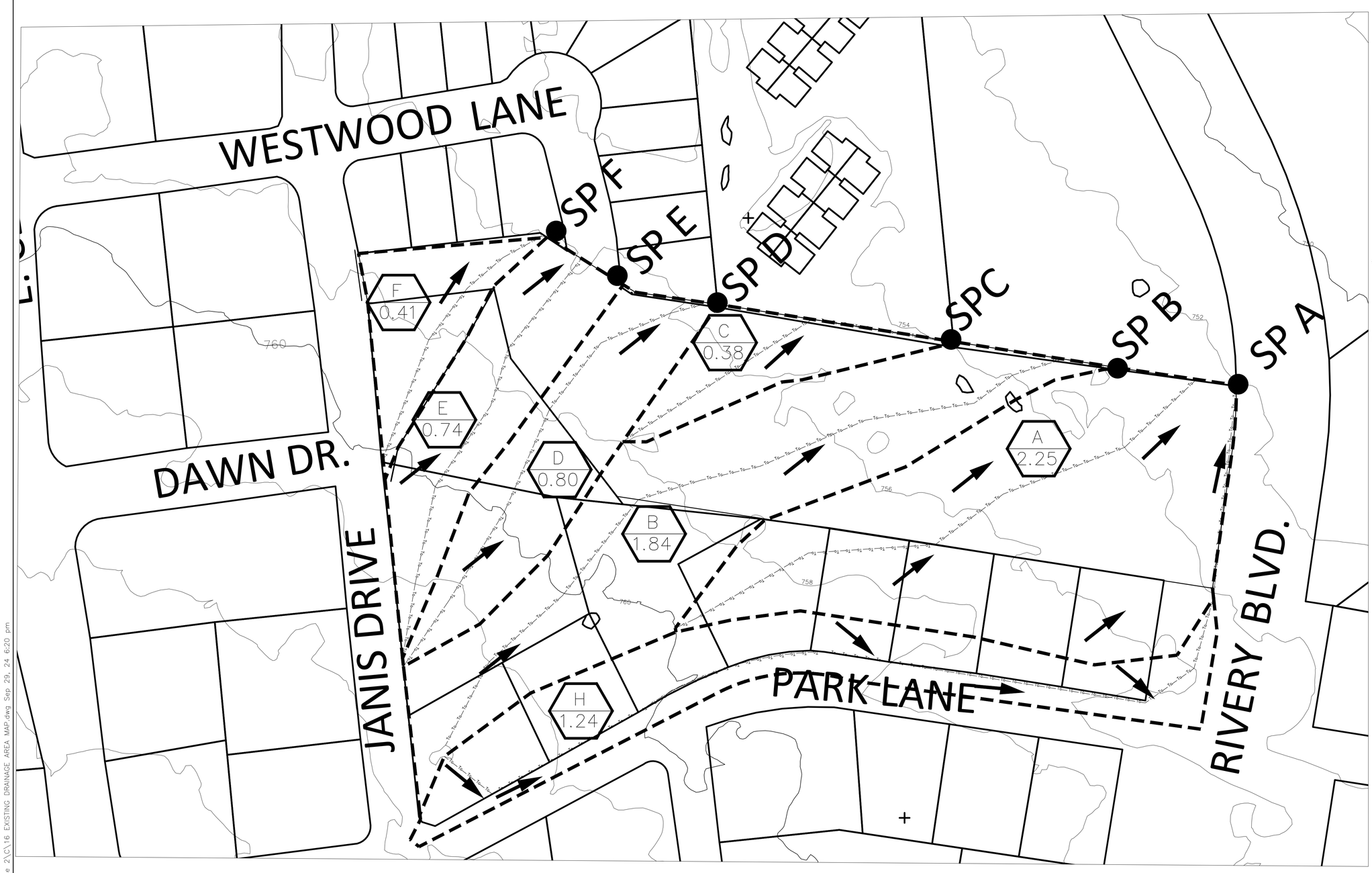
Structural Practices

No improvements are proposed to result in the diversion of storm water runoff from its existing drainage pattern. All unpaved areas will be re-vegetated according to the City of Georgetown Specifications for re-vegetation of disturbed areas.

ATTACHMENT “G”

Drainage Area Map

See attached drainage Area Maps



N

0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

/ AC. — DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
AC. – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

Tc — TIME OF CONCENTRATION PATH

SEE NEXT SHEET FOR CALCULATIONS

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.90	8.00	10.50	14.40
B	2.90	6.00	8.00	10.80
C	0.70	1.40	1.80	2.50
D	1.40	2.70	3.60	4.80
E	1.30	2.60	3.40	4.60
F	0.80	1.50	1.90	2.70
H	5.40	7.70	9.10	11.10
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

BASIN AREAS

BASIN	TOTAL AREA		
No.	S.F.	ACRES	SQ. MI.
A	98,045	2.251	0.0035169
B	80,304	1.844	0.0028805
C	16,470	0.378	0.0005908
D	34,837	0.800	0.0012496
E	32,126	0.738	0.0011524
F	17,786	0.408	0.0006380
H	53,959	1.239	0.0019355
TOTALS	333,527	7.657	0.0119636

EXISTING DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

16 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\16 EXISTING DRAINAGE AREA MAP.dwg Sep 29, 24 6:20 pm

SCS CURVE NUMBER CALCULATIONS
EXISTING CONDITIONS

BASIN	BASIN AREAS			SCS CURVE NUMBERS			
	TOTAL AREA			PASTURE & RANGE	RESIDENTIAL 1/6 Ac.	PAVEMENT	COMPOSITE
No.	S.F.	ACRES	SQ. MI.	CN 80 (HSG D)	CN 90 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A	98,045	2.251	0.0035169	2.00	0.25	0.00	81
B	80,304	1.844	0.0028805	1.80	0.04	0.00	80
C	16,470	0.378	0.0005908	0.38	0.00	0.00	80
D	34,837	0.800	0.0012496	0.76	0.04	0.00	81
E	32,126	0.738	0.0011524	0.70	0.04	0.00	81
F	17,786	0.408	0.0006380	0.41	0.00	0.00	80
H	53,959	1.239	0.0019355	0.39	0.04	0.91	96
TOTALS	333,527	7.657	0.0119636				

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							*Shallow Concentrated*						*Channel*											
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A	100	GRASS	0.24	760.00	758.30	1.70%	13.29	485	UNPAVED	758.30	752.00	1.30%	3.49	-	-	-	-	-	-	-	-	-	-	17	10
B	100	GRASS	0.24	764.00	762.00	2.00%	12.46	655	UNPAVED	762.00	753.20	1.34%	5.84	-	-	-	-	-	-	-	-	-	-	18	11
C	100	GRASS	0.24	758.00	756.50	1.50%	13.98	245	UNPAVED	756.50	754.00	1.02%	2.51	-	-	-	-	-	-	-	-	-	-	14	8
D	100	GRASS	0.24	763.10	761.80	1.30%	14.80	382	UNPAVED	761.80	755.50	1.65%	3.07	-	-	-	-	-	-	-	-	-	-	18	11
E	100	GRASS	0.24	763.10	761.60	1.50%	13.98	340	UNPAVED	761.60	755.80	1.71%	2.69	-	-	-	-	-	-	-	-	-	-	17	10
F	100	GRASS	0.24	760.30	758.60	1.70%	13.29	180	UNPAVED	758.60	756.00	1.44%	1.55	-	-	-	-	-	-	-	-	-	-	13	8
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6

Project: 3427 EXISTING Simulation Run: EXISTING 2 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time: 16Apr2024, 08:33:38 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	3.9	1 January 2000, 01:40	0.2
EX-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-F	0.0	0.8	1 January 2000, 01:40	0.0
EX-H	0.0	5.4	1 January 2000, 01:35	0.2
EX-SP-A	0.0	8.5	1 January 2000, 01:40	0.4
EX-SP-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-SP-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-SP-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-SP-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-SP-F	0.0	0.8	1 January 2000, 01:40	0.0

Project: 3427 EXISTING Simulation Run: EXISTING 25 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time: 16Apr2024, 08:33:44 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	10.5	1 January 2000, 01:40	0.6
EX-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-F	0.0	1.9	1 January 2000, 01:40	0.1
EX-H	0.0	9.1	1 January 2000, 01:35	0.5
EX-SP-A	0.0	18.2	1 January 2000, 01:35	1.1
EX-SP-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-SP-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-SP-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-SP-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-SP-F	0.0	1.9	1 January 2000, 01:40	0.1

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Existing Conditions

Basin	Area mi2	CN	S	Ia
A	0.0035169	81	2.35	0.47
B	0.0028805	80	2.50	0.50
C	0.0005908	80	2.50	0.50
D	0.0012496	81	2.35	0.47
E	0.0011524	81	2.35	0.47
F	0.0006380	80	2.50	0.50
H	0.0019355	96	0.42	0.08

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.9	8.0	10.5	14.4
B	2.9	6.0	8.0	10.8
C	0.7	1.4	1.8	2.5
D	1.4	2.7	3.6	4.8
E	1.3	2.6	3.4	4.6
F	0.8	1.5	1.9	2.7
H	5.4	7.7	9.1	11.1
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7

Project: 3427 EXISTING Simulation Run: EXISTING 10 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time: 16Apr2024, 08:33:25 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	8.0	1 January 2000, 01:40	0.4
EX-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-F	0.0	1.5	1 January 2000, 01:40	0.1
EX-H	0.0	7.7	1 January 2000, 01:35	0.4
EX-SP-A	0.0	14.7	1 January 2000, 01:40	0.8
EX-SP-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-SP-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-SP-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-SP-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-SP-F	0.0	1.5	1 January 2000, 01:40	0.1

Project: 3427 EXISTING Simulation Run: EXISTING 100 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time: 16Apr2024, 08:33:32 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	14.1	1 January 2000, 01:40	0.8
EX-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-F	0.0	2.7	1 January 2000, 01:40	0.2
EX-H	0.0	11.1	1 January 2000, 01:35	0.6
EX-SP-A	0.0	23.9	1 January 2000, 01:40	1.5
EX-SP-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-SP-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-SP-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-SP-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-SP-F	0.0	2.7	1 January 2000, 01:40	0.2

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Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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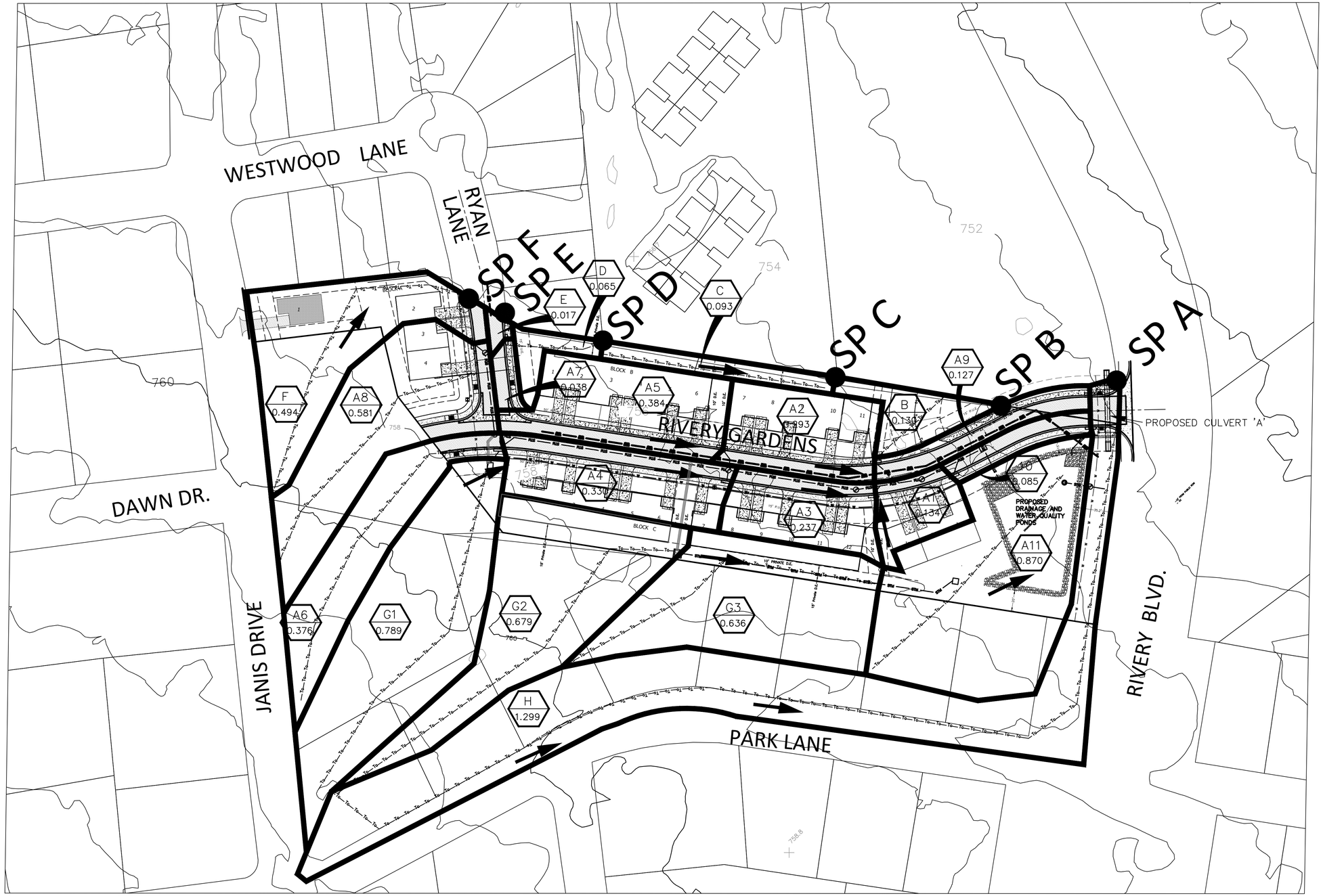
STATE OF TEXAS TIMOTHY E. HAYNIE 36982 LICENSED PROFESSIONAL ENGINEER 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE CALCULATIONS

CITY OF GEORGETOWN



0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
Ac – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

TIME OF CONCENTRATION PATH

SUBDIVISION BOUNDARY

BASIN AREAS

BASIN No.	TOTAL AREA S.F.	TOTAL AREA ACRES	TOTAL AREA SQ. MI.
A1	5,851	0.134	0.0002099
A2	12,754	0.293	0.0004575
A3	10,340	0.237	0.0003709
A4	14,375	0.330	0.0005156
A5	16,726	0.384	0.0006000
A6	16,377	0.376	0.0005874
A7	1,654	0.038	0.0000593
A8	25,301	0.581	0.0009075
A9	5,520	0.127	0.0001980
A10	3,710	0.085	0.0001331
A11	37,892	0.870	0.0013592
B	5,645	0.130	0.0002025
C	4,066	0.093	0.0001458
D	2,817	0.065	0.0001010
E	725	0.017	0.0000260
F	21,509	0.494	0.0007715
G1	34,381	0.789	0.0012332
G2	29,574	0.679	0.0010608
G3	27,717	0.636	0.0009942
H	56,593	1.299	0.0020300
TOTALS	333,527	7.657	0.0119636

EXISTING FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

PROPOSED FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.1	21.6	29.5	42.5

PROPOSED DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

18 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\18 PROPOSED DRAINAGE AREA MAP.dwg Sep 29, 24 6:26 pm

SCS CURVE NUMBER CALCULATIONS
DEVELOPED CONDITIONS

BASIN	TOTAL AREA	TOTAL AREA	TOTAL AREA	RESIDENTIAL 1/6 Ac.	BUILDING/POND	GRASS	PAVEMENT	COMPOSITE
	BASIN AREAS			SCS CURVE NUMBERS				
No.	S.F.	ACRES	SQ. MI.	CN 90 (HSG D)	CN 98 (HSG D)	CN 80 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A1	5,851	0.134	0.0002099	0.000	0.036	0.042	0.056	92.1
A2	12,754	0.293	0.0004575	0.000	0.110	0.062	0.121	94.3
A3	10,340	0.237	0.0003709	0.000	0.076	0.032	0.129	95.4
A4	14,375	0.330	0.0005156	0.000	0.112	0.023	0.195	96.7
A5	16,726	0.384	0.0006000	0.000	0.112	0.090	0.182	93.8
A6	16,377	0.376	0.0005874	0.229	0.000	0.123	0.024	87.2
A7	1,654	0.038	0.0000593	0.000	0.000	0.008	0.030	94.2
A8	25,301	0.581	0.0009075	0.093	0.066	0.382	0.040	84.9
A9	5,520	0.127	0.0001980	0.000	0.000	0.025	0.101	94.4
A10	3,710	0.085	0.0001331	0.000	0.000	0.017	0.068	94.4
A11	37,892	0.870	0.0013592	0.330	0.250	0.240	0.050	90.0
B	5,645	0.130	0.0002025	0.000	0.000	0.130	0.000	80.3
C	4,066	0.093	0.0001458	0.000	0.000	0.093	0.000	79.7
D	2,817	0.065	0.0001010	0.000	0.000	0.065	0.000	80.4
E	725	0.017	0.0000260	0.000	0.000	0.002	0.015	97.9
F	21,509	0.494	0.0007715	0.000	0.030	0.414	0.050	83.0
G1	34,381	0.789	0.0012332	0.668	0.000	0.121	0.000	88.4
G2	29,574	0.679	0.0010608	0.483	0.078	0.118	0.000	89.2
G3	27,717	0.636	0.0009942	0.524	0.044	0.068	0.000	89.4
H	56,593	1.299	0.0020300	0.698	0.00	0.146	0.455	91.7
TOTALS	333,527	7.657	0.0119636	3.03	0.91	2.20	1.52	

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							Shallow Concentrated					Channel										
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A1	75	GRASS	0.24	756.00	754.50	2.00%	9.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5.9
A2	65	GRASS	0.24	755.90	754.60	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A3	65	GRASS	0.24	756.00	754.50	2.31%	8.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5.0
A4	65	GRASS	0.24	757.80	756.50	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A5	65	GRASS	0.24	758.00	756.70	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A6	100	GRASS	0.24	763.10	761.80	1.30%	14.80	237	UNPAVED	761.80	757.80	1.69%	1.88	-	-	-	-	-	-	-	-	-	-	15	8.9
A7	10	GRASS	0.24	757.20	757.00	2.00%	1.97	64	PAVED	757.32	757.00	0.50%	0.74	-	-	-	-	-	-	-	-	-	-	6	3.6
A8	100	GRASS	0.24	761.00	759.50	1.50%	13.98	221	UNPAVED	759.50	757.00	1.13%	1.70	-	-	-	-	-	-	-	-	-	-	14	8.4
A9	10	GRASS	0.24	754.00	753.80	2.00%	1.97	158	PAVED	753.80	752.30	0.95%	1.33	-	-	-	-	-	-	-	-	-	-	6	3.6
A10	10	GRASS	0.24	754.00	753.80	2.00%	1.97	110	PAVED	753.80	752.80	0.91%	0.95	-	-	-	-	-	-	-	-	-	-	6	3.6
A11	100	GRASS	0.24	755.90	754.40	1.50%	13.98	165	UNPAVED	754.40	747.00	4.48%	0.64	-	-	-	-	-	-	-	-	-	-	14	8.4
B	90	GRASS	0.24	754.70	753.70	1.11%	14.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	8.7
C	100	GRASS	0.24	755.80	755.00	0.80%	17.97	124	UNPAVED	755.00	754.00	0.81%	1.13	-	-	-	-	-	-	-	-	-	-	18	10.8
D	94	GRASS	0.24	756.40	755.80	0.64%	18.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	11.2
E	10	GRASS	0.24	756.30	756.10	2.00%	1.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	3.6
F	100	GRASS	0.24	756.50	756.00	0.50%	21.69	237	UNPAVED	758.50	756.00	1.05%	2.38	-	-	-	-	-	-	-	-	-	-	22	13.0
G1	100	GRASS	0.24	764.00	762.20	1.80%	12.99	275	UNPAVED	762.20	758.00	1.53%	2.30	-	-	-	-	-	-	-	-	-	-	13	7.8
G2	100	GRASS	0.24	764.00	762.00	2.00%	12.46	332	UNPAVED	762.00	757.50	1.36%	2.95	-	-	-	-	-	-	-	-	-	-	15	9.2
G3	100	GRASS	0.24	760.00	758.30	1.70%	13.29	244	UNPAVED	758.30	756.00	0.94%	2.60	-	-	-	-	-	-	-	-	-	-	16	9.5
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6.4

Project: Rivery Proposed Offsite incl Simulation Run: COG-2 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time:29Apr2024, 14:52:56 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.51	1 January 2000, 01:36	0.02
A10	0.00	0.39	1 January 2000, 01:33	0.01
A11	0.00	2.77	1 January 2000, 01:39	0.12
A2	0.00	1.23	1 January 2000, 01:36	0.05
A3	0.00	1.05	1 January 2000, 01:33	0.04
A4	0.00	1.49	1 January 2000, 01:36	0.06
A5	0.00	1.58	1 January 2000, 01:36	0.06
A6	0.00	1.04	1 January 2000, 01:39	0.05
A7	0.00	0.06	1 January 2000, 02:18	0.01
A8	0.00	1.48	1 January 2000, 01:39	0.06
A9	0.00	0.59	1 January 2000, 01:33	0.02
B	0.00	0.00	1 January 2000, 03:00	0.00
Batch Detention Pond	0.01	7.71	1 January 2000, 01:54	0.62
C	0.00	0.00	1 January 2000, 03:00	0.00
D	0.00	0.00	1 January 2000, 03:00	0.00
E	0.00	0.09	1 January 2000, 01:33	0.00
F	0.00	1.07	1 January 2000, 01:45	0.06
G1	0.00	2.37	1 January 2000, 01:39	0.10
G2	0.00	1.99	1 January 2000, 01:39	0.09
G3	0.00	1.85	1 January 2000, 01:39	0.08
H	0.00	4.86	1 January 2000, 01:36	0.20
J1	0.01	13.92	1 January 2000, 01:39	0.62
J2	0.01	11.71	1 January 2000, 01:36	0.52
J3	0.01	10.51	1 January 2000, 01:39	0.47
J4	0.00	9.61	1 January 2000, 01:39	0.43
J5	0.00	7.65	1 January 2000, 01:36	0.34
J6	0.00	4.91	1 January 2000, 01:39	0.22
J7	0.00	1.50	1 January 2000, 01:39	0.07
J8	0.00	0.98	1 January 2000, 01:33	0.04
SP-A	0.01	9.92	1 January 2000, 01:45	0.82
SP-B	0.00	0.00	1 January 2000, 03:00	0.00
SP-C	0.00	0.00	1 January 2000, 03:00	0.00
SP-D	0.00	0.00	1 January 2000, 03:00	0.00
SP-E	0.00	0.09	1 January 2000, 01:33	0.00
SP-F	0.00	1.07	1 January 2000, 01:45	0.06

Project: Rivery Proposed Offsite incl Simulation Run: COG-10 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time:29Apr2024, 14:52:24 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.79	1 January 2000, 01:36	0.04
A10	0.00	0.58	1 January 2000, 01:33	0.03
A11	0.00	4.47	1 January 2000, 01:39	0.24
A2	0.00	1.81	1 January 2000, 01:36	0.09
A3	0.00	1.53	1 January 2000, 01:33	0.07
A4	0.00	2.13	1 January 2000, 01:33	0.11
A5	0.00	2.36	1 January 2000, 01:36	0.12
A6	0.00	1.78	1 January 2000, 01:39	0.09
A7	0.00	0.10	1 January 2000, 02:15	0.01
A8	0.00	2.62	1 January 2000, 01:39	0.14
A9	0.00	0.86	1 January 2000, 01:33	0.04
B	0.00	0.12	1 January 2000, 01:51	0.01
Batch Detention Pond	0.01	15.36	1 January 2000, 01:51	1.26
C	0.00	0.08	1 January 2000, 01:57	0.01
D	0.00	0.06	1 January 2000, 01:57	0.00
E	0.00	0.12	1 January 2000, 01:33	0.01
F	0.00	1.87	1 January 2000, 01:45	0.11
G1	0.00	3.93	1 January 2000, 01:39	0.20
G2	0.00	3.32	1 January 2000, 01:39	0.18
G3	0.00	3.09	1 January 2000, 01:39	0.17
H	0.00	7.49	1 January 2000, 01:36	0.37
J1	0.01	22.53	1 January 2000, 01:36	1.21
J2	0.01	18.90	1 January 2000, 01:36	1.01
J3	0.01	17.08	1 January 2000, 01:36	0.92
J4	0.00	15.64	1 January 2000, 01:39	0.84
J5	0.00	12.49	1 January 2000, 01:36	0.66
J6	0.00	8.36	1 January 2000, 01:39	0.44
J7	0.00	2.65	1 January 2000, 01:39	0.15
J8	0.00	1.43	1 January 2000, 01:33	0.07
SP-A	0.01	19.37	1 January 2000, 01:45	1.63
SP-B	0.00	0.12	1 January 2000, 01:51	0.01
SP-C	0.00	0.08	1 January 2000, 01:57	0.01
SP-D	0.00	0.06	1 January 2000, 01:57	0.00
SP-E	0.00	0.12	1 January 2000, 01:33	0.01
SP-F	0.00	1.87	1 January 2000, 01:45	0.11

Project: Rivery Proposed Offsite incl Simulation Run: COG-25 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time:29Apr2024, 14:53:09 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.94	1 January 2000, 01:33	0.05
A10	0.00	0.67	1 January 2000, 01:33	0.03
A11	0.00	5.39	1 January 2000, 01:36	0.31
A2	0.00	2.20	1 January 2000, 01:33	0.11
A3	0.00	1.84	1 January 2000, 01:33	0.09
A4	0.00	2.56	1 January 2000, 01:33	0.13
A5	0.00	2.87	1 January 2000, 01:33	0.15
A6	0.00	2.18	1 January 2000, 01:39	0.12
A7	0.00	0.12	1 January 2000, 02:15	0.01
A8	0.00	3.24	1 January 2000, 01:39	0.18
A9	0.00	1.00	1 January 2000, 01:33	0.05
B	0.00	0.26	1 January 2000, 01:48	0.02
Batch Detention Pond	0.01	21.47	1 January 2000, 01:48	1.67
C	0.00	0.17	1 January 2000, 01:51	0.01
D	0.00	0.12	1 January 2000, 01:51	0.01
E	0.00	0.14	1 January 2000, 01:33	0.01
F	0.00	2.35	1 January 2000, 01:42	0.15
G1	0.00	4.83	1 January 2000, 01:36	0.27
G2	0.00	4.06	1 January 2000, 01:39	0.23
G3	0.00	3.79	1 January 2000, 01:39	0.22
H	0.00	8.94	1 January 2000, 01:36	0.48
J1	0.01	27.70	1 January 2000, 01:36	1.57
J2	0.01	23.12	1 January 2000, 01:36	1.30
J3	0.01	21.02	1 January 2000, 01:36	1.19
J4	0.00	19.31	1 January 2000, 01:36	1.09
J5	0.00	15.36	1 January 2000, 01:36	0.86
J6	0.00	10.22	1 January 2000, 01:36	0.58
J7	0.00	3.29	1 January 2000, 01:39	0.19
J8	0.00	1.67	1 January 2000, 01:33	0.08
SP-A	0.01	26.49	1 January 2000, 01:45	2.15
SP-B	0.00	0.26	1 January 2000, 01:48	0.02
SP-C	0.00	0.17	1 January 2000, 01:51	0.01
SP-D	0.00	0.12	1 January 2000, 01:51	0.01
SP-E	0.00	0.14	1 January 2000, 01:33	0.01
SP-F	0.00	2.35	1 January 2000, 01:42	0.15

Project: Rivery Proposed Offsite incl Simulation Run: COG-100 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time:29Apr2024, 14:52:38 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

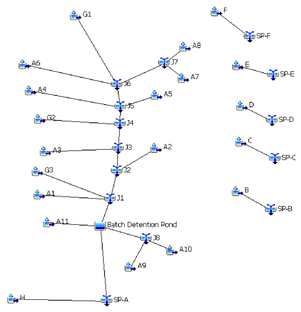
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	1.18	1 January 2000, 01:36	0.07
A10	0.00	0.83	1 January 2000, 01:33	0.04
A11	0.00	6.86	1 January 2000, 01:39	0.41
A2	0.00	2.66	1 January 2000, 01:33	0.15
A3	0.00	2.21	1 January 2000, 01:33	0.12
A4	0.00	3.05	1 January 2000, 01:33	0.17
A5	0.00	3.46	1 January 2000, 01:33	0.19
A6	0.00	2.82	1 January 2000, 01:39	0.17
A7	0.00	0.16	1 January 2000, 02:15	0.02
A8	0.00	4.25	1 January 2000, 01:39	0.25
A9	0.00	1.24	1 January 2000, 01:33	0.06
B	0.00	0.51	1 January 2000, 01:42	0.03
Batch Detention Pond	0.01	30.72	1 January 2000, 01:48	2.26
C	0.00	0.34	1 January 2000, 01:45	0.02
D	0.00	0.23	1 January 2000, 01:48	0.01
E	0.00	0.17	1 January 2000, 01:33	0.01
F	0.00	3.08	1 January 2000, 01:45	0.20
G1	0.00	6.14	1 January 2000, 01:39	0.36
G2	0.00	5.18	1 January 2000, 01:39	0.31
G3	0.00	4.82	1 January 2000, 01:39	0.29
H	0.00	11.21	1 January 2000, 01:36	0.63
J1	0.01	34.81	1 January 2000, 01:36	2.09
J2	0.01	29.10	1 January 2000, 01:36	1.73
J3	0.01	26.46	1 January 2000, 01:36	1.58
J4	0.00	24.30	1 January 2000, 01:36	1.46
J5	0.00	19.39	1 January 2000, 01:36	1.15
J6	0.00	13.26	1 January 2000, 01:39	0.78
J7	0.00	4.31	1 January 2000, 01:39	0.26
J8	0.00	2.07	1 January 2000, 01:33	0.11
SP-A	0.01	38.16	1 January 2000, 01:45	2.89
SP-B	0.00	0.51	1 January 2000, 01:42	0.03
SP-C	0.00	0.34	1 January 2000, 01:45	0.02
SP-D	0.00	0.23	1 January 2000, 01:48	0.01
SP-E	0.00	0.17	1 January 2000, 01:33	0.01
SP-F	0.00	3.08	1 January 2000, 01:45	0.20

FLOW DATA
PROPOSED CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A1	0.51	0.79	0.94	1.18
A2	1.23	1.81	2.20	2.66
A3	1.05	1.53	1.84	2.21
A4	1.49	2.13	2.56	3.05
A5	1.58	2.36	2.87	3.46
A6	1.04	1.78	2.18	2.82
A7	0.06	0.10	0.12	0.16
A8	1.48	2.62	3.24	4.25
A9	0.59	0.86	1.00	1.24
A10	0.39	0.58	0.67	0.83
A11	2.77	4.47	5.39	6.86
B	-	0.12	0.26	0.51
C	-	0.08	0.17	0.34
D	-	0.06	0.12	0.23
E	0.09	0.12	0.14	0.17
F	1.07	1.87	2.35	3.08
G1	2.37	3.93	4.83	6.14
G2	1.99	3.32	4.06	5.18
G3	1.85	3.09	3.79	4.82
H	4.86	7.49	8.94	11.21
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.08	21.62	29.53	42.49

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Proposed Conditions

Basin	Area mi2	CN	S	Ia
A1	0.0002099	93	0.75	0.15
A2	0.0004575	94	0.64	0.13
A3	0.0003709	94	0.64	0.13
A4	0.0005156	94	0.64	0.13
A5	0.0006000	93	0.75	0.15
A6	0.0005874	90	1.11	0.22
A7	0.0000593	94	0.64	0.13
A8	0.0009075	89	1.24	0.25
A9	0.0001980	94	0.64	0.13
A10	0.0001331	94	0.64	0.13
A11	0.0013592	92	0.87	0.17
B	0.0002025	80	2.50	0.50
C	0.0001458	80	2.50	0.50
D	0.0001010	80	2.50	0.50
E	0.0000260	98	0.20	0.04
F	0.0007715	95	0.53	0.11
G1	0.0012332	90	1.11	0.22
G2	0.0010608	90	1.11	0.22
G3	0.0009942	90	1.11	0.22
H	0.0020300	95	0.53	0.11



ROUTING DIAGRAM

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

19 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\19 PROPOSED DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:27 pm

ATTACHMENT "H"

Temporary Sediment Pond Plans & Specifications

Not Applicable. No Temporary Sediment Ponds are required for this project.

ATTACHMENT "I"

Inspection & Maintenance for Temporary BMPs

SUMMARY OF EROSION AND SEDIMENT CONTROL MAINTENANCE/INSPECTION PROCEDURES

- All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be completed within 24 hours of report.
- Built-up sediment will be removed from silt fences when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Sediment basins, if present, will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 10% of the design capacity or at the end of the project.
- Diversion dikes and Rock Berms, if present, will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. Examples of the report forms to be used are included in this section.
- The site job superintendent will select the individuals who will be responsible for inspections, maintenance and repair activities, and maintaining the inspection and maintenance reports.
- Personnel selected for inspection and maintenance responsibilities will receive training from the site job superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

FINAL STABILIZATION/TERMINATION CHECKLIST

1. All soil disturbing activities are complete

2. Temporary erosion and sediment control measures have been removed or will be removed at an appropriate time.

3. All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

STABILIZATION MEASURES

INSPECTOR: _____ DATE: _____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

AREA	DATE SINCE LAST RAINFALL	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

SILT FENCE

INSPECTOR: _____ DATE:_____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

IS THE BOTTOM OF THE FABRIC STILL BURIED? _____

IS THE FABRIC TORN OR SAGGING? Y/N?

ARE THE POSTS TIPPED OVER? Y/N?

HOW DEEP IS THE SEDIMENT?_____ inches

MAINTENANCE REQUIRED FOR SILT FENCE: _____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

STABILIZED CONSTRUCTION EXIT

INSPECTOR: _____ DATE:_____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

DOES MUCH SEDIMENT GET TRACKED ON TO ROAD? _____

IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT? _____

DOES ALL TRAFFIC USE THE STABILIZED EXIT TO LEAVE THE JOB SITE?

IS THE CULVERT BENEATH THE EXIT WORKING? _____

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION EXIT: _____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

ATTACHMENT "J"

Schedule of Interim and Permanent Soil Stabilization Practices

All areas within the project limits that are disturbed during construction will be revegetated and restabilized immediately following completion of related construction activities.

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Timothy E. Haynie

Date: 05/14/2024

Signature of Customer/Agent



Regulated Entity Name: Rivery Crossing Phase 2

Permanent Best Management Practices (BMPs)

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

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for 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"

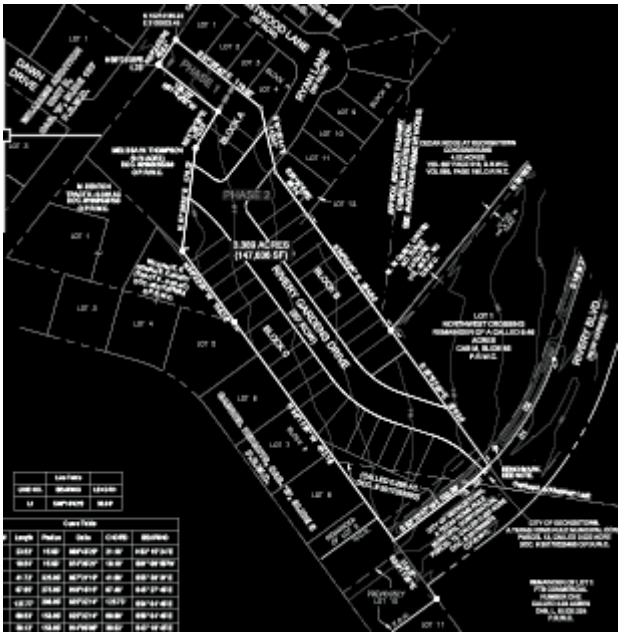
20% or less Impervious Cover Waiver

Not Applicable.

ATTACHMENT "B"

BMPs for Upgradient Storm Water

Up-gradient drainage areas are existing single-family homes, Lots 1-9, Block 6 in the Gabriel Heights subdivision as recorded in Cabinet B, Slide 5 of the Plat Records of Wiliamson County, Texas. These lots are approximately 0.25 acres in size and subdivided in 1964. No treatment of storm water for these areas is planned.



ATTACHMENT “C”

BMPs for On-Site Storm Water

The permanent BMPs, designed according to the TCEQ’s RG-348 Technical Manual titled Complying with the Edwards Aquifer Rules, Technical Guidance on Best Management Practices, July 2005., that shall apply for this development will be a batch detention system (see system information in Attachment D).

The site will be divided into several basins, A1 though A11 and G1-G3, which are delineated on the Proposed Drainage Area Map of the plan set. These areas are routed through the batch detention pond. Areas B through F are off-site flows as shown per the Proposed drainage map.

ATTACHMENT “D”

BMPs for Surface Streams

The Surface waters will be captured and treated in a combination Batch Detention Pond. The permanent BMP for this project is to use batch detention with a rotary Smart Pond system (attached). Discharge of the system shall be into a roadside ditch along Rivery Boulevard to a detention and WQ facility downstream of the project.
The project is in the uplands of the basin and no streams traverse through the project.

ATTACHMENT "E"

Request to Seal Features

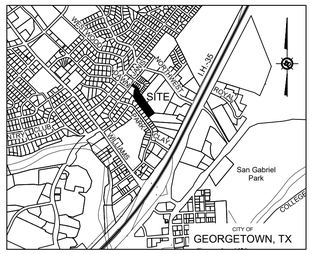
Not Applicable.

ATTACHMENT "F"

Construction Plans for BMPs

A complete set of Construction Plans are provided with this attachment.

See plan sheets 21 Thru 23 for Batch Detention design details.



LOCATION MAP
SCALE: 1" = 2,000'

SUBMITTAL DATE: APRIL 19TH 2024

ADDRESS: 206 E. JANIS DRIVE &
2005 RIVERY BOULEVARD
GEORGETOWN, TEXAS 78628

OWNER: EWING DEVELOPMENT COMPANY, LLC
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: (512) 837-2446
EMAIL: tehaynie45@yahoo.com

SURVEYOR: HAYNIE CONSULTING, INC.
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: (512) 837-2446
EMAIL: tehaynie45@yahoo.com

ENGINEER: HAYNIE CONSULTING, INC.
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: 512-837-2446
EMAIL: tehaynie45@yahoo.com

DOC. NO. 2016070988 CORRECTION AFFIDAVIT (3.0665 ACRES) AND
DOC. NO. 2017083503 REMAINDER OF LOT 1 (0.295 ACRE)

SURVEY: NICHOLAS PORTER SURVEY, ABSTRACT NO. 497
TOTAL ACRES: 3.389 ACRES (147,636 sq. ft.)
NUMBER OF LOTS: 30 LOTS
NUMBER OF BLOCKS: 3 BLOCKS
ZONING: TH

NOTES:
1. REMAINING PORTION (CALLED 0.295 ACRE) OF LOT 1, FTB COMMERCIAL NUMBER ONE, A CALLED 4.02 ACRE RECORDED IN, CAB. L, SLIDE 224, P.R.W.C. , DESCRIBED AND CONVEYED TO 180 HOLLY STREET, INC. IN DOCUMENT NO. 2017083503, O.P.R.W.C.
2. 20' EXCLUSIVE EASEMENT TO THE CITY OF GEORGETOWN DOC. #2017059975, O.P.R.W.C.
3. AVERAGE DAILY TRIP COUNT: = 288 TRIPS (ITE 10TH EDITION)
4. NUMBER OF LOTS:
30 TOWNHOUSE LOTS
5. PROPOSED RIGHT-OF-WAY AREA: 39,824 S.F. OR 0.9142 ACRES
PROPOSED RIGHT-OF-WAY DEDICATION: 37,106 S.F. OR 0.8518 ACRES
6. NUMBER OF BLOCKS: 3
7. AREA OF SMALLEST LOT: (2,080 S.F.)
8. THIS TRACT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF GEORGETOWN.
9. STREET LENGTHS & TYPE:

RYAN LANE 125.27 L.F. - LOCAL URBAN - 50' R.O.W.

DAWN DRIVE 813.16 L.F. - LOCAL URBAN - 50' R.O.W.

TOTAL ALL STREETS = 938.43 L.F.

10. UTILITY PROVIDERS:
WATER - CITY OF GEORGETOWN
WASTEWATER - CITY OF GEORGETOWN
ELECTRIC - CITY OF GEORGETOWN
TELECOM - SUDDENLINK COMMUNICATIONS

SURVEY NOTES:

1. COORDINATES ARE BASED ON THE CITY OF GEORGETOWN CONTROL NETWORK.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99986856.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWESTCORNER
OF A CONCRETE HEADWALL LOCATED NORTHEAST
OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'

CONSTRUCTION PLANS FOR

RIVERY CROSSING PHASE 2

A TOWNHOUSE RESIDENTIAL COMMUNITY
IN GEORGETOWN, WILLIAMSON COUNTY, TEXAS

SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

2022-44-CON

NOTES:
1. THESE PLANS WERE PREPARED, SEALED, SIGNED, AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE, BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
3. ALL ELECTRIC DISTRIBUTION LINES AND INDIVIDUAL SERVICE LINES SHALL BE INSTALLED UNDERGROUND. IF OVERHEAD LINES EXISTED PRIOR TO UNDERGROUND INSTALLATION, SUCH POLES, GUY WIRES, AND RELATED STRUCTURES SHALL BE REMOVED FOLLOWING CONSTRUCTION OF THE UNDERGROUND INFRASTRUCTURE (ONLY APPLICABLE FOR RESIDENTIAL PROPERTY).
4. WHERE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRIC UTILITY LINES SHALL BE LOCATED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD INFRASTRUCTURE IS TO BE RELOCATED, IT SHALL BE RE-INSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER(ONLY APPLICABLE FOR NON-RESIDENTIAL AND MULTI-FAMILY DEVELOPMENT).
5. ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC SECTION13.06.ADDITIONAL NOTES FOR PROPERTIES LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE:
6. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
7. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON 8-13-2020. NO SPRINGS OR STREAMS WERE IDENTIFIED IN THE GEOLOGIC ASSESSMENT PER THE ASSESSMENT FROM CAPITOL ENVIRONMENTAL, REPORT DATED 8-13-2020.

I, TIMOTHY E. HAYNIE, 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, WILLIAMSON COUNTY, TEXAS.

TIMOTHY E. HAYNIE, P.E. 9-26-2024 DATE

SUBMITTED BY:

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock , Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S.Firm No. 100250-00

Sheet List Table

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES (1 OF 2)
3	GENERAL NOTES (2 OF 2)
4	TCEQ NOTES
5	RIVERY CROSSING PRELIMINARY PLAT (1 OF 3)
6	RIVERY CROSSING PRELIMINARY PLAT (2 OF 3)
7	RIVERY CROSSING PRELIMINARY PLAT (3 OF 3)
8	REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3)
9	REPLAT OF LOT 1 NORTHWEST CROSSING (2 of 3)
10	REPLAT OF LOT 1 NORTHWEST CROSSING (3 of 3)
11	EXISTING TOPOGRAPHIC & TREE SURVEY
12	TREE PRESERVATION PLAN & DETAILS
13	EROSION & SEDIMENTATION CONTROL PLAN
14	EROSION CONTROL DETAILS
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16	EXISTING DRAINAGE AREA MAP
17	EXISTING DRAINAGE CALCULATIONS
18	PROPOSED DRAINAGE AREA MAP
19	PROPOSED DRAINAGE CALCULATIONS
20	MISCELLANEOUS DRAINAGE CALCULATIONS
21	WATER QUALITY CALCULATIONS
22	BATCH DETENTION POND PLAN
23	BATCH DETENTION POND DETAILS
24	STORM LINE 'A' - PLAN & PROFILE (1 OF 2)
25	STORM LINE 'A' - PLAN & PROFILE (2 OF 2)
26	STORM LINES 'A1' - 'A4' - PLANS & PROFILES
27	STORM LINES 'A5' - 'A7' - PLANS & PROFILES
28	STORM LINES 'A9' & 'A10' - PLANS & PROFILES
29	STORM LINE 'G' - PLAN & PROFILE
30	STORM LINE 'A8' - PLAN & PROFILE
31	RIVERY GARDENS DRIVE - PLAN & PROFILE STA. 1+00 TO 5+50
32	RIVERY GARDENS DRIVE - PLAN & PROFILE STA. 5+50 TO END
33	RYAN LANE - PLAN & PROFILE STA. 1+00 TO END
34	PAVING & CONSTRUCTION DETAILS (1 OF 3)
35	PAVING & CONSTRUCTION DETAILS (2 OF 3)
36	PAVING & CONSTRUCTION DETAILS (3 of 3)
37	WATER DISTRIBUTION PLAN
38	WATER DETAILS (1 OF 2)
39	WATER DETAILS (2 OF 2)
40	WASTEWATER COLLECTION PLAN
41	WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)
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43	WASTEWATER MAIN 'B' - PLAN & PROFILE
44	WASTEWATER DETAILS (1 OF 2)
45	WASTEWATER DETAILS (2 OF 2)
46	PAVING & GRADING PLAN
47	CULVERT 'A' - PLAN & PROFILE
48	STREET SIGNAGE PLAN
49	ELECTRICAL - DISTRIBUTION PLAN
50	ELECTRICAL - DETAILS
51	ELECTRICAL - PHASING PLAN
52	MAIL KIOSK PLAN & DETAILS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

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512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

COVER SHEET

CITY OF GEORGETOWN

SHEET NO.

1 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\1 COVER SHEET.dwg Sep 29, 24 5:34 pm

SEQUENCE OF CONSTRUCTION

1. CALL ALL AFFECTED PARTIES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE AND SECURE ALL REQUIRED PERMITS.
2. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND GRUBBING. NOTIFY THE CITY OF GEORGETOWN WHEN INSTALLED.
3. INSTALL DRAINAGE FACILITIES NECESSARY TO MITIGATE INCREASE STORMWATER RUNOFF.
4. INSTALL ALL UNDERGROUND UTILITIES
5. INSURE THAT ALL UNDERGROUND UTILITIES ARE COMPLETE. LAY FIRST COURSE OF BASE MATERIAL.
6. COMPLETE ALL CONSTRUCTION AND INSTALLATIONS WITHIN THE SITE.
7. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.
8. FINAL WALK THROUGH AND PUNCH LIST
9. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL AND TREE PROTECTION.
10. COMPLETE ANY NECESSARY FINAL DRESS-UP
11. FINAL ACCEPTANCE

City of Georgetown General Construction Notes

1. These construction plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the standard Construction Specifications and Details Manual and all other applicable City, State and Federal Requirements and Codes.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The site construction plans shall meet all requirements of the approved site plan.
4. Wastewater mains and service lines shall be SDR 26 PVC.
5. Wastewater mains shall be installed without horizontal or vertical bends.
6. Maximum distance between wastewater manholes is 500 feet.
7. Wastewater mains shall be low pressure air tested and mandrel tested by the contractor according to City of Georgetown and TCEQ requirements.
8. Wastewater manholes shall be vacuum tested and coated by the contractor according to City of Georgetown and TCEQ requirements.
9. Wastewater mains shall be camera tested by the contractor and submitted to the City on DVD format prior to paving the streets.
10. Private water system fire lines shall be tested by the contractor to 200 psi for 2 hours.
11. Private water system fire lines shall be ductile iron piping from the water main to the building sprinkler system, and 200 psi C900 PVC for all others.
12. Public water system mains shall be 150 psi C900 PVC and tested by the contractor at 150 psi for 2 hours.
13. All bends and changes in direction on water mains shall be restrained and thrust blocked.
14. Long fire hydrant leads shall be restrained.
15. All water lines are to be bacteria tested by the contractor according to the City standards and specifications.
16. Water and Sewer main crossings shall meet all requirements of the TCEQ and the City.
17. Flexible base material for public streets shall be TXDOT Type A Grade 1.
18. Hot mix asphaltic concrete pavement shall be Type D unless otherwise specified and shall be a minimum of 2 inches thick on public streets and roadways.
19. All sidewalk ramps are to be installed with the public infrastructure.
20. A maintenance bond is required to be submitted to the City prior to acceptance of the public improvements. This bond shall be established for 2 years in the amount of 10% of the cost of the public improvements and shall follow the City format.
21. Record drawings of public improvements shall be submitted to the City by the design engineer prior to acceptance of the project. These record drawings be a pdf emailed to the City.

REFERENCE SPECIFICATIONS AND CODES

1. OSHA REQUIREMENTS AND LOCAL CODES OR THOSE OF ANY REGULATORY AGENCY OR BODY THAT HAS JURISDICTION SHALL BE STRICTLY ADHERED TO.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS, DRAINAGE CRITERIA MANUAL, AND TRANSPORTATION CRITERIA MANUAL AS ADOPTED AND AMENDED BY THE CITY OF GEORGETOWN, TEXAS.
3. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
4. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS AND TO THE STATE LAW (VERNON'S ANNOTATED TEXAS STATUTES, ARTICLE 1436(C) AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES WHEN OPERATING EQUIPMENT IN THE VICINITY OF ELECTRICAL LINES. IF THE CONTRACTOR CHOOSES TO USE EQUIPMENT WITH THE POTENTIAL OF COMING WITHIN THE DISTANCE PRESCRIBED BY STATUTE, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE WORK WITH THE APPROPRIATE ELECTRIC UTILITY COMPANY.

TREE PROTECTION NOTES:

1. ALL TREES SHOWN ON THIS PLAN TO BE RETAINED OR REPLANTED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY TREE PROTECTION FENCING PER THE EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES (DETAIL EC01A) ON SHEET PI - C9.
2. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
3. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES; SHALL BE LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE); AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL) OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE PARK NATURALIST.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING AND FIRES.
4. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING.
5. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
6. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES (UNDER DRIPLINES) THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH OR GRAVEL TO MINIMIZE SOIL COMPACTION.
7. ALL GRADING WITHIN PROTECTED ROOT ZONE AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
8. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
9. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE DAMAGE TO REMAINING ROOTS.

FIRE DEPARTMENT NOTES

At the conclusion of construction and as part of the process for the city to accept this phase. The fire hydrants shall be flowed and tested a copy of the report shall be emailed into the fire department and the hydrants shall be painted and color coded.
*** CAUTION If pressure reducing valves were installed in this phasing they must be set prior to fire hydrant flow testing.***

Per City Ordinance Sec. 13.15.120. - Private fire hydrant maintenance.
A. All private hydrant barrels will be painted red with the bonnet painted using the hydrant flow standard in Paragraph C of this Section to indicate flow. It will be the customer's responsibility to test and maintain their private fire hydrant(s). B. All private fire hydrants should be tested annually and shall be color coded to indicate the expected fire flow from the hydrant during normal operation. Such color applied to the fire hydrant by painting the bonnet the appropriate color for the expected flow condition. C. Hydrant Flow Coding Standards. Public hydrants will have the bonnets painted silver, the hydrants will be flow tested, and the bonnet painted using the hydrant flow standard in paragraph C.
Flow will be determined at 20 Psi Residual Pressure

FLOW COLOR
Greater than 1500 GPM BLUE
1000 to 1500 GPM GREEN
500 to 999 GPM ORANGE
Less than 500 GPM RED
NOT WORKING BLACK OR BAGGED

1. On subdivision streets where parking is not allowed on one side or both sides of the STREET, fire lanes are required shall be marked and maintained in the following manner:
   (i.) A sign 12-inches wide and 18-inches in height with red lettering on a white reflective background and border in red stating "FIRE LANE - TOW AWAY ZONE", along with the words "THIS SIDE OF THE STREET" or "BOTH SIDES OF THE STREET". The words "Fire Lane" by themselves are not acceptable. Sign shall be mounted conspicuously along the edge of the fire lane. Sign must be at the beginning of a street and spaced no more than 250 feet apart at a minimum height of 7 feet above finished grade.

D102.1 Access and loading.
Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).

Provide FIRE LANE markings or signage on both sides of the street if the fire apparatus access road is less than 26 feet wide. If the street is 26.1 to 30 feet wide then only one side will be required to be marked as a FIRE LANE. If the street has mountable curbing then parking on both sides of the street will be allowed if the street width is 30 feet or greater in width.

ADDITIONAL FIRE NOTES::

TOWNHOUSES REQUIRE A 13-D FIRE SPRINKLER. IF THE FIRE WALLS ARE NOT BUILT TO TOWN HOME STANDARDS THEY ARE CONSIDERED MULTI-FAMILY AND WILL NEED A 13-R SPRINKLER SYSTEM. SEPARATE SUBMITTALS SHALL DETERMINE IF A FIRE SPRINKLER SYSTEM IS REQUIRED AND IF A SUBMITTAL IS REQUIRED FOR AN UNDERGROUND FIRE LINE.

13-D SYSTEMS CAN COME OFF OF THE METER AND SPLIT INSIDE THE RESIDENCE OR OUTSIDE.

GRADING NOTES:

1. ALL GRADES AND CONTOURS SHOWN ARE FINAL, TOP OF FINISH SURFACE ELEVATIONS, UNLESS OTHERWISE NOTED.
2. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR TO TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
3. CONTRACTOR TO OBTAIN GRADES SHOWN HEREON ± ONE-TENTH (0.10) FOOT.
4. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 2.0% UNLESS OTHERWISE NOTED.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL CODES AND TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (LATEST EDITION).
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGES DONE TO EXISTING BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS.
8. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
9. TREE PROTECTION SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT PLANS.
10. CONTRACTOR SHALL GRADE AREAS OUTSIDE OF PARKING LOTS TO MATCH EXISTING SITE GRADES BASED ON MAXIMUM SLOPES OF 3:1 UNLESS OTHERWISE NOTED.
11. ALL EXCAVATION IS UNCLASSIFIED.
12. SITE AREAS REQUIRING FILL PLACEMENT SHALL BE SCARIFIED AND MOISTURE ADJUSTED TO WITHIN ± 3% OF OPTIMUM MOISTURE CONTENT. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY.
13. CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT AS PROVIDED BY OWNER.
14. CONTRACTOR IS REQUIRED TO HAVE A TCEQ TPDES PERMIT ISSUED BY TCEQ. A COPY OF THE PERMIT SHALL BE POSTED ON THE JOBSITE PER TCEQ REQUIREMENTS.
15. CONTRACTOR SHALL HYDRO MULCH ALL DISTURBED AREAS NOT INCLUDED IN LANDSCAPE PLANS AND GUARANTEE COVERAGE ACCORDING TO CONSTRUCTION SPECIFICATIONS.

SITE ACCESSIBILITY GRADING NOTES:

1. ALL ACCESSIBLE ROUTES AND PATHWAYS SHALL CONFORM TO ADA STANDARDS FOR ACCESSIBLE DESIGN LATEST EDITION.
2. SIDEWALKS AND PATH WAYS SHALL MEET MAXIMUM 2% CROSS SLOPE AND MAXIMUM 5% RUNNING SLOPE REQUIREMENTS.
3. ALL ACCESSIBLE PARKING SPACES AND SHARED ACCESS AISLES SHALL BE LEVEL AND MEET MAXIMUM 2% SLOPE REQUIREMENTS IN ANY DIRECTION.
4. ALL ACCESSIBLE RAMPS SHALL MEET MAXIMUM 2% CROSS SLOPE AND MAXIMUM 8.33% (1:12) RUNNING SLOPE REQUIREMENTS.

EROSION CONTROL NOTES:

1. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASHOUT PIT AND CONSTRUCTION EQUIPMENT STORAGE AREA ARE TO BE DETERMINED IN THE FIELD. THEY ARE SHOWN ON THIS PLAN FOR ILLUSTRATIVE PURPOSES ONLY. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AROUND CONCRETE WASH PIT AND MATERIAL STORAGE AREA BASED ON FINAL LOCATION AND SIZE.
2. CONTRACTOR MAY MODIFY STORM WATER CONTROLS TO ACHIEVE THE DESIRED INTENT. ANY CHANGES ARE TO BE NOTED, SIGNED AND DATED BY THE RESPONSIBLE PARTY IN THE TPDES BOOK (NO SEPARATE PAY ITEM).
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORM WATER CONTROLS.
4. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY QUESTIONS REGARDING THE INTENT OF THIS PLAN.
5. IF REQUIRED, CONTRACTOR SHALL FILE NOI'S (NOTICE OF INTENT) AND NOT'S (NOTICE OF TERMINATION) FOR THIS PROJECT. REFER TO TPDES FOR PROPER POSTING REQUIREMENTS AND DOCUMENTS.
6. CONTRACTOR SHALL PERFORM INSPECTIONS OF CONTROLS ONCE EVERY FOURTEEN (14) DAYS AND WITHIN TWENTY-FOUR (24) HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER OR AS AN ALTERNATIVE METHOD CONTRACTOR SHALL PERFORM INSPECTIONS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS.
7. A COPY OF THIS PLAN, TPDES BOOK AND INSPECTION REPORTS MUST REMAIN AT THE CONSTRUCTION SITE AT ALL TIMES.
8. BARE SOILS SHALL HAVE STABILIZATION MEASURES INSTALLED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.THE ACCUMULATION OF DEBRIS AND MATERIALS RESULTING FROM CONSTRUCTION AND/OR DEMOLITION SHALL BE CONTAINED ON-SITE AND REMOVED IN A TIMELY MANNER.
9. ALL DEBRIS AND CONSTRUCTION MATERIALS SHALL BE REMOVED PRIOR TO FINAL INSPECTION AND THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE CITY RETAINS THE RIGHT TO REQUIRE THE PLACEMENT OF A COMMERCIAL DUMPSTER FOR COLLECTION OF DEBRIS IF THE SITE IS NOT PROPERLY MAINTAINED. THE COST ASSOCIATED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER.
10. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM PRODUCTS BASED UPON TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ADJACENT ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
12. REFER TO THE TPDES BOOK FOR THIS PROJECT FOR MORE INFORMATION/ DETAILS.
13. SCREENING AND LOCATION OF OUTDOOR STORAGE SHALL COMPLY WITH SECTION 5.09 OF THE UDC.

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C2 GENERAL NOTES (1 OF 2).dwg Sep 29, 24 5:36 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

811 Know what's below. Call before you dig.
ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
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T.B.P.L.S. Firm No. 100250-00
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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

GENERAL NOTES (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.

2 OF 52

2022-44-CON

GENERAL UTILITY NOTES:

1. ALL MAINS SHALL BE FLUSHED, HYDROSTATICALLY TESTED AND DISINFECTED BY THE CONTRACTOR, PER THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. FOR PURPOSES OF RECORD DRAWINGS FOR THE CITY OF GEORGETOWN, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.
3. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.
4. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED AND DISPOSED OF FROM THE SITE BY THE CONTRACTOR, AT THEIR EXPENSE.
5. ALL TRENCH BACKFILL FOR THIS PROJECT SHALL BE ACCOMPLISHED ACCORDING TO THE UTILITY DETAIL SHEET AND SHALL MEET ALL REQUIREMENTS OF THE CITY OF GEORGETOWN. NO WATER JETTING WILL BE ALLOWED. OBSERVATION OF TRENCH BACKFILL WILL BE SUPPLEMENTED BY MOISTURE-DENSITY TESTING CONDUCTED AT PERIODIC INTERVALS DURING THE COMPACTION PROCESS. THE CONTRACTOR WILL BE REQUIRED TO MAKE SUITABLE EXCAVATION TO ALLOW ACCESS FOR SUCH TESTING, AND WILL BE REQUIRED TO REMOVE AND REPLACE BACKFILL AS MANY TIMES AS NECESSARY TO ACHIEVE 95% STANDARD PROCTOR.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE TCEQ AND CITY OF GEORGETOWN WATER STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION(LATEST EDITION), CITY OF GEORGETOWN BUILDING CODE AND REGULATIONS, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.
7. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITY OR IMPROVEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS.
8. THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS, PRIOR TO ANY CONSTRUCTION IN THE AREA.
9. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
10. THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.
11. FIRE HYDRANTS SHALL BE A MINIMUM OF EIGHTEEN (18) INCHES AND A MAXIMUM OF TWENTY FOUR (24) INCHES TO THE BACK OF THE CURB. THE STEAMER CONNECTION SHALL BE A MINIMUM OF ONE AND ONE-HALF (1.5) FEET AND A MAXIMUM OF TWO (2) FEET ABOVE GRADE. HYDRANTS SHALL BE KEPT CLEAR OF ALL OBSTACLES WITHIN THREE (3) FEET.
12. CONTRACTOR SHALL USE SPECIAL CARE AND MINIMIZE ANY DISTURBANCE WITHIN EXCAVATING NEAR OR WITHIN THE DRIPLINE OF TREES TO REMAIN.
13. THE ELECTRIC UTILITY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY VEGETATION AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE THE CITY OF GEORGETOWN ELECTRIC UTILITY DEPARTMENT WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES.
14. THE TRENCH EXCAVATION STANDARDS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ARE HEREBY INCLUDED AND SHALL BE APPLICABLE TO ALL TRENCH EXCAVATION WORK WITHIN THE CITY WHICH EXCEEDS FOUR (4) FEET IN DEPTH.
15. ALL STORM DRAIN PIPES FOR THIS PROJECT SHALL BE REINFORCED CONCRETE PIPE OR CONCRETE BOX CULVERTS PRECAST OR CAST IN PLACE WITH AN N=0.013.
16. ALL NON-PRESSURE RATED SANITARY SEWER PIPE FOR THIS PROJECT SHALL BE SDR 26 PVC ASTM D-3034 WITH A BELLED JOINT TYPE CONFORMING TO ASTM D-3212. ALL PRESSURE RATED SANITARY SEWER PIPE FOR THIS PROJECT SHALL BE SDR 26 IPS PRESSURE ASTM 2241, CLASS160 PVC PIPE WITH INTEGRAL BELL JOINT TYPE CONFORMING TO ASTM D-3139 (160 PSI MIN. WORKING PRESSURE). ALL STANDARD GASKETS FOR JOINTS ASSOCIATED WITH THIS PROJECT SHALL CONFORM TO ASTM F-477. ALL SEWER SERVICE CONNECTION THAT CROSS A WATERLINE SHALL BE PRESSURE RATED SDR 26 CLASS 160 CONFORMING TO ASTM D-2241, ALL OTHER SEWER SERVICE CONNECTIONS SHALL BE SDR 26 CLASS 115 CONFORMING TO ASTM D-3034.
17. ALL WATER DISTRIBUTION LINES (8" OR 12" DIAMETER PIPE) SHALL BE AWWA C-900 PVC CLASS 150 PSI, UNLESS OTHERWISE SPECIFIED.

TCEQ WATER DISTRIBUTION NOTES:

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

O THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

TCEQ WATER DISTRIBUTION NOTES (CONTINUED):

WHERE:

- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

O THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$LQ = \frac{SD\sqrt{P}}{148{,}000}$$

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C- 651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

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Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

GENERAL NOTES (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

3 OF 52

2022-44-CON

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
    (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
        (1) *Low Pressure Air Test.*
            (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
                (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
                (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter *(inches)*	Minimum Time *(seconds)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
    (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
        (A) *Mandrel Sizing.*
            (i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
            (ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
            (iii) All dimensions must meet the appropriate standard.
        (B) *Mandrel Design.*
            (i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
            (ii) A mandrel must have nine or more odd number of runners or legs.
            (iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
            (iv) Each size mandrel must use a separate proving ring.
        (C) *Method Options.*
            (i) An adjustable or flexible mandrel is prohibited.
            (ii) A test may not use television inspection as a substitute for a deflection test.
            (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
    (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
    (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
    (4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
    (5) Gravity collection system pipe deflection must not exceed five percent (5%).
    (6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
        (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

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1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.

4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

7. Sediment must be removed from the sediment traps or sedimentation basins not later than

when it occupies 50% of the basin's design capacity.

8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.

10. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

11. The following records shall be maintained and made available to the TCEQ upon request:
    - 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.

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;

    C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\4 TCEQ NOTES.dwg Sep 29, 24 5:38 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

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512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

TCEQ NOTES

CITY OF GEORGETOWN

SHEET NO.

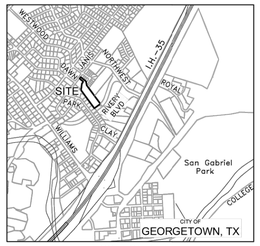
4 OF 52

2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.



LOCATION MAP
SCALE: 1" = 2,000'

SUBMITTAL DATE: NOVEMBER 16, 2020

ADDRESS: 206 E. JANIS DRIVE,
2201 RIVERY BLVD.
GEORGETOWN, TEXAS 78628

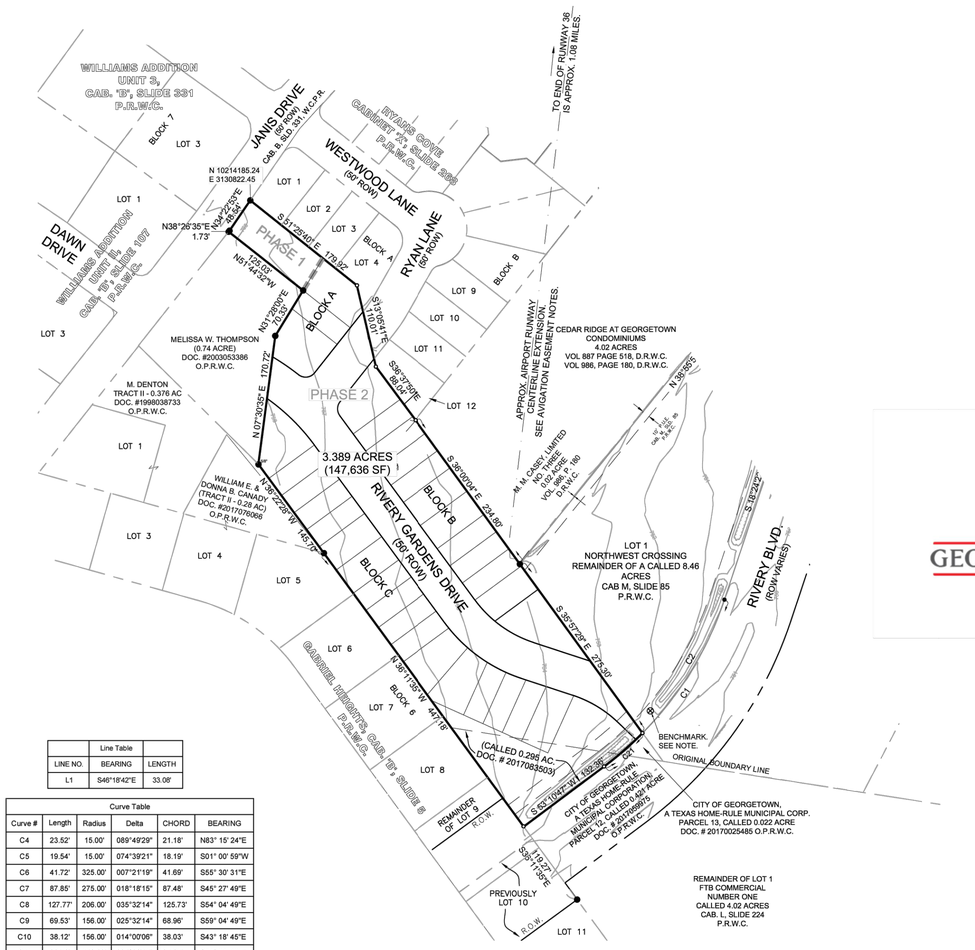
OWNER: EWING DEVELOPMENT COMPANY, LLC
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: (512) 837-2446
EMAIL: tehaynie@haynieconsulting.com

SURVEYOR: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: pyglesias@haynieconsulting.com

ENGINEER: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: thaynie@haynieconsulting.com

DOC. NO. 2016070988 CORRECTION AFFIDAVIT (3.0665 ACRES)
AND DOC. NO. 2017083503 REMAINDER OF LOT 1 (0.295 ACRE)

SURVEY: NICHOLAS PORTER SURVEY,
ABSTRACT NO. 497
TOTAL ACRES: 3.389 ACRES (147,636 sq. ft.)
NUMBER OF LOTS: 34
SMALLEST LOT AREA: 0.05 ACRE (2,080 sq. ft.)
NUMBER OF BLOCKS: 3 BLOCKS



SURVEY NOTES:

1. COORDINATES ARE BASED ON THE GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWEST CORNER OF A CONCRETE CULVERT HEADWALL LOCATED NORTHEAST OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'

Line Table		
LINE NO.	BEARING	LENGTH
L1	S46°18'42"E	33.08'

Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C1	275.58'	454.07'	034°46'25"	271.37'	S35° 47' 34"W
C2	170.45'	454.07'	021°30'29"	169.45'	N29° 09' 36"E
C3	58.64'	156.00'	021°32'09"	58.29'	N61° 04' 52"W

Record Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C4	(111.76')	-	(11°30'14")	-	(N22°35'22"E)

Curve Table					
Curve #	Length	Radius	Delta	CHORD	BEARING
C4	23.52'	15.00'	089°49'29"	21.18'	N83° 15' 24"E
C5	19.54'	15.00'	074°39'21"	18.19'	S01° 00' 59"W
C6	41.72'	325.00'	007°21'19"	41.69'	S55° 30' 31"E
C7	87.85'	275.00'	018°18'15"	87.48'	S45° 27' 49"E
C8	127.77'	206.00'	035°32'14"	125.73'	S54° 04' 49"E
C9	69.53'	156.00'	025°32'14"	68.96'	S59° 04' 49"E
C10	38.12'	156.00'	014°00'06"	38.03'	S43° 18' 45"E
C11	96.76'	156.00'	035°32'14"	95.21'	S54° 04' 49"E
C12	8.02'	206.00'	002°13'50"	8.02'	N70° 44' 01"W
C13	12.19'	454.07'	001°32'16"	12.19'	S45° 27' 28"W
C14	55.10'	454.07'	006°57'11"	55.07'	S49° 42' 11"W
C15	9.16'	206.00'	002°32'55"	9.16'	S37° 35' 09"E
C16	36.04'	206.00'	010°01'23"	35.99'	S43° 54' 37"E
C17	32.23'	206.00'	008°57'52"	32.20'	S53° 19' 26"E
C18	28.09'	206.00'	007°48'46"	28.07'	S61° 45' 19"E
C19	22.25'	206.00'	006°11'14"	22.23'	S68° 45' 19"E
C20	1.17'	156.00'	000°25'47"	1.17'	S71° 38' 03"E
C21	67.29'	454.07'	008°29'27"	67.23'	S48° 56' 04"W
C22	68.36'	156.00'	025°06'31"	67.82'	S58° 51' 54"E

STREET DATA TABLE (STREETS ARE PUBLIC)					
STREET NAME / CLASSIFICATION	R.O.W. / LENGTH	DESIGN SPEED	PAVEMENT WIDTH	CURB TYPE	PEDESTRIAN CLEAR ZONE
RYAN LANE (LOCAL)	50' R.O.W. / 123 L.F.	30 MPH	28' BOC TO BOC	CURB & GUTTER	FIVE FEET
RIVERY GARDENS DRIVE (LOCAL)	50' R.O.W. / 697 L.F.	30 MPH	28' BOC TO BOC	CURB & GUTTER	FIVE FEET
RIVERY BLVD. (COLLECTOR)	92' R.O.W./ NA	45 MPH	63' BOC TO BOC	CURB & GUTTER	TWELVE FEET

0 100 200 Ft
SCALE: 1" = 100'

SHEET INDEX

SHEET 1 - COVER
SHEET 2 - PLAT
SHEET 3 - NOTES & CERTIFICATIONS

LEGEND

- ● 1/2" IRON ROD FOUND (IRF) (UNLESS OTHERWISE NOTED)
- ○ 1/2" IRON ROD SET
- ⊗ BENCHMARK
- ( ) RECORD INFORMATION
- P.R.W.C. PLAT RECORDS WILLIAMSON COUNTY
- D.R.W.C. DEED RECORDS OF WILLIAMSON COUNTY
- O.P.R.W.C. OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY
- R.O.W. RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT CENTERED ON LOTLINE
- ADJACENT PROPERTY LINE
- PHASE LINE

GEORGETOWN TEXAS

Approved by the City of Georgetown Planning & Zoning Commission on:

April 5, 2022

Per Section 3.08.070.E of the Unified Development Code, this Preliminary Plat will expire on **April 5, 2024** if a Final Plat is not recorded.

ENGINEER'S PRELIMINARY REVIEW NOTE:

FOR REVIEW. THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY TIM HAYNIE. P.E. #91819 ON AUGUST 12, 2020. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2020-23-PP
SHEET NO. 1 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: kstockton
PLOTTED: Sep 29, 2024 - 1:30pm
DRAWING: X:\002 Ewing Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\5 RIVERY CROSSING PRELIMINARY PLAT (1 OF 3).dwg Sep 29, 24 6:05 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (1 OF 3)

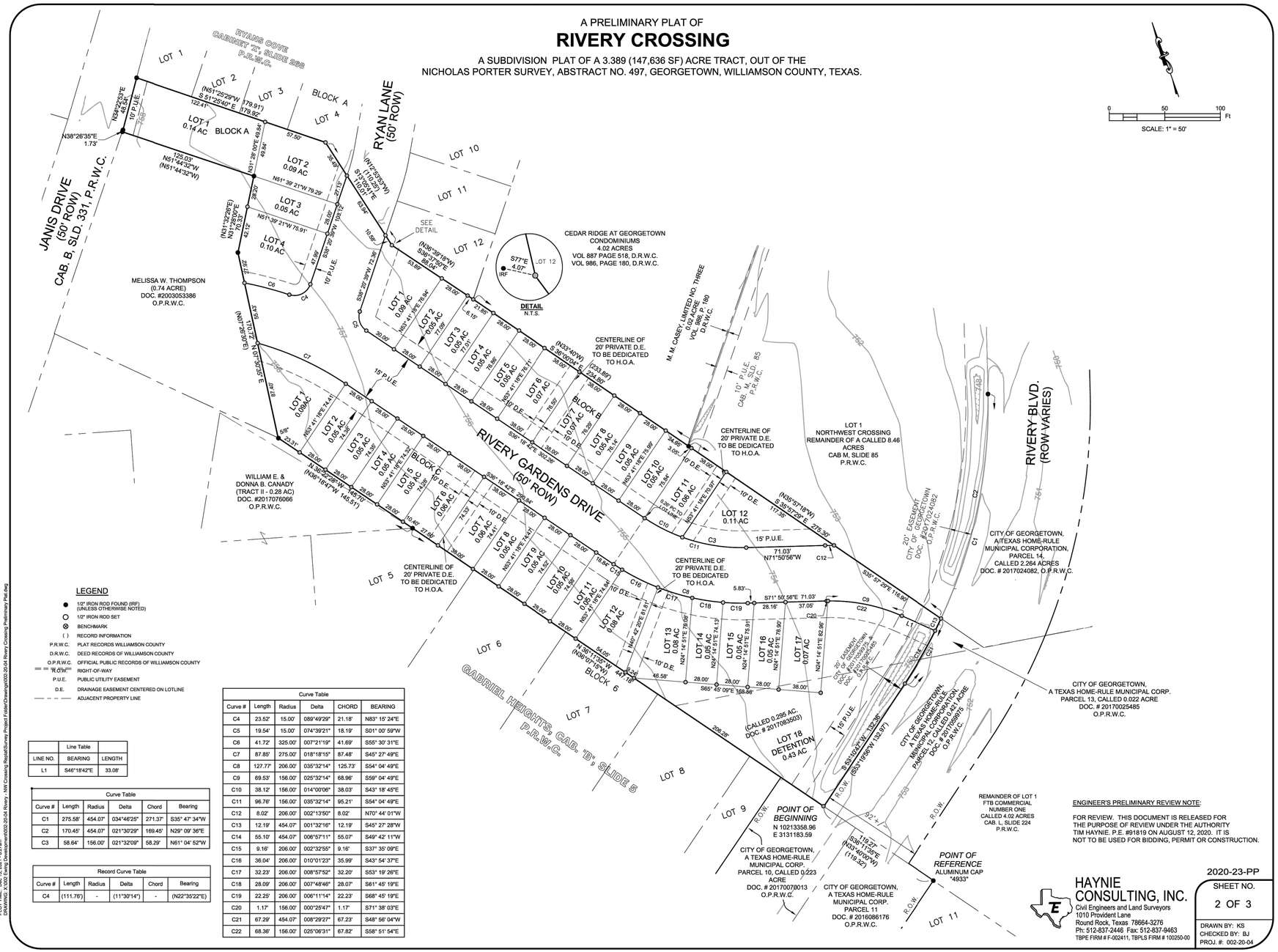
CITY OF GEORGETOWN

SHEET NO.
5 OF 52
2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.



LEGEND

- 1/2" IRON ROD FOUND (IRF) (UNLESS OTHERWISE NOTED)
- 1/2" IRON ROD SET
- BENCHMARK
- ( ) RECORD INFORMATION
- P.R.W.C. PLAT RECORDS WILLIAMSON COUNTY
- D.R.W.C. DEED RECORDS OF WILLIAMSON COUNTY
- O.P.R.W.C. OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY
- R.O.W. RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT CENTERED ON LOTLINE
- ADJACENT PROPERTY LINE

Line Table		
LINE NO.	BEARING	LENGTH
L1	S46°18'42"E	33.08'

Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C1	275.58'	454.07'	034°46'25"	271.37'	S35° 47' 34"W
C2	170.45'	454.07'	021°30'29"	169.45'	N29° 09' 36"E
C3	58.64'	156.00'	021°32'09"	58.29'	N61° 04' 52"W

Record Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C4	(111.76')	-	(11°30'14")	-	(N22°35'22"E)

Curve Table					
Curve #	Length	Radius	Delta	CHORD	BEARING
C4	23.52'	15.00'	089°49'29"	21.18'	N83° 15' 24"E
C5	19.54'	15.00'	074°39'21"	18.19'	S01° 00' 59"W
C6	41.72'	325.00'	007°21'19"	41.69'	S55° 30' 31"E
C7	87.85'	275.00'	018°18'15"	87.48'	S45° 27' 49"E
C8	127.77'	206.00'	035°32'14"	125.73'	S54° 04' 49"E
C9	69.53'	156.00'	025°32'14"	68.96'	S59° 04' 49"E
C10	38.12'	156.00'	014°00'06"	38.03'	S43° 18' 45"E
C11	96.76'	156.00'	035°32'14"	95.21'	S54° 04' 49"E
C12	8.02'	206.00'	002°13'50"	8.02'	N70° 44' 01"W
C13	12.19'	454.07'	001°32'16"	12.19'	S45° 27' 28"W
C14	55.10'	454.07'	006°57'11"	55.07'	S49° 42' 11"W
C15	9.16'	206.00'	002°32'55"	9.16'	S37° 35' 09"E
C16	36.04'	206.00'	010°01'23"	35.99'	S43° 54' 37"E
C17	32.23'	206.00'	008°57'52"	32.20'	S53° 19' 26"E
C18	28.09'	206.00'	007°48'46"	28.07'	S61° 45' 19"E
C19	22.25'	206.00'	006°11'14"	22.23'	S68° 45' 19"E
C20	1.17'	156.00'	000°25'47"	1.17'	S71° 38' 03"E
C21	67.29'	454.07'	008°29'27"	67.23'	S48° 56' 04"W
C22	68.36'	156.00'	025°06'31"	67.82'	S58° 51' 54"E

ENGINEER'S PRELIMINARY REVIEW NOTE:

FOR REVIEW. THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY TIM HAYNIE. P.E. #91819 ON AUGUST 12, 2020. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
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Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2020-23-PP
SHEET NO. 2 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: sabodkin
PLOT TIME: Dec 15, 2021 - 8:27am
P:\Work\CAD\Rivery Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\6 RIVERY CROSSING PRELIMINARY PLAT (2 OF 3).dwg Sep 29, 24 6:06 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (2 OF 3)

CITY OF GEORGETOWN

SHEET NO.

6 OF 52

2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

PLAT NOTES

1. UTILITY PROVIDERS FOR THIS DEVELOPMENT ARE WATER: CITY OF GEORGETOWN, WASTEWATER: CITY OF GEORGETOWN, AND ELECTRIC: CITY OF GEORGETOWN.

2. THERE ARE NO AREAS WITHIN THE BOUNDARIES OF THIS SUBDIVISION IN THE 100-YEAR FLOODPLAIN AS DEFINED BY FIRM MAP NUMBER 48491C0295F, EFFECTIVE DATE OF DECEMBER 20, 2019.

3. IN ORDER TO PROMOTE DRAINAGE AWAY FROM A STRUCTURE, THE SLAB ELEVATION SHOULD BE BUILT AT LEAST ONE-FOOT ABOVE THE SURROUNDING GROUND, AND THE GROUND SHOULD BE GRADED AWAY FROM THE STRUCTURE AT A SLOPE OF 1/2" PER FOOT FOR A DISTANCE OF AT LEAST 10 FEET.

4. ALL SEDIMENTATION, FILTRATION, DETENTION, AND/OR RETENTION BASINS AND RELATED APPURTENANCES SHOWN SHALL BE SITUATED WITHIN A DRAINAGE EASEMENT OR DRAINAGE LOT. THE OWNERS, HOA, OR ASSIGNEES OF THE TRACTS UPON WHICH ARE LOCATED SUCH EASEMENTS, APPURTENANCES, AND DETENTION FACILITIES SHALL MAINTAIN SAME AND BE RESPONSIBLE FOR THEIR MAINTENANCE, ROUTINE INSPECTION, AND UPKEEP.

5. ALL STRUCTURES / OBSTRUCTIONS ARE PROHIBITED IN DRAINAGE EASEMENTS.

6. PARKLAND DEDICATION REQUIREMENTS ARE BEING MET BY FEE-IN-LIEU OF.

7. THE MONUMENTS OF THIS PLAT HAVE BEEN ROTATED TO THE CITY OF GEORGETOWN CONTROL NETWORK.

8. THE MAXIMUM IMPERVIOUS COVERAGE PER RESIDENTIAL LOT IS 50 PERCENT.

9. THE MAXIMUM IMPERVIOUS COVERAGE PER NON-RESIDENTIAL LOT SHALL BE PERSUANT TO THE UDC AT THE TIME OF SITE PLAN APPLICATION BASED ON THE ZONING DESIGNATION OF THE PROPERTY.

10. THE LANDOWNER ASSUMES ALL RISKS ASSOCIATED WITH IMPROVEMENTS LOCATED IN THE RIGHT-OF-WAY, OR ROAD WIDENING EASEMENTS. BY PLACING ANYTHING IN THE RIGHT-OF-WAY OR ROAD WIDENING EASEMENTS, THE LANDOWNER INDEMNIFIES AND HOLDS THE CITY OF GEORGETOWN, WILLIAMSON COUNTY, THEIR OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM ANY LIABILITY OWING TO PROPERTY DEFECTS OR NEGLIGENCE NOT ATTRIBUTABLE TO THEM AND ACKNOWLEDGES THAT THE IMPROVEMENTS MAY BE REMOVED BY THE CITY AND/OR COUNTY AND THAT THE OWNER OF THE IMPROVEMENTS WILL BE RESPONSIBLE FOR THE RELOCATION AND/OR REPLACEMENT OF THE IMPROVEMENTS.

11. THE BUILDING OF ALL STREETS, ROADS, AND OTHER PUBLIC THOROUGHFARES AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IS THE RESPONSIBILITY OF THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE CITY OF GEORGETOWN AND/OR WILLIAMSON COUNTY, TEXAS. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY OBLIGATION TO BUILD ANY OF THE STREETS, ROADS, OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT OR OF CONSTRUCTING ANY OF THE BRIDGES OR DRAINAGE IMPROVEMENTS IN CONNECTION THEREWITH. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR DRAINAGE WAYS OR EASEMENTS IN THE SUBDIVISION, OTHER THAN THOSE DRAINING OR PROTECTING THE ROAD SYSTEM AND STREETS IN THEIR RESPECTIVE JURISDICTIONS.

12. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR THE ACCURACY OF REPRESENTATIONS BY OTHER PARTIES IN THIS PLAT. FLOODPLAIN DATA, IN PARTICULAR, MAY CHANGE DEPENDING ON SUBSEQUENT DEVELOPMENT. IT IS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE STREETS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE CITY AND / OR COUNTY.

13. RIGHT-OF-WAY EASEMENTS FOR WIDENING ROADWAYS OR IMPROVING DRAINAGE SHALL BE MAINTAINED BY THE LANDOWNER UNTIL ROAD OR DRAINAGE IMPROVEMENTS ARE ACTUALLY CONSTRUCTED ON THE PROPERTY. THE CITY AND/OR COUNTY HAVE THE RIGHT AT ANY TIME TO TAKE POSSESSION OF ANY ROAD WIDENING EASEMENT FOR CONSTRUCTION, IMPROVEMENT, OR MAINTENANCE OF THE ADJACENT ROAD.

14. THIS PLAT IS SUBJECT TO THE PROVISIONS OF THE CITY OF GEORGETOWN WATER CONSERVATION ORDINANCE.

15. THE SUBDIVISION SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.

16. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON AUGUST 25, 2020. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREON.

17. A 10-FOOT PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL STREET FRONTAGES WITHIN THIS PLAT. A 15-FOOT PUBLIC UTILITY EASEMENT IS DEDICATED ALONGSIDE AND PARALLEL TO THE EXISTING 20-FOOT EASEMENT PREVIOUSLY DEDICATED IN DOCUMENT NO. 2017059975 AND DOCUMENT NO. 20170025485.

AVIGATION EASEMENT

1. THERE IS HEREBY GRANTED FOR THE USE AND BENEFIT OF THE PUBLIC A CONTINUING AVIGATION EASEMENT FOR THE FREE AND UNOBSTRUCTED FLIGHT OF AIRCRAFT (WHICH TERM SHALL INCLUDE ANY CONTRIVANCE NOW OR HEREAFTER USED FOR FLIGHT THROUGH THE AIR) AND THE RIGHT OF FLIGHT FOR THE PASSAGE OF AIRCRAFT IN THE AIRSPACE ABOVE THE SURFACE OF THE PROPERTY, TOGETHER WITH SUCH NOISE AND OTHER EFFECTS AS MAY BE INHERENT IN THE OPERATION OF AIRCRAFT LANDING AT, TAKING OFF FROM, OR ENGAGED IN OTHER FLIGHT ACTIVITIES AT THE GEORGETOWN AIRPORT.

2. GRANTORS DO HEREBY GRANT AND CONVEY AN EASEMENT FOR THE APPROACH ZONE, AS THAT TERM IS DEFINED IN SECTION 12.36 OF THE CITY OF GEORGETOWN CODE OF ORDINANCES AND AS SHOWN ON THIS PLAT, BEING FURTHER DESCRIBED AS AN APPROACH SURFACE THAT BEGINS AT THE END OF RUNWAY 36 AND EXTENDS OUT TO 10,200 FEET, AND EXPANDS TO A WIDTH OF 3,500 FEET WITH A SLOPE OF ONE FOOT IN HEIGHT FOR EACH 34 FEET IN HORIZONTAL DISTANCE (SEC12.36.040.A). THIS SUBDIVISION IS LOCATED BENEATH THE APPROACH ZONE ELEVATION OF 889.5 FEET. THE MAXIMUM HEIGHT OF ANY TREE OR STRUCTURE LOCATED IN THE EASEMENT IS 134 FEET ABOVE THE SURFACE OF THE LAND (SEC12.36.040.E).

3. THESE EASEMENTS SHALL BE PERPETUAL AND SHALL BE BINDING ON GRANTOR AND ITS ASSIGNS, HEIRS AND SUCCESSORS.

LEGAL DESCRIPTION

BEING 3.389 ACRES (147,636 SQ. FT.) OF LAND OUT OF THE NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS, AND BEING ALL OF A CALLED 3.066 ACRE TRACT TO EWING DEVELOPMENT COMPANY, L.L.C. AS TRACT 1 IN DOCUMENT NO. 2020010587 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, (O.P.R.W.C.), AND DESCRIBED IN DOCUMENT NO. 2016070985 OF THE O.P.R.W.C., AND BEING ALL OF A CALLED 0.295 ACRE TRACT TO EWING DEVELOPMENT COMPANY, L.L.C IN DOCUMENT NO. 2020010587 AND DESCRIBED IN DOCUMENT NO. 2017083503 OF THE O.P.R.W.C.; SAID 3.389 ACRES OF LAND BEING MORE PARTICUARLY LOCATED AND DESCRIBED AS FOLLOWS; (BEARINGS OF LINES REFER TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE) AS COMPUTED FROM GPS VECTORS; DISTANCES EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99986856; PARENTHETICAL BEARINGS AND DISTANCES REFER TO PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED):

COMMENCING at a 1/2 inch iron rod with aluminum cap stamped "4933" found in the Southeasterly right-of-way line of Rivery Blvd., (ROW Varies), at a common Northeasterly corner of Lot 10 and Lot 11, Block 6 of "Gabriel Heights", a subdivision recorded in Cabinet B, Slide 5 of the Plat Records of Williamson County, Texas, (P.R.W.C.), in the Southwesterly line of Lot 1 of "FTB Commercial Number One", a subdivision recorded in Cabinet L, Slide 224 of the P.R.W.C.;

THENCE, N36°11'35"W, (N33°40'00"W), with the Northeasterly line of said Block 6 of "Gabriel Heights" subdivision, a distance of 119.27, (119.32'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Northwesterly right-of-way line of said Rivery Blvd., at the most Westerly corner of a called 0.421 acre tract, Parcel 12, to the City of Georgetown, a Texas Home-Rule Municipal Corporation, recorded in Document No. 2017059975 of the O.P.R.W.C., and being the most Southerly corner and **POINT OF BEGINNING** of this tract;

THENCE, with the Northeast boundary line of said Block 6 of "Gabriel Heights" subdivision, the following two (2) courses and distances;

1. N36°11'35"W, (N36°07'15"W) a distance of 447.18, feet to a 1/2 inch iron rod found for an angle point in the Northerly line of Lot 5 of said Block 6 of "Gabriel Heights" subdivision, also being the Southeast corner of a called 0.28 acre, Tract II, conveyed to William E. and Donna B. Canady in Document No. 2017076066 of the O.P.R.W.C.;

2. N36°22'28"W, (N36°18'47"W), a distance of 145.70, (145.51'), feet to a 1/2 inch iron rod found at the most Southerly corner of a called 0.74 acre tract described in a deed to Melissa W. Thompson, recorded in Document No. 2003053386 of the O.P.R.W.C., for a Westerly corner of this tract;

THENCE, with the common line of said 0.74 acre tract and the Westerly boundary lines of this tract, the following three (3) courses and distances;

1. N07°30'35"E, (N07°26'30"E), a distance of 170.72 feet to a 1/2 inch iron rod found;

2. N31°28'00"E, (N31°32'26"E), a distance of 70.33 feet to a 1/2 inch iron rod found for an interior ell corner of this tract;

3. N51°44'32"W, (N51°44'32"W), a distance of 125.03 feet to a 1/2 inch iron rod found in the Southeasterly right-of-way line of Janis Drive (50' ROW) as dedicated in "Williams Addition Unit 3", a plat recorded in Cabinet B, Slide 331 in the P.R.W.C., being the North corner of said 0.74 acre tract, for a Northwesterly corner of this tract;

THENCE, with Southeast right-of-way lines of said Janis Drive, the following two (2) courses and distances:

1. N38°26'35"E", a distance of 1.73 feet to a 1/2 inch iron rod found for an angle point;

2. N34°22'53"E", a distance of 48.54 feet to a 1/2 inch iron rod found at the Westernmost corner of Lot 1, Block A, of "Ryan's Cove", a subdivision recorded in Cabinet X, Slides 268-269, for the Northernmost corner of this tract;

THENCE, with Southwest boundary lines of said "Ryan's Cove", the following three (3) courses and distances:

1. S51°25'40"E, (N51°25'29"W), a distance of 179.92 (179.91'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for an angle point in the Southwest boundary line of Lot 4, Block A of said "Ryan's Cove";

2. S13°05'41"E, (S12°53'53"E), a distance of 110.01, (110.25'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Westerly line of Lot 12, Block B of said "Ryan's Cove" for an angle point;

3. S36°37'50"E, (N36°39'18"W), a distance of 88.04 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Southerly corner of Lot 12, Block B of said "Ryan's Cove", being the Westerly corner of a called 4.02 acre tract described as "Cedar Ridge at Georgetown Condominiums" recorded in Volume 887, Page 518 and in Volume 986, Page 180 of the Deed Records of Williamson County, Texas, (D.R.W.C.), for an angle point in this tract;

THENCE, S36°00'04"E, (N33°40'W), with the Southwest boundary line of said called 4.02 acre tract a distance of 234.80, (233.89'), feet to a 1/2 inch iron rod found at the Southwest corner of Lot 1 of "Northwest Crossing", a subdivision recorded in Cabinet M, Slide 85 of the P.R.W.C., also being the Southwest corner of a called 0.02 acre tract conveyed to M. M. Casey, Limited No. Three in Volume 986, Page 180, D.R.W.C. for an angle point in this tract;

THENCE, S35°57'29"E, (N35°57'18"W), with the Southwest boundary line of Lot 1 of said "Northwest Crossing", a distance of 275.30 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in a curve to the right in the Westerly right-of-way line of said Rivery Blvd., being the North corner of a called 0.022 acre tract, Parcel 13, to the City of Georgetown, a Texas Home-Rule Municipal Corporation, recorded in Document No. 20170025485 of the O.P.R.W.C., and being the most Southerly corner of said Lot 1 of "Northwest Crossing", for the Easternmost corner of this tract;

THENCE, (C21), with said Westerly right-of-way line of Rivery Blvd, along a curve to the right having a radius of 454.07 feet, an arc length of 67.29 feet, and a chord bearing and distance of S48°56'04"W, 67.23 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the point of tangency;

THENCE, S 53°10'47" W, (S 53°19'56" W), a distance of 132.36, (132.97'), feet to the **POINT OF BEGINNING** and containing a computed area of 3.389 acres, (147,636 sq. ft.), of land.

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

I, TIMOTHY E. HAYNIE , REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE FROM AN ACTUAL SURVEY MADE ON THE GROUND OF THE PROPERTY LEGALLY DESCRIBED HEREON, AND THAT THERE ARE NO APPARENT DISCREPANCIES, CONFLICTS, OVERLAPPING OF IMPROVEMENTS, VISIBLE UTILITY LINES OR ROADS IN PLACE, EXCEPT AS SHOWN ON THE ACCOMPANYING PLAT, AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY SUPERVISION IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF THE CITY OF GEORGETOWN, TEXAS.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS,
THIS_____ DAY OF_____, 20__.

_____ _____
TIMOTHY E. HAYNIE DATE
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 2360- STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

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

I, TIM HAYNIE , REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS SUBDIVISION IS IN THE EDWARDS AQUIFER RECHARGE ZONE AND IS NOT ENCROACHED BY A ZONE A FLOOD AREA, AS DENOTED HEREIN, AND AS DEFINED BY FEDERAL EMERGENCY MANAGEMENT ADMINISTRATION FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL NUMBER 48491C0295F EFFECTIVE DATE DECEMBER 20, 2019 AND THAT EACH LOT CONFORMS TO THE CITY OF GEORGETOWN REGULATIONS. THE FULLY DEVELOPED, CONCENTRATED STORMWATER RUNOFF RESULTING FROM THE ONE HUNDRED (100) YEAR FREQUENCY STORM IS CONTAINED WITHIN THE DRAINAGE EASEMENTS AND DETENTION SHOWN AND/OR PUBLIC RIGHTS-OF-WAY DEDICATED BY THIS PLAT.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS,
THIS _____ DAY OF_____, 20__.

_____ _____
TIM HAYNIE DATE
REGISTERED PROFESSIONAL ENGINEER
No. 91819 - STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

ENGINEER'S PRELIMINARY REVIEW NOTE:

FOR REVIEW. THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY TIM HAYNIE, P.E. #91819 ON AUGUST 21, 2020. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

2020-23-PP

HAYNIE CONSULTING, INC.
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Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

SHEET NO.
3 OF 3

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: Inkollon
PLOT TIME: Dec 14, 2021 - 1:30pm
DRAWING: X:\2021\wip Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 – Rivery Crossing Phase 2\CY7 RIVERY CROSSING PRELIMINARY PLAT (3 OF 3).dwg Sep 29, 24 6:07 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (3 OF 3)

CITY OF GEORGETOWN

SHEET NO.

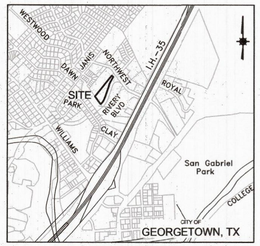
7 OF 52

2022-44-CON

Doc #2022034124

A REPLAT OF
LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN,
WILLIAMSON COUNTY, TEXAS.



LOCATION MAP
SCALE: 1" = 2,000'

SHEET INDEX

1. COVER - PLAT DETAIL
2. PLAT DETAIL
3. DEDICATIONS

SUBMITTAL DATE: JUNE 21, 2021

ADDRESS: 2201 RIVERY BLVD.
GEORGETOWN, TEXAS 78628

OWNER: W. D. KELLEY FOUNDATION
DALE ILLIG, PRESIDENT
707 ROCK STREET
GEORGETOWN, TEXAS 78626
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: CPI INVESTMENTS, LTD.
DALE ILLIG, GENERAL PARTNER
707 ROCK STREET
GEORGETOWN, TEXAS 78626
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: PATRICIA A. KATT
314 LOGAN RANCH ROAD
GEORGETOWN, TEXAS 78628
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: ELIZABETH I. MEADOWS
3900 SPRING HOLLOW ST.
COLLEYVILLE, TEXAS 76034
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

SURVEYOR: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: tehaynie@haynieconsulting.com

ENGINEER: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: thaynie@haynieconsulting.com

NORTHWEST CROSSING, CAB. M, SLIDE 85
(OUT OF A CALLED 8.46 ACRES)

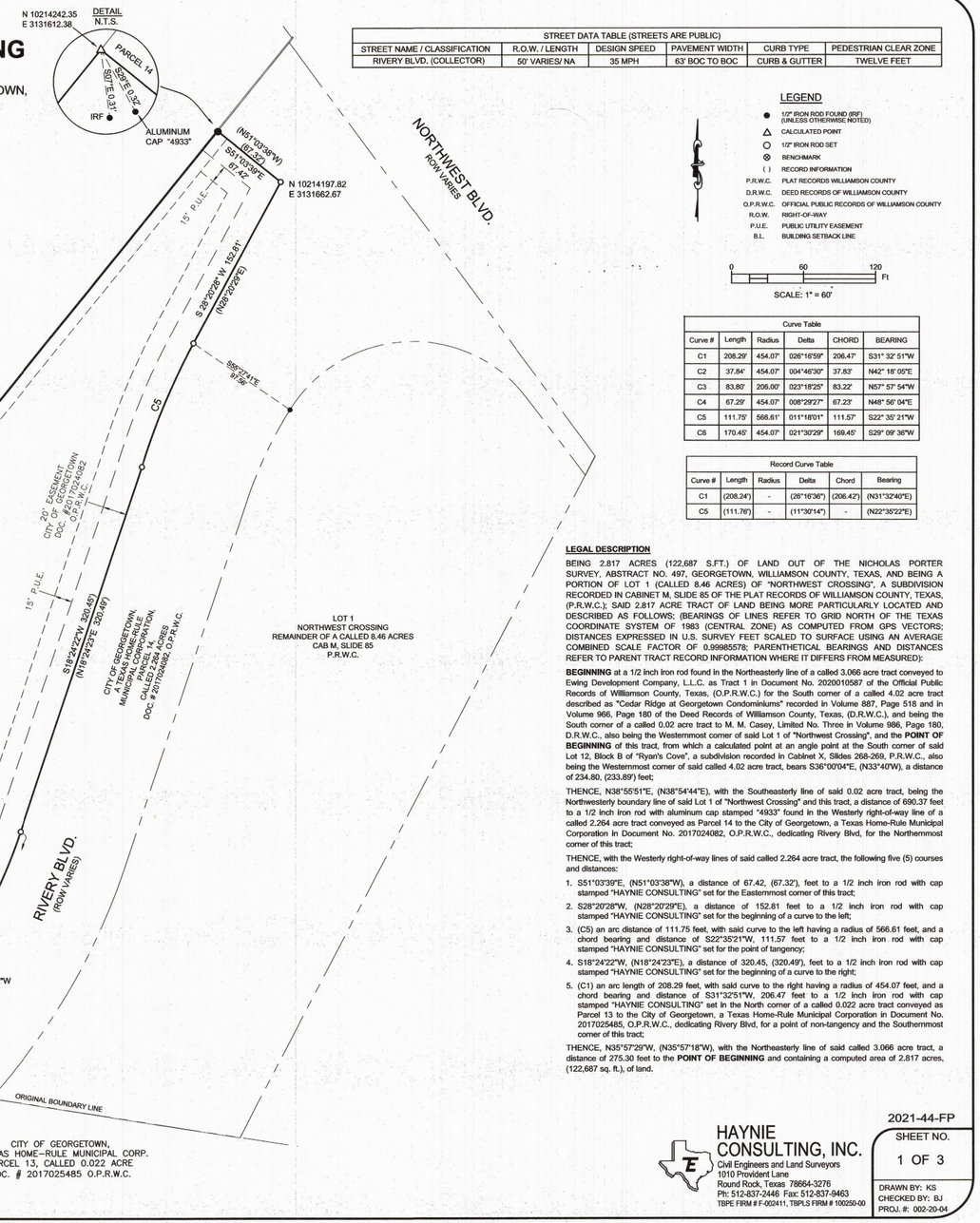
SURVEY: NICHOLAS PORTER SURVEY,
ABSTRACT NO. 497
TOTAL ACRES: 2.817 ACRES (122,687 sq. ft.)
NUMBER OF LOTS: 2
NUMBER OF BLOCKS: 1 BLOCK

SURVEY NOTES:

1. COORDINATES ARE BASED ON THE GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWEST CORNER OF A CONCRETE CULVERT HEADWALL LOCATED NORTHEAST OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'



STREET DATA TABLE (STREETS ARE PUBLIC)					
STREET NAME / CLASSIFICATION	R.O.W. / LENGTH	DESIGN SPEED	PAVEMENT WIDTH	CURB TYPE	PEDESTRIAN CLEAR ZONE
RIVERY BLVD. (COLLECTOR)	50' VARIES/ NA	35 MPH	63' BOC TO BOC	CURB & GUTTER	TWELVE FEET

LEGEND

- ● 1/2" IRON ROD FOUND (IRF) (UNLESS OTHERWISE NOTED)
- △ CALCULATED POINT
- ○ 1/2" IRON ROD SET
- ⊗ BENCHMARK
- ( ) RECORD INFORMATION
- P.R.W.C. PLAT RECORDS WILLIAMSON COUNTY
- D.R.W.C. DEED RECORDS OF WILLIAMSON COUNTY
- O.P.R.W.C. OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY
- R.O.W. RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- B.L. BUILDING SETBACK LINE

0 60 120 Ft
SCALE: 1" = 60'

Curve Table					
Curve #	Length	Radius	Delta	CHORD	BEARING
C1	208.29'	454.07'	026°16'59"	206.47'	S31° 32' 51"W
C2	37.84'	454.07'	004°46'30"	37.83'	N42° 18' 05"E
C3	83.80'	205.00'	023°18'25"	83.22'	N57° 57' 54"W
C4	67.29'	454.07'	008°29'27"	67.23'	N48° 56' 04"E
C5	111.75'	566.61'	011°18'01"	111.57'	S22° 35' 21"W
C6	170.45'	454.07'	021°30'29"	169.45'	S29° 09' 36"W

Record Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C1	(208.24')	-	(26°16'36")	(206.42')	(N31°32'40"E)
C5	(111.76')	-	(11°30'14")	-	(N22°35'22"E)

LEGAL DESCRIPTION

BEING 2.817 ACRES (122,687 S.F.T.) OF LAND OUT OF THE NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS, AND BEING A PORTION OF LOT 1 (CALLED 8.46 ACRES) OF "NORTHWEST CROSSING", A SUBDIVISION RECORDED IN CABINET M, SLIDE 85 OF THE PLAT RECORDS OF WILLIAMSON COUNTY, TEXAS, (P.R.W.C.); SAID 2.817 ACRE TRACT OF LAND BEING MORE PARTICULARLY LOCATED AND DESCRIBED AS FOLLOWS; (BEARINGS OF LINES REFER TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE) AS COMPUTED FROM GPS VECTORS; DISTANCES EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578; PARENTHETICAL BEARINGS AND DISTANCES REFER TO PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED):

BEGINNING at a 1/2 inch iron rod found in the Northeasterly line of a called 3.066 acre tract conveyed to Ewing Development Company, L.L.C. as Tract 1 in Document No. 2020010587 of the Official Public Records of Williamson County, Texas, (O.P.R.W.C.) for the South corner of a called 4.02 acre tract described as "Cedar Ridge at Georgetown Condominiums" recorded in Volume 887, Page 518 and in Volume 966, Page 180 of the Deed Records of Williamson County, Texas, (D.R.W.C.), and being the South corner of a called 0.02 acre tract to M. M. Casey, Limited No. Three in Volume 986, Page 180, D.R.W.C., also being the Westernmost corner of said Lot 1 of "Northwest Crossing", and the **POINT OF BEGINNING** of this tract, from which a calculated point at an angle point at the South corner of said Lot 12, Block B of "Ryan's Cove", a subdivision recorded in Cabinet X, Slides 268-269, P.R.W.C., also being the Westernmost corner of said called 4.02 acre tract, bears S36°00'04"E, (N33°40'W), a distance of 234.80, (233.89') feet;

THENCE, N38°55'51"E, (N38°54'44"E), with the Southeasterly line of said 0.02 acre tract, being the Northwesterly boundary line of said Lot 1 of "Northwest Crossing" and this tract, a distance of 690.37 feet to a 1/2 inch iron rod with aluminum cap stamped "4933" found in the Westerly right-of-way line of a called 2.264 acre tract conveyed as Parcel 14 to the City of Georgetown, a Texas Home-Rule Municipal Corporation in Document No. 2017024082, O.P.R.W.C., dedicating Rivery Blvd, for the Northernmost corner of this tract;

THENCE, with the Westerly right-of-way lines of said called 2.264 acre tract, the following five (5) courses and distances:

1. S51°03'39"E, (N51°03'38"W), a distance of 67.42, (67.32'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the Easternmost corner of this tract;
2. S28°20'28"W, (N28°20'29"E), a distance of 152.81 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the beginning of a curve to the left;
3. (C5) an arc distance of 111.75 feet, with said curve to the left having a radius of 566.61 feet, and a chord bearing and distance of S22°35'21"W, 111.57 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the point of tangency;
4. S18°24'22"W, (N18°24'23"E), a distance of 320.45, (320.49'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the beginning of a curve to the right;
5. (C1) an arc length of 208.29 feet, with said curve to the right having a radius of 454.07 feet, and a chord bearing and distance of S31°32'51"W, 206.47 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the North corner of a called 0.022 acre tract conveyed as Parcel 13 to the City of Georgetown, a Texas Home-Rule Municipal Corporation in Document No. 2017025485, O.P.R.W.C., dedicating Rivery Blvd, for a point of non-tangency and the Southernmost corner of this tract;

THENCE, N35°57'29"W, (N35°57'18"W), with the Northeasterly line of said called 3.066 acre tract, a distance of 275.30 feet to the **POINT OF BEGINNING** and containing a computed area of 2.817 acres, (122,687 sq. ft.), of land.

2021-44-FP
SHEET NO. 1 OF 3

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: tadcotton
PLOT TIME: Jan 27, 2023 - 3:42pm
Pathname: J:\2020 Projects\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\8 REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3).dwg Sep 29, 24 6:08 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3)

CITY OF GEORGETOWN

SHEET NO.
8 OF 52
2022-44-CON

Doc # 2022034124

A REPLAT OF

LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

AVIGATION EASEMENT

1. THERE IS HEREBY GRANTED FOR THE USE AND BENEFIT OF THE PUBLIC A CONTINUING AVIGATION EASEMENT FOR THE FREE AND UNOBSTRUCTED FLIGHT OF AIRCRAFT (WHICH TERM SHALL INCLUDE ANY CONTRIVANCE NOW OR HEREAFTER USED FOR FLIGHT THROUGH THE AIR) AND THE RIGHT OF FLIGHT FOR THE PASSAGE OF AIRCRAFT IN THE AIRSPACE ABOVE THE SURFACE OF THE PROPERTY, TOGETHER WITH SUCH NOISE AND OTHER EFFECTS AS MAY BE INHERENT IN THE OPERATION OF AIRCRAFT LANDING AT, TAKING OFF FROM, OR ENGAGED IN OTHER FLIGHT ACTIVITIES AT THE GEORGETOWN AIRPORT.

2. GRANTORS DO HEREBY GRANT AND CONVEY AN EASEMENT FOR THE APPROACH ZONE, AS THAT TERM IS DEFINED IN SECTION 12.36 OF THE CITY OF GEORGETOWN CODE OF ORDINANCES AND AS SHOWN ON THIS PLAT, BEING FURTHER DESCRIBED AS AN APPROACH SURFACE THAT BEGINS AT THE END OF RUNWAY 36 AND EXTENDS OUT TO 10,200 FEET, AND EXPANDS TO A WIDTH OF 3,500 FEET WITH A SLOPE OF ONE FOOT IN HEIGHT FOR EACH 34 FEET IN HORIZONTAL DISTANCE (SEC12.36.040.A). THIS SUBDIVISION IS LOCATED BENEATH THE APPROACH ZONE ELEVATION OF 889.5 FEET. THE MAXIMUM HEIGHT OF ANY TREE OR STRUCTURE LOCATED IN THE EASEMENT IS 134 FEET ABOVE THE SURFACE OF THE LAND (SEC12.36.040.E).

3. THESE EASEMENTS SHALL BE PERPETUAL AND SHALL BE BINDING ON GRANTOR AND ITS ASSIGNS, HEIRS AND SUCCESSORS.

PLAT NOTES

1. Utility providers for this development are Water: City of Georgetown, and Wastewater/septic: City of Georgetown and Electric: City of Georgetown.
2. All structures/ obstructions are prohibited in drainage easements.
3. There are no areas within the boundaries of this subdivision in the 100-year floodplain as defined by FIRM Map Number 48491C0295F, effective December 20, 2019.
4. In order to promote drainage away from a structure, the slab elevation should be built at least one-foot above the surrounding ground, and the ground should be graded away from the structure at a slope of 1/2" per foot for a distance of at least 10 feet.
5. All sedimentation, filtration, detention, and/or retention basins and related appurtenances shown shall be situated within a drainage easement or drainage lot. The owners, HOA, or assignees of the tracts upon which are located such easements, appurtenances, and detention facilities shall maintain same and be responsible for their maintenance, routine inspection, and upkeep.
6. The maximum impervious cover per non-residential lot shall be pursuant to the UDC at the time of Site Plan application based on the zoning designation of the property.
7. A 15-foot public utility easement is dedicated along all road frontages within this plat..
8. The monuments of this plat have been rotated to the NAD 83/93 HARN - Texas Central Zone and NAVD 88.
9. This subdivision is subject to all general notes and restrictions appearing on the plat of Northwest Crossing, recorded in Cabinet M, Slide 85, Plat Records of Williamson County.
10. The landowner assumes all risks associated with improvements located in the road. By placing anything in the road, the landowner indemnifies and holds the City of Georgetown, Williamson County, their officers, agents and employees harmless from any liability owing to property defects or negligence not attributable to them and acknowledges that the improvements may be removed by the City and/or County and that the owner of the improvements will be responsible for the relocation and/or replacement of the improvements.
11. The building of all roads, and any bridges or culverts necessary to be constructed or placed is the responsibility of the owners of the tract of land covered by this plat in accordance with the plans and specifications prescribed by the City of Georgetown and/or Williamson County, Texas. Neither the City of Georgetown nor Williamson County assumes any obligation to build any of the roads shown on this plat or of constructing any of the bridges or drainage improvements in connection therewith. Neither the City of Georgetown nor Williamson County assumes any responsibility for drainage ways or easements in the subdivision, other than those draining or protecting the road system and streets in their respective jurisdictions.
12. Neither the City of Georgetown nor Williamson County assumes any responsibility for the accuracy of representations by other parties in this plat. floodplain data, in particular, may change depending on subsequent development. it is further understood that the owners of the tract of land covered by this plat must install at their own expense all traffic control devices and signage that may be required before the streets in the subdivision have finally been accepted for maintenance by the city and / or county.
13. Right-of-way easements for widening roadways or improving drainage shall be maintained by the landowner until road or drainage improvements are actually constructed on the property. the City and/or County have the right at any time to take possession of any road widening easement for construction, improvement, or maintenance of the adjacent road.
14. The subdivision subject to this application is subject to the Water Quality Regulations of the City of Georgetown.
15. A Geologic Assessment, in accordance with the City of Georgetown Water Quality Regulations, was completed on August 25, 2020. Any springs and streams as identified in the Geologic Assessment are shown herein. (for properties over the Edwards Aquifer Recharge Zone)

PLOTTED BY: kscordoo
PLOTTED ON: Sep 29, 2022 - 2:45pm
DRAWING: K:\002 Ewing Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2021-44-FP
SHEET NO.
2 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\9 REPLAT OF LOT 1 NORTHWEST CROSSING (2 of 3).dwg Sep 29, 24 6:09 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

REPLAT OF LOT 1 NORTHWEST CROSSING (2 of 3)

CITY OF GEORGETOWN

SHEET NO.
9 OF 52
2022-44-CON

Doc# 2022034124

A REPLAT OF

LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

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

I, DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2002011129, EXHIBIT B OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION
707 ROCK STREET, GEORGETOWN, TEXAS 78626

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD., CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2002006743, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD.
707 ROCK STREET, GEORGETOWN, TEXAS 78626

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD., KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 1997006910, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT
314 LOGAN RANCH RD., GEORGETOWN TEXAS 78628

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS, FORMERLY KNOWN AS ELIZABETH F. ILLIG, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2017012464, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS
3900 SPRING HOLLOW ST., COLLEYVILLE, TEXAS 76034

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

CITY BUILDING OFFICIAL

BASED UPON THE ABOVE REPRESENTATIONS OF THE ENGINEER OR SURVEYOR WHOSE SEAL IS AFFIXED HERETO, AND AFTER A REVIEW OF THE PLAT AS REPRESENTED BY THE SAID ENGINEER OR SURVEYOR, I FIND THAT THIS PLAT COMPLIES WITH THE REQUIREMENTS OF CHAPTER 15.44, FLOOD DAMAGE PREVENTION, OF THE GEORGETOWN MUNICIPAL CODE. THIS CERTIFICATION IS MADE SOLELY UPON SUCH REPRESENTATIONS AND SHOULD NOT BE RELIED UPON FOR VERIFICATIONS OF THE FACTS ALLEGED. THE CITY OF GEORGETOWN DISCLAIMS ANY RESPONSIBILITY TO ANY MEMBER OF THE PUBLIC OR INDEPENDENT VERIFICATIONS OF THE REPRESENTATION, FACTUAL OR OTHERWISE, CONTAINED IN THIS PLAT AND THE DOCUMENTS ASSOCIATED WITH IT.

GLEN HOLCOMB, BUILDING OFFICIAL — DATE: 03-02-2022
CITY OF GEORGETOWN

PLANNING & ZONING

THIS SUBDIVISION TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"** HAS BEEN ACCEPTED AND APPROVED FOR FILING OF RECORD WITH THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS, ACCORDING TO THE MINUTES OF THE MEETING OF THE GEORGETOWN PLANNING AND ZONING COMMISSION ON THE 1 DAY OF December, 2021 A.D.

R. TRAVIS PERTHUIS, CHAIRMAN — DATE: 3/1/2022

KAYLAN MCCORD, SECRETARY — DATE: 3/1/2022
Steve Dilsaver

PLANNING DIRECTOR

I, SOFIA NELSON, PLANNING DIRECTOR OF THE CITY OF GEORGETOWN, TEXAS, DO HEREBY CERTIFY THIS PLAT IS APPROVED FOR FILING OF RECORD WITH THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS.

SOFIA NELSON, PLANNING DIRECTOR — DATE: 3/2/22

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

I, TIMOTHY E. HAYNIE , REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE FROM AN ACTUAL SURVEY MADE ON THE GROUND OF THE PROPERTY LEGALLY DESCRIBED HEREON, AND THAT THERE ARE NO APPARENT DISCREPANCIES, CONFLICTS, OVERLAPPING OF IMPROVEMENTS, VISIBLE UTILITY LINES OR ROADS IN PLACE, EXCEPT AS SHOWN ON THE ACCOMPANYING PLAT, AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY SUPERVISION IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF THE CITY OF GEORGETOWN, TEXAS.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS, THIS 2nd DAY OF Feb., 2022 A.D.

TIMOTHY E. HAYNIE
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 2380- STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

STATE OF TEXAS
TIMOTHY E. HAYNIE
2380
PROFESSIONAL LAND SURVEYOR

02-02-22
DATE

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

I, TIM HAYNIE , REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS SUBDIVISION IS IN THE EDWARDS AQUIFER RECHARGE ZONE AND IS NOT ENCROACHED BY A ZONE A FLOOD AREA, AS DENOTED HEREIN, AND AS DEFINED BY FEDERAL EMERGENCY MANAGEMENT ADMINISTRATION FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL NUMBER 48491C0250F EFFECTIVE DATE DECEMBER 20, 2019 AND THAT EACH LOT CONFORMS TO THE CITY OF GEORGETOWN REGULATIONS. THE FULLY DEVELOPED, CONCENTRATED STORMWATER RUNOFF RESULTING FROM THE ONE HUNDRED (100) YEAR FREQUENCY STORM IS CONTAINED WITHIN THE DRAINAGE EASEMENTS SHOWN AND/OR PUBLIC RIGHTS-OF-WAY DEDICATED BY THIS PLAT.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS, THIS 3rd DAY OF FEBRUARY, 2022

TIM HAYNIE
REGISTERED PROFESSIONAL ENGINEER
No. 91819 - STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

STATE OF TEXAS
TIM HAYNIE
91819
LICENSED PROFESSIONAL ENGINEER

03-FEB-2022
DATE

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS;
COUNTY OF WILLIAMSON §

I, NANCY E. RISTER, CLERK OF THE COUNTY COURT OF SAID COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING, WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 17th DAY OF March, 2022 A.D., AT 1:35 O'CLOCK, P M., AND DULY RECORDED THIS THE 17th DAY OF March, 2022 A.D., AT 1:57 O'CLOCK, P M., IN THE OFFICIAL PUBLIC RECORDS OF SAID COUNTY IN INSTRUMENT NO. 2022034124.

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

NANCY E. RISTER, CLERK COUNTY COURT
OF WILLIAMSON COUNTY, TEXAS
BY: Brenda McKenzie, DEPUTY
Brenda McKenzie

COUNTY COURT
WILLIAMSON COUNTY, TEXAS

2021-44-FP

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

SHEET NO.
3 OF 3

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: kstevenson
PLOT TIME: Jan 27, 2022 - 2:46pm
DRAWING: K:\002 Engineering\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\10 REPLAT OF LOT 1 NORTHWEST CROSSING (3 of 3).dwg Sep 29, 24 6:09 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

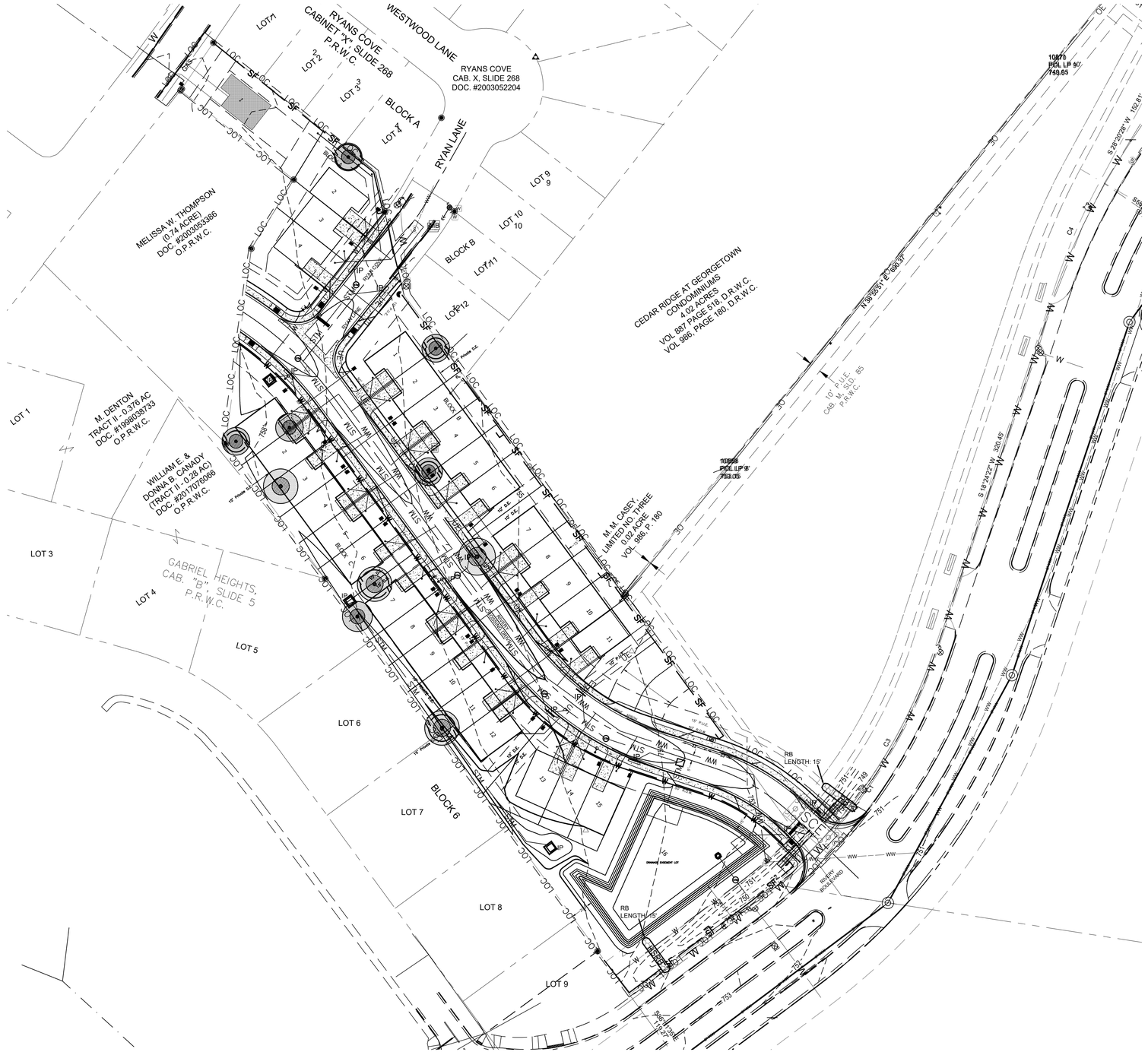
REPLAT OF LOT 1 NORTHWEST CROSSING (3 of 3)

CITY OF GEORGETOWN

SHEET NO.

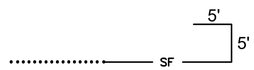
10 OF 52

2022-44-CON



LEGEND

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- TP — TREES TO BE PROTECTED
- CONCRETE WASHOUT STATION
- PROPERTY/ROW LINE
- RB — ROCK BERM
- IP — INLET PROTECTION
- DROP INLET PROTECTION
- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
- TREE PROTECTION FENCE



"J" HOOK SILT FENCE
DETAIL

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EROSION & SEDIMENTATION
CONTROL PLAN
CITY OF GEORGETOWN

SHEET NO.

13 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\13 EROSION & SEDIMENTATION CONTROL PLAN.dwg Sep 29, 24 6:14 pm

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 – 10%
	200 FEET	2 ACRES	10 – 20%
	100 FEET	1 ACRE	20 – 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 – 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW.

** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC01
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SW3P) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 100LB/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNGICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANTEED ANALYSIS.
5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN.
6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10–DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.
7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1–1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION.
9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS.
12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED–ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
13. TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'–4') BEHIND THE AREA IN QUESTION.
18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE.
19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
20. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

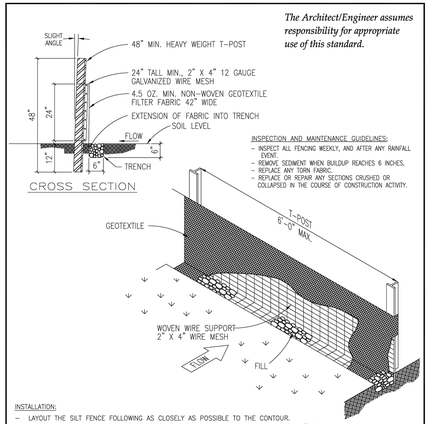
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC01A
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T–POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T–POST WITH 11 1/2 GAUGE GALVANIZED T–POST CLIPS, THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

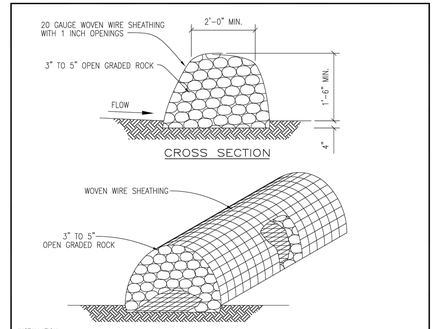
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SILT FENCE DETAIL

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC02
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

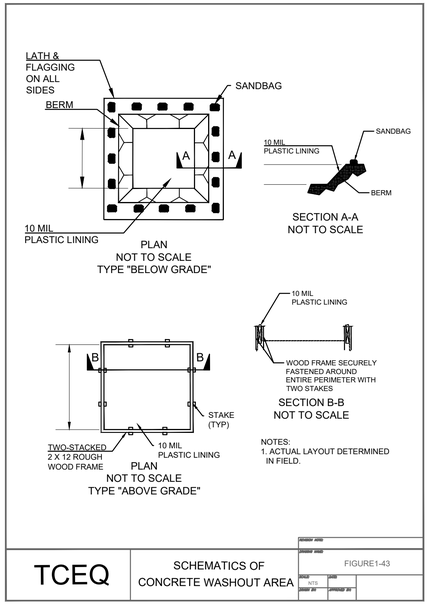
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
ROCK BERM DETAIL

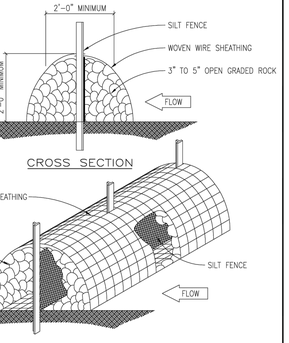
REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC03
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.

TCEQ — SCHEMATICS OF CONCRETE WASHOUT AREA — FIGURE1-43

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



INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DRAWING NO. EC–02 "SILT FENCE DETAIL".
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

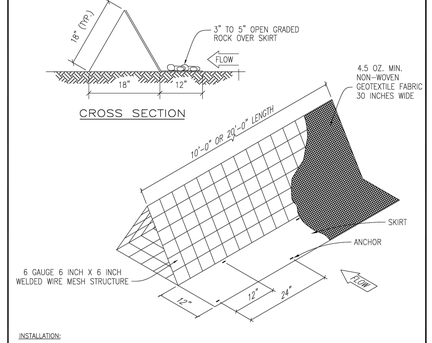
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACES WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
HIGH SERVICE ROCK BERM DETAIL

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC04
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



INSTALLATION:
- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'–0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'–0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

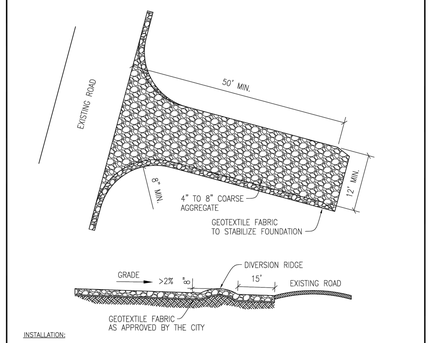
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRIANGULAR FILTER DIKE

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC05
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STABILIZED CONSTRUCTION ENTRANCE

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC06
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

If the drop inlet is above the finished grade, the grate may be completely covered with filter fabric. The fabric should be securely attached to the entire perimeter of the inlet using 1"x 2" wood strips and appropriate fasteners.

Gravel and Wire Mesh Drop Inlet Sediment Filter

(1) Wire mesh should be laid over the drop inlet so that the wire extends a minimum of 1 foot beyond each side of the inlet structure. Wire mesh with 1/2-inch openings should be used. If more than one strip of mesh is necessary, the strips should be overlapped (see Figure 1-34).

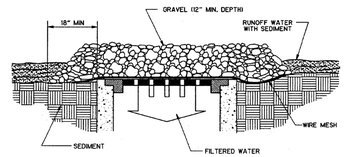
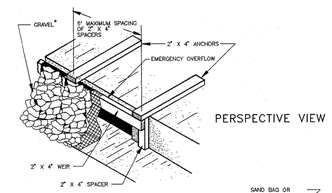


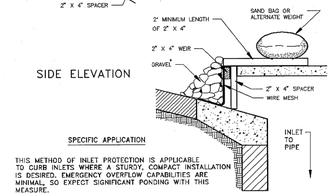
Figure 1-34 Wire Mesh and Gravel Inlet Protection (NCTCOG, 1993)

(2) Coarse aggregate should be placed over the wire mesh as indicated in Figure 1-34. The depth of stone should be at least 12 inches over the entire inlet opening. The stone should extend beyond the inlet opening at least 18 inches on all sides.

(3) If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stones must be pulled away from the inlet, cleaned and/or replaced.

Note: This filtering device has no overflow mechanism; therefore, ponding is likely especially if sediment is not removed regularly. This type of device should never be used where overflow may endanger an exposed fill slope. Consideration should also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, adjacent property, etc.





SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE TO CURB INLETS WHERE A STURDY, COMPACT INSTALLATION IS DESIRED. EMERGENCY OVERFLOW CAPABILITIES ARE MINIMAL, SO EXPECT SIGNIFICANT PONDING WITH THIS MEASURE.

Figure 1-37 Wooden Weir Curb Inlet Protection (VA Dept of Conservation, 1992)

Common Trouble Points:

(1) Gaps between the inlet protection and the curb (flows bypass around side of filter).

(2) Filter fabric skirt not anchored to pavement (flows pass under filter).

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

Know what's below. Call before you dig.

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

STATE OF TEXAS — RELEASED FOR REVIEW — THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF TIMOTHY E. HAYNIE, P.E. 93924 ON 29-Sep-2024. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

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Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EROSION CONTROL DETAILS

CITY OF GEORGETOWN

SHEET NO.

14 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\14 EROSION CONTROL DETAILS.dwg Sep 29, 24 6:15 pm

EXISTING							peak Q=	23.6	PROPOSED							peak Q=	27.9	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.06	0.06	0	0	0	0	1-Jan-00	0:05	0.06	0.03	0.03	0.3	0	0.3		5.0	0.3	90	REQ'D CF = **14,130**
1-Jan-00	0:10	0.06	0.06	0	0	0	0	1-Jan-00	0:10	0.06	0.03	0.03	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:15	0.07	0.07	0	0	0	0	1-Jan-00	0:15	0.07	0.04	0.04	1.1	0	1.1		5.0	1.1	330	
1-Jan-00	0:20	0.08	0.08	0	0	0	0	1-Jan-00	0:20	0.08	0.04	0.04	1.4	0	1.4		5.0	1.4	420	
1-Jan-00	0:25	0.07	0.06	0.01	0.1	0	0.1	1-Jan-00	0:25	0.07	0.03	0.04	1.5	0	1.5		5.0	1.4	420	
1-Jan-00	0:30	0.09	0.07	0.02	0.2	0	0.2	1-Jan-00	0:30	0.09	0.04	0.05	1.7	0	1.7		5.0	1.5	450	
1-Jan-00	0:35	0.08	0.06	0.02	0.4	0	0.4	1-Jan-00	0:35	0.08	0.03	0.05	1.9	0	1.9		5.0	1.5	450	
1-Jan-00	0:40	0.1	0.07	0.03	0.6	0	0.6	1-Jan-00	0:40	0.1	0.04	0.06	2.1	0	2.1		5.0	1.5	450	
1-Jan-00	0:45	0.11	0.07	0.04	0.9	0	0.9	1-Jan-00	0:45	0.11	0.04	0.07	2.5	0	2.5		5.0	1.6	480	
1-Jan-00	0:50	0.12	0.07	0.05	1.2	0	1.2	1-Jan-00	0:50	0.12	0.04	0.08	2.9	0	2.9		5.0	1.7	510	
1-Jan-00	0:55	0.13	0.07	0.06	1.6	0	1.6	1-Jan-00	0:55	0.13	0.03	0.1	3.3	0	3.3		5.0	1.7	510	
1-Jan-00	1:00	0.16	0.08	0.08	2.1	0	2.1	1-Jan-00	1:00	0.16	0.04	0.12	3.9	0	3.9		5.0	1.8	540	
1-Jan-00	1:05	0.18	0.08	0.1	2.7	0	2.7	1-Jan-00	1:05	0.18	0.04	0.14	4.7	0	4.7		5.0	2	600	
1-Jan-00	1:10	0.22	0.08	0.14	3.5	0	3.5	1-Jan-00	1:10	0.22	0.04	0.18	5.7	0	5.7		5.0	2.2	660	
1-Jan-00	1:15	0.27	0.09	0.18	4.6	0	4.6	1-Jan-00	1:15	0.27	0.04	0.23	7.1	0	7.1		5.0	2.5	750	
1-Jan-00	1:20	0.37	0.1	0.27	6.2	0	6.2	1-Jan-00	1:20	0.37	0.05	0.32	9.3	0	9.3		5.0	3.1	930	
1-Jan-00	1:25	0.55	0.12	0.43	8.9	0	8.9	1-Jan-00	1:25	0.55	0.06	0.49	13.2	0	13.2		5.0	4.3	1290	
1-Jan-00	1:30	0.99	0.15	0.84	14.3	0	14.3	1-Jan-00	1:30	0.99	0.07	0.92	21.3	0	21.3		5.0	7	2100	
1-Jan-00	1:35	0.71	0.08	0.63	21.2	0	21.2	1-Jan-00	1:35	0.71	0.04	0.67	27.9	0	27.9		5.0	6.7	2010	
1-Jan-00	1:40	0.45	0.04	0.41	23.6	0	23.6	1-Jan-00	1:40	0.45	0.02	0.43	25.7	0	25.7		5.0	2.1	630	
1-Jan-00	1:45	0.31	0.02	0.29	20.9	0	20.9	1-Jan-00	1:45	0.31	0.01	0.3	19.9	0	19.9		5.0	-1	0	
1-Jan-00	1:50	0.25	0.02	0.23	16.8	0	16.8	1-Jan-00	1:50	0.25	0.01	0.24	15	0	15		5.0	-1.8	0	
1-Jan-00	1:55	0.2	0.01	0.19	13.3	0	13.3	1-Jan-00	1:55	0.2	0.01	0.19	11.5	0	11.5		5.0	-1.8	0	
1-Jan-00	2:00	0.16	0.01	0.15	10.5	0	10.5	1-Jan-00	2:00	0.16	0.01	0.15	9.1	0	9.1		5.0	-1.4	0	
1-Jan-00	2:05	0.15	0.01	0.14	8.5	0	8.5	1-Jan-00	2:05	0.15	0	0.15	7.4	0	7.4		5.0	-1.1	0	
1-Jan-00	2:10	0.12	0.01	0.11	7.1	0	7.1	1-Jan-00	2:10	0.12	0	0.12	6.2	0	6.2		5.0	-0.9	0	
1-Jan-00	2:15	0.11	0.01	0.1	6	0	6	1-Jan-00	2:15	0.11	0	0.11	5.3	0	5.3		5.0	-0.7	0	
1-Jan-00	2:20	0.1	0.01	0.09	5.1	0	5.1	1-Jan-00	2:20	0.1	0	0.1	4.7	0	4.7		5.0	-0.4	0	
1-Jan-00	2:25	0.1	0.01	0.09	4.5	0	4.5	1-Jan-00	2:25	0.1	0	0.1	4.3	0	4.3		5.0	-0.2	0	
1-Jan-00	2:30	0.08	0	0.08	4.1	0	4.1	1-Jan-00	2:30	0.08	0	0.08	3.9	0	3.9		5.0	-0.2	0	
1-Jan-00	2:35	0.08	0	0.08	3.7	0	3.7	1-Jan-00	2:35	0.08	0	0.08	3.5	0	3.5		5.0	-0.2	0	
1-Jan-00	2:40	0.08	0	0.08	3.4	0	3.4	1-Jan-00	2:40	0.08	0	0.08	3.3	0	3.3		5.0	-0.1	0	
1-Jan-00	2:45	0.07	0	0.07	3.2	0	3.2	1-Jan-00	2:45	0.07	0	0.07	3.1	0	3.1		5.0	-0.1	0	
1-Jan-00	2:50	0.06	0	0.06	3	0	3	1-Jan-00	2:50	0.06	0	0.06	2.9	0	2.9		5.0	-0.1	0	
1-Jan-00	2:55	0.07	0.01	0.06	5.5	0	5.5	1-Jan-00	2:55	0.07	0	0.07	6	0	6		5.0	0.5	150	
1-Jan-00	3:00	0.05	0	0.05	5	0	5	1-Jan-00	3:00	0.05	0	0.05	5.4	0	5.4		5.0	0.4	120	

100-YEAR DETENTION CALCULATIONS

EXISTING							peak Q=	17.9	PROPOSED							peak Q=	22.4	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.04	0.04	0	0	0	0	1-Jan-00	0:05	0.04	0.02	0.02	0.2	0	0.2		5.0	0.2	60	REQ'D CF = **12,030**
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1-Jan-00	0:15	0.05	0.05	0	0	0	0	1-Jan-00	0:15	0.05	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:20	0.05	0.05	0	0	0	0	1-Jan-00	0:20	0.05	0.02	0.02	1	0	1		5.0	1	300	
1-Jan-00	0:25	0.06	0.06	0	0	0	0	1-Jan-00	0:25	0.06	0.03	0.03	1.1	0	1.1		5.0	1.1	330	
1-Jan-00	0:30	0.06	0.06	0	0	0	0	1-Jan-00	0:30	0.06	0.03	0.03	1.2	0	1.2		5.0	1.2	360	
1-Jan-00	0:35	0.07	0.06	0.01	0.1	0	0.1	1-Jan-00	0:35	0.07	0.03	0.04	1.3	0	1.3		5.0	1.2	360	
1-Jan-00	0:40	0.07	0.06	0.01	0.2	0	0.2	1-Jan-00	0:40	0.07	0.03	0.04	1.5	0	1.5		5.0	1.3	390	
1-Jan-00	0:45	0.08	0.06	0.02	0.4	0	0.4	1-Jan-00	0:45	0.08	0.03	0.05	1.7	0	1.7		5.0	1.3	390	
1-Jan-00	0:50	0.09	0.06	0.03	0.6	0	0.6	1-Jan-00	0:50	0.09	0.03	0.06	2	0	2		5.0	1.4	420	
1-Jan-00	0:55	0.1	0.06	0.04	0.9	0	0.9	1-Jan-00	0:55	0.1	0.03	0.07	2.3	0	2.3		5.0	1.4	420	
1-Jan-00	1:00	0.12	0.07	0.05	1.2	0	1.2	1-Jan-00	1:00	0.12	0.04	0.08	2.7	0	2.7		5.0	1.5	450	
1-Jan-00	1:05	0.14	0.07	0.07	1.6	0	1.6	1-Jan-00	1:05	0.14	0.04	0.1	3.3	0	3.3		5.0	1.7	510	
1-Jan-00	1:10	0.16	0.08	0.08	2.1	0	2.1	1-Jan-00	1:10	0.16	0.04	0.12	4	0	4		5.0	1.9	570	
1-Jan-00	1:15	0.22	0.09	0.13	2.9	0	2.9	1-Jan-00	1:15	0.22	0.05	0.17	5.1	0	5.1		5.0	2.2	660	
1-Jan-00	1:20	0.29	0.1	0.19	4.1	0	4.1	1-Jan-00	1:20	0.29	0.05	0.24	6.9	0	6.9		5.0	2.8	840	
1-Jan-00	1:25	0.54	0.15	0.39	6.5	0	6.5	1-Jan-00	1:25	0.54	0.07	0.47	10.8	0	10.8		5.0	4.3	1290	
1-Jan-00	1:30	0.82	0.16	0.66	11.4	0	11.4	1-Jan-00	1:30	0.82	0.08	0.74	18.1	0	18.1		5.0	6.7	2010	
1-Jan-00	1:35	0.52	0.08	0.44	16.7	0	16.7	1-Jan-00	1:35	0.52	0.04	0.48	22.4	0	22.4		5.0	5.7	1710	
1-Jan-00	1:40	0.35	0.04	0.31	17.9	0	17.9	1-Jan-00	1:40	0.35	0.02	0.33	19.7	0	19.7		5.0	1.8	540	
1-Jan-00	1:45	0.25	0.03	0.22	15.7	0	15.7	1-Jan-00	1:45	0.25	0.01	0.24	15.3	0	15.3		5.0	-0.4	0	
1-Jan-00	1:50	0.19	0.02	0.17	12.7	0	12.7	1-Jan-00	1:50	0.19	0.01	0.18	11.5	0	11.5		5.0	-1.2	0	
1-Jan-00	1:55	0.15	0.01	0.14	10	0	10	1-Jan-00	1:55	0.15	0.01	0.14	8.8	0	8.8		5.0	-1.2	0	
1-Jan-00	2:00	0.13	0.01	0.12	7.9	0	7.9	1-Jan-00	2:00	0.13	0.01	0.12	6.9	0	6.9		5.0	-1	0	
1-Jan-00	2:05	0.11	0.01	0.1	6.4	0	6.4	1-Jan-00	2:05	0.11	0	0.11	5.6	0	5.6		5.0	-0.8	0	
1-Jan-00	2:10	0.09	0.01	0.08	5.3	0	5.3	1-Jan-00	2:10	0.09	0	0.09	4.7	0	4.7		5.0	-0.6	0	
1-Jan-00	2:15	0.09	0.01	0.08	4.4	0	4.4	1-Jan-00	2:15	0.09	0	0.09	4	0	4		5.0	-0.4	0	
1-Jan-00	2:20	0.08	0.01	0.07	3.9	0	3.9	1-Jan-00	2:20	0.08	0	0.08	3.6	0	3.6		5.0	-0.3	0	
1-Jan-00	2:25	0.06	0	0.06	3.4	0	3.4	1-Jan-00	2:25	0.06	0	0.06	3.2	0	3.2		5.0	-0.2	0	
1-Jan-00	2:30	0.07	0.01	0.06	3	0	3	1-Jan-00	2:30	0.07	0	0.07	2.8	0	2.8		5.0	-0.2	0	
1-Jan-00	2:35	0.06	0	0.06	2.7	0	2.7	1-Jan-00	2:35	0.06	0	0.06	2.7	0	2.7		5.0	0	0	
1-Jan-00	2:40	0.05	0	0.05	2.5	0	2.5	1-Jan-00	2:40	0.05	0	0.05	2.4	0	2.4		5.0	-0.1	0	
1-Jan-00	2:45	0.05	0	0.05	2.2	0	2.2	1-Jan-00	2:45	0.05	0	0.05	2.2	0	2.2		5.0	0	0	
1-Jan-00	2:50	0.05	0	0.05	2.1	0	2.1	1-Jan-00	2:50	0.05	0	0.05	2	0	2		5.0	-0.1	0	
1-Jan-00	2:55	0.05	0	0.05	2	0	2	1-Jan-00	2:55	0.05	0	0.05	2	0	2		5.0	0	0	
1-Jan-00	3:00	0.04	0	0.04	1.9	0	1.9	1-Jan-00	3:00	0.04	0	0.04	1.9	0	1.9		5.0	0	0	

25-YEAR DETENTION CALCULATIONS

PROPOSED POND VOLUME SUMMARY

ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS	
747	20				0	0	
		2333	0.5	1166.5			
747.5	4646				1167	0	
		4890.5	0.5	2445			Sediment Volume (1492 Cu. Ft.) = 747.57
748	5135				3612	0	
		5388.5	0.5	2694			
748.5	5642				6306	0	
		6872.5	0.5	3436			WQV (Req'd)=8,954 CF for 1563 lb. Load Removal @ 748.89
749	8103				9742	0.000	WQ Volume Provided @ 749.0 = 9742 CF
		8425.5	1	8426		1.177	
750	8748				18168	3.330	
		9080.5	1	9081		6.118	
751	9413				27248	9.419	
		9753.5	1	9754		13.160	
752	10094				37002	17.300	
		10443	1	10443		21.800	Max. 100 Yr. W.S. EL. = 752.58
753	10792				47445	33.570	Freeboard = 0.68' (0.5' Required)
		11308	0.5	5654			
753.5	11824				53099	55.100	Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

STORM FREQUENCY	VOLUME REQUIRED (CF)	ELEVATION REQUIRED (FT.)
2-YEAR	8280	750.0
10-YEAR	10770	750.26
25-YEAR	12030	750.4
100-YEAR	14130	750.63

Area Ac.	EX. CN	EX. I.C. %	PROP. CN	PROP. I.C. %
3.389	84	0	84	50

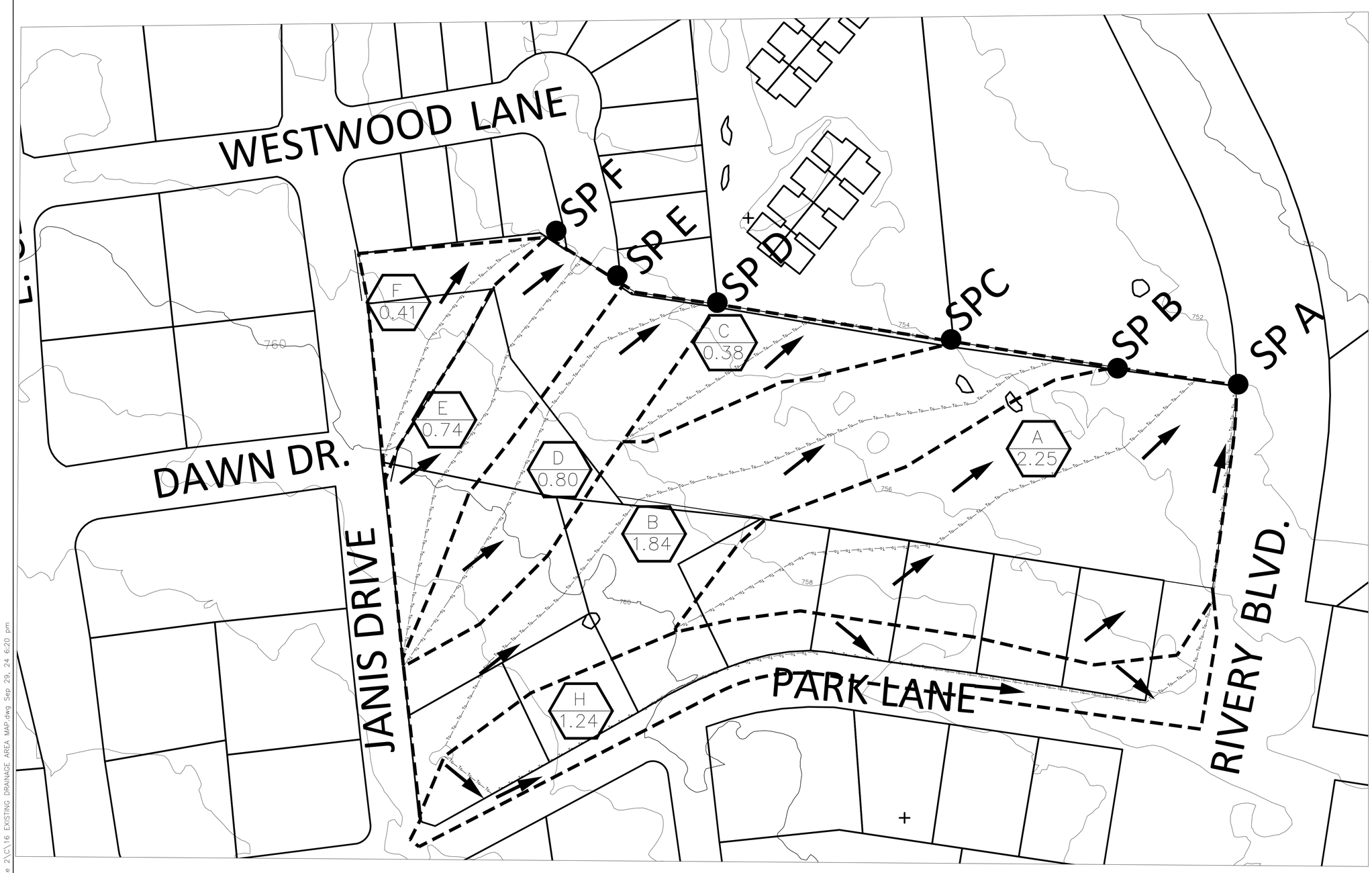
DETENTION POND TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow						*Shallow Concentrated*							
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	T_c Total (min)	Tlag
EX-A1	100	PASTURE	0.15	756.90	755.35	1.55%	9.47	255	UNPAVED	755.35	751.80	1.39%	1.77	11	7
PR-A1	100	GRASS	0.15	1010.00	1007.60	2.40%	7.95	855	UNPAVED	1007.60	994.00	1.59%	7.00	15	9

EXISTING							peak Q=	14.4	PROPOSED							peak Q=	18.5	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.03	0.03	0	0	0	0	1-Jan-00	0:05	0.03	0.01	0.01	0.1	0	0.1		5.0	0.1	30	REQ'D CF **10,770**
1-Jan-00	0:10	0.04	0.04	0	0	0	0	1-Jan-00	0:10	0.04	0.02	0.02	0.5	0	0.5		5.0	0.5	150	
1-Jan-00	0:15	0.04	0.04	0	0	0	0	1-Jan-00	0:15	0.04	0.02	0.02	0.7	0	0.7		5.0	0.7	210	
1-Jan-00	0:20	0.04	0.04	0	0	0	0	1-Jan-00	0:20	0.04	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:25	0.04	0.04	0	0	0	0	1-Jan-00	0:25	0.04	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:30	0.05	0.05	0	0	0	0	1-Jan-00	0:30	0.05	0.02	0.03	0.9	0	0.9		5.0	0.9	270	
1-Jan-00	0:35	0.05	0.05	0	0	0	0	1-Jan-00	0:35	0.05	0.02	0.03	1	0	1		5.0	1	300	
1-Jan-00	0:40	0.06	0.05	0.01	0.1	0	0.1	1-Jan-00	0:40	0.06	0.03	0.03	1.1	0	1.1		5.0	1	300	
1-Jan-00	0:45	0.06	0.05	0.01	0.2	0	0.2	1-Jan-00	0:45	0.06	0.03	0.03	1.3	0	1.3		5.0	1.1	330	
1-Jan-00	0:50	0.07	0.05	0.02	0.3	0	0.3	1-Jan-00	0:50	0.07	0.03	0.04	1.4	0	1.4		5.0	1.1	330	
1-Jan-00	0:55	0.08	0.06	0.02	0.5	0	0.5	1-Jan-00	0:55	0.08	0.03	0.05	1.7	0	1.7		5.0	1.2	360	
1-Jan-00	1:00	0.09	0.06	0.03	0.7	0	0.7	1-Jan-00	1:00	0.09	0.03	0.06	2	0	2		5.0	1.3	390	
1-Jan-00	1:05	0.11	0.07	0.04	0.9	0	0.9	1-Jan-00	1:05	0.11	0.03	0.08	2.4	0	2.4		5.0	1.5	450	
1-Jan-00	1:10	0.13	0.07	0.06	1.3	0	1.3	1-Jan-00	1:10	0.13	0.04	0.09	3	0	3		5.0	1.7	510	
1-Jan-00	1:15	0.18	0.09	0.09	1.9	0	1.9	1-Jan-00	1:15	0.18	0.05	0.13	3.9	0	3.9		5.0	2	600	
1-Jan-00	1:20	0.24	0.1	0.14	2.8	0	2.8	1-Jan-00	1:20	0.24	0.05	0.19	5.3	0	5.3		5.0	2.5	750	
1-Jan-00	1:25	0.36	0.13	0.23	4.4	0	4.4	1-Jan-00	1:25	0.36	0.06	0.3	7.7	0	7.7		5.0	3.3	990	
1-Jan-00	1:30	0.72	0.19	0.53	7.8	0	7.8	1-Jan-00	1:30	0.72	0.09	0.63	13.5	0	13.5		5.0	5.7	1710	
1-Jan-00	1:35	0.5	0.1	0.4	12.5	0	12.5	1-Jan-00	1:35	0.5	0.05	0.45	18.5	0	18.5		5.0	6	1800	
1-Jan-00	1:40	0.29	0.05	0.24	14.4	0	14.4	1-Jan-00	1:40	0.29	0.02	0.27	17	0	17		5.0	2.6	780	
1-Jan-00	1:45	0.2	0.03	0.17	12.8	0	12.8	1-Jan-00	1:45	0.2	0.01	0.19	12.9	0	12.9		5.0	0.1	30	
1-Jan-00	1:50	0.15	0.02	0.13	10.1	0	10.1	1-Jan-00	1:50	0.15	0.01	0.14	9.4	0	9.4		5.0	-0.7	0	
1-Jan-00	1:55	0.12	0.02	0.1	7.9	0	7.9	1-Jan-00	1:55	0.12	0.01	0.11	7	0	7		5.0	-0.9	0	
1-Jan-00	2:00	0.1	0.01	0.09	6.1	0	6.1	1-Jan-00	2:00	0.1	0.01	0.09	5.4	0	5.4		5.0	-0.7	0	
1-Jan-00	2:05	0.08	0.01	0.07	4.9	0	4.9	1-Jan-00	2:05	0.08	0	0.08	4.3	0	4.3		5.0	-0.6	0	
1-Jan-00	2:10	0.08	0.01	0.07	4	0	4	1-Jan-00	2:10	0.08	0	0.08	3.6	0	3.6		5.0	-0.4	0	
1-Jan-00	2:15	0.07	0.01	0.06	3.4	0	3.4	1-Jan-00	2:15	0.07	0	0.07	3.2	0	3.2		5.0	-0.2	0	
1-Jan-00	2:20	0.06	0.01	0.05	3	0	3	1-Jan-00	2:20	0.06	0	0.06	2.8	0	2.8		5.0	-0.2	0	
1-Jan-00	2:25	0.05	0.01	0.04	2.6	0	2.6	1-Jan-00	2:25	0.05	0	0.05	2.4	0	2.4		5.0	-0.2	0	
1-Jan-00	2:30	0.05	0.01	0.04	2.2	0	2.2	1-Jan-00	2:30	0.05	0	0.05	2.2	0	2.2		5.0	0	0	
1-Jan-00	2:35	0.05	0.01	0.04	2	0	2	1-Jan-00	2:35	0.05	0	0.05	2	0	2		5.0	0	0	
1-Jan-00	2:40	0.04	0	0.04	1.9	0	1.9	1-Jan-00	2:40	0.04	0	0.04	1.9	0	1.9		5.0	0	0	
1-Jan-00	2:45	0.04	0	0.04	1.7	0	1.7	1-Jan-00	2:45	0.04	0	0.04	1.7	0	1.7		5.0	0	0	
1-Jan-00	2:50	0.04	0	0.04	1.6	0	1.6	1-Jan-00	2:50	0.04	0	0.04	1.6	0	1.6		5.0	0	0	
1-Jan-00	2:55	0.03	0	0.03	1.5	0	1.5	1-Jan-00	2:55	0.03	0	0.03	1.5	0	1.5		5.0	0	0	
1-Jan-00	3:00	0.03	0	0.03	1.3	0	1.3	1-Jan-00	3:00	0.03	0	0.03	1.3	0	1.3		5.0	0	0	

10-YEAR DETENTION CALCULATIONS

EXISTING							peak Q=	8.2	PROPOSED							peak Q=	12.2	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.01	0.01	0	0	0	0	1-Jan-00	0:05	0.01	0	0	0	0	0		5.0	0	0	REQ'D CF= ***8,280***
1-Jan-00	0:10	0.02	0.02	0	0	0	0	1-Jan-00	0:10	0.02	0.01	0.01	0.2	0	0.2		5.0	0.2	60	
1-Jan-00	0:15	0.01	0.01	0	0	0	0	1-Jan-00	0:15	0.01	0	0	0.3	0	0.3		5.0	0.3	90	
1-Jan-00	0:20	0.02	0.02	0	0	0	0	1-Jan-00	0:20	0.02	0.01	0.01	0.3	0	0.3		5.0	0.3	90	
1-Jan-00	0:25	0.02	0.02	0	0	0	0	1-Jan-00	0:25	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:30	0.02	0.02	0	0	0	0	1-Jan-00	0:30	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:35	0.02	0.02	0	0	0	0	1-Jan-00	0:35	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:40	0.03	0.03	0	0	0	0	1-Jan-00	0:



N

0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

/ AC. — DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
AC. – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

Tc — TIME OF CONCENTRATION PATH

SEE NEXT SHEET FOR CALCULATIONS

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.90	8.00	10.50	14.40
B	2.90	6.00	8.00	10.80
C	0.70	1.40	1.80	2.50
D	1.40	2.70	3.60	4.80
E	1.30	2.60	3.40	4.60
F	0.80	1.50	1.90	2.70
H	5.40	7.70	9.10	11.10
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

BASIN AREAS

BASIN	TOTAL AREA		
No.	S.F.	ACRES	SQ. MI.
A	98,045	2.251	0.0035169
B	80,304	1.844	0.0028805
C	16,470	0.378	0.0005908
D	34,837	0.800	0.0012496
E	32,126	0.738	0.0011524
F	17,786	0.408	0.0006380
H	53,959	1.239	0.0019355
TOTALS	333,527	7.657	0.0119636

EXISTING DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
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T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

16 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\16 EXISTING DRAINAGE AREA MAP.dwg Sep 29, 24 6:20 pm

SCS CURVE NUMBER CALCULATIONS
EXISTING CONDITIONS

BASIN	BASIN AREAS			SCS CURVE NUMBERS			
	TOTAL AREA			PASTURE & RANGE	RESIDENTIAL 1/6 Ac.	PAVEMENT	COMPOSITE
No.	S.F.	ACRES	SQ. MI.	CN 80 (HSG D)	CN 90 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A	98,045	2.251	0.0035169	2.00	0.25	0.00	81
B	80,304	1.844	0.0028805	1.80	0.04	0.00	80
C	16,470	0.378	0.0005908	0.38	0.00	0.00	80
D	34,837	0.800	0.0012496	0.76	0.04	0.00	81
E	32,126	0.738	0.0011524	0.70	0.04	0.00	81
F	17,786	0.408	0.0006380	0.41	0.00	0.00	80
H	53,959	1.239	0.0019355	0.39	0.04	0.91	96
TOTALS	333,527	7.657	0.0119636				

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							*Shallow Concentrated*						*Channel*											
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A	100	GRASS	0.24	760.00	758.30	1.70%	13.29	485	UNPAVED	758.30	752.00	1.30%	3.49	-	-	-	-	-	-	-	-	-	-	17	10
B	100	GRASS	0.24	764.00	762.00	2.00%	12.46	655	UNPAVED	762.00	753.20	1.34%	5.84	-	-	-	-	-	-	-	-	-	-	18	11
C	100	GRASS	0.24	758.00	756.50	1.50%	13.98	245	UNPAVED	756.50	754.00	1.02%	2.51	-	-	-	-	-	-	-	-	-	-	14	8
D	100	GRASS	0.24	763.10	761.80	1.30%	14.80	382	UNPAVED	761.80	755.50	1.65%	3.07	-	-	-	-	-	-	-	-	-	-	18	11
E	100	GRASS	0.24	763.10	761.60	1.50%	13.98	340	UNPAVED	761.60	755.80	1.71%	2.69	-	-	-	-	-	-	-	-	-	-	17	10
F	100	GRASS	0.24	760.30	758.60	1.70%	13.29	180	UNPAVED	758.60	756.00	1.44%	1.55	-	-	-	-	-	-	-	-	-	-	13	8
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6

Project: 3427 EXISTING Simulation Run: EXISTING 2 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time: 16Apr2024, 08:33:38 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	3.9	1 January 2000, 01:40	0.2
EX-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-F	0.0	0.8	1 January 2000, 01:40	0.0
EX-H	0.0	5.4	1 January 2000, 01:35	0.2
EX-SP-A	0.0	8.5	1 January 2000, 01:40	0.4
EX-SP-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-SP-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-SP-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-SP-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-SP-F	0.0	0.8	1 January 2000, 01:40	0.0

Project: 3427 EXISTING Simulation Run: EXISTING 25 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time: 16Apr2024, 08:33:44 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	10.5	1 January 2000, 01:40	0.6
EX-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-F	0.0	1.9	1 January 2000, 01:40	0.1
EX-H	0.0	9.1	1 January 2000, 01:35	0.5
EX-SP-A	0.0	18.2	1 January 2000, 01:35	1.1
EX-SP-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-SP-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-SP-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-SP-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-SP-F	0.0	1.9	1 January 2000, 01:40	0.1

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Existing Conditions

Basin	Area mi2	CN	S	Ia
A	0.0035169	81	2.35	0.47
B	0.0028805	80	2.50	0.50
C	0.0005908	80	2.50	0.50
D	0.0012496	81	2.35	0.47
E	0.0011524	81	2.35	0.47
F	0.0006380	80	2.50	0.50
H	0.0019355	96	0.42	0.08

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.9	8.0	10.5	14.4
B	2.9	6.0	8.0	10.8
C	0.7	1.4	1.8	2.5
D	1.4	2.7	3.6	4.8
E	1.3	2.6	3.4	4.6
F	0.8	1.5	1.9	2.7
H	5.4	7.7	9.1	11.1
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7

Project: 3427 EXISTING Simulation Run: EXISTING 10 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time: 16Apr2024, 08:33:25 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	8.0	1 January 2000, 01:40	0.4
EX-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-F	0.0	1.5	1 January 2000, 01:40	0.1
EX-H	0.0	7.7	1 January 2000, 01:35	0.4
EX-SP-A	0.0	14.7	1 January 2000, 01:40	0.8
EX-SP-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-SP-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-SP-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-SP-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-SP-F	0.0	1.5	1 January 2000, 01:40	0.1

Project: 3427 EXISTING Simulation Run: EXISTING 100 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time: 16Apr2024, 08:33:32 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	14.1	1 January 2000, 01:40	0.8
EX-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-F	0.0	2.7	1 January 2000, 01:40	0.2
EX-H	0.0	11.1	1 January 2000, 01:35	0.6
EX-SP-A	0.0	23.9	1 January 2000, 01:40	1.5
EX-SP-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-SP-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-SP-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-SP-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-SP-F	0.0	2.7	1 January 2000, 01:40	0.2

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\17 EXISTING DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:25 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

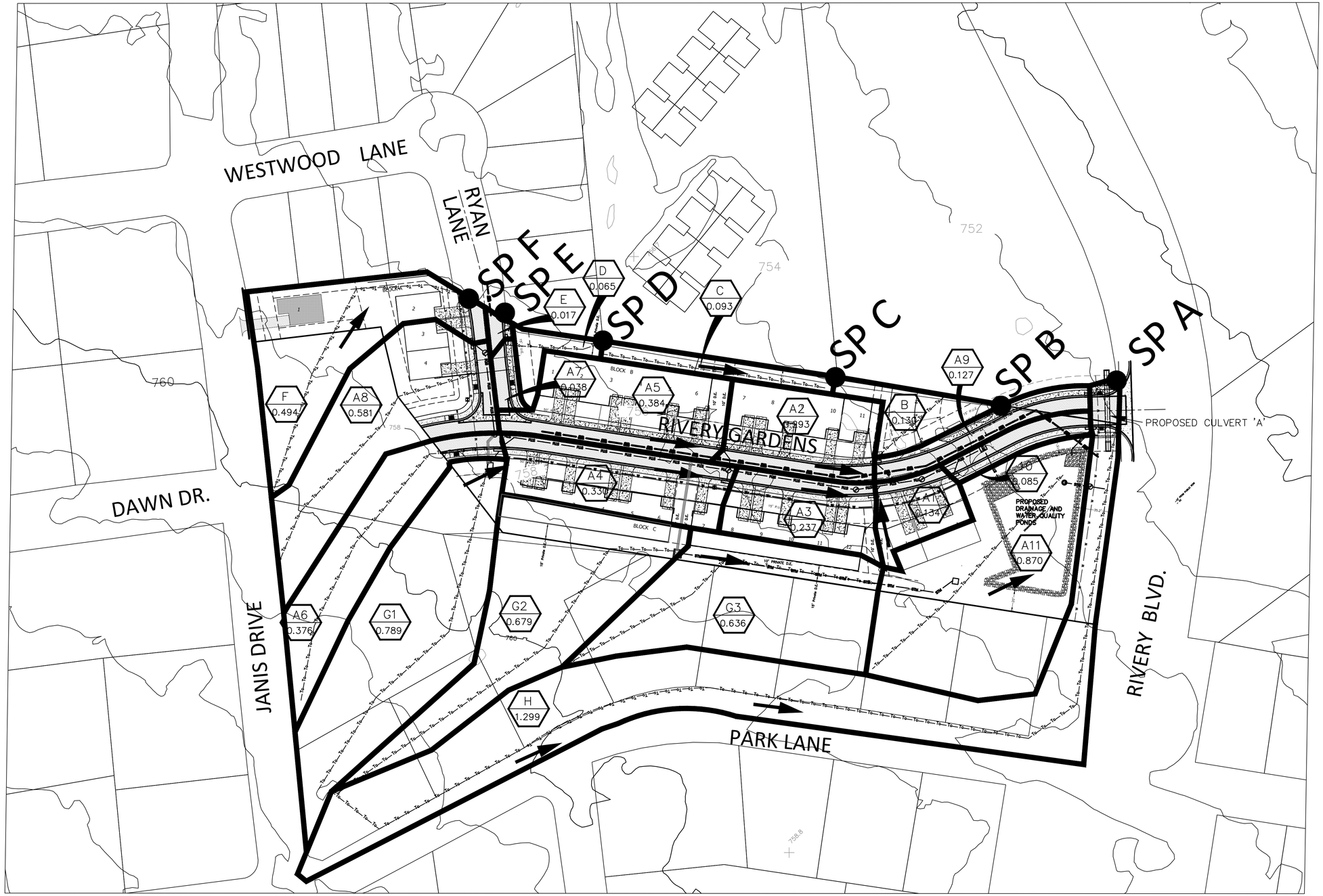
STATE OF TEXAS TIMOTHY E. HAYNIE 36982 LICENSED PROFESSIONAL ENGINEER 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE CALCULATIONS

CITY OF GEORGETOWN



0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
Ac – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

TIME OF CONCENTRATION PATH

SUBDIVISION BOUNDARY

BASIN AREAS

BASIN No.	TOTAL AREA S.F.	TOTAL AREA ACRES	TOTAL AREA SQ. MI.
A1	5,851	0.134	0.0002099
A2	12,754	0.293	0.0004575
A3	10,340	0.237	0.0003709
A4	14,375	0.330	0.0005156
A5	16,726	0.384	0.0006000
A6	16,377	0.376	0.0005874
A7	1,654	0.038	0.0000593
A8	25,301	0.581	0.0009075
A9	5,520	0.127	0.0001980
A10	3,710	0.085	0.0001331
A11	37,892	0.870	0.0013592
B	5,645	0.130	0.0002025
C	4,066	0.093	0.0001458
D	2,817	0.065	0.0001010
E	725	0.017	0.0000260
F	21,509	0.494	0.0007715
G1	34,381	0.789	0.0012332
G2	29,574	0.679	0.0010608
G3	27,717	0.636	0.0009942
H	56,593	1.299	0.0020300
TOTALS	333,527	7.657	0.0119636

EXISTING FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

PROPOSED FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.1	21.6	29.5	42.5

PROPOSED DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

18 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\18 PROPOSED DRAINAGE AREA MAP.dwg Sep 29, 24 6:26 pm

SCS CURVE NUMBER CALCULATIONS
DEVELOPED CONDITIONS

BASIN	TOTAL AREA	TOTAL AREA	TOTAL AREA	RESIDENTIAL 1/6 Ac.	BUILDING/POND	GRASS	PAVEMENT	COMPOSITE
	BASIN AREAS			SCS CURVE NUMBERS				
No.	S.F.	ACRES	SQ. MI.	CN 90 (HSG D)	CN 98 (HSG D)	CN 80 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A1	5,851	0.134	0.0002099	0.000	0.036	0.042	0.056	92.1
A2	12,754	0.293	0.0004575	0.000	0.110	0.062	0.121	94.3
A3	10,340	0.237	0.0003709	0.000	0.076	0.032	0.129	95.4
A4	14,375	0.330	0.0005156	0.000	0.112	0.023	0.195	96.7
A5	16,726	0.384	0.0006000	0.000	0.112	0.090	0.182	93.8
A6	16,377	0.376	0.0005874	0.229	0.000	0.123	0.024	87.2
A7	1,654	0.038	0.0000593	0.000	0.000	0.008	0.030	94.2
A8	25,301	0.581	0.0009075	0.093	0.066	0.382	0.040	84.9
A9	5,520	0.127	0.0001980	0.000	0.000	0.025	0.101	94.4
A10	3,710	0.085	0.0001331	0.000	0.000	0.017	0.068	94.4
A11	37,892	0.870	0.0013592	0.330	0.250	0.240	0.050	90.0
B	5,645	0.130	0.0002025	0.000	0.000	0.130	0.000	80.3
C	4,066	0.093	0.0001458	0.000	0.000	0.093	0.000	79.7
D	2,817	0.065	0.0001010	0.000	0.000	0.065	0.000	80.4
E	725	0.017	0.0000260	0.000	0.000	0.002	0.015	97.9
F	21,509	0.494	0.0007715	0.000	0.030	0.414	0.050	83.0
G1	34,381	0.789	0.0012332	0.668	0.000	0.121	0.000	88.4
G2	29,574	0.679	0.0010608	0.483	0.078	0.118	0.000	89.2
G3	27,717	0.636	0.0009942	0.524	0.044	0.068	0.000	89.4
H	56,593	1.299	0.0020300	0.698	0.00	0.146	0.455	91.7
TOTALS	333,527	7.657	0.0119636	3.03	0.91	2.20	1.52	

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							Shallow Concentrated					Channel										
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A1	75	GRASS	0.24	756.00	754.50	2.00%	9.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5.9
A2	65	GRASS	0.24	755.90	754.60	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A3	65	GRASS	0.24	756.00	754.50	2.31%	8.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5.0
A4	65	GRASS	0.24	757.80	756.50	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A5	65	GRASS	0.24	758.00	756.70	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A6	100	GRASS	0.24	763.10	761.80	1.30%	14.80	237	UNPAVED	761.80	757.80	1.69%	1.88	-	-	-	-	-	-	-	-	-	-	15	8.9
A7	10	GRASS	0.24	757.20	757.00	2.00%	1.97	64	PAVED	757.32	757.00	0.50%	0.74	-	-	-	-	-	-	-	-	-	-	6	3.6
A8	100	GRASS	0.24	761.00	759.50	1.50%	13.98	221	UNPAVED	759.50	757.00	1.13%	1.70	-	-	-	-	-	-	-	-	-	-	14	8.4
A9	10	GRASS	0.24	754.00	753.80	2.00%	1.97	158	PAVED	753.80	752.30	0.95%	1.33	-	-	-	-	-	-	-	-	-	-	6	3.6
A10	10	GRASS	0.24	754.00	753.80	2.00%	1.97	110	PAVED	753.80	752.80	0.91%	0.95	-	-	-	-	-	-	-	-	-	-	6	3.6
A11	100	GRASS	0.24	755.90	754.40	1.50%	13.98	165	UNPAVED	754.40	747.00	4.48%	0.64	-	-	-	-	-	-	-	-	-	-	14	8.4
B	90	GRASS	0.24	754.70	753.70	1.11%	14.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	8.7
C	100	GRASS	0.24	755.80	755.00	0.80%	17.97	124	UNPAVED	755.00	754.00	0.81%	1.13	-	-	-	-	-	-	-	-	-	-	18	10.8
D	94	GRASS	0.24	756.40	755.80	0.64%	18.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	11.2
E	10	GRASS	0.24	756.30	756.10	2.00%	1.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	3.6
F	100	GRASS	0.24	756.50	756.00	0.50%	21.69	237	UNPAVED	758.50	756.00	1.05%	2.38	-	-	-	-	-	-	-	-	-	-	22	13.0
G1	100	GRASS	0.24	764.00	762.20	1.80%	12.99	275	UNPAVED	762.20	758.00	1.53%	2.30	-	-	-	-	-	-	-	-	-	-	13	7.8
G2	100	GRASS	0.24	764.00	762.00	2.00%	12.46	332	UNPAVED	762.00	757.50	1.36%	2.95	-	-	-	-	-	-	-	-	-	-	15	9.2
G3	100	GRASS	0.24	760.00	758.30	1.70%	13.29	244	UNPAVED	758.30	756.00	0.94%	2.60	-	-	-	-	-	-	-	-	-	-	16	9.5
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6.4

Project: Rivery Proposed Offsite incl Simulation Run: COG-2 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time:29Apr2024, 14:52:56 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.51	1 January 2000, 01:36	0.02
A10	0.00	0.39	1 January 2000, 01:33	0.01
A11	0.00	2.77	1 January 2000, 01:39	0.12
A2	0.00	1.23	1 January 2000, 01:36	0.05
A3	0.00	1.05	1 January 2000, 01:33	0.04
A4	0.00	1.49	1 January 2000, 01:36	0.06
A5	0.00	1.58	1 January 2000, 01:36	0.06
A6	0.00	1.04	1 January 2000, 01:39	0.05
A7	0.00	0.06	1 January 2000, 02:18	0.01
A8	0.00	1.48	1 January 2000, 01:39	0.06
A9	0.00	0.59	1 January 2000, 01:33	0.02
B	0.00	0.00	1 January 2000, 03:00	0.00
Batch Detention Pond	0.01	7.71	1 January 2000, 01:54	0.62
C	0.00	0.00	1 January 2000, 03:00	0.00
D	0.00	0.00	1 January 2000, 03:00	0.00
E	0.00	0.09	1 January 2000, 01:33	0.00
F	0.00	1.07	1 January 2000, 01:45	0.06
G1	0.00	2.37	1 January 2000, 01:39	0.10
G2	0.00	1.99	1 January 2000, 01:39	0.09
G3	0.00	1.85	1 January 2000, 01:39	0.08
H	0.00	4.86	1 January 2000, 01:36	0.20
J1	0.01	13.92	1 January 2000, 01:39	0.62
J2	0.01	11.71	1 January 2000, 01:36	0.52
J3	0.01	10.51	1 January 2000, 01:39	0.47
J4	0.00	9.61	1 January 2000, 01:39	0.43
J5	0.00	7.65	1 January 2000, 01:36	0.34
J6	0.00	4.91	1 January 2000, 01:39	0.22
J7	0.00	1.50	1 January 2000, 01:39	0.07
J8	0.00	0.98	1 January 2000, 01:33	0.04
SP-A	0.01	9.92	1 January 2000, 01:45	0.82
SP-B	0.00	0.00	1 January 2000, 03:00	0.00
SP-C	0.00	0.00	1 January 2000, 03:00	0.00
SP-D	0.00	0.00	1 January 2000, 03:00	0.00
SP-E	0.00	0.09	1 January 2000, 01:33	0.00
SP-F	0.00	1.07	1 January 2000, 01:45	0.06

Project: Rivery Proposed Offsite incl Simulation Run: COG-10 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time:29Apr2024, 14:52:24 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.79	1 January 2000, 01:36	0.04
A10	0.00	0.58	1 January 2000, 01:33	0.03
A11	0.00	4.47	1 January 2000, 01:39	0.24
A2	0.00	1.81	1 January 2000, 01:36	0.09
A3	0.00	1.53	1 January 2000, 01:33	0.07
A4	0.00	2.13	1 January 2000, 01:33	0.11
A5	0.00	2.36	1 January 2000, 01:36	0.12
A6	0.00	1.78	1 January 2000, 01:39	0.09
A7	0.00	0.10	1 January 2000, 02:15	0.01
A8	0.00	2.62	1 January 2000, 01:39	0.14
A9	0.00	0.86	1 January 2000, 01:33	0.04
B	0.00	0.12	1 January 2000, 01:51	0.01
Batch Detention Pond	0.01	15.36	1 January 2000, 01:51	1.26
C	0.00	0.08	1 January 2000, 01:57	0.01
D	0.00	0.06	1 January 2000, 01:57	0.00
E	0.00	0.12	1 January 2000, 01:33	0.01
F	0.00	1.87	1 January 2000, 01:45	0.11
G1	0.00	3.93	1 January 2000, 01:39	0.20
G2	0.00	3.32	1 January 2000, 01:39	0.18
G3	0.00	3.09	1 January 2000, 01:39	0.17
H	0.00	7.49	1 January 2000, 01:36	0.37
J1	0.01	22.53	1 January 2000, 01:36	1.21
J2	0.01	18.90	1 January 2000, 01:36	1.01
J3	0.01	17.08	1 January 2000, 01:36	0.92
J4	0.00	15.64	1 January 2000, 01:39	0.84
J5	0.00	12.49	1 January 2000, 01:36	0.66
J6	0.00	8.36	1 January 2000, 01:39	0.44
J7	0.00	2.65	1 January 2000, 01:39	0.15
J8	0.00	1.43	1 January 2000, 01:33	0.07
SP-A	0.01	19.37	1 January 2000, 01:45	1.63
SP-B	0.00	0.12	1 January 2000, 01:51	0.01
SP-C	0.00	0.08	1 January 2000, 01:57	0.01
SP-D	0.00	0.06	1 January 2000, 01:57	0.00
SP-E	0.00	0.12	1 January 2000, 01:33	0.01
SP-F	0.00	1.87	1 January 2000, 01:45	0.11

Project: Rivery Proposed Offsite incl Simulation Run: COG-25 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time:29Apr2024, 14:53:09 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.94	1 January 2000, 01:33	0.05
A10	0.00	0.67	1 January 2000, 01:33	0.03
A11	0.00	5.39	1 January 2000, 01:36	0.31
A2	0.00	2.20	1 January 2000, 01:33	0.11
A3	0.00	1.84	1 January 2000, 01:33	0.09
A4	0.00	2.56	1 January 2000, 01:33	0.13
A5	0.00	2.87	1 January 2000, 01:33	0.15
A6	0.00	2.18	1 January 2000, 01:39	0.12
A7	0.00	0.12	1 January 2000, 02:15	0.01
A8	0.00	3.24	1 January 2000, 01:39	0.18
A9	0.00	1.00	1 January 2000, 01:33	0.05
B	0.00	0.26	1 January 2000, 01:48	0.02
Batch Detention Pond	0.01	21.47	1 January 2000, 01:48	1.67
C	0.00	0.17	1 January 2000, 01:51	0.01
D	0.00	0.12	1 January 2000, 01:51	0.01
E	0.00	0.14	1 January 2000, 01:33	0.01
F	0.00	2.35	1 January 2000, 01:42	0.15
G1	0.00	4.83	1 January 2000, 01:36	0.27
G2	0.00	4.06	1 January 2000, 01:39	0.23
G3	0.00	3.79	1 January 2000, 01:39	0.22
H	0.00	8.94	1 January 2000, 01:36	0.48
J1	0.01	27.70	1 January 2000, 01:36	1.57
J2	0.01	23.12	1 January 2000, 01:36	1.30
J3	0.01	21.02	1 January 2000, 01:36	1.19
J4	0.00	19.31	1 January 2000, 01:36	1.09
J5	0.00	15.36	1 January 2000, 01:36	0.86
J6	0.00	10.22	1 January 2000, 01:36	0.58
J7	0.00	3.29	1 January 2000, 01:39	0.19
J8	0.00	1.67	1 January 2000, 01:33	0.08
SP-A	0.01	26.49	1 January 2000, 01:45	2.15
SP-B	0.00	0.26	1 January 2000, 01:48	0.02
SP-C	0.00	0.17	1 January 2000, 01:51	0.01
SP-D	0.00	0.12	1 January 2000, 01:51	0.01
SP-E	0.00	0.14	1 January 2000, 01:33	0.01
SP-F	0.00	2.35	1 January 2000, 01:42	0.15

Project: Rivery Proposed Offsite incl Simulation Run: COG-100 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time:29Apr2024, 14:52:38 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

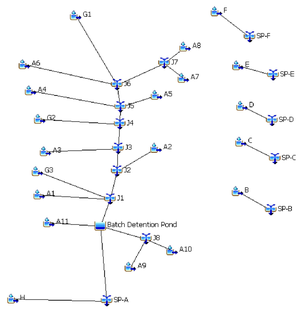
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	1.18	1 January 2000, 01:36	0.07
A10	0.00	0.83	1 January 2000, 01:33	0.04
A11	0.00	6.86	1 January 2000, 01:39	0.41
A2	0.00	2.66	1 January 2000, 01:33	0.15
A3	0.00	2.21	1 January 2000, 01:33	0.12
A4	0.00	3.05	1 January 2000, 01:33	0.17
A5	0.00	3.46	1 January 2000, 01:33	0.19
A6	0.00	2.82	1 January 2000, 01:39	0.17
A7	0.00	0.16	1 January 2000, 02:15	0.02
A8	0.00	4.25	1 January 2000, 01:39	0.25
A9	0.00	1.24	1 January 2000, 01:33	0.06
B	0.00	0.51	1 January 2000, 01:42	0.03
Batch Detention Pond	0.01	30.72	1 January 2000, 01:48	2.26
C	0.00	0.34	1 January 2000, 01:45	0.02
D	0.00	0.23	1 January 2000, 01:48	0.01
E	0.00	0.17	1 January 2000, 01:33	0.01
F	0.00	3.08	1 January 2000, 01:45	0.20
G1	0.00	6.14	1 January 2000, 01:39	0.36
G2	0.00	5.18	1 January 2000, 01:39	0.31
G3	0.00	4.82	1 January 2000, 01:39	0.29
H	0.00	11.21	1 January 2000, 01:36	0.63
J1	0.01	34.81	1 January 2000, 01:36	2.09
J2	0.01	29.10	1 January 2000, 01:36	1.73
J3	0.01	26.46	1 January 2000, 01:36	1.58
J4	0.00	24.30	1 January 2000, 01:36	1.46
J5	0.00	19.39	1 January 2000, 01:36	1.15
J6	0.00	13.26	1 January 2000, 01:39	0.78
J7	0.00	4.31	1 January 2000, 01:39	0.26
J8	0.00	2.07	1 January 2000, 01:33	0.11
SP-A	0.01	38.16	1 January 2000, 01:45	2.89
SP-B	0.00	0.51	1 January 2000, 01:42	0.03
SP-C	0.00	0.34	1 January 2000, 01:45	0.02
SP-D	0.00	0.23	1 January 2000, 01:48	0.01
SP-E	0.00	0.17	1 January 2000, 01:33	0.01
SP-F	0.00	3.08	1 January 2000, 01:45	0.20

FLOW DATA
PROPOSED CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A1	0.51	0.79	0.94	1.18
A2	1.23	1.81	2.20	2.66
A3	1.05	1.53	1.84	2.21
A4	1.49	2.13	2.56	3.05
A5	1.58	2.36	2.87	3.46
A6	1.04	1.78	2.18	2.82
A7	0.06	0.10	0.12	0.16
A8	1.48	2.62	3.24	4.25
A9	0.59	0.86	1.00	1.24
A10	0.39	0.58	0.67	0.83
A11	2.77	4.47	5.39	6.86
B	-	0.12	0.26	0.51
C	-	0.08	0.17	0.34
D	-	0.06	0.12	0.23
E	0.09	0.12	0.14	0.17
F	1.07	1.87	2.35	3.08
G1	2.37	3.93	4.83	6.14
G2	1.99	3.32	4.06	5.18
G3	1.85	3.09	3.79	4.82
H	4.86	7.49	8.94	11.21
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.08	21.62	29.53	42.49

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Proposed Conditions

Basin	Area mi2	CN	S	Ia
A1	0.0002099	93	0.75	0.15
A2	0.0004575	94	0.64	0.13
A3	0.0003709	94	0.64	0.13
A4	0.0005156	94	0.64	0.13
A5	0.0006000	93	0.75	0.15
A6	0.0005874	90	1.11	0.22
A7	0.0000593	94	0.64	0.13
A8	0.0009075	89	1.24	0.25
A9	0.0001980	94	0.64	0.13
A10	0.0001331	94	0.64	0.13
A11	0.0013592	92	0.87	0.17
B	0.0002025	80	2.50	0.50
C	0.0001458	80	2.50	0.50
D	0.0001010	80	2.50	0.50
E	0.0000260	98	0.20	0.04
F	0.0007715	95	0.53	0.11
G1	0.0012332	90	1.11	0.22
G2	0.0010608	90	1.11	0.22
G3	0.0009942	90	1.11	0.22
H	0.0020300	95	0.53	0.11



ROUTING DIAGRAM

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

19 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\19 PROPOSED DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:27 pm

RIVERY GARDENS CURB & ROW CAPACITY PERFORMANCE CURVE DATA							
STRUCTURE TYPE	DEPTH; WATER (Dn) [ft]	FLOW (Q) [cfs]	MANNING'S "n"	SLOPE (%) [%]	VELOCITY; WATER (Vn) [ft/s]	SPREAD (Wp) [ft]	DEPTH; CAPACITY (D) [ft]
Parabolic	0.33	2.52	0.013	0.59	2.46	6.90	0.50
	0.50	6.22	Composite	0.59	1.89	20.30	
Parabolic	0.33	3.15	0.013	0.92	3.07	6.90	0.50
	0.50	7.76	Composite	0.92	2.36	20.30	
Parabolic	0.33	3.84	0.013	1.37	3.74	6.90	0.50
	0.50	9.47	Composite	1.37	2.87	20.30	
RYAN LANE CURB & ROW CAPACITY PERFORMANCE CURVE DATA							
STRUCTURE TYPE	DEPTH; WATER (Dn) [ft]	FLOW (Q) [cfs]	MANNING'S "n"	SLOPE (%) [%]	VELOCITY; WATER (Vn) [ft/s]	SPREAD (Wp) [ft]	DEPTH; CAPACITY (D) [ft]
Parabolic	0.33	4.32	0.013	1.73	4.21	6.90	0.50
	0.50	10.64	Composite	1.73	3.23	20.30	

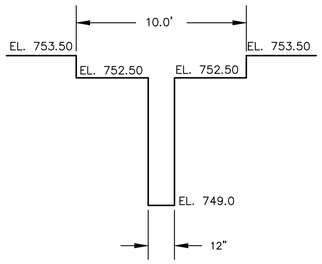
PARABOLIC CROSS-SECTION DATA														
Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	749.96	9	749.78	10.58	749.45	11	749.50	14.5	749.72	18	749.87	21.5	749.97	25	750

STREET CURB CAPACITY CALCULATIONS

PROPOSED POND VOLUME SUMMARY							
ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS	
747	20				0	0	
		2333	0.5	1166.5			
747.5	4646				1167	0	
		4890.5	0.5	2445			Sediment Volume (1519 Cu. Ft.) = 747.57
748	5135				3612	0	
		5388.5	0.5	2694			
748.5	5642				6306	0	
		6872.5	0.5	3436			WQV (Req'd)=9,114 CF for 1563 lb. Load Removal @ 748.91
749	8103				9742	0.000	WQ Volume Provided @ 749.0 = 9742 CF
		8425.5	1	8426		1.177	
750	8748				18168	3.330	
		9080.5	1	9081		6.118	
751	9413				27248	9.419	
		9753.5	1	9754		13.160	
752	10094				37002	17.300	
		10443	1	10443		21.800	Max. 100 Yr. W.S. EL. = 752.58
753	10792				47445	33.570	Freeboard = 0.92' (0.5' Required)
		11308	0.5	5654			
753.5	11824				53099	55.100	Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

BATCH DETENTION POND – STAGE – STORAGE – DISCHARGE



BATCH DETENTION POND WEIR

Detention Pond Summary

Description	Storm Frequecy				Maximum
	2-Year	10-Year	25-Year	100-Year	W.S.ELEV.
Detention Volume Required (Ac-Ft.)	0.19	0.25	0.28	0.32	752.82
Detention Volume Provided (Ac-Ft.)	0.37	0.60	0.72	0.85	752.26
Allowable Discharge (CFS)	12.13	22.29	28.88	37.54	751.75
Actual Discharge (CFS)	7.71	15.36	21.47	30.72	750.72

DETENTION POND SUMMARY

CURB INLET ON GRADE - 25 YEAR

INLET	Q25 Surface Flow (CFS)	Q25 Upstream Bypass (CFS)	Q25 Total (CFS)	LONGITUDINAL SLOPE (S_L) (FT/FT)	MANNING'S 'n'	(Se) (FT/FT)	LENGTH FOR 100% CAPTURE (Lt) (FT)	USED (FT)	INLET EFFICENCY (%)	Q25 CAPTURED (CFS)	Q25 BYPASS (CFS)	Q25 DEPTH AT CURB INLET (FT)	BYPASS TO
A-1	0.94	0.00	0.94	0.0059	0.013	0.05	4.57	10	100	0.94	0	0.41	A-9
A-2	2.20	0.00	2.20	0.0059	0.013	0.05	6.53	10	100	2.20	0	0.56	A-10
A-3	1.84	0.00	1.84	0.0059	0.013	0.05	6.06	10	100	1.84	0	0.52	A-1
A-4	2.56	0.00	2.56	0.0059	0.013	0.05	6.96	10	100	2.56	0	0.58	A-3
A-5	2.87	0.00	2.87	0.0059	0.013	0.05	7.30	10	100	2.87	0	0.60	A-2
A-6	2.18	0.00	2.18	0.0092	0.013	0.05	7.43	10	100	2.18	0	0.51	A-4
A-7	0.12	0.00	0.12	0.0173	0.013	0.05	2.66	10	100	0.12	0	0.15	RYAN LN.
A-8	3.24	0.00	3.24	0.0173	0.013	0.05	10.61	10	94.2%	3.05	0.19	0.53	RYAN LN.
A-9	1.00	0.00	1.00	0.0137	0.013	0.05	6.04	10	100	1.00	0	0.36	RIVERY
A-10	0.67	0.00	0.67	0.0137	0.013	0.05	5.10	10	100	0.67	0	0.31	RIVERY
Maximum depth at inlet = 0.33'+0.33' = 0.66'													

CURB INLET ON GRADE - 100 YEAR

INLET	Q100 Surface Flow (CFS)	Q100 Upstream Bypass (CFS)	Q100 Total (CFS)	LONGITUDINAL SLOPE (S_L) (FT/FT)	MANNING'S N	(Se) (FT/FT)	LENGTH FOR 100% CAPTURE (Lt) (FT)	USED (FT)	INLET EFFICENCY (%)	Q100 CAPTURED (CFS)	Q100 BYPASS (CFS)	Q100 DEPTH AT CURB INLET (FT)	BYPASS TO
A-1	1.18	0.00	1.18	0.0059	0.013	0.05	5.03	10	100	1.18	0	0.45	A-9
A-2	2.66	0.00	2.66	0.0059	0.013	0.05	7.07	10	100	2.66	0	0.59	A-10
A-3	2.21	0.00	2.21	0.0059	0.013	0.05	6.54	10	100	2.21	0	0.56	A-1
A-4	3.05	0.00	3.05	0.0059	0.013	0.05	7.49	10	100	3.05	0	0.61	A-3
A-5	3.46	0.00	3.46	0.0059	0.013	0.05	7.90	10	100	3.46	0	0.65	A-2
A-6	2.82	0.00	2.82	0.0092	0.013	0.05	8.28	10	100	2.82	0	0.64	A-4
A-7	0.16	0.00	0.16	0.0173	0.013	0.05	3.00	10	100	0.16	0	0.17	RYAN LN.
A-8	4.25	0.00	4.25	0.0173	0.013	0.05	11.89	10	84.1%	3.57	0.68	0.58	RYAN LN.
A-9	1.24	0.00	1.24	0.0137	0.013	0.05	6.61	10	100	1.24	0	0.39	RIVERY
A-10	0.83	0.00	0.83	0.0137	0.013	0.05	5.58	10	100	0.83	0	0.33	RIVERY
Maximum depth at inlet = 0.51'+0.33' = 0.84'													

CURB INLET CALCULATIONS

4-SIDED FIELD INLET - SUMP - 25 YEAR

INLET	Q25 Surface Flow (CFS)	Q25 Upstream Bypass (CFS)	Q25 Total (CFS)	Length of Opening (FT.)	Throat Height (FT.)	(Sx) (FT/FT)	INLET EFFICENCY (%)	Q25 DEPTH AT FIELD INLET (FT)	BYPASS TO
G-1	4.83	0.00	4.83	12	0.5	0.50	100	0.26	A-6
G-2	4.06	0.00	4.06	12	0.5	0.50	100	0.36	G-3
G-3	3.79	0.00	3.79	12	0.5	0.50	100	0.22	POND
Maximum depth at inlet = 1.0'									

4-SIDED FIELD INLET - SUMP - 100 YEAR

INLET	Q100 Surface Flow (CFS)	Q100 Upstream Bypass (CFS)	Q100 Total (CFS)	Length of Opening (FT.)	Throat Height (FT.)	(Sx) (FT/FT)	INLET EFFICENCY (%)	Q100 DEPTH AT FIELD INLET (FT)	BYPASS TO
G-1	6.14	0.00	6.14	12	0.5	0.50	100	0.31	A-6
G-2	5.18	0.00	5.18	12	0.5	0.50	100	0.43	G-3
G-3	4.82	0.00	4.82	12	0.5	0.50	100	0.26	POND
Maximum depth at inlet = 1.0'									

FOUR–SIDED AREA INLET CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

MISCELLANEOUS DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

20 OF 52

2022-44-CON

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Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivery Crossing Phase 2
Date Prepared: 2/15/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	**Williamson**	
Total project area included in plan * =	**3.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**1.72**	acres
Total post-development impervious cover fraction * =	**0.50**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1497**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**3.45**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.69**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.49**	
$L_{M\ THIS\ BASIN}$ =	**1471**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin** Batch Detention Basin
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**3.45**	acres
A_I =	**1.72**	acres
A_P =	**1.73**	acres
L_R =	**1760**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **1471** lbs.

F = **0.84**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.26**	inches
Post Development Runoff Coefficient =	**0.36**	
On-site Water Quality Volume =	**5629**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**1126**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**6755**	cubic feet

TCEQ REQUIRED WATER QUALITY CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivery Crossing Phase 2
Date Prepared: 2/15/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
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1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	**Williamson**	
Total project area included in plan * =	**3.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**1.72**	acres
Total post-development impervious cover fraction * =	**0.50**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1591**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**3.45**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.72**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.50**	
$L_{M\ THIS\ BASIN}$ =	**1591**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin**
Removal efficiency = **91** percent Batch Detention

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**3.45**	acres
A_I =	**1.72**	acres
A_P =	**1.73**	acres
L_R =	**1760**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **1591** lbs.

F = **0.90**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.70**	inches
Post Development Runoff Coefficient =	**0.36**	
On-site Water Quality Volume =	**7595**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**1519**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**9114**	cubic feet

CITY OF GEORGETOWN REQUIRED WATER QUALITY CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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TIMOTHY E. HAYNIE
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LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

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T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER QUALITY CALCULATIONS

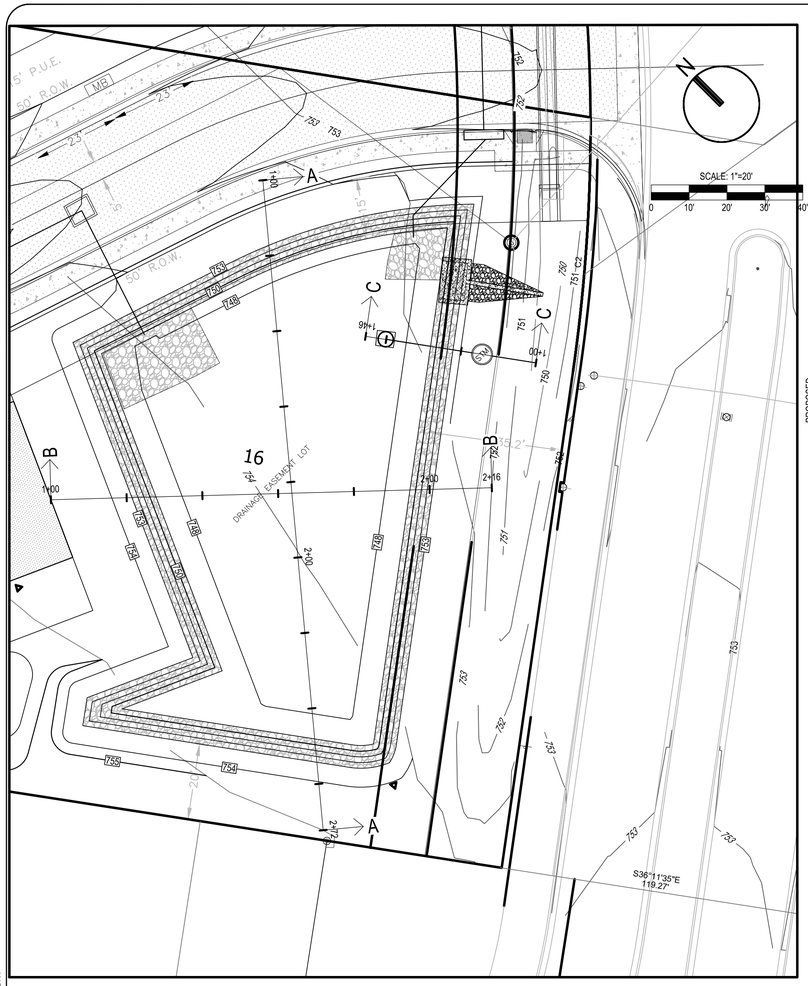
CITY OF GEORGETOWN

SHEET NO.

21 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\21 WATER QUALITY CALCULATIONS.dwg Sep 29, 24 6:32 pm



POND PLAN

SCALE = HORZ: 1"=20'

PROPOSED POND VOLUME SUMMARY						
ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS
747	20				0	0
		2333	0.5	1166.5		
747.5	4646				1167	0
		4890.5	0.5	2445		
748	5135				3612	0
		5388.5	0.5	2694		
748.5	5642				6306	0
		6872.5	0.5	3436		
749	8103				9742	0.000
		8425.5	1	8426		1.177
750	8748				18168	3.330
		9080.5	1	9081		6.118
751	9413				27248	9.419
		9753.5	1	9754		13.160
752	10094				37002	17.300
		10443	1	10443		21.800
753	10792				47445	33.570
		11308	0.5	5654		
753.5	11824				53099	55.100

Sediment Volume (1519 Cu. Ft.) = 747.57

WQV (Req'd)=9,114 CF for 1563 lb. Load Removal @ 748.91
WQ Volume Provided @ 749.0 = 9742 CF

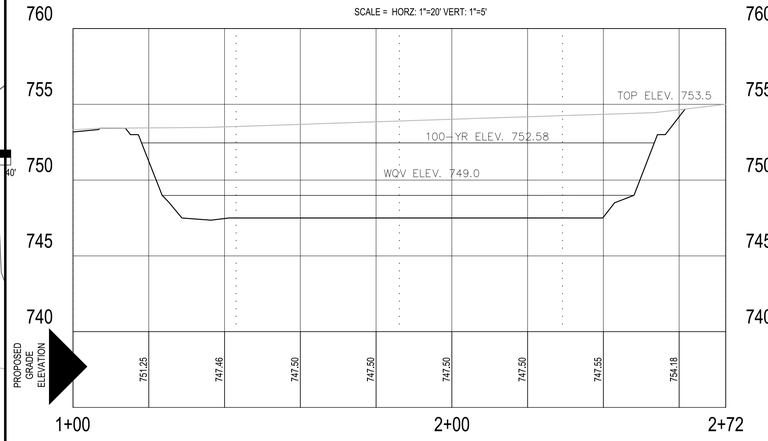
Max. 100 Yr. W.S. EL. = 752.58
Freeboard = 0.92' (0.5' Required)

Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

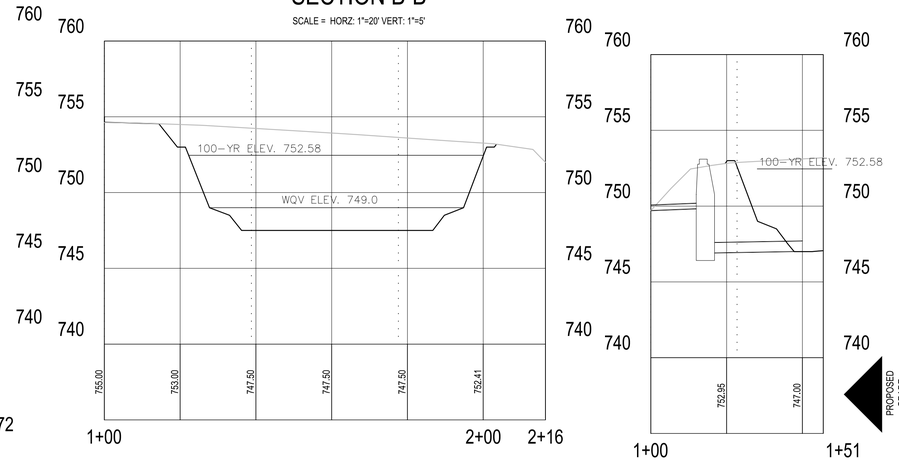
SECTION A-A

SCALE = HORZ: 1"=20' VERT: 1"=5'



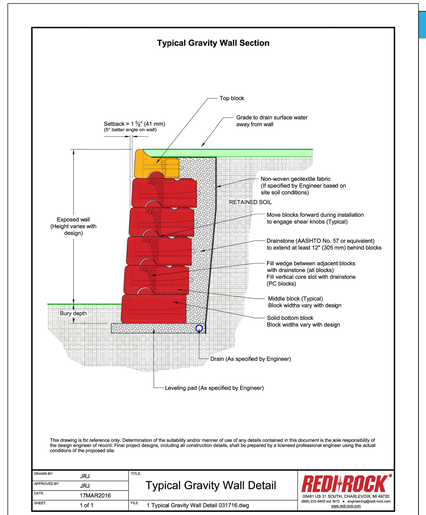
SECTION B-B

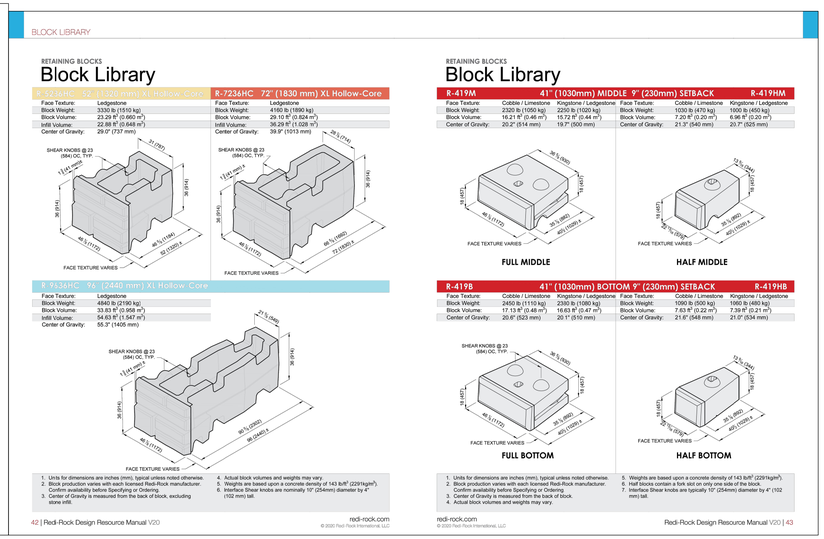
SCALE = HORZ: 1"=20' VERT: 1"=5'

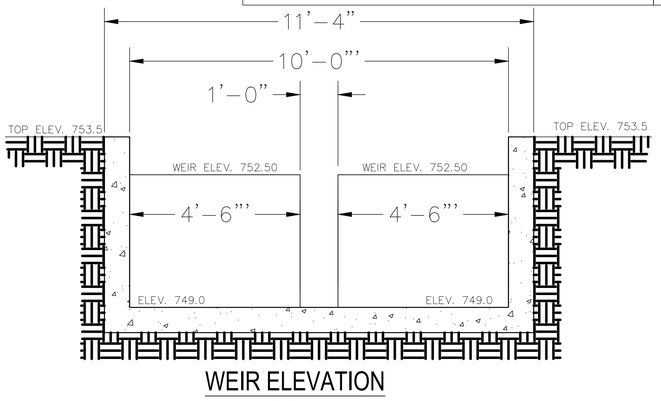


SECTION C-C

SCALE = HORZ: 1"=20' VERT: 1"=5'







WEIR ELEVATION

SCALE 1"=2'

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

BATCH DETENTION POND PLAN

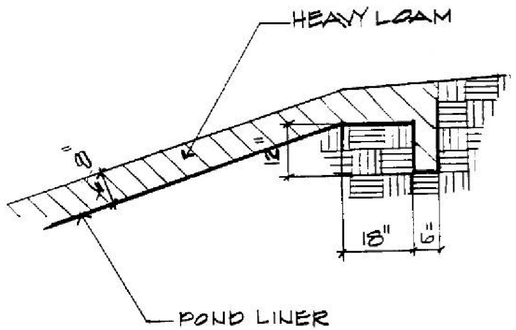
CITY OF GEORGETOWN

SHEET NO.

22 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\22 BATCH DETENTION POND PLAN.dwg Sep 29, 24 6:33 pm



LINER DATA

IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE.

CLAY LINERS SHOULD MEET THE SPECIFICATIONS AS SHOWN BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

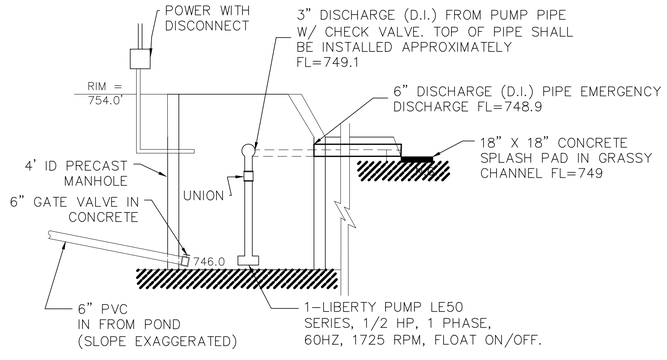
CLAY LINER SPECIFICATIONS (MIN. THICKNESS = 12")			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	Cm/Sec	$1X10^{(-6)}$
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY AT OR ABOVE OPTIMUM MOISTURE CONTENT

IF A GEOMEMBRANE IS USED IT SHALL HAVE A MINIMUM THICKNESS OF (30) THIRTY MILS AND BE ULTRAVIOLET RESISTANT. CONTRACTOR TO USE A GeoCHEM LLDPE 3000B GEOMEMBRANE OR APPROVED EQUAL. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS AS SHOWN BELOW. SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION. SEE SECTION G7 – "LOAMING, HYDROSEEDING AND PERMANENT EROSION CONTROL" SPECIFICATIONS FOR TOPSOIL AND SEEDING REQUIREMENTS. REFER TO APPROVED WPAP FOR ADDITIONAL INSTALLATION, QA/QC AND MAINTENANCE REQUIREMENTS.

GEOTEXTILE FABRIC DATA			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
MATERIAL	NON-WOVEN GEOTEXTILE FABRIC		
UNIT WEIGHT		OZ./SQ. YD.	8 (MIN.)
FILTRATION WEIGHT		IN./SEC.	0.08 (MIN)
PUNCTURE STRENGTH	ASTM D-751 (MODIFIED)	LB.	125 (MIN)
MULLEN BURST STRENGTH	ASTM D-751	P.S.I.	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	200 (MIN.)
EQUIV. OPENING SIZE	U.S. STANDARD SIEVE	NO.	80 (MIN.)

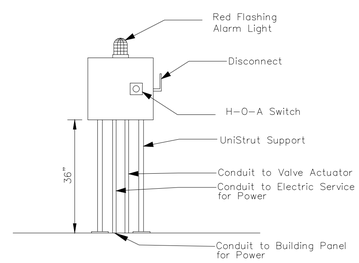
PUMP RATING CURVE	
FLOW (GPM)	FT HEAD
0	24.0
20	23.0
40	21.5
60	19.5
80	16.8
100	13.7
120	9.8
140	5.2
160	0.0

PUMP CURVE FOR SED-FILT PUMP



FILTRATION POND PUMP SECTION

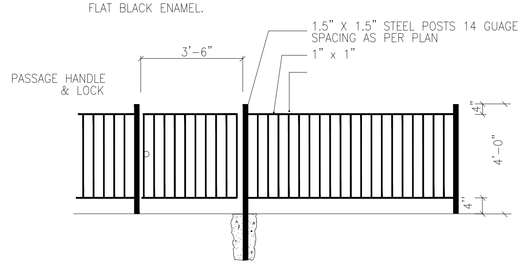
N.T.S.



CONTROL / ALARM

NTS

NOTES:
- ALL METAL TO BE DEGREASED, PHOSPHATIZED WITH RUST RETARDANT UNDERCOAT AND DIP COATED WITH TWO COATS OF INDUSTRIAL GRADE FLAT BLACK ENAMEL.

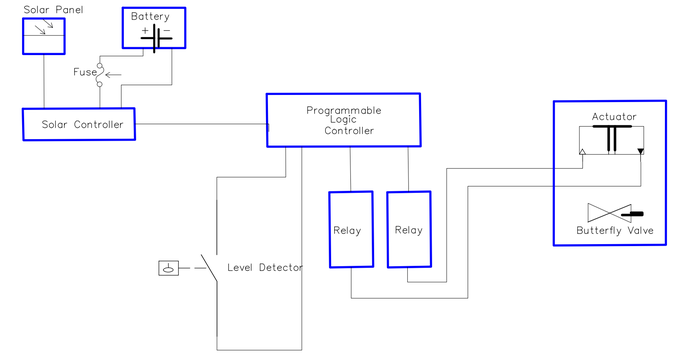


POND FENCING

Table 3-7 Geotextile Fabric Specifications (COA, 2004)

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	200
Equiv. Opening Size	US Standard Sieve	No.	80

*modified

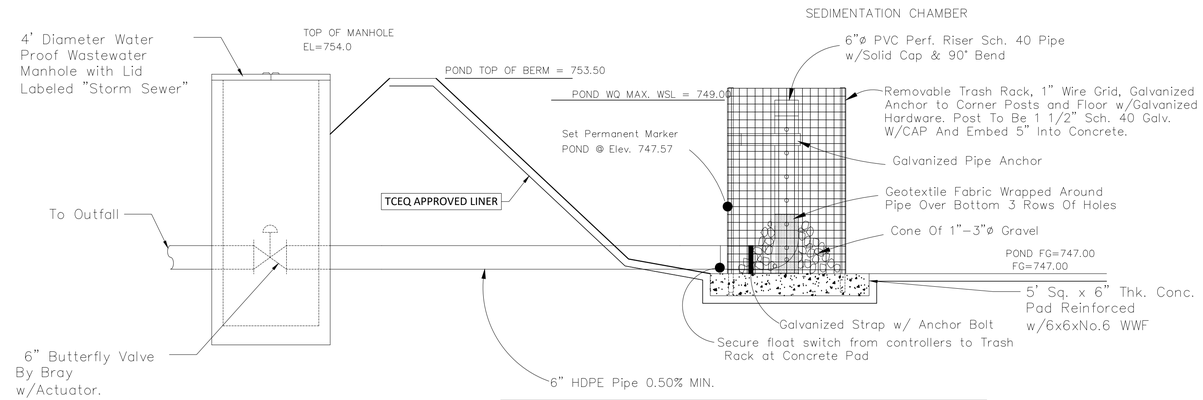


CONTROLLER CIRCUIT BOX DIAGRAM

NTS

BATCH POND CONTROLLER NOTES:

1. Submittals – The contractor shall provide the engineer with batch pond controller submittals for review and approval prior to construction. Submittals shall include: power source, battery backup, logic controller, lockable parts enclosure, float, valve, actuator, relay, alarm system, signage, etc. Total wattage of power consumption and w-hours of actuator, controller and relay shall be provided. A copy of the approved submittals shall be provided to TCEQ with the engineers certification of project completion for inclusion in the TCEQ project file .
2. Controller – The controller consists of a level sensor in the detention basin, a valve (with a default closed position), an actuator, and the associated control. The controller detects water filling the basin from the level sensor and initiates a 12-hour detention time. At the end of the required detention time, the controller opens the valve and drains into the second basin. Subsequent rainfall events that occur prior to the basin draining should cause the valve to remain open and allow the additional stormwater runoff to pass through the basin. Once the basin is drained the controller closes the valve. The drawdown time of the basin should not exceed 48 hours for a single storm event after the 12 hour required detention time. All cables should be protected by conduit and buried to prevent damage during maintenance activities. Information on the design and configuration of an existing system, including the system schematic, can be viewed at the Austin or San Antonio Regional Offices.
3. Logic Controller – The controller should be programmed to begin draining stormwater runoff from the basin 12 hours after the first stormwater runoff is sensed. The system should be programmed to have the valve remain open for two hours after the level sensor indicates the basin is empty to allow any remaining shallow water to be discharged. The system should provide the following: a test sequence, be able to deal with low battery/power outages, an on/off/reset switch, manual open/close switches (maintenance/spill), clearly visible external indicator to indicate a cycle is in progress without opening the box, and ability to exercise the valve to prevent seizing.
4. Power – The pond control system controller and actuator shall be 120 volt powdered or 120 volt solar powered with backup battery power to respond to a loss of power in the middle of a cycle.
5. Parts Enclosure & Alarm System – The parts enclosure shall be lockable. An alarm system clearly visible to indicate system malfunction, with phone numbers of the owner and TCEQ Region 11 office shall be provided.
6. Temperature/Weather – The system shall be be capable of operation from 0 to 130 degrees Fahrenheit and from 10 to 90% humidity.
7. Reliability – The system shall have a minimum reliability of 40,000 hours (4.6 years).



Perforated Riser Pipes			
Riser Pipe ø	Vert. Spacing Between Rows O.C.	No. Perforations Per Row	Diameter of Perforations
6"	4"	4	1"

SEDIMENTATION RISER PIPE

NTS

Revision #	Description	Approval

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

BATCH DETENTION POND DETAILS

CITY OF GEORGETOWN

SHEET NO.

23 OF 52

2022-44-CON

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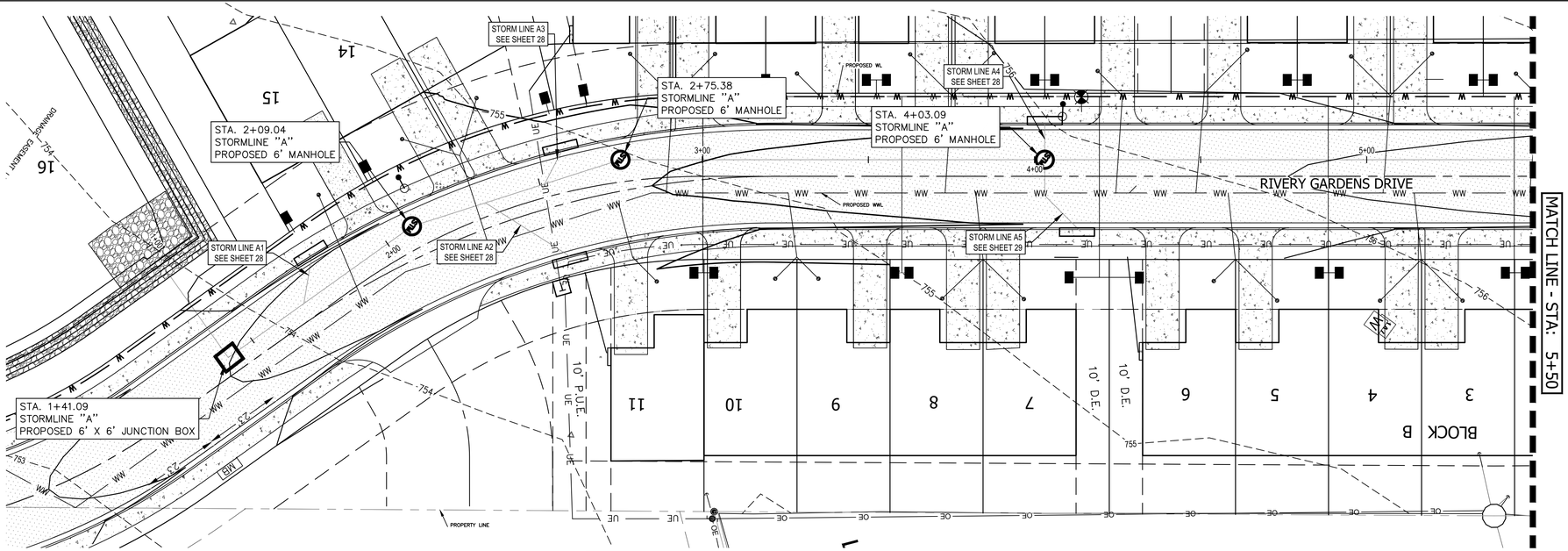

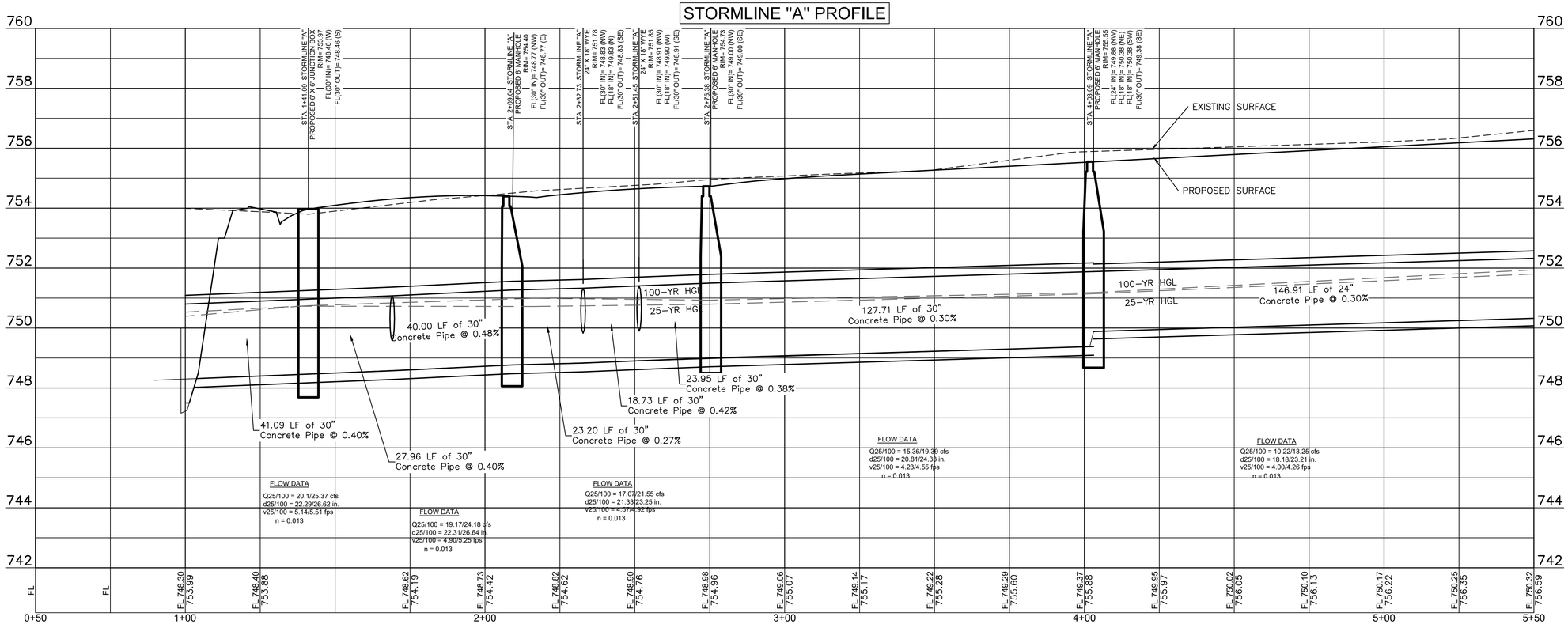

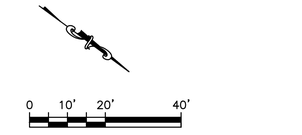

LEGEND

- BOUNDARY LINE
- ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A' - PLAN & PROFILE (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.

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2022-44-CON

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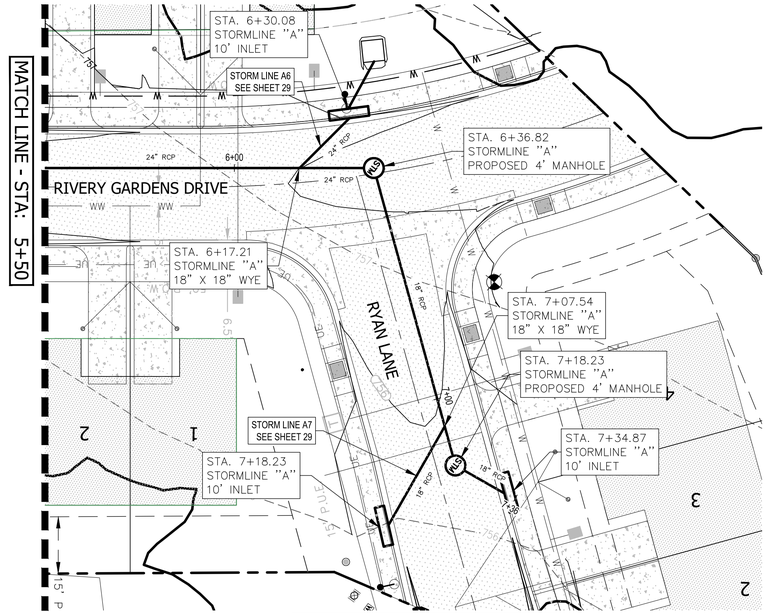

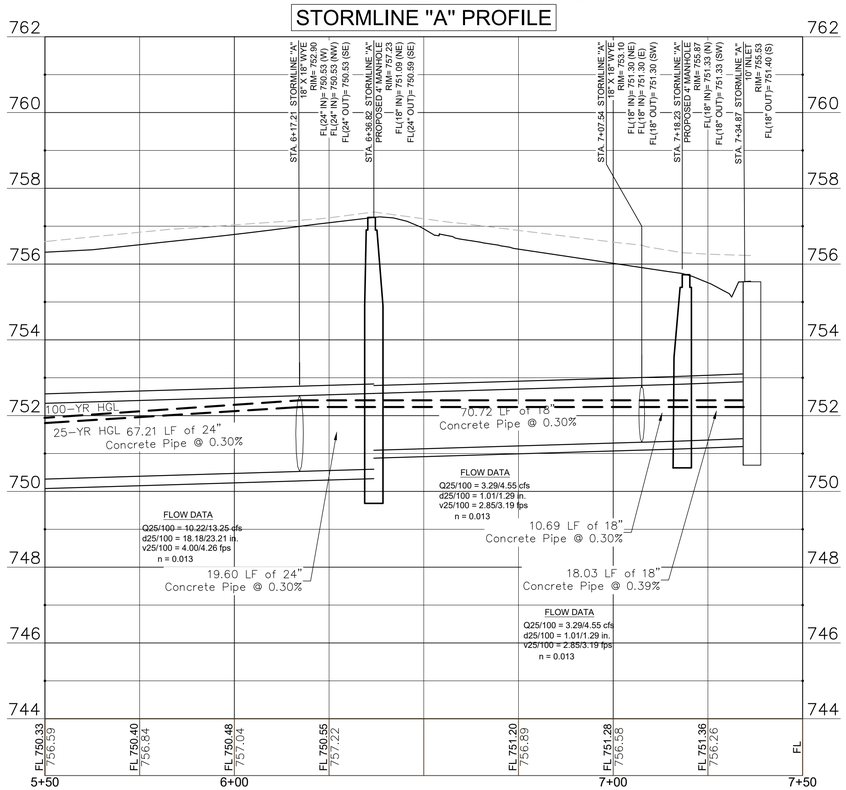

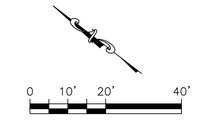

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A' - PLAN & PROFILE (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

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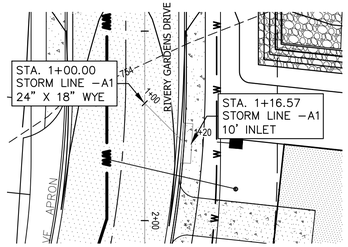
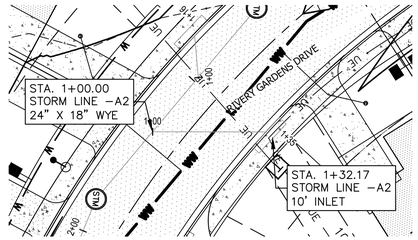
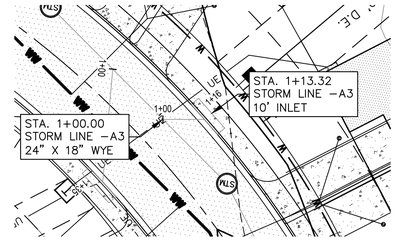
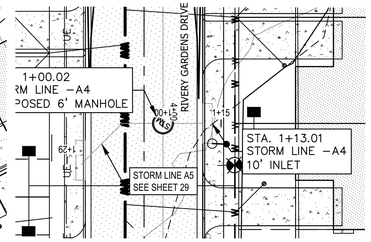
2022-44-CON

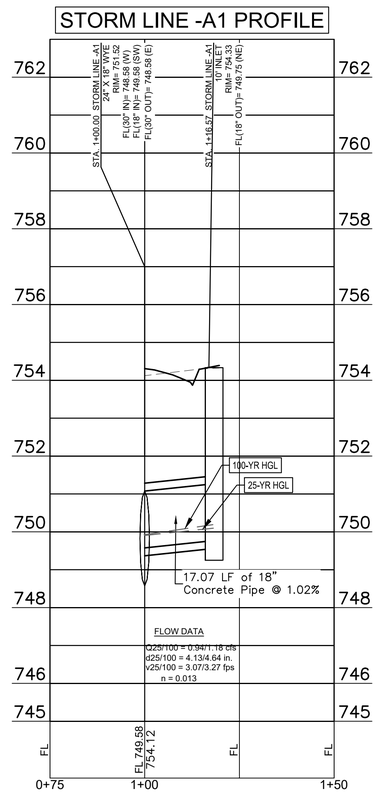
G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\25 STORM LINE 'A' - PLAN & PROFILE (2 OF 2).dwg Sep 29, 24 6:37 pm

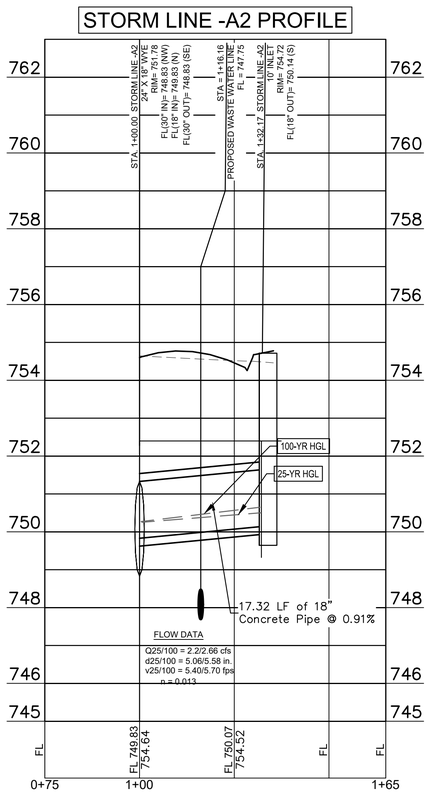


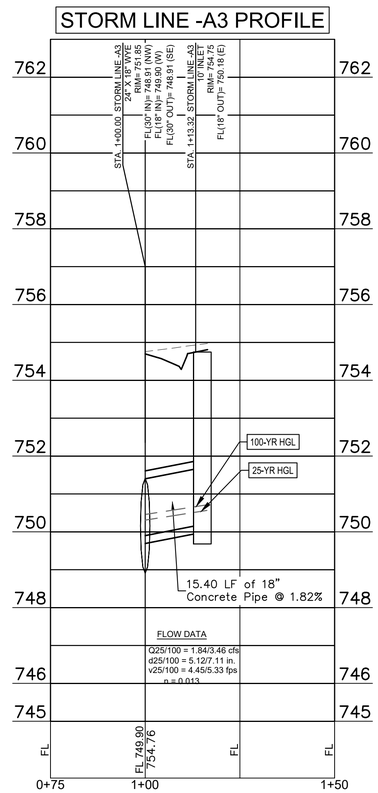


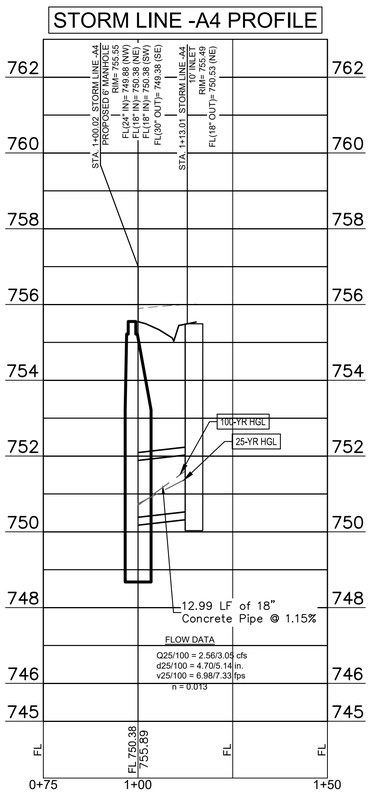


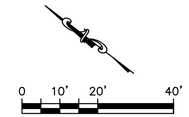












LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

Know what's below. Call before you dig.

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINES 'A1' - 'A4' - PLANS & PROFILES

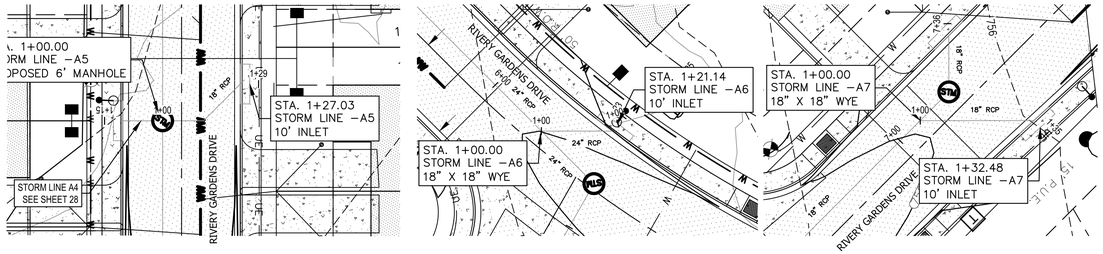
CITY OF GEORGETOWN

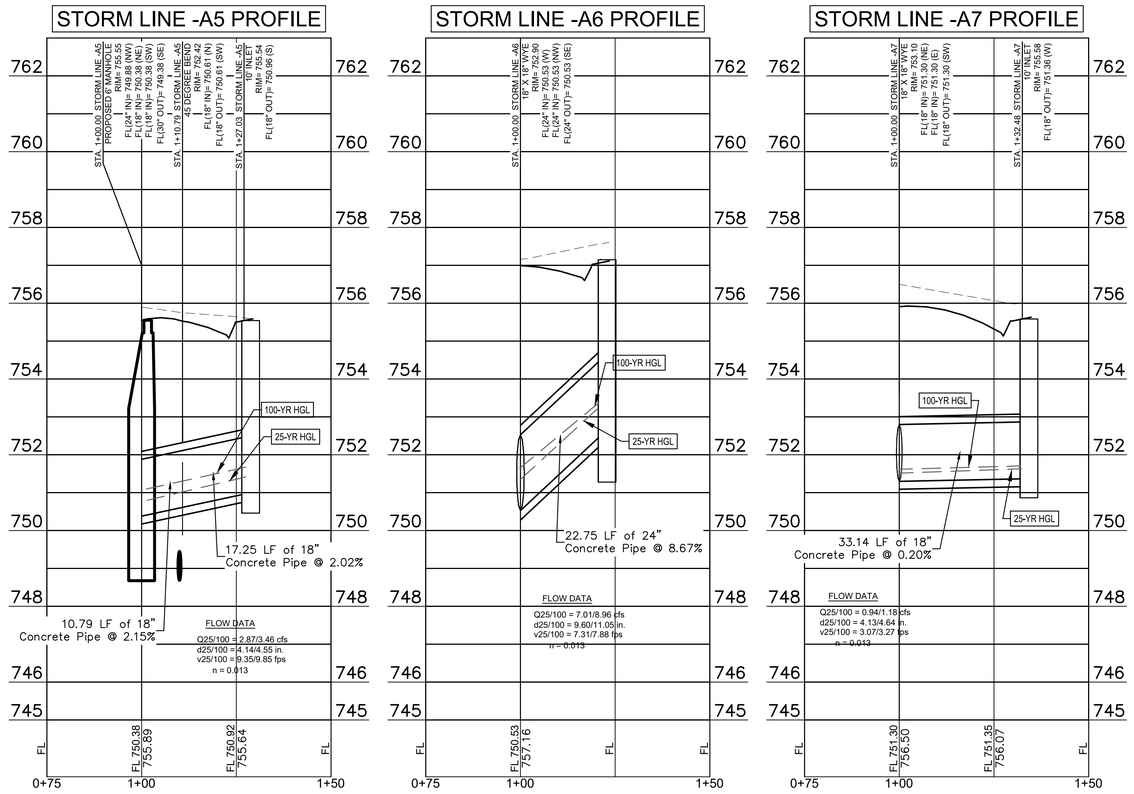
SHEET NO.

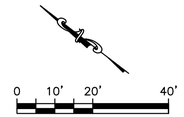
26 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\26 STORM LINES 'A1' – 'A4' – PLANS & PROFILES.dwg Sep 29, 24 6:38 pm







LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

Revision #	Description	Approval

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29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINES 'A5' - 'A7' - PLANS & PROFILES

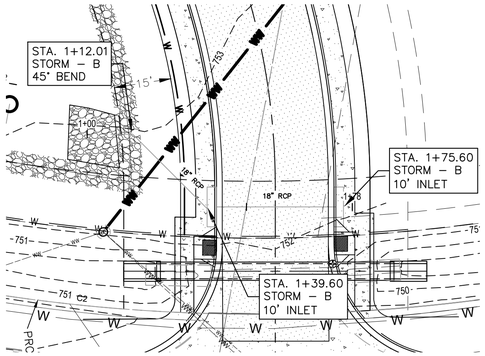
CITY OF GEORGETOWN

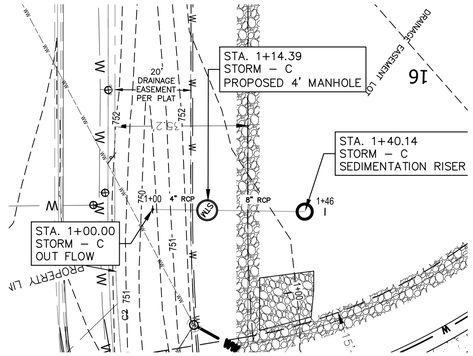
SHEET NO.

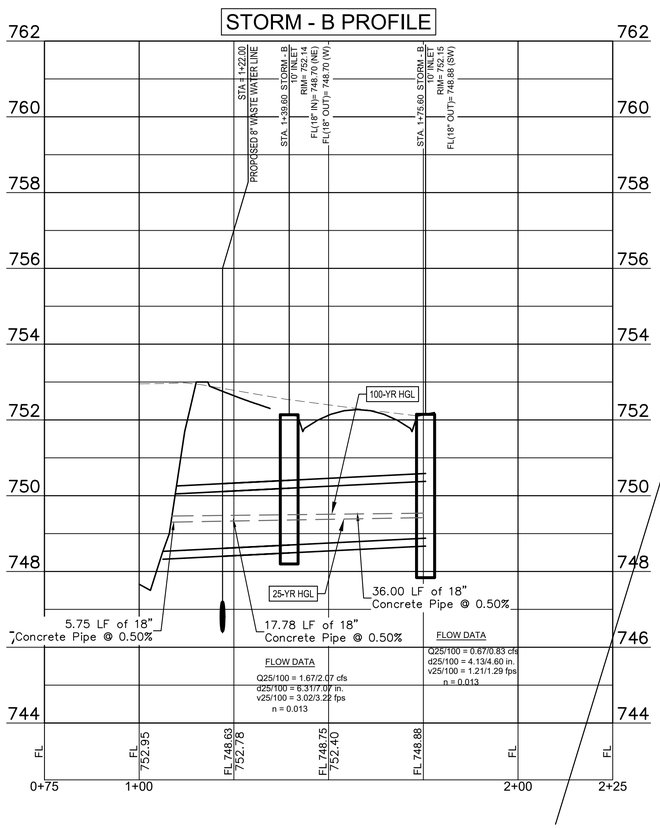
27 OF 52

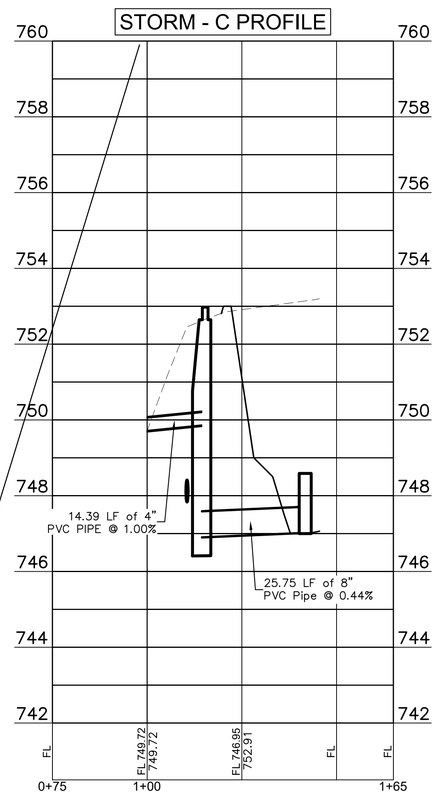
2022-44-CON

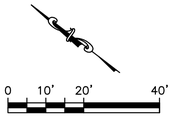
G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\27 STORM LINES 'A5' – 'A7' – PLANS & PROFILES.dwg Sep 29, 24 6:42 pm











SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\28 STORM LINES 'A9' & 'A10' – PLANS & PROFILES.dwg Sep 29, 24 6:39 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

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Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

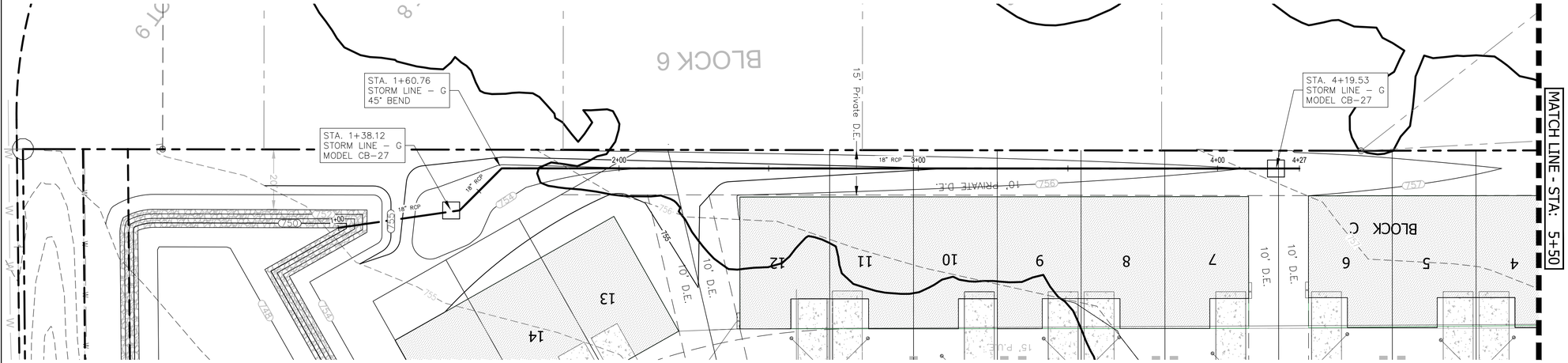
STORM LINES 'A9' & 'A10' - PLANS & PROFILES

CITY OF GEORGETOWN

SHEET NO.

28 OF 52

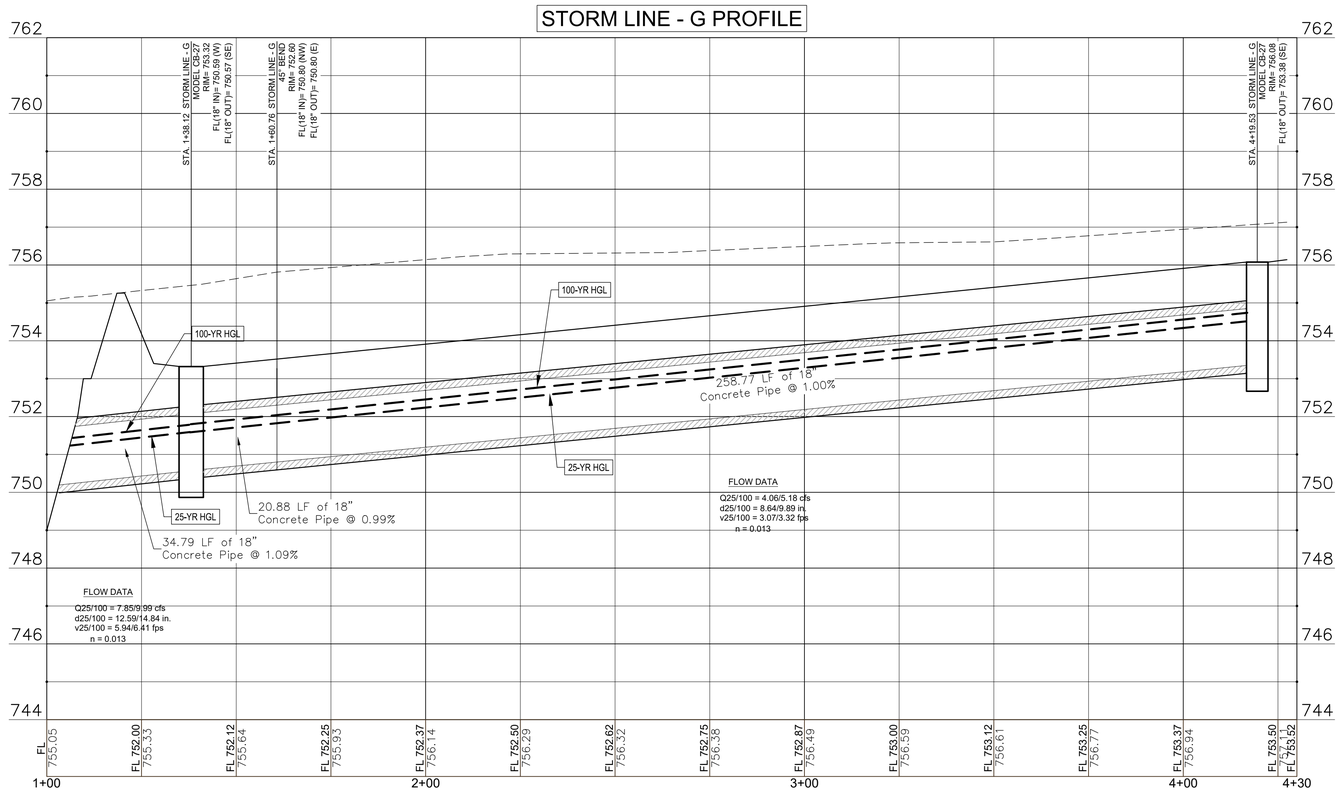
2022-44-CON



0 10' 20' 40'

SCALE 1" = 20'

STORM LINE - G PROFILE



LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
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- PROPOSED WATER METER
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- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 750 — EXISTING MAJOR CONTOUR
- 751 — EXISTING MINOR CONTOUR
- 7000 — PROPOSED MAJOR CONTOUR
- 7001 — PROPOSED MINOR CONTOUR

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'G' - PLAN & PROFILE

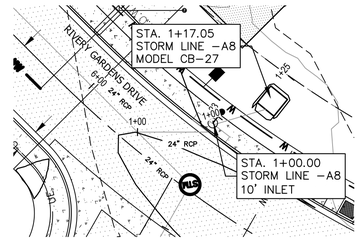
CITY OF GEORGETOWN

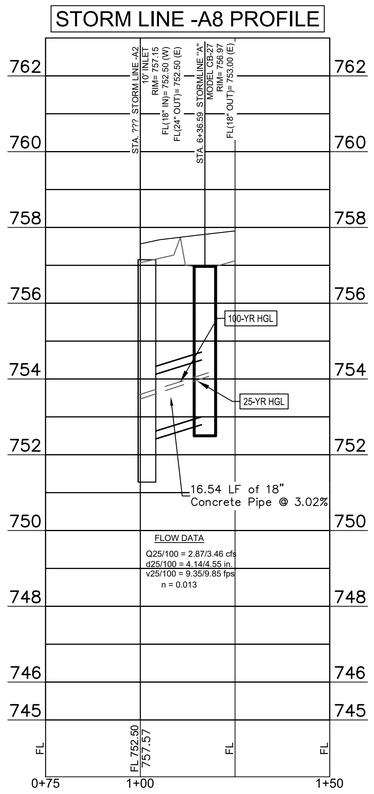
SHEET NO.

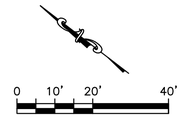
29 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\29 STORM LINE 'G' – PLAN & PROFILE.dwg Sep 29, 24 6:41 pm







LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\30 STORM LINE 'A8' - PLAN & PROFILE.dwg Sep 29, 24 6:50 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A8' - PLAN & PROFILE

CITY OF GEORGETOWN

SHEET NO.

30 OF 52

2022-44-CON

GENERAL UTILITY NOTES:

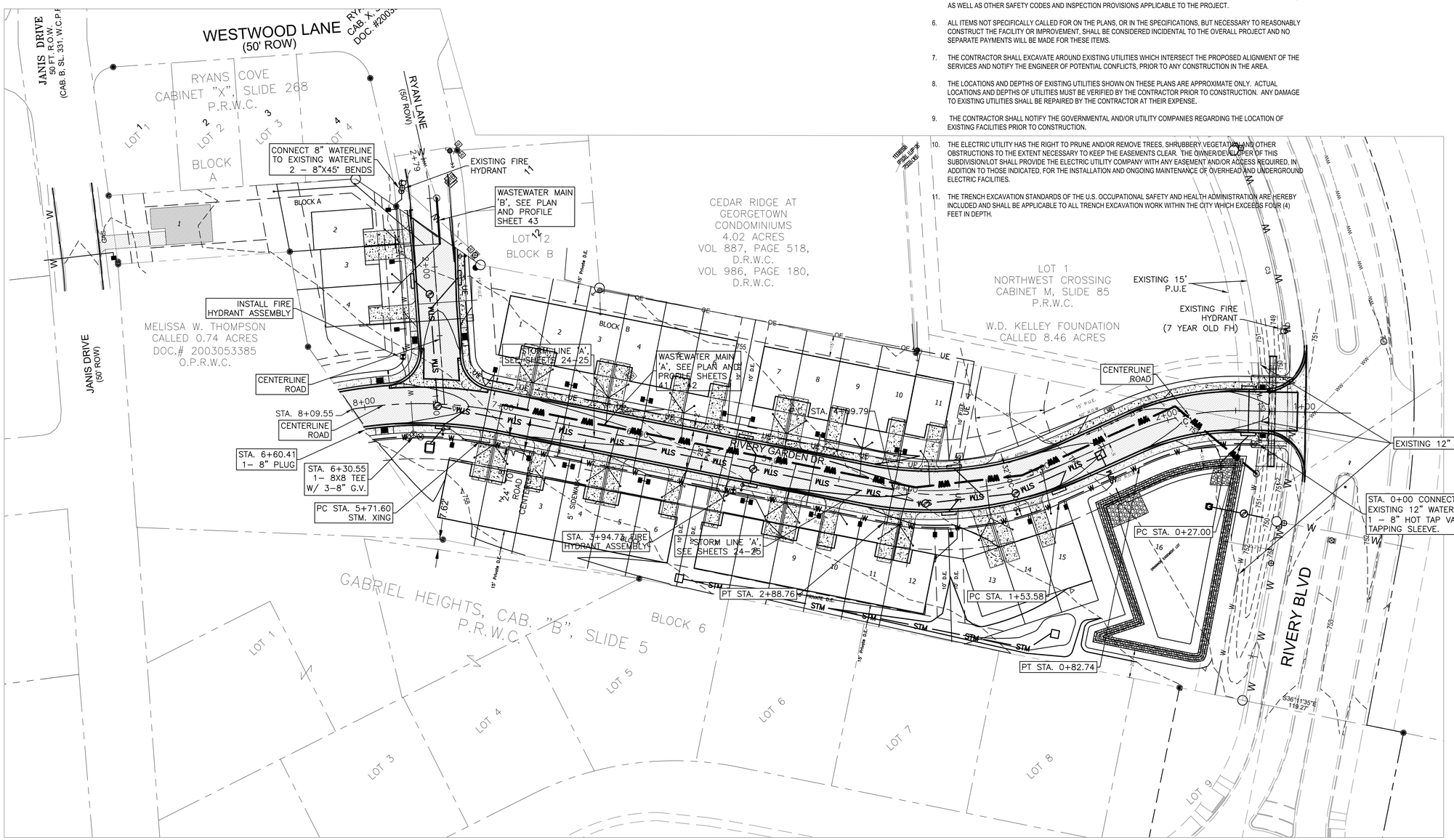
1. ALL MAINS SHALL BE FLUSHED, HYDROSTATICALLY TESTED AND DISINFECTED BY THE CONTRACTOR, PER THE CITY OF GEORGETOWN UTILITIES STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.
3. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED AND DISPOSED OF FROM THE SITE BY THE CONTRACTOR, AT THEIR EXPENSE.
4. ALL TRENCH BACKFILL FOR THIS PROJECT SHALL BE ACCOMPLISHED ACCORDING TO UTILITY DETAIL SHEET CU501 AND SHALL MEET ALL REQUIREMENTS OF THE CITY OF GEORGETOWN. NO WATER JETTING WILL BE ALLOWED. OBSERVATION OF TRENCH BACKFILL WILL BE SUPPLEMENTED BY MOISTURE-DENSITY TESTING CONDUCTED AT PERIODIC INTERVALS DURING THE COMPACTION PROCESS. THE CONTRACTOR WILL BE REQUIRED TO MAKE SUITABLE EXCAVATION TO ALLOW ACCESS FOR SUCH TESTING, AND WILL BE REQUIRED TO REMOVE AND REPLACE BACKFILL AS MANY TIMES AS NECESSARY TO ACHIEVE 95% STANDARD PROCTOR.
5. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE TCEQ AND THE CITY OF GEORGETOWN UTILITIES STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.
6. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITY OR IMPROVEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS.
7. THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS, PRIOR TO ANY CONSTRUCTION IN THE AREA.
8. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
9. THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.
10. THE ELECTRIC UTILITY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY, VEGETATION, AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE THE ELECTRIC UTILITY COMPANY WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES.
11. THE TRENCH EXCAVATION STANDARDS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ARE HEREBY INCLUDED AND SHALL BE APPLICABLE TO ALL TRENCH EXCAVATION WORK WITHIN THE CITY WHICH EXCEEDS FOUR (4) FEET IN DEPTH.

0 20' 40' 80'

SCALE 1" = 40'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- EASEMENT LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683
- W — EXISTING WATER LINE



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29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER DISTRIBUTION PLAN

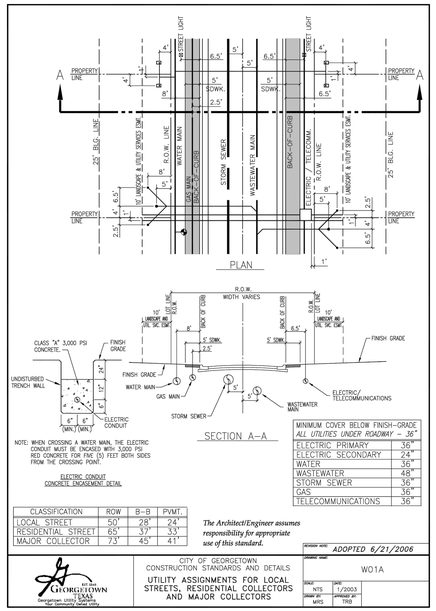
CITY OF GEORGETOWN

SHEET NO.

37 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\37 WATER DISTRIBUTION PLAN.dwg Sep 29, 24 7:00 pm



CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

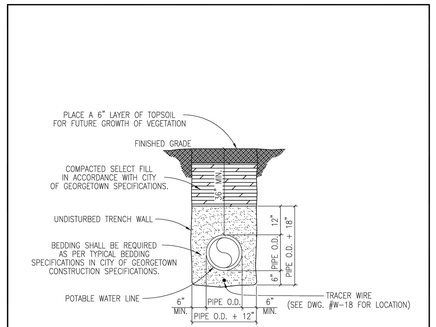
MINIMUM COVER BELOW FINISH-GRADE *ALL UTILITIES UNDER ROADWAY – 36"*	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
UTILITY ASSIGNMENTS FOR LOCAL STREETS, RESIDENTIAL COLLECTORS AND MAJOR COLLECTORS

DRAWING NAME: W01A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



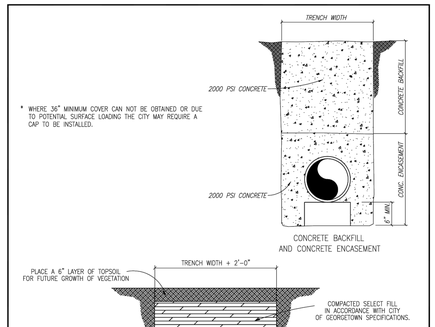
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS

DRAWING NAME: W02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



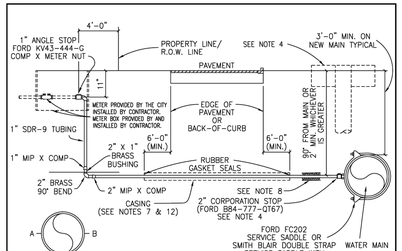
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE TRENCH CAP DETAIL

DRAWING NAME: W02A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



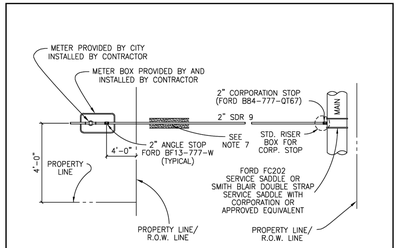
NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL. (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE-ELEVATION

DRAWING NAME: W03 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH



NOTES;
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SINGLE WATER SERVICE PLAN

DRAWING NAME: W04 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
DOUBLE WATER SERVICE PLAN

DRAWING NAME: W05 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
QUADRUPLE WATER SERVICE PLAN

DRAWING NAME: W06 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR – 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL – SERIES 2500
   B. MUELLER – 2360 SERIES
   C. CLOW

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING

DRAWING NAME: W07 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD RISER BOX FOR CORPORATION STOP

DRAWING NAME: W08 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

NOTE:
1. ATTACH FIRE HYDRANT CONNECTION AT THE END OF THE BLOW OFF VALVE.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD BLOW-OFF

DRAWING NAME: W09 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\38 WATER DETAILS (1 OF 2).dwg Sep 30, 24 4:38 pm

Revision #	Description	Approval

Date: 30-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 30-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

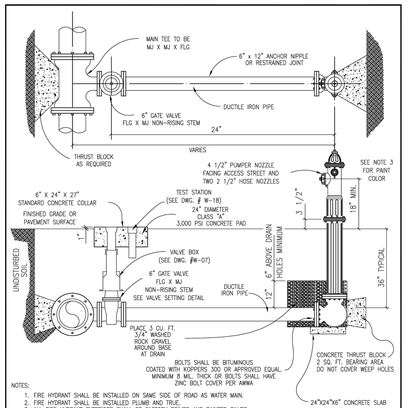
WATER DETAILS (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.

38 OF 52

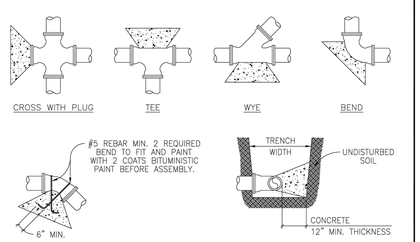
2022-44-CON



NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "HYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W10
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TYPICAL FIRE HYDRANT INSTALLATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



*DEADMAN

TYPICAL SECTION

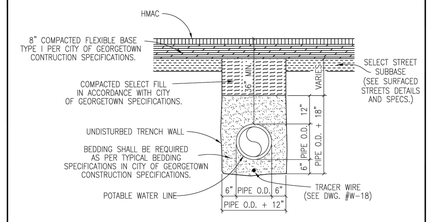
ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER, CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH WSQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W11
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

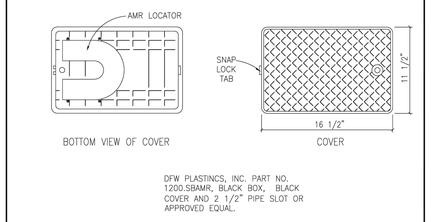


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

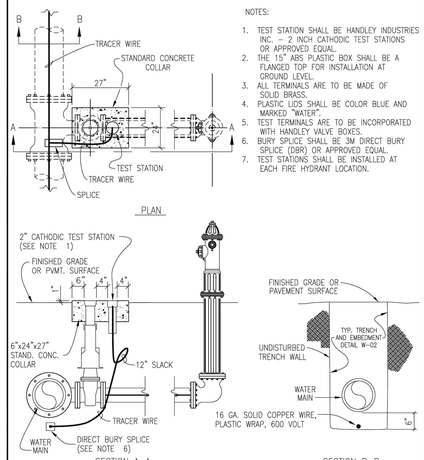
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W22
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



DFW PLASTINCS, INC. PART NO. 1200.SBAMR, BLACK BOX, BLACK COVER AND 2 1/2" PIPE SLOT OR APPROVED EQUAL.

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

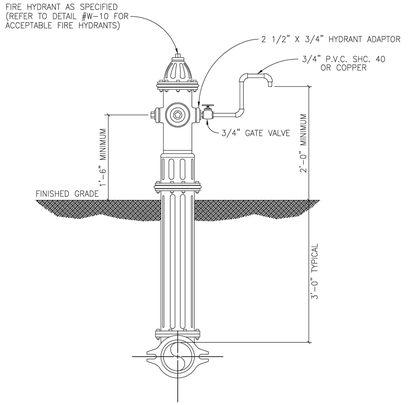
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W23
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	METER BOX (NON-TRAFFIC AREAS)
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. – 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION.

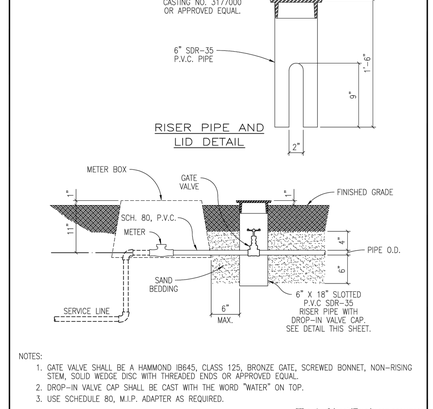
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W18
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TRACER WIRE INSTALLATION AND TEST STATION LOCATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



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

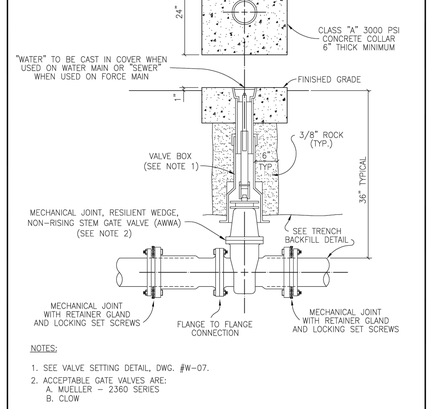
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W19
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	FIRE HYDRANT SAMPLING POINT
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. GATE VALVE SHALL BE A HAMMOND IB645, CLASS 125, BRONZE GATE, SCREWED BONNET, NON-RISING STEM, SOLID WEDGE DISC WITH THREADED ENDS OR APPROVED EQUAL.
2. DROP-IN VALVE CAP SHALL BE CAST WITH THE WORD "WATER" ON TOP.
3. USE SCHEDULE 80, M.I.P. ADAPTER AS REQUIRED.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W20
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	CUSTOMER'S CUT-OFF
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. SEE VALVE SETTING DETAIL, DWG. #W-07.
2. ACCEPTABLE GATE VALVES ARE:
   A. MUELLER – 2360 SERIES
   B. CLOW

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W21
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	INLINE VALVE INSTALLATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER DETAILS (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

39 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\39 WATER DETAILS (2 OF 2).dwg Sep 29, 24 7:02 pm

PROJECT: RIVERY CROSSING PHASE 2 (3427)
SYSTEM: WASTEWATER FLOW CALCULATIONS

Inflow/Infiltration:

RDII (gal/acre/day)	Contributing Acreage (Ac.)	Conversion Factor	RDII (gpm)
1000	3.40	1440	2.36

Residential

Development Type	Total # of Units	Total LUE's	Gallons per day (BWF + GWI) (gpd)	Convert to MGD	DWF (gpm)	Peaking Factor	Peak DWF (gpm)	
Residential	30	30	7500	0.00750	5.2	4.01	20.9	
							20.9	Total Peak DWF (gpm)
							23.2	Total Design Flow (gpm)

*Residential peaking factor per section 2.1.2 of the Georgetown Wastewater Design Criteria
*Total design flow is the sum of the peak DWF and RDII

Capacity Analysis:
Maximum Allowable Flow
Assumed "n-value" = 0.013

Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q(Full) (cfs)	Max Pipe %	Q max (gpm)	
8	7.921	0.5	0.34	0.17	0.30	0.071	0.83	80.00	299.58	Adequate

*Maximum allowable flow is derived from the Hazen Williams Equation based on AWWA C-900 Pipe

0 15' 30' 60'
SCALE 1" = 30'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- WW — PROPOSED 8" WASTEWATER LINE
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

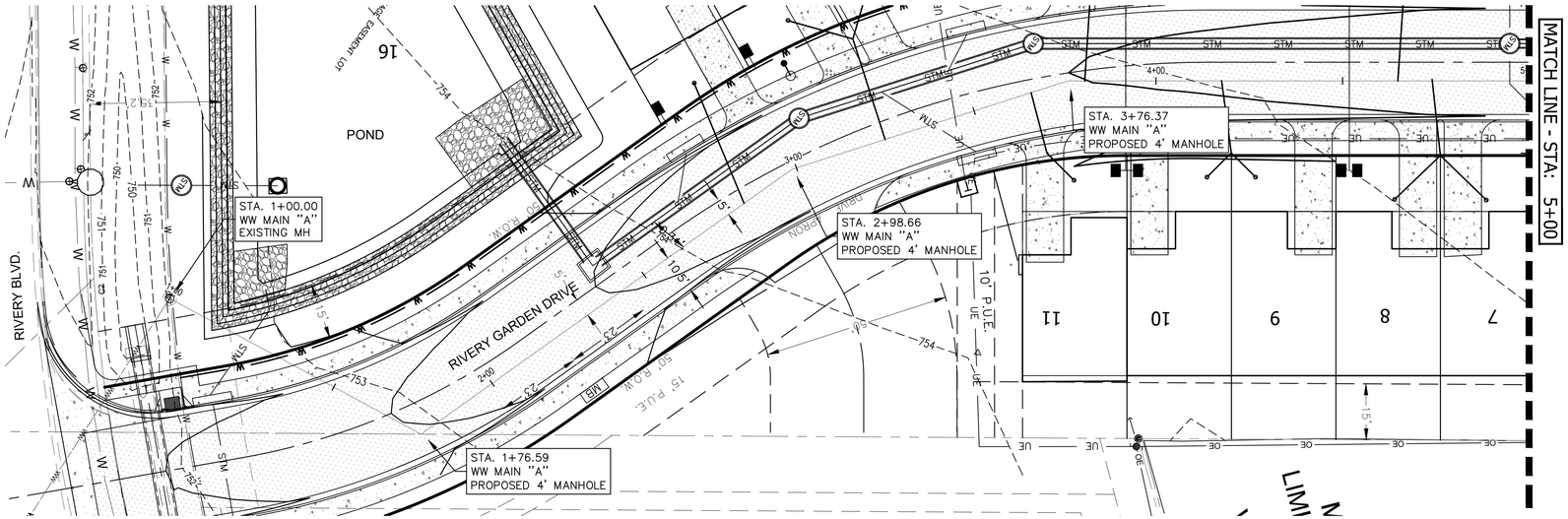
RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

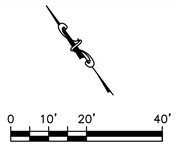
WASTEWATER COLLECTION PLAN

CITY OF GEORGETOWN

SHEET NO.
40 OF 52
2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\40 WASTEWATER COLLECTION PLAN.dwg Sep 29, 24 7:03 pm



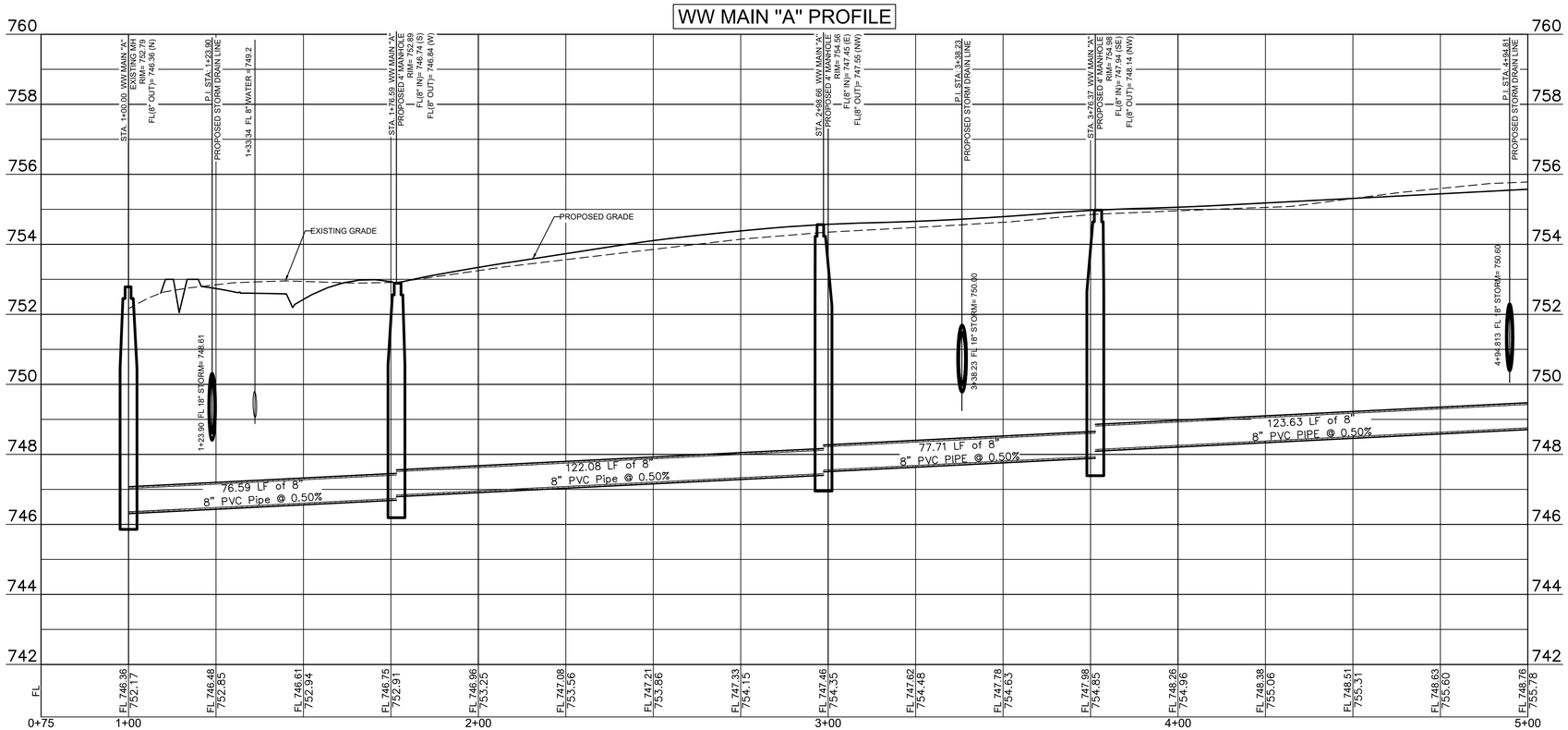


SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683

WW MAIN "A" PROFILE



Revision #	Description	Approval

Date: 29-Sep-2024
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Project No: 002-20-01
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Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.
41 OF 52
2022-44-CON

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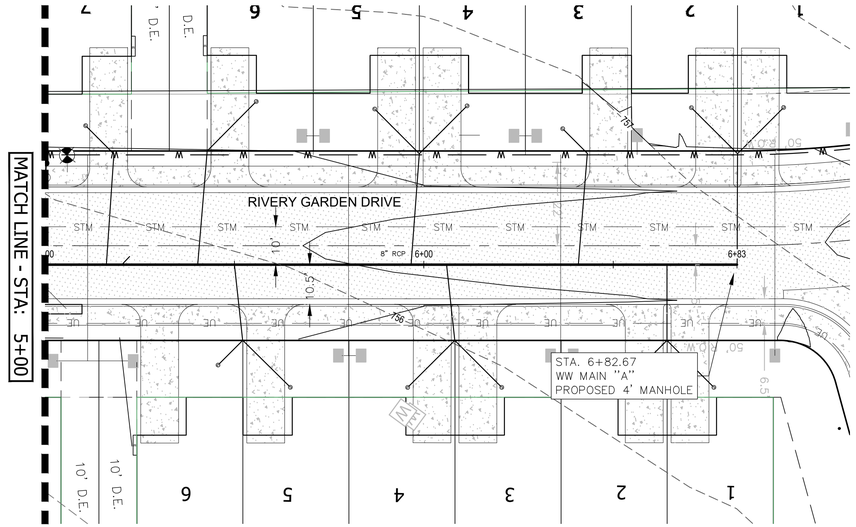

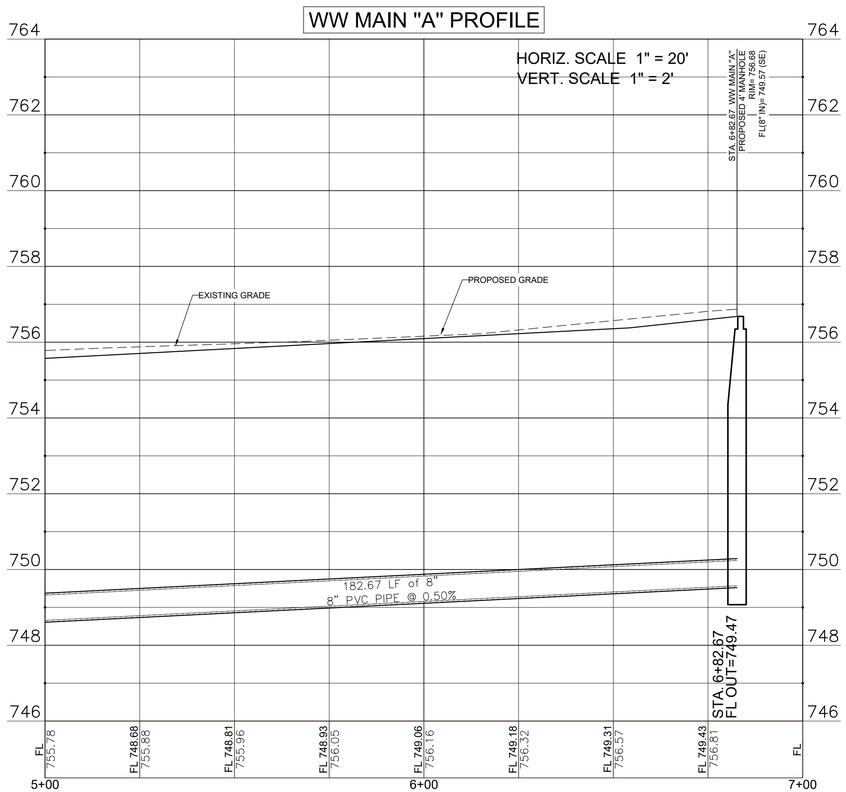

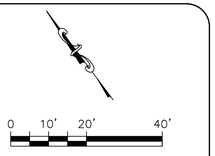

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
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- PROPOSED WATER METER
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- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER (168.3)

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

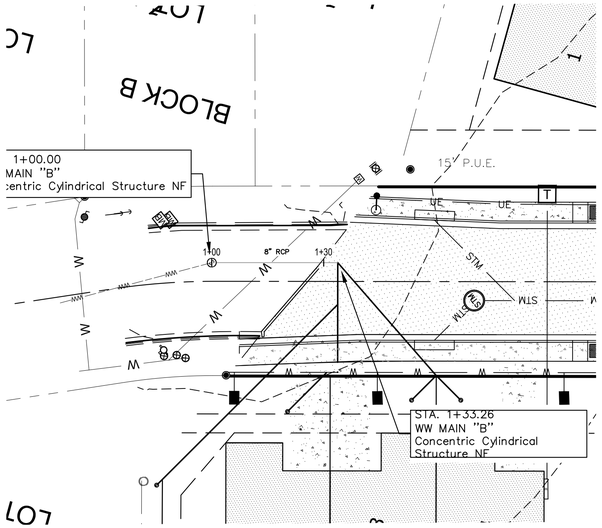
CITY OF GEORGETOWN

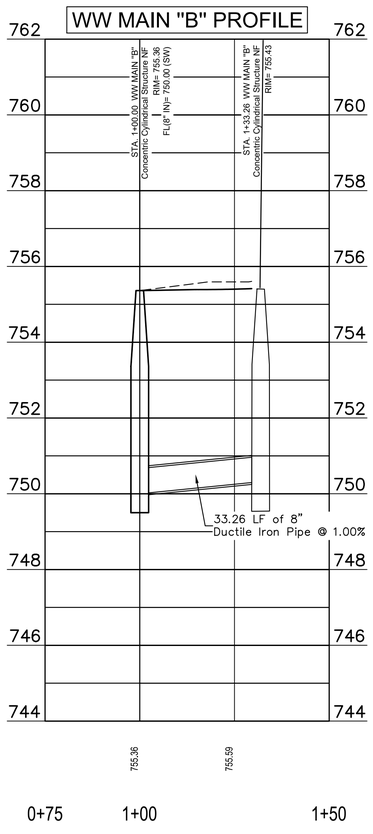
SHEET NO.

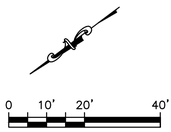
43 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\42 WASTEWATER MAIN 'A' - PLAN & PROFILE (2 OF 2).dwg Sep 29, 24 7:05 pm







LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
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- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- 1683 — TREE W/ TAG NUMBER

Revision #	Description	Approval

Date: 29-Sep-2024
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Drawn By: KS, TED
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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

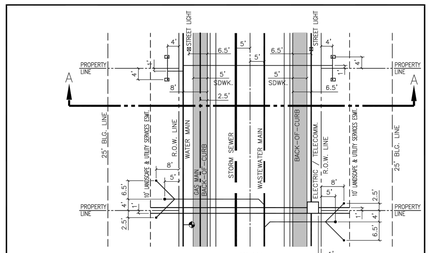
CITY OF GEORGETOWN

SHEET NO.

43 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\43 WASTEWATER MAIN 'B' - PLAN & PROFILE.dwg Sep 29, 24 7:06 pm



NOTE: WHEN CROSSING A WATER MAIN, THE ELECTRIC CONDUIT MUST BE ENCASED WITH 3,000 PSI RED CONCRETE FOR FIVE (5) FEET BOTH SIDES FROM THE CROSSING POINT.

ELECTRIC CONDUIT CONCRETE ENCASEMENT DETAIL

CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

MINIMUM COVER BELOW FINISH-GRADE *ALL UTILITIES UNDER ROADWAY – 36"*	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

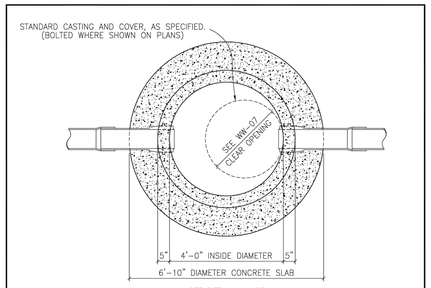
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

UTILITY ASSIGNMENTS FOR LOCAL STREETS, RESIDENTIAL COLLECTORS AND MAJOR COLLECTORS

DRAWING NAME: WW01A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



SEE DETAIL WW-03

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.

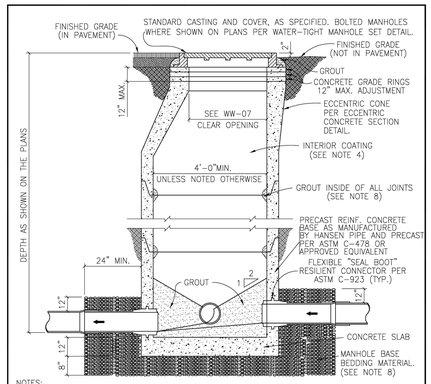
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – PLAN

DRAWING NAME: WW02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



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 GASKETTED 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 HS-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.

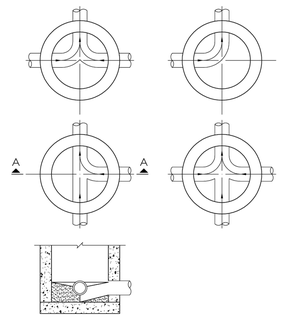
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – SECTION

DRAWING NAME: WW03 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

FLOW PATTERNS FOR INVERT CHANNELS



SECTION "A-A"

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.

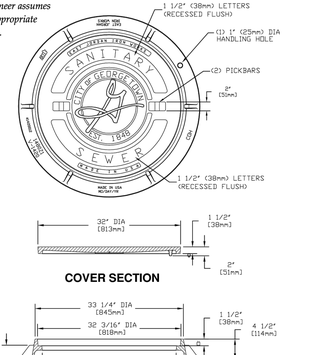
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

FLOW PATTERNS FOR INVERT CHANNELS

DRAWING NAME: WW06 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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



NOTES:

1. STANDARD WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480A V-1420/1480Z1, COVER TO BE STAMPED WITH "SANITARY SEWER".
2. STANDARD WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 41420012 00148390.
4. FOR BOLTED WASTEWATER MANHOLE SET REFER TO DETAIL WW07A.

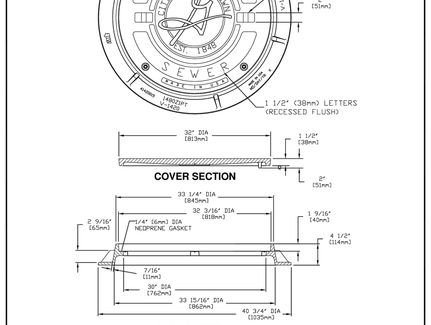
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD WASTEWATER MANHOLE SET

DRAWING NAME: WW07 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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



NOTES:

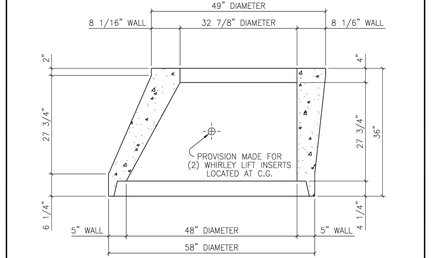
1. BOLTED WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480APT V-1420/1480Z1PT, COVER TO BE STAMPED WITH "SANITARY SEWER".
2. BOLTED WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT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

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

BOLTED WASTEWATER MANHOLE SET

DRAWING NAME: WW07A | SCALE: NTS | DATE: 1/2006 | DRAWN BY: MRS | APPROVED BY: TRB



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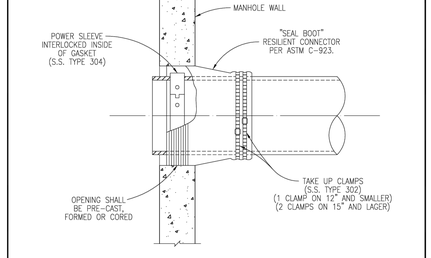
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

48"X5" TO 33"X8"X36" TALL ECCENTRIC CONCRETE SECTION

DRAWING NAME: WW08 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



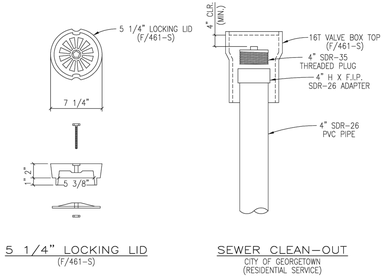
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

FLEXIBLE "SEAL BOOT" CONNECTOR

DRAWING NAME: WW10 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



5 1/4" LOCKING LID (F/461-S)

SEWER CLEAN-OUT
CITY OF GEORGETOWN
(RESIDENTIAL SERVICE)

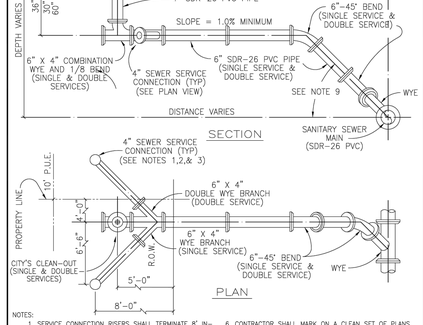
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

SEWER CLEAN-OUT DETAIL

DRAWING NAME: WW12 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

1. SERVICE CONNECTION RISERS SHALL TERMINATE 8' IN-SIDE THE PROPETY LINE.
2. THE END OF EACH SERVICE CONNECTION RISER SHALL BE EXTENDED 12" ABOVE FINISH GRADE.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATER-TIGHT WITH AN APPROVED CAP OR PLUG.
4. FOR P.V.C. INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPSITE END WITH P.V.C. TO P.V.C. KNOCK ON SLEEVE.
5. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT (1'-0") ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON PAVEMENT REPLACEMENT DETAIL.
6. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
7. ANY DEVIATION FROM THESE METHODS MUST BE APPROVED BY THE CITY OF GEORGETOWN ENGINEERING DEPARTMENT.
8. SERVICE LINE MATERIAL SHALL BE P.V.C., SDR-26.
9. SEWER SERVICE SLOPE TO BE 45° OFF CENTERLINE OF MAIN.

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

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

SEWER SERVICE CONNECTIONS

DRAWING NAME: WW13 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER DETAILS (1 OF 2)

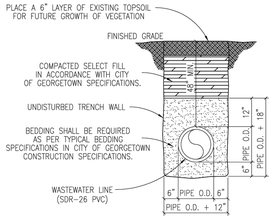
CITY OF GEORGETOWN

SHEET NO.

44 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C44 WASTEWATER DETAILS (1 OF 2).dwg Sep 29, 24 7:07 pm

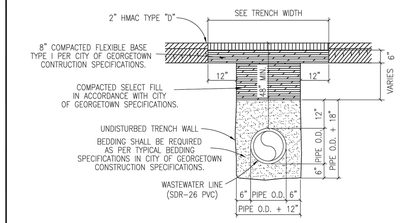


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS
WW16
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



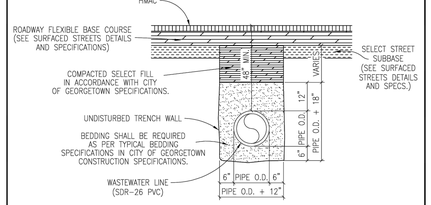
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
2. BASE MATERIAL SHALL BE PLACED IN MULTIPLE LIFTS NOT TO EXCEED 6". EACH LAYER SHALL BE THOROUGHLY ROLLED OR TAMPED TO SPECIFIED MAXIMUM DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
5. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
6. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL AND PAVEMENT REPLACEMENT DETAIL UNDER EXISTING ROADWAY
WW17
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



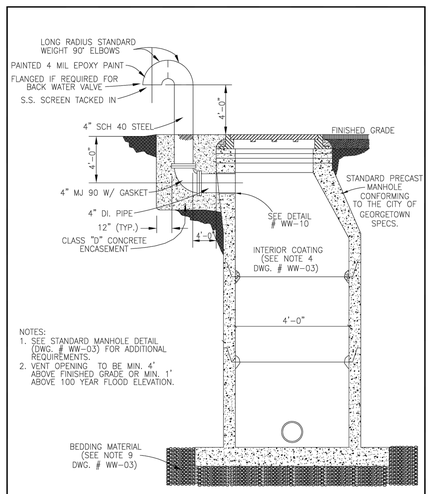
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
WW18
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



NOTES:
1. SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.
2. VENT OPENING TO BE MIN. 4" ABOVE FINISHED GRADE OR MIN. 1' ABOVE 100 YEAR FLOOD ELEVATION.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL MANHOLE WITH VENT
WW19
SCALE: NTS | DATE: 11/2003
DRAWN BY: MRS | APPROVED BY: TRB

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 GASKETTED 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 HS-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
10. ALL PVC PIPE SHALL BE REMOVED FROM INVERT.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
PRECAST MANHOLE ON CAST-IN-PLACE FOUNDATION
WW20
SCALE: NTS | DATE: 1/2006
DRAWN BY: MRS | APPROVED BY: TRB

SECTION A-A

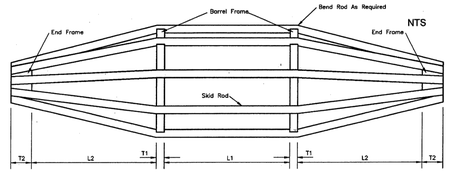
PLAN OF STRUCTURE IN ROADWAY

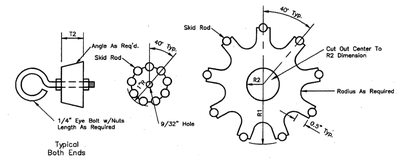
NOTE:
INSTALLATION OF THE CONCRETE CASTING IS REQUIRED FOR AND APPLIES TO ALL TYPES OF MANHOLES TO BE LOCATED IN THE ROADWAY.

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

APPROVED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CONCRETE CASTING MANHOLE DETAIL
WW21
SCALE: NTS | DATE: 1/2006
DRAWN BY: MRS | APPROVED BY: TRB





End Frame | Barrel Frame

Note: Weld All Rods To Frame

Mandrel Shall Be Constructed From Metal That Can Withstand 200 PSI Without Being Deformed.

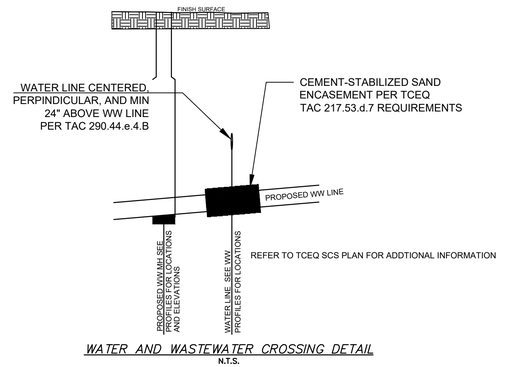
Mandrel Dimensions
5% Deflection
For O.D. Controlled PVC Pipe
(All Dimensions In Inches)

Size	Type	O.D. Average	Min. Wall Thickness	L1	L2	R1	R2	T1	T2	Rod Diameter	MANDREL O.D.
6"	D3034 SDR35	6.275	0.180	4.50	6	2.81	0.75	0.375	1.0	0.375	5.62
6"	D3034 SDR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
6"	D3034 DR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
8"	D3034 SDR35	8.400	0.240	6.00	6	3.96	1.25	0.375	1.0	0.375	7.52
8"	D3034 SDR26	8.400	0.323	6.00	6	3.68	1.25	0.375	1.0	0.375	7.37
8"	D3034 DR26	8.625	0.323	6.00	6	3.76	1.25	0.375	1.0	0.375	7.525
10"	D3034 SDR35	10.500	0.300	7.50	6	4.70	1.50	0.375	1.0	0.375	9.40
10"	D3034 SDR26	10.500	0.404	7.50	6	4.60	1.50	0.375	1.0	0.375	9.21
12"	D3034 SDR35	12.500	0.360	9.00	6	5.60	1.75	0.375	1.0	0.375	11.20
12"	D3034 SDR26	12.500	0.481	9.00	6	5.48	1.75	0.375	1.0	0.375	10.96
15"	D3034 SDR26	15.300	0.588	11.25	6	6.71	2.00	0.375	1.0	0.375	13.42
15"	D3034 SDR35	15.300	0.437	11.25	6	6.85	2.00	0.375	1.0	0.375	13.70
18"	F679 T-1	18.701	0.536	13.50	9	8.37	2.50	0.50	1.5	0.50	16.74
21"	F679 T-1	22.047	0.632	15.75	9	9.87	3.00	0.50	1.5	0.50	19.74
24"	F679 T-1	24.803	0.711	18.00	9	11.11	3.50	0.50	1.5	0.50	22.22
27"	F679 T-1	27.953	0.801	20.25	9	12.52	4.00	0.50	1.5	0.50	25.04
6"	CL350 D.I.	6.9	0.25	4.50	6	3.04	0.75	0.375	1.0	0.375	6.08
8"	CL350 D.I.	9.05	0.25	6.00	6	4.06	1.25	0.375	1.0	0.375	8.12

Typical Mandrel Details

No Scale

WASTEWATER ENCASEMENT DETAIL WATER/SEWER LINE CROSSING



WATER AND WASTEWATER CROSSING DETAIL
N.T.S.

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\45 WASTEWATER DETAILS (2 OF 2).dwg Sep 29, 24 7:08 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

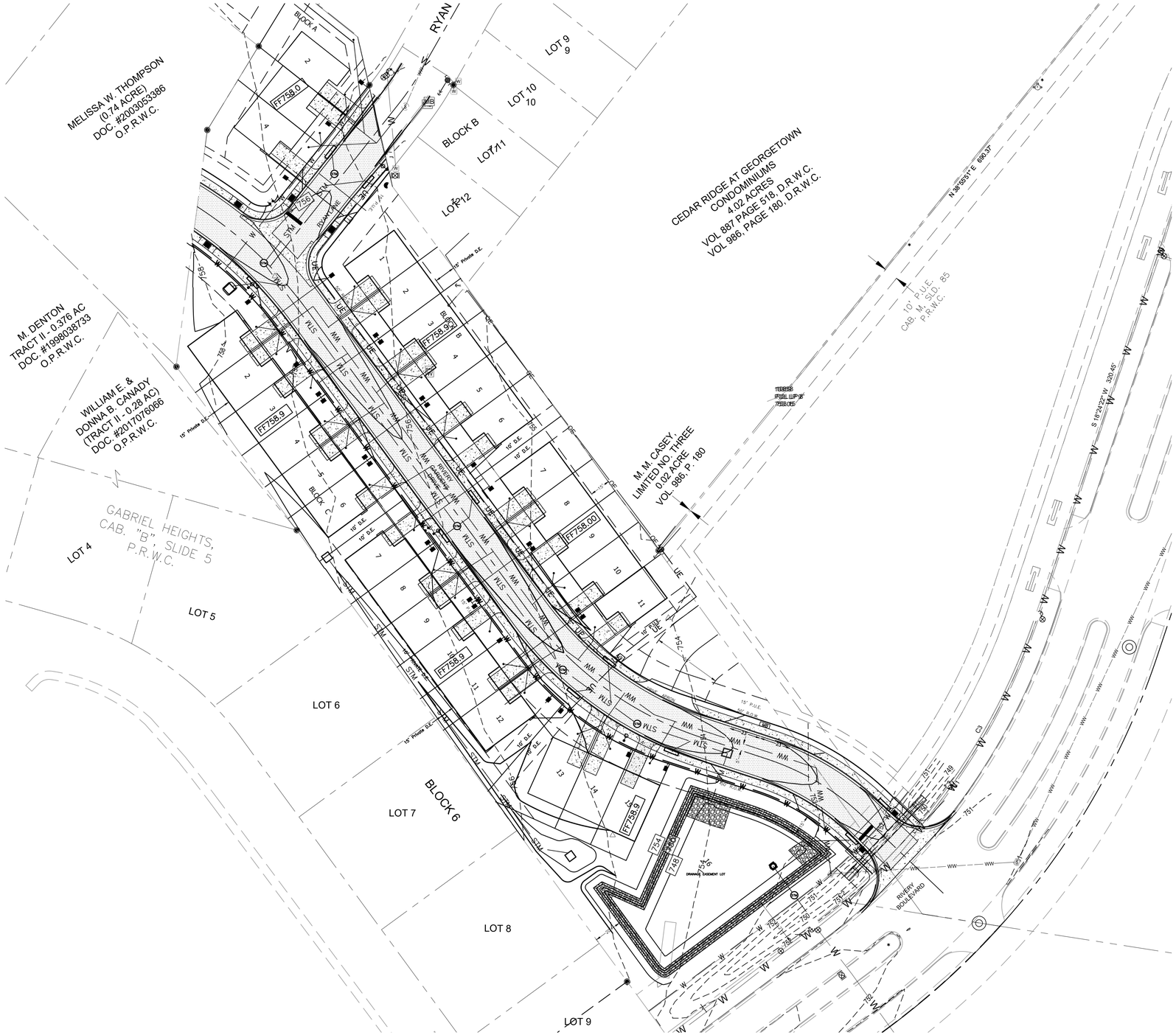
WASTEWATER DETAILS (2 OF 2)

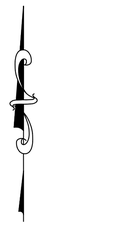
CITY OF GEORGETOWN

SHEET NO.

45 OF 52

2022-44-CON





0 40 80 Feet

SCALE 1" = 40'

LEGEND

BC	BACK OF CURB
G	GARAGE FLOOR
FF	FINISHED FLOOR
FG	FINAL GRADE
FL	FLOW LINE
●	TREE
FF 758.00	FINISHED FLOOR ELEVATION
WW	PROPOSED WASTEWATER MANHOLE (UNLESS NOTED)
WW	PROPOSED 12" WASTEWATER LINE
W	PROPOSED WATER LINE
	EASEMENT LINE
	EXISTING UTILITY POLE
OHE	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING CATTLE PANEL FENCE
W W	EXISTING WATER LINE
700	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
870	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED PAVING
	PROPOSED CONCRETE

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

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1010 Provident Lane
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512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

PAVING & GRADING PLAN

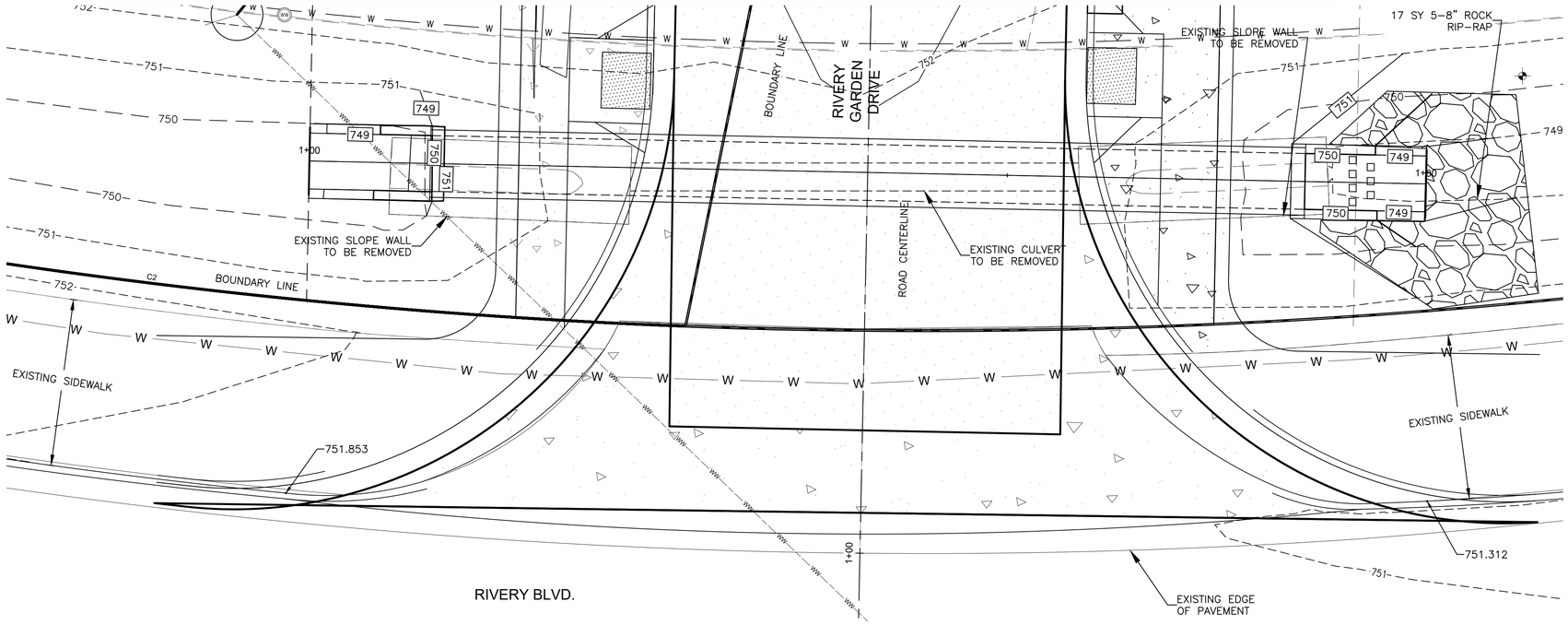
CITY OF GEORGETOWN

SHEET NO.

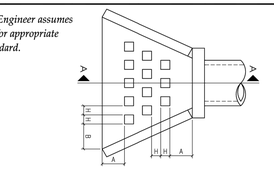
46 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\46 PAVING & GRADING PLAN.dwg Sep 29, 24 7:11 pm



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



NOTES:

1. USE CLASS "A" CONCRETE, 3,000 PSI AT 28 DAYS, UNLESS NOTED.
2. REINFORCING STEEL – ASTM A615, GRADE 40, UNLESS NOTED.
3. LAP REINFORCING 30 BAR DIAMETERS MIN. AT SPLICES, UNLESS NOTED.
4. CHAMFER EXPOSED EDGES OF CONCRETE 3/4", UNLESS NOTED.
5. PLACE REINFORCING WITH THE CENTER OF THE OUTSIDE BARS 2 INCHES FROM THE SURFACE OF THE CONCRETE.

TABLE OF DIMENSIONS FOR ENERGY DISSIPATOR DETAIL

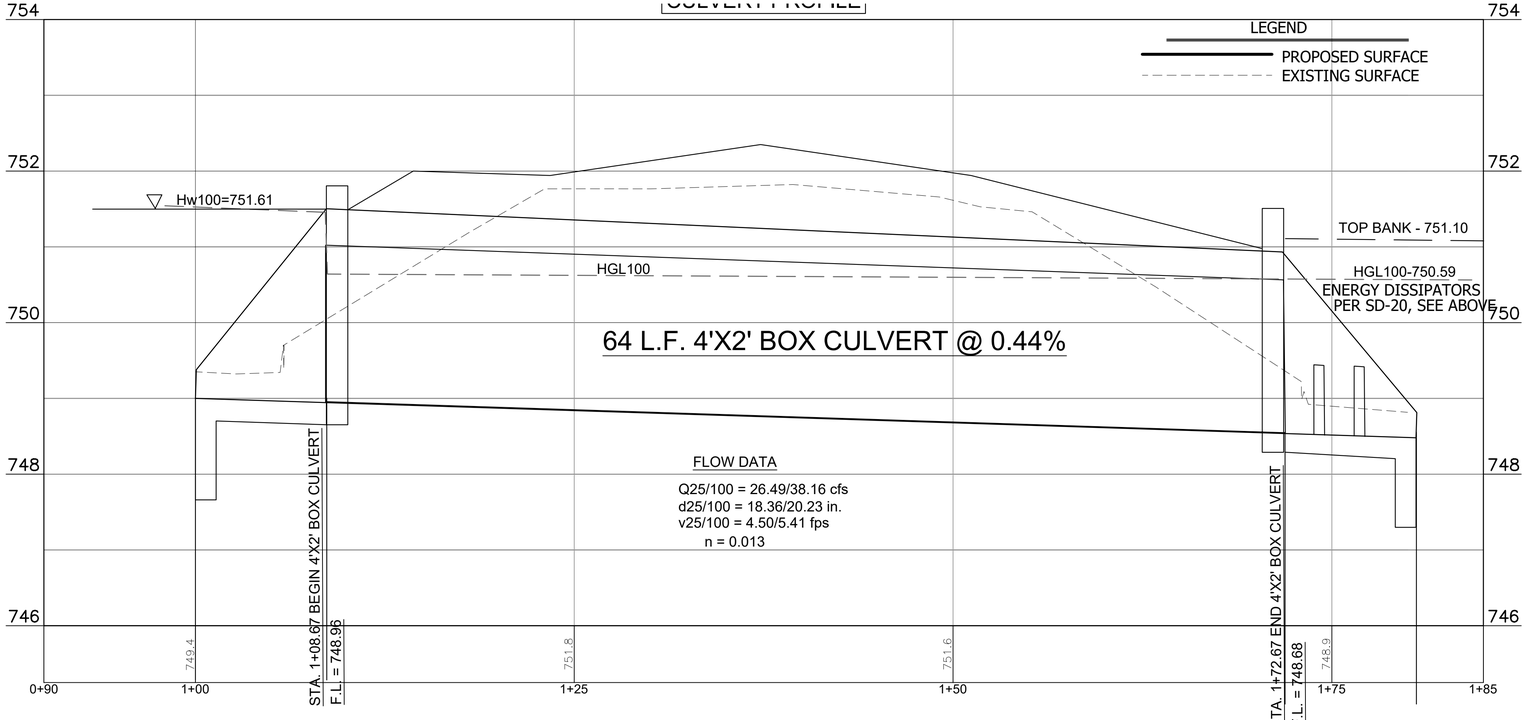
D PIPE DIAMETER (INCHES)	NUMBER OF ROWS OF DISSIPATORS	NUMBER OF DISSIPATORS IN FRONT ROW	H (INCHES)	A (INCHES)	B (INCHES)
12	1	3	4	4	9.1875
18	2	4	4 1/2	9 1/2	15.5625
24	2	5	6	14 3/4	16 1/2
30	3	6	7 1/2	12 1/2	14 3/8
36	3	6	9	16 1/4	18 5/16
42	3	6	10 1/2	20	22 1/4
48	3	6	12	23 3/4	26 1/4
54	3	6	13 1/2	27 1/2	27 3/4
60	3	6	15	31 1/4	31 5/8

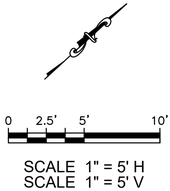
REVISION NOTE: ADOPTED 6/21/2006
STANDARD NAME: SD20

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
ENERGY DISSIPATER DETAIL

DRAFT: NTS | DATE: 1/2003
DESIGN BY: MRS | APPROVED BY: TRB

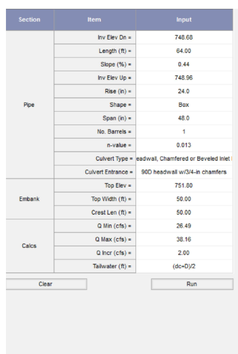
CULVERT 'A' PROFILE

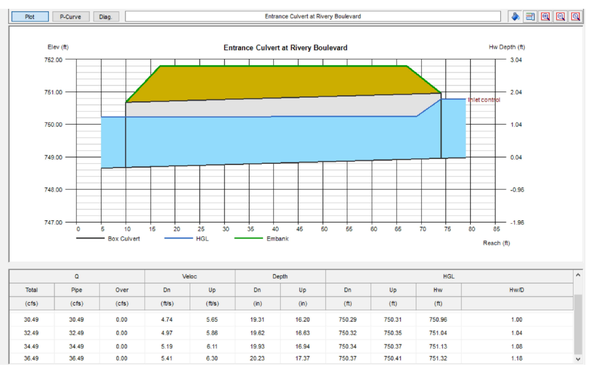




LEGEND

- BOUNDARY LINE / ROW
- ROW — RIGHT-OF-WAY
- WASTEWATER MANHOLE
- WW — WASTEWATER LINE
- STM — STORM LINE
- W — WATER LINE
- POWER POLE
- GUY WIRE
- FIRE HYDRANT
- WATER VALVE
- BUILDING LINE
- OE — OVERHEAD ELECTRIC LINE
- TEL — UNDERGROUND TELEPHONE LINE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- 1683 — TREE TO REMAIN W/ TAG NUMBER





Q			Velocity		Depth		HGL		
Total (cfs)	Pipe (cfs)	Over (cfs)	Dn (ft/s)	Up (ft/s)	Dn (in)	Up (in)	Dn (ft)	Up (ft)	Hw (ft)	Hw/D
30.49	30.49	0.00	4.74	5.65	19.31	16.28	750.29	750.31	750.96	1.00
32.49	32.49	0.00	4.97	5.86	19.82	16.83	750.32	750.35	751.04	1.04
34.49	34.49	0.00	5.19	6.11	19.93	16.94	750.34	750.37	751.13	1.08
36.49	36.49	0.00	5.41	6.30	20.23	17.37	750.37	750.41	751.32	1.16

CULVERT 'A' CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

CULVERT 'A' - PLAN & PROFILE

CITY OF GEORGETOWN

SHEET NO.

47 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\47 CULVERT 'A' – PLAN & PROFILE.dwg Sep 29, 24 7:12 pm

ATTACHMENT "G"

Inspection, Maintenance Repair, and Retrofit Plan

Permenant BMP's (Vegetative Filter Strips, if required)

1. After Rainfall: During construction, check the vegetated filter strip areas for erosion after each rainfall that exceeds one-half inch over a twenty-four hour period, based on local weather reports. Any erosion should be repaired as necessary.
2. Seasonal Care: Remove excessive plant growth as needed or a minimum of twice annually. Vegetation height should not exceed four inches. Control weed growth with minimal or no use of herbicides.
3. Quarterly: Inspect quarterly and remove debris and litter as necessary.
4. Semi-annually: Inspect at least twice annually for erosion or damage.
5. Sediment Removal: Remove excess sediment as needed to maintain uniform flow across the filter strips. Dispose of sediments in accordance with local regulations concerning water quality waste materials.
6. Documentation: All reports for inspections, repairs, and if necessary, retrofit shall be updated daily as occurrences arise. These reports shall be kept onsite and available for inspection.

Permenant BMP's (Batch Detention Pond)

7. After Rainfall: During construction, check the berms and sedimentation forebay for erosion after each rainfall that exceeds one-half inch over a twenty-four hour period, based on local weather reports. Any erosion should be repaired as necessary.
8. Seasonal Care: Remove excessive plant growth as needed or a minimum of twice annually. Vegetation height should not exceed four inches. Control weed growth with minimal or no use of herbicides.
9. Quarterly: Inspect quarterly and remove debris and litter as necessary.
10. Semi-annually: Inspect at least twice annually for erosion or damage.
11. Sediment Removal: Remove excess sediment as needed to maintain uniform flow through the rock gabion structure. Dispose of sediments in accordance with local regulations concerning water quality waste materials.
12. Documentation: All reports for inspections, repairs, and if necessary, retrofit shall be updated as occurrences arise. These reports shall be sent to the Owner listed below.

Owner's Signature:  Date: 5-14-2024

Print Owner's Name: Timothy E. Haynie, Ewing Development Company LLC

Print Owner's Address: 309 Palmetto, Georgetown, Texas, 78633

ATTACHMENT "H"

Pilot-Scale Field Testing Plan

Not Applicable.

ATTACHMENT "I"

Measures for minimizing Surface Stream Contamination

Temporary erosion and sediment controls will minimize surface stream contamination until site surface restoration is complete.

The applicant is responsible for maintaining the permanent BMP's after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property. 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 this use as a multi-family residential development.

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

I Timothy E. Haynie, P.E.,
Print Name

Owner,
Title - Owner/President/Other

of Ewing Development Company, LLC,
Corporation/Partnership/Entity Name

have authorized Kevin Mercer
Print Name of **Agent**/Engineer

of Matkin Hoover Engineering
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:

Applicant's Signature

05-17-24
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Timothy Haynie 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 17 day of May, 2024.

HADEN SIMMONS
My Notary ID # 134834447
Expires April 3, 2028

NOTARY PUBLIC

Haden Simmons
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: April 3, 2028

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Rivery Crossing Phase 2
Regulated Entity Location: 2005 Rivery Boulevard, Georgetown, Tx. 78628
Name of Customer: Ewing Developmeny Company, LLC
Contact Person: Timothy E. Haynie, P.E. Phone: 512-784-6670
Customer Reference Number (if issued):CN 604594721
Regulated Entity Reference Number (if issued):RN 111695524

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
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
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

Type of Plan	***Size***	***Fee Due***
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	3.389 Acres	$ 3,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	613 L.F.	$ 650
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: 5-15-2024

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 6, 2023

Mr. Timothy E. Haynie, P.E.
Ewing Development Company, LLC
1010 Provident Lane
Round Rock, Texas 78664

Re: Edwards Aquifer, Williamson County
NAME OF PROJECT: Rivery Crossing Phase 2; Located at 2005 Rivery Blvd.; Georgetown, Texas
TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) & an Organized Sewage Collection System (SCS) Plan; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 11003517 (WPAP) and 11003518 (SCS); Regulated Entity No. RN111695524

Dear Mr. Haynie:

The Texas Commission on Environmental Quality's (TCEQ) Austin Regional Office received a request to withdraw the above referenced WPAP and SCS applications on March 8, 2023 by Haynie Consulting, Inc. The request for the withdrawal of the above-mentioned applications has been granted. The $4,650.00 application fee will be held for a future resubmittal. Subsequent application(s) are subject to the administrative and technical review process.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Colin Gearing of the Edwards Aquifer Protection Program of the Austin Region Office at (512) 339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality
LIB/cmg

TCEQ Core Data Form

TCEQ Use Only

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.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ 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 604594721		RN 111695524

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	03/24/2024

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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:*

Ewing Development Company 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*)
		742959763	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

309 Palmetto Lane

City	Georgetown	State	TX	ZIP	78633	ZIP + 4	

16. Country Mailing Information (*if outside USA*)	17. E-Mail Address (*if applicable*)
	tehaynie45@yahoo.com

18. Telephone Number	19. Extension or Code	20. Fax Number (*if applicable*)
(512) 784-6670	0	( ) -

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*)

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ 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.*)

Rivery Crossing Phase 2

23. Street Address of the Regulated Entity: *(No PO Boxes)*	2005 Rivery Boulevard							
	and 206 E. Janis Drive							
	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:	Property is 3.389-acres fronting Rivery Boulevard and adjoining Ryan Lane to the East. Located within the city limits of Georgetown.

26. Nearest City	**State**	**Nearest ZIP Code**
Georgetown	TX	78626

27. Latitude (N) In Decimal:	30.642537		**28. Longitude (W) In Decimal:**	97.669118	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	39	20	97	40	46

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)
6552	1611		

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Multiple single family housing development

34. Mailing Address:	**309 Palmetto Lane**							
	City	**Georgetown**	**State**	**TX**	**ZIP**	**78633**	**ZIP + 4**	

35. E-Mail Address:	**tehaynie45@yahoo.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 784-6670		**( ) -**

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.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		WPAP & SCS		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Kevin W. Mercer	**41. Title:**	Agent

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 844-6885		( ) -	kmercer@matkinhoover.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:	Ewing Development Company, LLC	**Job Title:**	Owner
Name *(In Print):*	Timothy E. Haynie	**Phone:**	(512) 784- **6670**
Signature:		**Date:**	5-14-2024

Comment: The subject property, therefore, is not located within a City of Georgetown mapped No-Disturbance Zone (Red Zone), therefore, the establishment of a City of Georgetown "Minimal-Distance Zone (Orange Zone) is not warranted.

[d] Spring Buffer and Stream Buffer Protection of Non-Occupied Sites. The subject property is identified as a "Non-Occupied Site" as defined in the Ordinance and as shown on Exhibit A, attached thereto.

Comment: No "Springs" or "Streams" are identified in connection with the subject property. Therefore, a stream buffer coincidental with the FEMA 1% Floodplain to protect water quality for spring and stream features in the Edwards Aquifer Recharge Zone in accordance with the Ordinance is not warranted.

[e] All Red Zones, Orange Zones and spring and stream buffers as required in the Ordinance will be shown on all Plats, Site Plan and infrastructure Construction Plans.

Comment: Based on the above conditions, no spring and / or stream buffers are required to be shown on Plats, Site Plan and infrastructure Construction Plans.

CONCLUDING STATEMENTS

This Letter Report is prepared in response to City of Georgetown Ordinance Number 2013-59. As such, it is necessarily a stand apart document that does not conform to, nor is it a required part of a Geologic Assessment as required by Title 30, Texas Administrative Code Chapter 213.5.

The Client understands that no survey can wholly eliminate uncertainty regarding the possible presence of geologic conditions in connection with the subject property. Due to the inherent limits in connection with the agreed Scope of Work, this report does not address uncertainty about site conditions across those portions of the subject property not specifically addressed in this report.

Development of the site is planned. Additional modification of site surface conditions can be expected as construction proceeds. Unsuspected solution enlarged fractures, caves and cavities may be discovered during construction operations.

This investigation does not address the possible presence of subsurface conditions that may be exposed during construction operations. Should solution features or conditions be exposed during construction operations that indicate a potential for hydraulic interconnectedness between the surface and the Edwards Aquifer, operations in the vicinity of the feature should be halted and the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection Program should be contacted immediately in accordance with 30 TAC §213.5(f)(2).

Prepared by:



D Bryan Pairsh, P.G.
Project Geologist
Capitol Environmental, Inc.
TBPG Firm Registration #50389
Austin, Texas

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Timothy E. Haynie, P.E.

Date: 5/14/2024

Signature of Customer/Agent:



Regulated Entity Name: Rivery Crossing Phase 2

Regulated Entity Information

1. The type of project is:

   ☐ Residential: Number of Lots:_____
   ☒ Residential: Number of Living Unit Equivalents:30
   ☐ Commercial
   ☐ Industrial
   ☐ Other:_____

2. Total site acreage (size of property):3.451

3. Estimated projected population:74

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	31,500	÷ 43,560 =	0.723
Parking	34,408	÷ 43,560 =	0.790
Other paved surfaces	9,032	÷ 43,560 =	0.207
Total Impervious Cover	74,940	÷ 43,560 =	1.720

Total Impervious Cover 1.720 **÷ Total Acreage** 3.451 **X 100 =** 49.85**% 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 = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/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:

100 % Domestic	3528 Gallons/day
_____% Industrial	_____Gallons/day
_____% Commingled	_____Gallons/day

TOTAL gallons/day 3528

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 San Gabriel (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" = 50'.

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): FEMA PANELS 48491C0291F & 48491C0293F 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 affecting water quality include oil and grease that becomes detached from the asphalt pavement, and normal silt build-up. Temporary BMP's will be implemented to retain sediment and trash from construction activities.

The permanent water quality best management practices (BMP) in this project will include a batch detention pond with a minimum TSS removal of 85%. Actual TSS removal of 91%, as described the TCEQ's "Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices" (RG-348), dated June 1999.

The batch detention pond is also designed to detain and control the outflow rates for the 2-, 10-, 25- and 100-year design storms.

The Rivery Phase 2 development will connect to existing City of Georgetown infrastructure for wastewater disposal.

Storm water runoff from this proposed project ultimately run-off flows into the San Gabriel River, a tributary of the Brazos River Basin.

ATTACHMENT "B"

Volume and Character of Storm Water

Stormwater Quality

The pollutant loads from the development are expected to be sediment transported from disturbed soils during construction. To counter the probable loading into the surface streams, silt fence and rock berms have been strategically placed to capture, filter and remove these potential sediment loads before reaching the surface streams downstream of the disturbed areas. Undisturbed property downstream of these measures will also help to remove any escaping sediment with natural grass coverage.

The existing soil within the project limits is undeveloped pasture, comprised of USGS soils groups B and D. Installation of the proposed improvements will increase the pollutant loads. Runoff contaminants may include oil and grease. The proposed permanent wet basin and vegetative filter strips were designed according to the TCEQ's RG-348 Technical Manual titled Complying with the Edwards Aquifer Rules, Technical Guidance on Best Management Practices, July 2005. Calculations for the permanent wet basin are shown on Plan Sheet 24. A maximum of 58 feet (direction of flow) of sheet flow will be directed across the 15 foot wide engineered vegetative filter strips with a min of 1% and max of 2% slope. These BMPs will provide water quality treatment for the proposed improvements.

C(ex) = (3.451 acres undeveloped)/(3.451 acres total) x 0.03 = **0.03**
C(dev) = (1.72 acres IC)/(3.451 acres total) x 0.90 = **0.45**

Stormwater Quantity

Runoff, in excess of the water quality volume, will be directed to the proposed permanent batch detention pond. The batch detention pond has been designed to treat impervious cover from Area A, but will detain required volumes for the entire site. The quantity of stormwater will increase with the addition of the impervious cover of the existing and proposed improvements. The wet basin storage is 1.2 times the water quality volume. The actual water quality volume will release over 48 hours, per actuator valve on a timer. The proposed wet basin / detention pond will release stormwater runoff below existing runoff rates for the 2-, 10-, 25- and 100-year design storms.

ATTACHMENT "C"

Suitability Letter from Authorized Agent

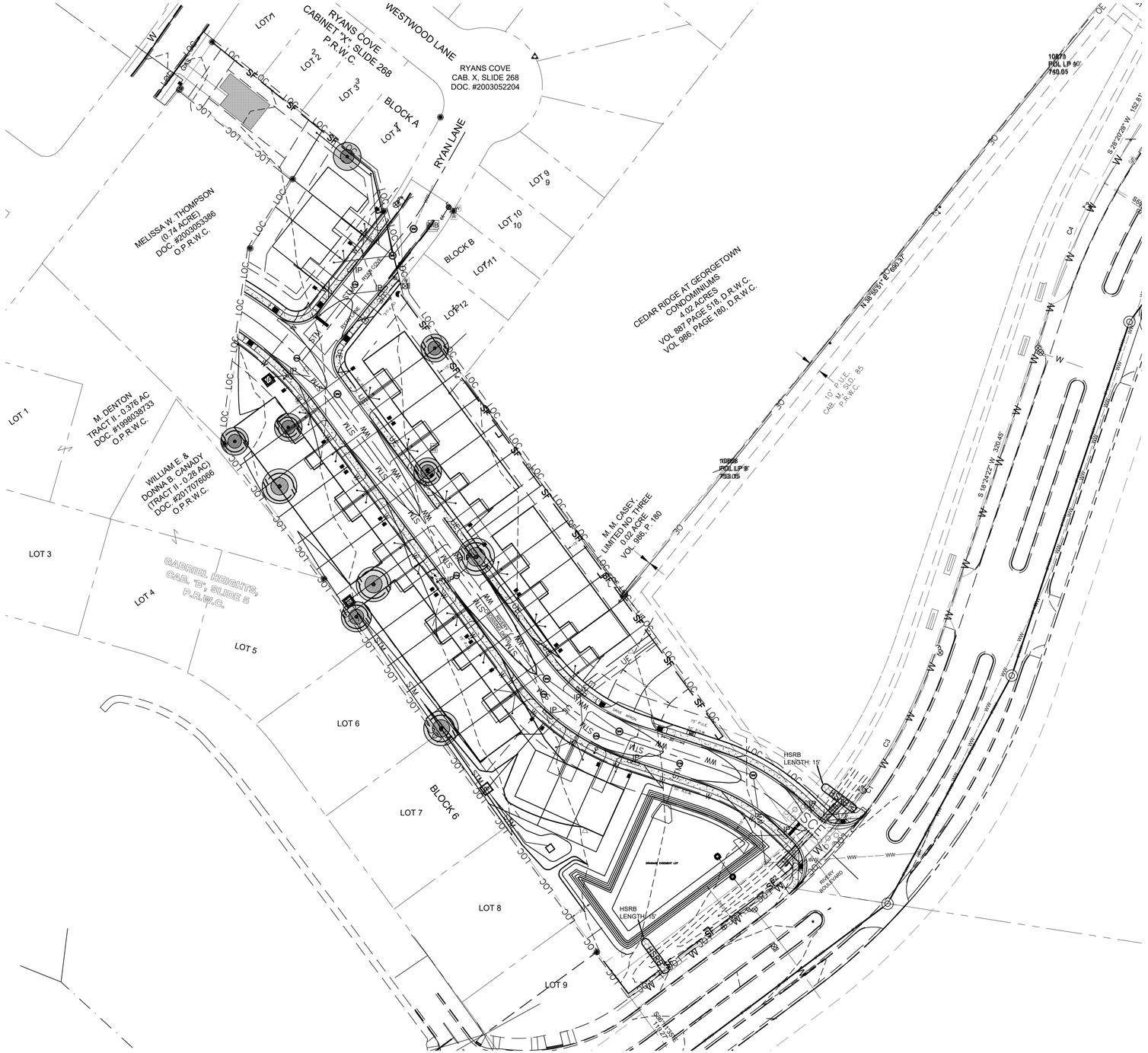
Not applicable as there are no proposed on-site sewage systems.

ATTACHMENT "D"

Exception to the Required Geological Assessment

Not applicable as a geological assessment was conducted for this property. The assessment results indicate no sensitive geological or manmade features exist on the property.

SITE PLAN



0 50 100 Feet

SCALE 1" = 50'

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- TREES TO BE PROTECTED
- CONCRETE WASHOUT STATION
- PROPERTY/ROW LINE
- HIGH SERVICE ROCK BERM
- INLET PROTECTION
- DROP INLET PROTECTION
- SILT FENCE
- LIMITS OF CONSTRUCTION
- TREE PROTECTION FENCE

5' 5'

"J" HOOK SILT FENCE DETAIL

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revision #	Description	Approval

Date:	09-May-2024
Scale:	
Project No:	002-20-01
Designed By:	
Drawn By:	KS, TED
Checked By:	TH
Revised By:	

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EROSION & SEDIMENTATION
CONTROL PLAN
CITY OF GEORGETOWN

SHEET NO.

13 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\13 EROSION & SEDIMENTATION CONTROL PLAN.dwg May 09, 24 4:03 pm

Organized Sewage Collection System Application

Texas Commission on Environmental Quality

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

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

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

Regulated Entity Name: Rivery Crossing Phase 2

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

Customer Information

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

   Contact Person: Timothy E. Haynie
   Entity: Ewing Development Company, LLC
   Mailing Address: 309 Palmetto Drive
   City, State: Georgetown, TX Zip: 78633
   Telephone: 512-784-6670 Fax: _____
   Email Address: tehaynie45@yahoo.com
   The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

   Contact Person: Timothy E. Haynie, P.E.
   Texas Licensed Professional Engineer's Number: 36982
   Entity: Haynie Consulting, Inc.
   Mailing Address: 309 Palmetto Drive
   City, State:Georgetown, Texas Zip: 78633
   Telephone:512-784-6670 Fax:_____
   Email Address:tehaynie45@yahoo.com

Project Information

4. Anticipated type of development to be served (estimated future population to be served, plus adequate allowance for institutional and commercial flows):

   ☒ Residential: Number of single-family lots: 30
   ☐ Multi-family: Number of residential units:
   ☐ Commercial
   ☐ Industrial
   ☐ Off-site system (not associated with any development)
   ☐ Other: _____

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

100% Domestic	7320 gallons/day
_____% Industrial	_____ gallons/day
_____% Commingled	_____ gallons/day

   Total gallons/day: 7320

6. Existing and anticipated infiltration/inflow is 3,890 gallons/day. This will be addressed by: City of Georgetown.

7. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on 5/15/2024, but has not been approved.
   ☐ A WPAP application is required for an associated project, but it has not been submitted.
   ☐ There is no associated project requiring a WPAP application.

8. Pipe description:

Table 1 - Pipe Description

Pipe Diameter(Inches)	*Linear Feet (1)*	*Pipe Material (2)*	*Specifications (3)*
8	613	PVC, SDR 26	ASTM D2321

Total Linear Feet: 613

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.
(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

9. The sewage collection system will convey the wastewater to the San Gabriel (name) Treatment Plant. The treatment facility is:

   ☒ Existing
   ☐ Proposed

10. All components of this sewage collection system will comply with:

    ☒ The City of Georgetown standard specifications.
    ☐ Other. Specifications are attached.

11. ☒ No force main(s) and/or lift station(s) are associated with this sewage collection system.

    ☐ A force main(s) and/or lift station(s) is associated with this sewage collection system and the **Lift Station/Force Main System Application** form (TCEQ-0624) is included with this application.

Alignment

12. ☒ There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.

13. ☒ There are no deviations from straight alignment in this sewage collection system without manholes.

    ☐ **Attachment B - Justification and Calculations for Deviation in Straight Alignment without Manholes**. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

    ☐ For curved sewer lines, all curved sewer line notes (TCEQ-0596) are included on the construction plans for the wastewater collection system.

Manholes and Cleanouts

14. ☒ Manholes or clean-outs exist at the end of each sewer line(s). These locations are listed below: (Please attach additional sheet if necessary)

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
A	41 Of 52	1+00.00	Manhole (existing)
A	41 Of 52	1+76.59	Manhole (proposed)
A	41 Of 52	2+98.66	Manhole (proposed)
A	41 Of 52	3+76.37	Manhole (proposed)
A	42 Of 52	6+82.67	Manhole (proposed)
B	43 Of 52	1+29.51	Manhole (proposed)
B	43 Of 52	1+00	Manhole (existing)

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

15. ☒ Manholes are installed at all Points of Curvature and Points of Termination of a sewer line.

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

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

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

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

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 20'.

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

20. Lateral stub-outs:

☒ The location of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

☒ The entire water distribution system for this project is shown and labeled.
☐ If not shown on the Site Plan, a Utility Plan is provided showing the entire water and sewer systems.
☐ There will be no water lines associated with this project.

22. 100-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 100-year floodplain, either naturally occurring or manmade. (Do not include streets or concrete-lined channels constructed above of sewer lines.)
☐ After construction is complete, all sections located within the 100-year floodplain will have water-tight manholes. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 3 - 100-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

23. 5-year floodplain:

☒ After construction is complete, no part of this project will be in or cross a 5-year floodplain, either naturally occurring or man-made. (Do not include streets or concrete-lined channels constructed above sewer lines.)
☐ After construction is complete, all sections located within the 5-year floodplain will be encased in concrete or capped with concrete. These locations are listed in the table below and are shown and labeled on the Site Plan. (Do not include streets or concrete-lined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	*Sheet*	*Station*
	of	to
	of	to
	of	to
	of	to

24. ☒ Legal boundaries of the site are shown.

25. ☒ The ***final plans and technical specifications*** are submitted for the TCEQ's review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

Items 26 - 33 must be included on the Plan and Profile sheets.

26. ☒ All existing or proposed water line crossings and any parallel water lines within 9 feet of sewer lines are listed in the table below. These lines must have the type of pressure rated pipe to be installed shown on the plan and profile sheets. Any request for a variance from the required pressure rated piping at crossings must include a variance approval from 30 TAC Chapter 290.

☐ There will be no water line crossings.
☐ There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*
A	1+36.32	Crossing	N/A	24"

27. Vented Manholes:

☒ **No part** of this sewer line is within the 100-year floodplain and vented manholes are not required by 30 TAC Chapter 217.
☐ **A portion** of this sewer line is within the 100-year floodplain and vented manholes will be provided at less than 1500 foot intervals. These water-tight manholes are listed in the table below and labeled on the appropriate profile sheets.
☐ **A portion** of this sewer line is within the 100-year floodplain and an alternative means of venting shall be provided at less than 1500 feet intervals. A description of the alternative means is described on the following page.
☐ **A portion** of this sewer line is within the 100-year floodplain; however, there is no interval longer than 1500 feet located within. No vented manholes will be used.

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

☒ There are no drop manholes associated with this project.
☐ Sewer lines which enter new or existing manholes or "manhole structures" higher than 24 inches above the manhole invert are listed in the table below and labeled on the appropriate profile sheets. These lines meet the requirements of 30 TAC §217.55(l)(2)(H).

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*

29. Sewer line stub-outs (For proposed extensions):

☐ The placement and markings of all sewer line stub-outs are shown and labeled.
☒ No sewer line stub-outs are to be installed during the construction of this sewage collection system.

30. Lateral stub-outs (For proposed private service connections):

☒ The placement and markings of all lateral stub-outs are shown and labeled.
☐ No lateral stub-outs are to be installed during the construction of this sewage collection system.

31. Minimum flow velocity (From Appendix A)

☒ Assuming pipes are flowing full; all slopes are designed to produce flows equal to or greater than 2.0 feet per second for this system/line.

32. Maximum flow velocity/slopes (From Appendix A)

☒ Assuming pipes are flowing full, all slopes are designed to produce maximum flows of less than or equal to 10 feet per second for this system/line.
☐ **Attachment D – Calculations for Slopes for Flows Greater Than 10.0 Feet per Second.** Assuming pipes are flowing full, some slopes produce flows which are greater than 10 feet per second. These locations are listed in the table below. Calculations are attached.

Table 8 - Flows Greater Than 10 Feet per Second

Line	*Profile Sheet*	*Station to Station*	*FPS*	*% Slope*	*Erosion/Shock Protection*

33. Assuming pipes are flowing full, where flows are ≥ 10 feet per second, the provisions noted below have been made to protect against pipe displacement by erosion and/or shock under 30 TAC §217.53(l)(2)(B).

☐ Concrete encasement shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☐ Steel-reinforced, anchored concrete baffles/retards placed every 50 feet shown on appropriate Plan and Profile sheets for the locations listed in the table above.
☒ N/A

Administrative Information

34. ☒ The final plans and technical specifications are submitted for TCEQ review. Each sheet of the construction plans and specifications are dated, signed, and sealed by the Texas Licensed Professional Engineer responsible for the design on each sheet.

35. ☒ Standard details are shown on the detail sheets, which are dated, signed, and sealed by the Texas Licensed Professional Engineer, as listed in the table below:

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	45 of 52
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	44 of 52
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	44 of 52
Typical trench cross-sections **[Required]**	45 of 52
Bolted manholes **[Required]**	45 of 52
Sewer Service lateral standard details **[Required]**	44 of 52
Clean-out at end of line **[Required, if used]**	N/A of N/A
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	45 of 52
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	45 of 52

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N/A of N/A

36. ☒ All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.

37. ☒ All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

    ☒ Survey staking was completed on this date: 5/21/2024

38. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

39. ☒ Any modification of this SCS application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

Signature

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

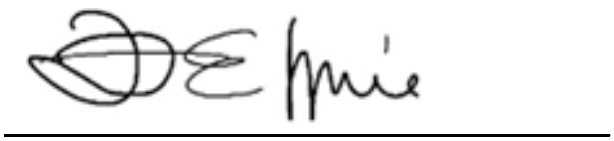
Print Name of Licensed Professional Engineer: Timothy E. Haynie, P.E.

Date: 5/14/2024

Place engineer's seal here:



Signature of Licensed Professional Engineer:



Appendix A-Flow Velocity Table

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

Table 10 - Slope Velocity

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

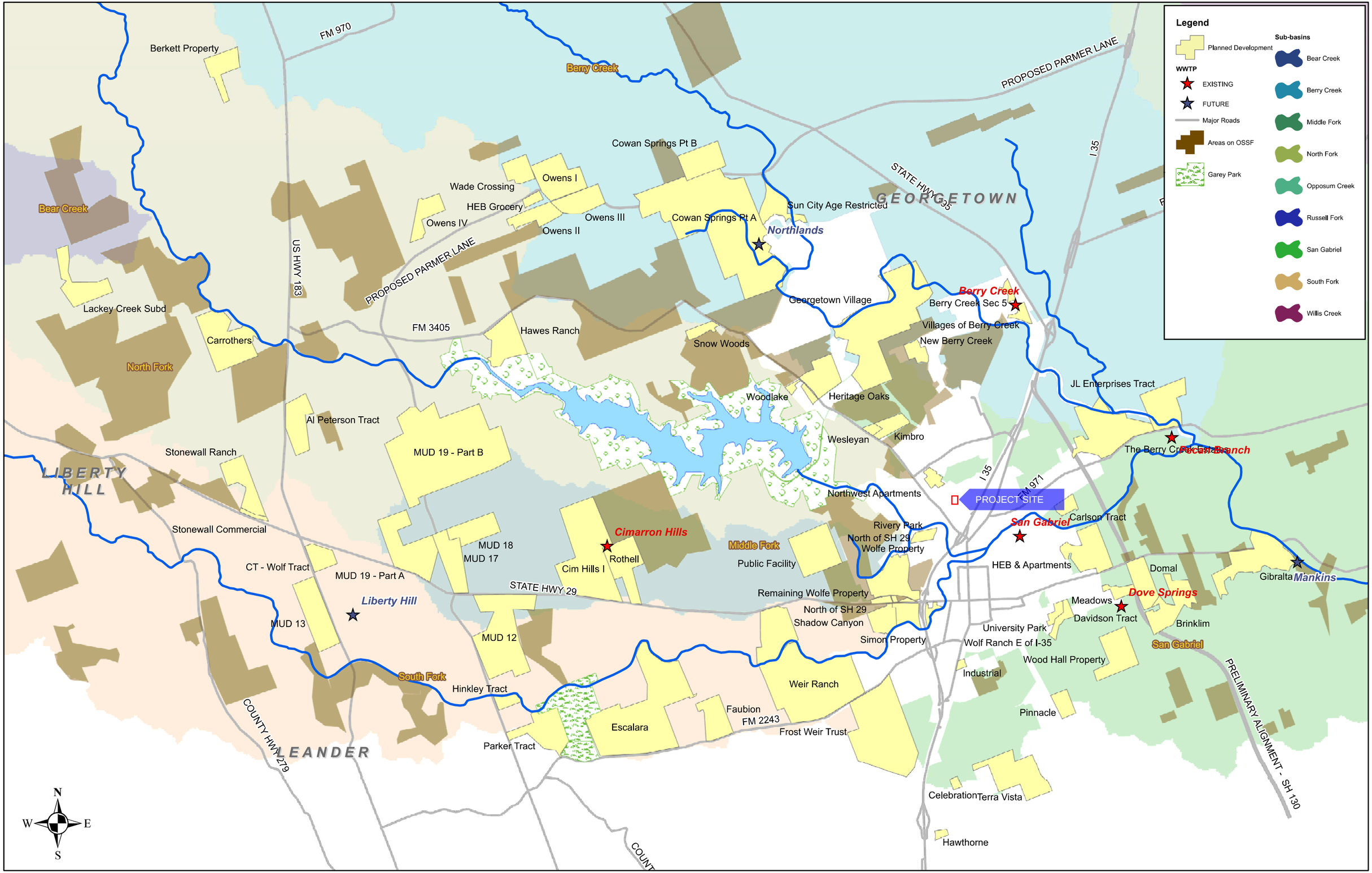
**For lines larger than 39 inches in diameter, the slope may be determined by Manning's formula (as shown below) to maintain a minimum velocity greater than 2.0 feet per second when flowing full and a maximum velocity less than 10 feet per second when flowing full.*

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

Figure 1 - Manning's Formula

Where:

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



MELANCONPA AUSSVR1\GIS\bra\SGWWMPPhII\Figures\Figure2-1.mxd 11/4/2005

Figure 2-1. **Planned Development in the San Gabriel Basin**

PROJECT: RIVERY CROSSING PHASE 2 (3427)
SYSTEM: WASTEWATER FLOW CALCULATIONS

Inflow/Infiltration:

RDII (gal/acre/day)	Contributing Acreage (Ac.)	Conversion Factor	RDII (gpm)
1000	3.40	1440	2.36

Residential

Development Type	Total # of Units	Total LUE's	Gallons per day (BWF + GWI) (gpd)	Convert to MGD	DWF (gpm)	Peaking Factor	Peak DWF (gpm)	
Residential	30	30	7500	0.00750	5.2	4.01	20.9	

*Residential peaking factor per section 2.1.2 of the Georgetown Wastewater Design Criteria

20.9	Total Peak DWF (gpm)	
23.2	Total Design Flow (gpm)	

*Total design flow is the sum of the peak DWF and RDII

Capacity Analysis:
Maximum Allowable Flow
Assumed "n-value" = 0.013

Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q (Full) (cfs)	Max Pipe %	Q max (gpm)	
8	7.921	0.5	0.34	0.17	0.30	0.071	0.83	80.00	299.58	Adequate

*Maximum allowable flow is derived from the Hazen Williams Equation based on AWWA C-900 Pipe

0 10' 20' 40'

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683

LEGEND

- PROPOSED CENTERLINE
- EXISTING CENTERLINE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

Revision #	Description	Approval

Date: 14-May-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER COLLECTION PLAN

CITY OF GEORGETOWN

SHEET NO.

40 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\42 WASTEWATER COLLECTION PLAN.dwg May 14, 24 10:30 am

The following Engineering Design Report for the Rivery Crossing Phase 2 Sewer Sewage Collection System, is in compliance with the 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report", and 30 TAC Chapter 217, Subchapter C, Rule 217.55 "Manholes and Related Structures". Information provided on this form will follow the order provided by item (e) "The report for a wastewater collection system must include the following:", located in 30 TAC Chapter 217, Subchapter A, Rule 217.10 "Final Engineering Design Report". The intent of the design report is to meet the Texas Commission on Environmental Quality (TCEQ) plan review of SCS applications.

This project consists of 613 LF of proposed sewer line into the existing San Gabriel Wastewater Treatment Plant. The sewage collection system will service approximately 7,320 GPD.

(e-1)__**X**__ Map showing the current service area, the proposed service area, and any area proposed for future expansion.

- Attachment - "**Wastewater Collection System**"- shows the current service area for the San Gabriel WWTP.

(e-2) __**X**__ The topographical features of the current, the proposed, and any future service areas. (Refer to Attachment **"Wastewater Collection Plan"** and "**Rivery Crossing Phase 2 Sanitary Sewer Plan and Profile Sheets: 41-43** for Topographic details)

(e-3) __**X**__ A description of how the design flow was determined. (Attachment – **"Capacity Design"**)

The design flow for Rivery Crossing Phase 2, SCS, was derived using the CDM Smith "Water Design Guide" 2014 section C.2.

- Inflow/Infiltration rates are derived from section C.2.1.3 which includes an approximation of 1000 gallons/acre/day. This provides a multiplier of 0.022957 gpd/ft^2, for a contributing area of ± 3.4 acres.

- Peak dry weather flow calculations are derived from formula provided by section C.2 Refer to attachment for subdivision residential, and the associated flow values used for design.

- Peak wet weather flow is obtained by adding inflow and infiltration to the peak dry weather flow. These calculations were derived from formula provided by section C.2. Refer to attachment for subdivision residential, and the associated flow values used for design.

(e-4) __**X**__ The minimum and maximum grades for each size and type of pipe. (Refer to Attachment **"Capacity Design – Minimum and Maximum Slope Table"**)

Pipe sizing and minimum/maximum grades for Rivery Crossing Phase 2 SCS, was derived using the CDM Smith "Water Design Guide" 2014 section C.2.2.

- **C.2.2 "Percent Pipe Full at Design Flow"**, requires a minimum diameter of eight (8) inches for all gravity lines sewer mains. Rivery Crossing Phase 2 sanitary sewer system contains 8" lines. Minimum

allowable slopes for mains in the conform with the CDM Smith table provided and shown on (Refer to Attachment **"Capacity Design – Minimum and Maximum Slope Table")**

(e-5) __**X**__ Calculations of expected minimum and maximum velocities in the system for each size and type of a pipe. (Refer to attachment **"Capacity Design –Flow Velocity Table"**)

Minimum maximum velocities for Rivery Crossing Phase 2 SCS, was derived using CDM SMITH TABLE C-8 2014, "Minimum and Maximum Slope for Gravity Sewer".

- **2.9.3, B-3, "Design Velocities"** requires a minimum design velocity calculated using the Peak Dry Weather flow not be less than two (2) feet per second (fps). The maximum design velocity calculated using the Peak Wet Weather Flow should not exceed ten (10) fps. Slopes per pipe diameter size comply with Appendix A, listed above to meet minimum and maximum velocity requirements.

(e-6) __**X**__ The proposed system's effect on an associated existing system's capacity.

- The proposed system for the entire system will discharge at peak wet weather flow rate of 23 gpm (Refer to attachment - **"Capacity Design"**).

(e-7) __**X**__ The existing and anticipated inflow and infiltration, the hydraulic effect of the inflow and infiltration on the proposed and existing systems, any inflow and infiltration flow rate monitoring, and any inflow and infiltration abatement measures.

- The Rivery Crossing Phase 2 sanitary sewer design complies with design standards to prevent infiltration into the system. This is will be prevented through sealing manholes (where required), by means of gasketing and bolts shown in the utility detail sheets attached.

(e-8) __**N/A**__ A description of the ability of the existing and proposed trunk and interceptor wastewater collection systems and lift stations to handle the peak flow.

(e-9) __**X**__ The capability of the receiving treatment facility to receive and adequately treat the anticipated peak flow. The proposed system for the entire subdivision will discharge at peak wet weather flow rate of 23 gpm (Refer to attachment - **"Capacity Design"**).

(e-10) __**X**__ An engineering analysis showing compliance with structural design, minimization of odor-causing conditions, and the pipe design requirements of 217.55 of this title (relating to Manholes and Related Structures)

30 TAC 217, Subchapter C, Rule 217.55 Manholes and Related Structures

217.55(a) Manholes for the proposed wastewater system are included at all points of change in alignment, grade, size, intersection of all pipes, and at the end of all pipes that may be extended at a future date. **(Complied – Refer to Sewage Collection Site Plan)**

217.55(b) Manholes placed at the end of a wastewater collection system pipe that may be extended in the future must include pipe stub outs with plugs **(Complied – Refer to Sewage Collection Site Plan)**

217.55(c) A clean-out with watertight plugs may be installed in lieu of a manhole at the end of a wastewater collection system pipe if no extensions are anticipated. **(N/A)**

217.55(d) Cleanout installations must pass all applicable testing requirements outlined for gravity collection pipes in 217.57 of this title (relating to Testing Requirements for Installation of Gravity Collection System Pipes). **(N/A)**

217.55(e) A manhole must be made of monolithic, cast-in-place concrete, fiberglass, pre-cast concrete, high density polyethylene, or equivalent material that provides adequate structural integrity. **(Pre-cast Concrete. Per detail sheets 44-45, City of Georgetown Standard details and specifications.)**

217.55(f) The use of bricks to adjust a manhole cover to grade or construct a manhole is prohibited. **(Complied)**

217.55(g) Manholes may be spaced no further apart than the distances specified in the following table for a wastewater collection system with straight alignment and uniform grades, unless a variance based on the availability of cleaning equipment that is capable of servicing greater distances is granted by the executive director.

The maximum manhole spacing allowed by the TCEQ are as follows:

Pipe Diameter (in)	Maximum Manhole Spacing (ft)
6 - 15	500
18 - 30	800
36 - 48	1000
54 or Larger	2000

Indicate what the maximum spacing in this project will be for each proposed diameter of pipe.
Pipe Diameter: **8”** Max. Spacing: **306.30’**

217.55(h) Tunnels are exempt from manhole spacing requirements because of construction constraints. **(N/A)**

217.55(i) An intersection of three or more collection pipes must have a manhole. **(Complied)**

217.55(j) A manhole must not be located in the flow path of a watercourse, or in an area where ponding of surface water is probable. **(See below)**
Manhole covers which lie within a 100-year flood plain must be sealed and gasketed or otherwise provided with adequate protection against inflow. Such measures should also be provided to any manholes lying in drainage ways or streets subject to carrying drainage flows. Will this requirement be met? **N/A**

(k) The inside diameter of a manhole must be no less than 48 inches. A manhole diameter must be sufficient to allow personnel and equipment to enter, exit, and work in the manhole and to allow proper joining of the collection system pipes in the manhole wall.
(1) Manhole Covers:
(A) A manhole where personnel entry is anticipated requires at least a 30 inch diameter clear opening. **(Complied – Refer to Sheet 44)**

(B) A manhole located within a 100-year flood plain must have a means of preventing inflow. **(N/A – No manholes are within the 100-year flood plain. Refer to FEMA F.I.R.M. Maps #48491C0291f and #48491C0293F dated 12-20-2019).**

(C) A manhole cover construction must be constructed of impervious material. **(Complied)**

(D) A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials standard M-306 for load bearing. **(Complied)**

(2) Manhole Inverts:

(A) The bottom of a manhole must contain a U-shaped channel that is a smooth continuation of the inlet and outlet pipes. **(Complied – Refer to Sheet 45)**

(B) A manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe's diameter. **(Complied – Refer to Sheet 45)**

(C) A manhole connected to a pipe at least 15 inches in diameter but not more than 24 inches in diameter must have a channel depth equal to at least three-fourths of the largest pipe's diameter. **(N/A)**

(D) A manhole connected to a pipe greater than 24 inches in diameter must have a channel depth equal to at least the largest pipe's diameter. **(N/A)**

(E) A manhole with pipes of different sizes must have the tops of the pipes at the same elevation and flow channels in the invert sloped on an even slope from pipe to pipe. **(Complied)**

(F) A bench provided above a channel must slope at a minimum of 0.5 inch per foot. **(Complied)**

(G) An invert must be filleted to prevent solids from being deposited if a wastewater collection system pipe enters a manhole higher than 24 inches above a manhole invert. **(Complied)**

(H) A wastewater collection system pipe entering a manhole more than 24 inches above an invert must have a drop pipe. **(Complied)**

(m) The inclusion of steps in a manhole is prohibited. **(N/A)**

(n) Connections. A manhole-pipe connection must use watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. **(Complied Refer to sheet 44)**

(o) Venting. An owner must use an alternate means of venting if manholes are at more than 1,500 foot intervals and gasketed manhole covers are required for more than three manholes in sequence. **(N/A)**

(p) Cleanouts. The size of a cleanout must be equal to the size of the wastewater collection system main. **(N/A)**

Structural Analysis of Wastewater System, 30 TAC, 217.53 Pipe Design.

Proposed Pipe Information:

S-1) List all the pipe diameters proposed for this project. Specify the total linear feet of pipe proposed for each listed diameter, the pipe material proposed for each diameter, the national standard specifications (ASTM, AWWA, ANSI, etc...) which govern each proposed pipe material and the appropriate national standard specifications for joints which correspond to each of these proposed materials.

Pipe Diameter	Linear Feet	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
8”	593	PVC SDR 26	ASTM D-3034	ASTM D-3212
8”	20	PVC SDR 26	ASTM D-2241	ASTM D-3139

Utility Trench Information:

S-2) For purposes of TCEQ review, flexible materials include, but are not limited to, plastics, PVC, ABS, fiberglass, and, polyethylene. If the design does not include flexible pipe, skip to T13. If the design includes flexible pipe materials, the specified bedding must comply with ASTM D-2321 class IA, IB, II or III for materials and densification. A minimum of 6 inches of bedding is required for all pipe. Will the proposed project comply with these requirements? **Yes**

S-3) The trench width must be minimized while still allowing adequate width for proper compaction of backfill, and while still ensuring that at least 6 inches of backfill exists on each side of the pipe. Will this be accomplished? **Yes**

S-4) For each diameter of pipe, indicate minimum and maximum trench width:
Pipe Diameter: **8”** Min. Trench Width: **24”** Max. Trench Width: **36”**

S-5) Will the trench walls be vertical to at least one foot above the pipe? **Yes**

Refer to sheets **44-45**

S-6) Will the backfill be free of stones greater than 6 inches in diameter and free of organic or any other unstable material? **Yes**

General Requirements: 30 TAC 217.53

Structural Analysis: 30 TAC 217.53(k)
Flexible Pipe Design

Live Load Analysis:

For the purposes of this application, the minimum depth of burial for gravity sanitary sewer pipe, from the ground surface to the crown of the pipe (H) is 2 feet. Does the submitted design comply with this minimum H? **Yes**

Live Load due to H-25 or HS-25 vehicle loading per AASHTO Table 5-3 (N/A)

(L_v) = 7.34 cover = 3.40 psi

Live Load due to 100-yr surface water elevation in water quality pond (See Attachment for L_l calculation) **N/A**

S-7) Indicate maximum anticipated L_l as determined in T63: **N/A**

S-8) Are all proposed flexible pipe materials capable of supporting this L_l? **N/A**

S-9) Indicate source of maximum L_l: **N/A**

Buckling Analysis:

S-10) Calculate allowable and predicted buckling pressure based on Moser's book. Predicted and allowable buckling pressures must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, the buckling analysis must be performed using the method outlined below. The method of calculating allowable buckling pressure provided below is only valid for lines which are installed at depths of 2 ft ≤ H ≤ 80 feet, and where the groundwater elevation is below the ground surface.

a) Calculate allowable bucking pressure as follows:
(Areas where groundwater elevation is below the ground surface)

$$q_a = 0.4\sqrt[2]{32 * R_W * B' * (E * \frac{I}{D^3})} \qquad \text{Equation (1)}$$

$$q_a = 0.4\sqrt[2]{32 * 1.00 * 0.69 * (400{,}000 * \frac{0.00281}{8.4^3})} = 115.9 \text{ (8" PVC SDR 26 115 PSI)}$$

$$q_a = 0.4\sqrt[2]{32 * 1.00 * 0.69 * (400{,}000 * \frac{0.00305}{8.625^3})} = 116.08 \text{ (8" PVC SDR 26 160 PSI)}$$

See attachment for q_a calculation.

$$R_W = 1 - 0.33 * \left(\frac{h_W}{h}\right) \quad \text{Equation (2)}$$

For unsaturated: $R_W = 1 - 0.33 * \left(\frac{0}{123.74}\right) = 1.00$ (8" PVC SDR 26 115 PSI)

For unsaturated: $R_W = 1 - 0.33 * \left(\frac{0}{123.74}\right) = 1.00$ (8" PVC SDR 26 160 PSI)

For fully saturated hw = h: $R_w = 1 - 0.33 * (1) = 0.67$ **N/A**

$$B' = \frac{1}{1+4*e^{-0.213H}} \quad \text{Equation (3)}$$

See attachment for B' calculation.*

$$I = (\frac{t^3}{12})(\frac{inches^4}{inch_{Linear}}) \quad \text{Equation (4)}$$

See attachment for I calculation.

q_a = allowable buckling pressure, pounds per square inch (psi)

h = height of soil surface above top of pipe in inches (in)

h_w = height of water surface above top of pipe in inches (in) (groundwater elevation)

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

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

B' = Empirical coefficient of elastic support

E_b = modulus of soil reaction for the bedding material (psi)

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

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

t = pipe structural wall thickness (in)

D = mean pipe diameter (in)

b) Calculate pressure applied to pipe under installed conditions:

$$q_P = \gamma_w * h_w + R_w * \left(\frac{W_c}{D}\right) + L_1 \quad \text{Equation (5)}$$

$q_P = 0.0361 * 0 + 1 * \left(\frac{74.50}{8}\right) + 0 = 9.31$ ("Worst Case" Max. Depth - 8" PVC SDR 26 115 PSI)

$q_P = 0.0361 * 0 + 1 * \left(\frac{74.58}{8}\right) + 0 = 9.32$ ("Worst Case" Max. Depth - 8" PVC SDR 26 160 PSI)

$$W_c = \gamma_s * H * \frac{(D+t)}{144} \quad \text{Equation (6)}$$

$$W_c = 125 * 10.31 * \frac{8+0.323}{144} = 74.50 \text{ ("Worst Case" Max. Depth - 8" PVC SDR 26 115 PSI)}$$
$$W_c = 125 * 10.31 * \frac{8+0.332}{144} = 74.58 \text{ ("Worst Case" Max. Depth - 8" PVC SDR 26 160 PSI)}$$

q_P = pressure applied to pipe under installed conditions (psi)

γ_w = 0.0361 pounds per cubic inch (pci), specific weight of water

γ_s = specific weight of soil in pounds per cubic foot (pcf)

W_c = vertical soil load on the pipe per unit length in pounds per linear inch (lb/in)

L_l = Live load as determined in T63 (see attached Capacity Design)

S-11) Report qa and qp for each pipe diameter proposed and for each type of pipe material proposed:

γ_s = 125 pcf ; h_w = 0; t = 0.323" (8" PVC SDR 26 115 PSI);

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 115 PSI** q_a:**115.90** q_P: **9.31**

γ_s = 125 pcf ; h_w = 0; t = 0.332" (8" PVC SDR 26 160 PSI);

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 115 PSI** q_a:**116.08** q_P: **9.32**

S-12) If $q_a \geq q_p$, specified pipe is acceptable for the proposed installation. If $q_a \leq q_P$, the wall thickness of the pipe must be increased and/or a pipe with a larger modulus of elasticity (E) must be used. Make the appropriate modifications and repeat the buckling analysis, showing that for the upgraded pipe, $q_a \geq q_P$. Does all the pipe proposed for this project meet these requirements? **Yes**

Wall Crushing:

S-13) If no concrete cradled flexible pipe is proposed for the submitted project, skip to T73. If any flexible pipe will be installed in rigid cradle (e.g. concrete), calculate the maximum depth that the pipe can be buried before wall crushing (or failure by ring compression) will occur using the method outlined below. It should be noted that cement stabilized sand or soil is not considered a rigid cradle for purposes of TCEQ review: No concrete cradle proposed, calculations shown for information only.

$$H = \frac{24*P_C*A}{\gamma_S*D_o} \quad \text{Equation (7)}$$

$$H = \frac{24*4000*3.876}{125*8.4} = 354.38' \textbf{ (8" PVC SDR 26 115 PSI)}$$
$$H = \frac{24*4000*3.984}{125*8.625} = 354.75' \textbf{ (8" PVC SDR 26 160 PSI)}$$

D_o = outside pipe diameter, in.

P_c = compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 psi. For any other pipe material the HDB must be supplied by the pipe manufacturer.

A = surface area of the pipe wall, $\frac{in^2}{ft}$

γ_s = specific weight of soil in pounds per cubic foot (pcf)

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

24 = conversions and coefficients

S-14) Will all pipe installations proposed for this project have an H less than or equal to the maximum allowable H calculated in S-13 and greater than or equal to 2 feet? **Yes** Report maximum allowable H, (H_a), and the maximum H which is proposed, (H), for each proposed pipe diameter and each type of flexible pipe material. **N/A**

Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 ASTM D-3034** H_a: **354.38 ft** H: **10.31 ft**
Pipe Diameter: **8"** Pipe Material: **PVC SDR 26 ASTM D-2241** H_a: **354.75 ft** H: **10.31 ft**

Tensile Strength:

S-15) The project specifications need to indicate minimum allowable tensile **strength** in psi for each flexible pipe material. If PVC pipe is proposed, specify cell class:

Pipe Material: **PVC SDR 26** Tensile Strength: **7,000** Cell Class (PVC only): **12364/12454**
"Handbook of PVC Pipe, Design and Construction" Table 2.1 pg. 14-15.
Pipe Material: **PVC SDR 26 CL 160** Tensile Strength: **7,000** Cell Class (PVC only): **12364/12454**
"Handbook of PVC Pipe, Design and Construction" Table 2.1 pg. 14-15.

Strain:

S-16) Are the conditions of this installation such that strain-related failure will not be a problem? **Yes** If any proposed flexible pipe material is considered to be susceptible to strain-related failure at less than 5% long-term deflection provide analysis for predicted strain due to hoop stress and bending strain.

Deflection Analysis:

S-17) Indicate E_b (modulus of soil reaction for the bedding material) in psi. If E_b is greater than 750 psi, justification must be provided: **2,000 psi**

How was E_b determined or estimated? **"AWWA , M23 Manual" Table 4-5 pg. 30.**

S-18) Indicate E'n (modulus of soil reaction for the in-situ soil) in psi: **5,000 psi**

How was E'n determined or estimated? **"Table 5 – E'native for Various Native Soil Conditions" (Reference: American Concrete Pipe Association, Page 20)**

S-19) Calculate the ratio of bedding modulus to soil modulus:

Eb/E'n = $\frac{2{,}000\ psi}{5{,}000\ psi}$ = **0.40**

If this ratio is greater than 1.25, a zeta factor must be calculated, where zeta is a factor which corrects for the effect of in-situ soil on pipe stability. If the ratio of bedding modulus to soil modulus is less than or equal to 1.25, assume zeta = **1.0**.

S-20) Where native soil is significantly weaker than bedding material, or where predicted deflection approaches 5%, the effect of native soil must be quantified using Leonhardt's Zeta factor. Zeta must be determined for each diameter of pipe and corresponding trench width. Zeta may be estimated graphically or calculated directly. If zeta is estimated graphically, identify the source for tables, figures, etc...(including page numbers and table numbers or figure numbers for each source) which were used to estimate zeta.

Calculations:

$$zeta = \frac{1.44}{f+(1.44-f)*(\frac{E_b}{E'_n})} \qquad \text{Equation (8)}$$

$$zeta = \frac{1.44}{0.98+(1.44-0.98)*(\frac{2{,}000}{5{,}000})} = 1.00 \quad \text{8" PIPE}$$

$$f = \frac{\frac{b}{d_a}-1}{1.154+0.444*(\frac{b}{d_a}-1)} \qquad \text{Equation (9)}$$

$$f = \frac{\frac{24}{8}-1}{1.154+0.444*(\frac{24}{8}-1)} = 0.98 \qquad \text{8" PIPE}$$

f = pipe/trench width coefficient

b = trench width

d_a = pipe diameter

E_b = modulus of soil reaction for the bedding material (psi)

E'_n = modulus of soil reaction for the in-situ soil (psi)

S-21) For each size of pipe, report zeta factor determined:

Pipe Diameter: **8"** Trench Width: **24"** zeta: **1.00**
Pipe Diameter: **8"** Trench Width: **24"** zeta: **1.00**

S-22) Determine pipe stiffness (P_s) in psi. P_s can be determined either by parallel plate test at 5% deflection, based on manufacturer's data or national reference standards; or, calculated using either equation 10 or equation 11. As an example, the minimum pipe stiffness at 5% deflection for PVC pipe less than 15 inches in diameter meeting ASTM D 3034, is 46 psi for SDR-35 and 115 psi for SDR 26. If equation 11 is used, the ring stiffness constant (RSC) is provided by the pipe manufacturer. Show calculations, or provide proper references, for each size of pipe and for each flexible pipe material.

$$P_s = \frac{EI}{0.149 * r^3} \qquad \text{Equation (10)}$$

or

$$P_s = 0.80 * RSC * (\frac{8.337}{D}) \qquad \text{Equation (11)}$$

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

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

D = mean pipe diameter (in)

r = mean radius (in)

S-23) Report P_s for each pipe size and each type of flexible pipe material as determined.

Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-3034** P_s: **115 psi**
Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-2241** P_s: **160 psi**

S-24) Because the terms in the denominator of the modified Iowa formula (Equation 13) are added, it is theoretically possible to have zero pipe stiffness (P_s=0) and still predict flexible pipe deflections less than 5%. In order to ensure that the stiffness being provided to the installation has a reasonable contribution from pipe stiffness, and does not rely solely on the stiffness provided by the soil stiffness factor (SSF), the ratio of P_s/SSF must be calculated. If P_s/SSF < 0.15, S-22 and S-23 must be repeated such that a higher stiffness pipe is chosen for each portion of the project where P_s/SSF < 0.15. The P_s/SSF ratio(s) must then be recalculated for the new higher stiffness pipe. This process must be repeated until P_s/SSF ≥ 0.15 exists for all proposed pipe sizes and for all types of flexible pipe materials.

$$\frac{P_s}{SSF} = \frac{P_s}{(0.061 * zeta * E_b)} \geq 0.15 \qquad \text{Equation (12)}$$

$$\frac{P_s}{SSF} = \frac{115}{(0.061 * 1 * 2{,}000)} = 0.94 \geq 0.15 \quad \text{(8” PVC SDR 26 115 PSI)}$$
$$\frac{P_s}{SSF} = \frac{160}{(0.061 * 1 * 2{,}000)} = 1.31 \geq 0.15 \quad \text{(8” PVC SDR 26 160 PSI)}$$

E_b = modulus of soil reaction for the bedding material (psi) [from T76]

zeta = 1.0, or a value calculated with the method in T79

SSF = soil stiffness factor (0.061*zeta*E_b)

S-25) Indicate the final values calculated for P_s/SSF for each diameter of pipe and for each pipe material:

Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-3034** P_s/SSF: **0.94**
Pipe Diameter: **8”** Pipe Material: **PVC SDR 26/ASTM D-2241** P_s/SSF: **1.31**

S-26) Do all proposed pipe sizes and flexible pipe materials have a pipe stiffness to soil stiffness factor ratio of greater than or equal to 0.15? **Yes**

S-27) Calculate and report predicted deflection. Predicted deflection must be calculated for each size of pipe and type of flexible pipe material. For the purposes of this application form, predicted deflection must be calculated using the method outlined below. Show calculations and report calculated maximum deflection for each size of pipe and type of flexible pipe material. Maximum allowable deflection in installed lines is 5%, as determined by the deflection analysis and verified by a mandrel test. Some conservatism should be employed in determining allowable predicted deflections. This conservatism is necessary to allow for variability in the quality of installation.

$$\frac{\Delta Y}{D(\%)} = \frac{K*(L_p+L_1)*100}{(0.149*P_s)+(0.061*zeta*E_b)} \qquad \text{Equation (13)}$$

$$\frac{\Delta Y}{D(\%)} = \frac{0.11*(13.43+0.00)*100}{(0.149*115)+(0.061*1.00*2{,}000)} = 1.06\% \qquad \text{(8” PVC SDR 26 115 PSI)}$$

$$\frac{\Delta Y}{D(\%)} = \frac{0.11*(13.43+0.00)*100}{(0.149*160)+(0.061*1.00*2{,}000)} = 1.01\% \qquad \text{(8” PVC SDR 26 160 PSI)}$$

See attachment for calculation.

$\frac{\Delta Y}{D(\%)}$ = Predicted % vertical deflection under load.

ΔY = Change in vertical pipe diameter under load

D = Undeflected mean pipe diameter (in)

$$L_p = \frac{\gamma_s*H}{144} * 1.5 \qquad \text{Equation (14)}$$

$$L_p = \frac{125*10.31}{144} * 1.5 = 13.43 \qquad \text{(8" PVC SDR 26 115 PSI, H=10.31 ft)}$$

$$L_p = \frac{125*10.31}{144} * 1.5 = 13.43 \qquad \text{(8" PVC SDR 26 160 PSI, H=10.31 ft)}$$

K = Bedding angle constant. Assumed to be 0.110 unless otherwise justified.

γ_s = Unit weight of soil (pcf). γ_s less than 120 pcf must be justified.

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

L_p = Prism load (psi). If prism load is calculated using Marston's load formula, or other formulas less conservative than the one provided above, the load should be multiplied by a deflection lag factor $D_L = 1.5$ to account for long-term deflection of the pipe as the bedding consolidates S-27) Report the final pipe diameters, types of pipe material proposed for each diameter, type of pipe material, pipe stiffness for each pipe material (P_s), zeta factors assumed or calculated for each pipe diameter, modulus of the pipe bedding material (E_b) and % deflection predicted for each pipe size and type of pipe material.

	Type of Pipe Material	P_s (psi)	zeta Factor Assumed or Calculated	E_b (psi)	% Deflection
Pipe Diameter 1	8" PVC SDR 26/ASTM D-3034	115	1.00	2,000	1.06
Pipe Diameter 2	8" PVC SDR 26/ASTM D-2241	160	1.00	2,000	1.01

S-28) Do all pipes proposed for this project have a maximum predicted deflection of 5.0%? **Yes**

217.10(e)(11) **X** A description of the areas not initially served by a project, and the projected means of providing service to these areas, including special provisions incorporated in the present plans for future expansion.

- Refer to Attachment - **"No future areas served by this development."**

- 217.10(e)(12) **N/A** The calculations and curves showing the operating characteristics of all system lift stations at minimum, maximum, and design flows during both present and future conditions.

217.10(e)(13) **N/A** The safety considerations incorporated into a project design, including ventilation, entrances, working areas, and explosion prevention

Place engineer's seal here:

Timothy E. Haynie, P.E.
Print Name of Licensed Professional Engineer

Signature of Licensed Professional Engineer Date

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: Timothy E. Haynie, P.E.

Date: 5-14-2024

Signature of Customer/Agent:



Regulated Entity Name: Rivery Crossing Phase 2 (Subdivision)

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: None

   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: San Gabriel River

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

The most likely instances of a spill of hydrocarbons or hazardous substances are:

1. Refueling construction equipment.

2. Performing operator-level maintenance, including adding petroleum, oils, or lubricants.

3. Unscheduled or emergency repairs, such as hydraulic fluid leaks.

Every effort will be taken to be cautious and prevent spills. In the event of a fuel or hazardous substance spill as defined by the Reportable Quantities in Table 1 (page 3) of the TCEQ's Small-Business Handbook for Spill Response (RG-285, June 1997,), the contractor is required to clean up the spill and notify the TCEQ as required in RG-285. During business hours report spills to the TCEQ's Austin Regional Office at (512) 339-2929, after business hours call 1-800-832-8224, the Environmental Response Hotline or (512) 463-7727, the TCEQ Spill Reporting Hotline, which is also answered 24 hours a day.

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

1.00 MATERIALS COVERED

The following materials or substances with known hazardous properties are expected to be present onsite during construction:

Cleaning solvents	Concrete	Concrete Additives
Asphalt	Wastewater	Flushing Water
Detergents	Acids/Bases	Fertilizers
Petroleum based products	Paints	Pesticides
Paint solvents	Soil stabilization additives	

1.01 MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

1.01.1 Good Housekeeping - The following good housekeeping practices will be followed onsite during the construction project.

A. An effort will be made to store (onsite) only enough product required to do the job.

B. All materials stored onsite will be stored in a neat, orderly manner and will be stored under a roof or other enclosure.

C. Products will be kept in their original resealable containers with the original manufacturer's label in legible condition.

D. Substances will not be mixed with one another unless recommended by the manufacturer.

E. Whenever possible, all of a product will be used up before disposing of the container.

F. Manufacturer's recommendations for proper use and disposal will be followed.

G. The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

1.01.2 Hazardous Products Handling

These practices will be used to reduce the risks associated with hazardous materials.

A. Products will be kept in original resealable containers with the original labels in legible condition.

B. Original labels and material safely data sheets (MSDS's) will be procured and used for each material and maintained onsite during construction.

C. If surplus product must be disposed of, the manufacturers' or local/state/federal recommended methods for proper disposal will be followed.

D. A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

E. All of the product in a container will be used before the container is disposed of in compliance with state/federal requirements.. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

1.01.3 Product Specific Practices

The following product specific practices will be followed on the job site.

A. Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to minimize the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

B. Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Materials will be stored in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

C. Paints, Paint Solvents, and Cleaning Solvents

All the product in a container will be used before the container is disposed of in compliance with state/federal requirements. All such containers will be triple rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

D. Concrete Trucks/Asphalt Trucks

Concrete delivery trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or in locations where waste concrete can be poured into forms to make riprap or other useful concrete products. The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. The job site superintendent will be responsible for following these procedures.

1.01.4 Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

A. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

B. Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite in a spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, rakes, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.).

C. All spills will be cleaned up immediately upon discovery.

D. The Spill area will be kept well ventilated, and personnel will wear appropriate protective equipment to prevent injury from contact with the hazardous substances.

E. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 via) will be immediately reported to the EPA National Response Center, telephone at 1-800-424-8802. Reportable Quantities of some substances which may be used at the job site are as follows:

Spills: Reportable Quantities

The Reportable Quantity depends on the substance released and where released. Use this table to determine whether you must report and under what rule.

In Texas, upon determining that a reportable discharge or spill has occurred, the responsible person must notify the state. The threshold quantity that triggers the requirement to report a spill is called the **reportable quantity (RQ).** The reportable quantity depends on the type of substance released and where released (e.g. into water vs. on land); different kinds of spills are subject to different provisions of state and federal rules.

Kind of spill	Where discharged	Reportable quantity	Rule, statute, or responsible agency
Hazardous substance	onto land	"Final RQ" in Table 302.4 in 40 CFR 302.4 (PDF)	30 TAC 327
	into water	"Final RQ" or 100 lbs, whichever is **less**	
Any oil	coastal waters	as required by the Texas General Land Office	Texas General Land Office
Crude oil, oil that is neither a petroleum product nor used oil	onto land	210 gallons (five barrels)	30 TAC 327
	directly into water	enough to create a sheen	
Petroleum product, used oil	onto land, from an exempt PST facility	210 gallons (five barrels)	30 TAC 327

	onto land, or onto land from a non-exempt PST facility	25 gallons	
	directly into water	enough to create a sheen	
Associated with the exploration, development and production of oil, gas, or geothermal resources	under the jurisdiction of the Railroad Commission of Texas	as required by the Railroad Commission of Texas	**Railroad Commission of Texas**
Industrial solid waste or other substances	into water	100 lbs	**30 TAC 327**
From petroleum storage tanks, underground or aboveground	into water	enough to create a sheen on water	**30 TAC 334**
From petroleum storage tanks, underground or aboveground	onto land	25 gallons or equal to the RQ under **40 CFR 302**	**30 TAC 327**
Other substances that may be useful or valuable and are not ordinarily considered to be waste, but will cause pollution if discharged into water in the state	into water	100 lbs	**30 TAC 327**

Note: Copies of relevant statutes will be kept onsite and available for inspection.

F. The SPCC plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. If the spill exceeds a Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.

G. The job site superintendent will be the spill prevention and cleanup coordinator. He will designate the individuals who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

Attachment *B*

Potential Sources of Contamination

Situations contributing to a hazardous material spill may occur during scheduled maintenance of construction equipment. A refueling staging area shall be designated by the contractor. Caution is to be exercised to prevent any existing ground surfaces, or newly disturbed ground surfaces from becoming contaminated. Once the refueling staging area is no longer needed, the area is to be returned to its original condition, or better. Concrete curing compound(s) and fuel leakage shall be contained downstream of the onsite storm water conveyance system. Contractors shall follow the steps below in preventing and responding to spills as outlined in TCEQ publication RG-348, *Technical Guidance on Best Management Practices* (Revised July 2005).

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, promptly 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 storm water 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 dilute 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 provisions 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, locked 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.

Minor Spills

(1) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the site of the spill.
(2) Use absorbent materials on small spills rather than washing 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:
    (a) Contain the spread of the spill.
    (b) Recover spilled materials.
    (c) 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) 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 available 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 within 24 hours.
(4) The services of a spills contractor or a hazmat team should be engaged immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staff 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.

Vehicle and Equipment Maintenance

(1) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
(2) Regularly inspect onsite vehicles and equipment for leaks and repair leaks immediately
(3) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking

vehicles or equipment to remain onsite.
(4) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
(5) Place drip pans or absorbent materials under paving equipment when not in use.
(6) Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
(7) Promptly transfer used fluids to the proper waste or recycling drums. Do not leave full drip pans or other open containers onsite.
(8) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled.
(9) Store cracked batteries in a non- leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

(1) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runoff of stormwater and the runoff of spills.
(2) Discourage "topping off" of fuel tanks.
(3) Always use secondary containment, such as a drain pan, when fueling to catch spills/leaks.

Concrete Washout Areas

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes:

(1) Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
(2) Avoid mixing excess amounts of fresh concrete.
(3) Perform washout of concrete trucks in designated areas only.
(4) Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
(5) Do not allow excess concrete to be dumped onsite, except in designated areas.
For onsite washout:

(a) Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
(b) Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Below grade concrete washout facilities are typical. These consist of a lined excavation sufficiently large to hold expected volume of washout material. Above grade facilities are used if excavation is not practical. Temporary concrete washout facility should be constructed as shown on the details at the end of this section, with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10 mil thick polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

When temporary concrete washout facilities are no longer required for the work, the hardened concrete should be removed and disposed of. Materials used to construct temporary concrete washout facilities should be removed from the site of the work and properly disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities should be backfilled and repaired.

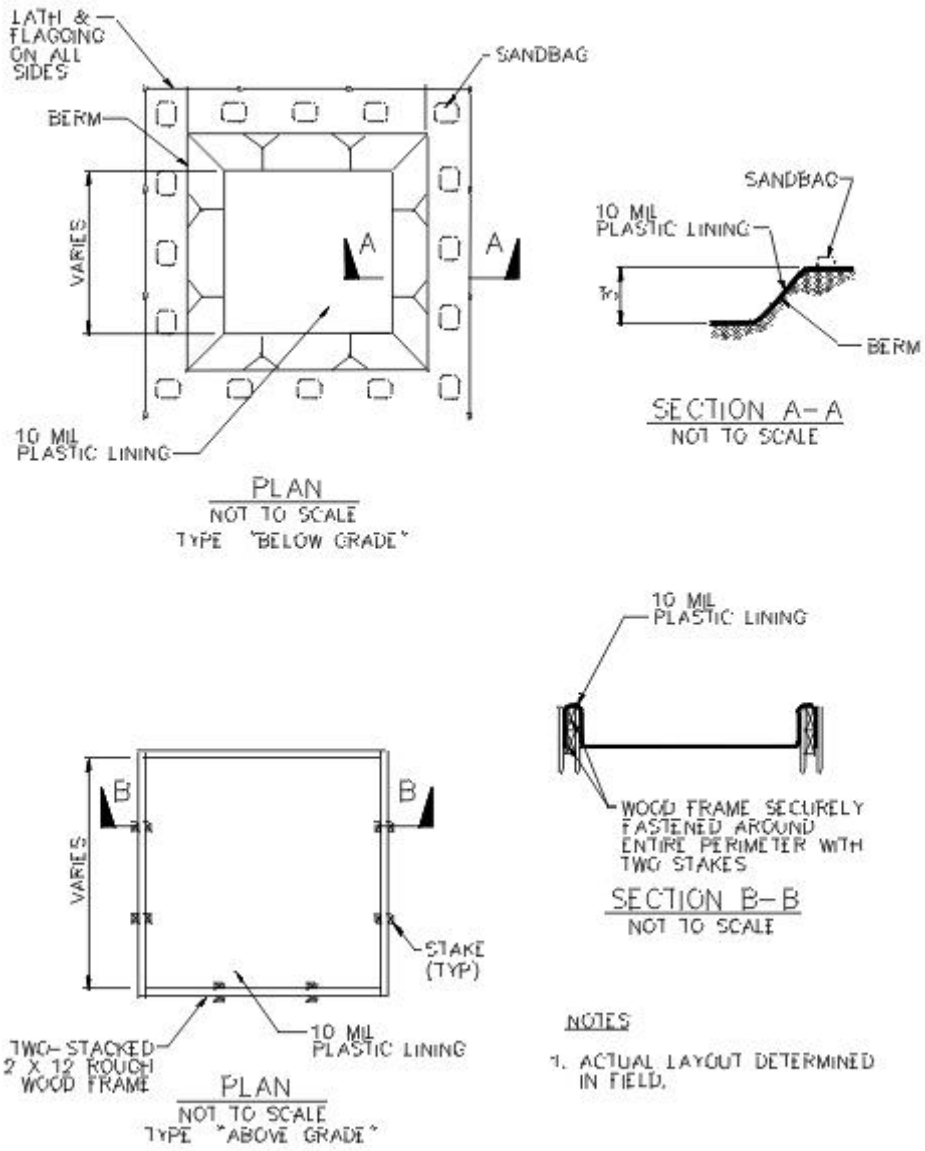


Figure: Schematics of Concrete Washout Areas

Attachment *C*

Sequence of Major Activities

During all construction activities, temporary BMP's are to be maintained, and adjusted to provide optimal erosion, and sediment infiltration protection.

Sequence of major activities includes and is not limited to:

1. Attend pre-construction meeting. (0.00 acres)
2. Place and maintain all temporary Traffic Control devices required for a construction work zone. (0.07 acres)
3. Place and maintain all erosion and sediment control devices. (3.38 acres)
4. Clear and grub proposed limits of construction. (3.38 acres)
5. Construct new batch detention pond (0.28 acres)
6. Rough Cut Street subgrade (0.60 acres)
7. Construct Wastewater System (0.16 acres)
8. Construct Storm Sewer System (0.21 acres)
9. Construct Water System (0.21 acres)
10. Grade building pads, place subgrade, curbing and final pavement (1.32 acres)
11. Fertilizing of disturbed areas (1.23 acres).
12. Maintenance of all Temporary BMP's.
13. Remove Temporary BMP's after acceptance of the construction by the City. (0.05 acres)
14. Remove all traffic control devices. (0.07 acres)

ATTACHMENT *D*

Temporary Best Management Practices and Measures

Onsite storm water runoff is currently sheet flow and planned to be intercepted by open silt fence and diverted to street low points. Rock berms shall intercept concentrated flows exceeding contributing areas of 5 acres or more. Natural run off conditions are to be preserved through construction, and compliment or enhance existing conveyances. The following temporary BMP's are to be placed in accordance with the plans at proper locations to minimize erosion, retain sediment, and other pollutant sources on site to the extent possible.

- temporary sediment control fences
- rock berms where volume of runoff may be too great for effective use of silt fence
- placement of temporary stabilized construction entrance/exits
- Area and Curb Inlet Protection maintenance
- Debris and silt control in Batch Detention Pond to be controlled
- prevent and remove any solid material being discharged on to roadway
- construction debris, construction chemicals, and litter are to be controlled
- BMP inspections are to be performed at least once every 14 calender days, and within 24 hours of the end of an 0.5 inch or greater rain event

ATTACHMENT *E*

Request to Temporarily Fill Feature

Not applicable – No request to temporarily fill any sensitive feature is being made currently.

ATTACHMENT "F"

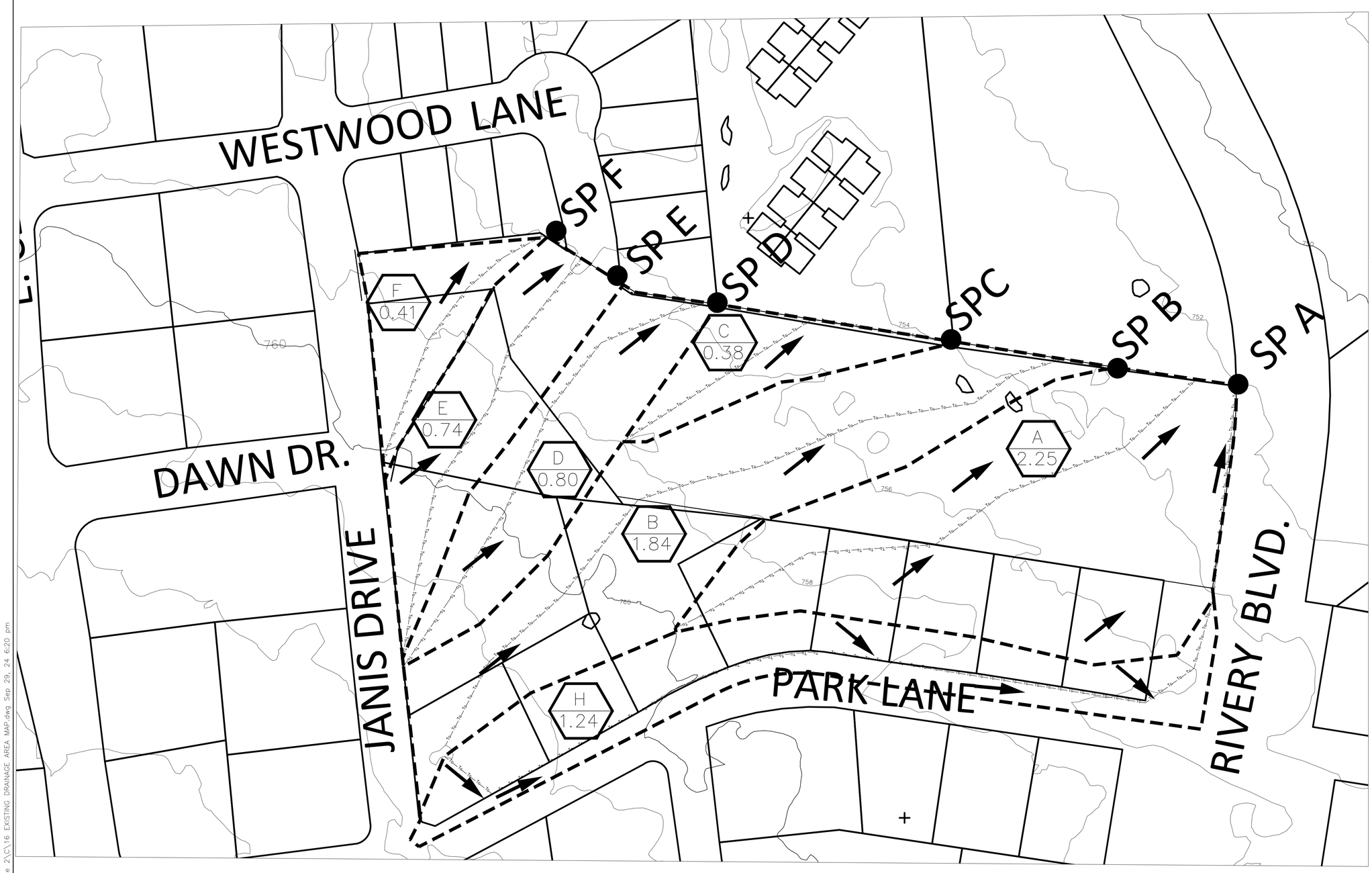
Structural Practices

No improvements are proposed to result in the diversion of storm water runoff from its existing drainage pattern. All unpaved areas will be re-vegetated according to the City of Georgetown Specifications for re-vegetation of disturbed areas.

ATTACHMENT “G”

Drainage Area Map

See attached drainage Area Maps



N

0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

/ AC. — DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
AC. – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

Tc — TIME OF CONCENTRATION PATH

SEE NEXT SHEET FOR CALCULATIONS

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.90	8.00	10.50	14.40
B	2.90	6.00	8.00	10.80
C	0.70	1.40	1.80	2.50
D	1.40	2.70	3.60	4.80
E	1.30	2.60	3.40	4.60
F	0.80	1.50	1.90	2.70
H	5.40	7.70	9.10	11.10
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

BASIN AREAS

BASIN	TOTAL AREA		
No.	S.F.	ACRES	SQ. MI.
A	98,045	2.251	0.0035169
B	80,304	1.844	0.0028805
C	16,470	0.378	0.0005908
D	34,837	0.800	0.0012496
E	32,126	0.738	0.0011524
F	17,786	0.408	0.0006380
H	53,959	1.239	0.0019355
TOTALS	333,527	7.657	0.0119636

EXISTING DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

16 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\16 EXISTING DRAINAGE AREA MAP.dwg Sep 29, 24 6:20 pm

SCS CURVE NUMBER CALCULATIONS
EXISTING CONDITIONS

BASIN	BASIN AREAS			SCS CURVE NUMBERS			
	TOTAL AREA			PASTURE & RANGE	RESIDENTIAL 1/6 Ac.	PAVEMENT	COMPOSITE
No.	S.F.	ACRES	SQ. MI.	CN 80 (HSG D)	CN 90 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A	98,045	2.251	0.0035169	2.00	0.25	0.00	81
B	80,304	1.844	0.0028805	1.80	0.04	0.00	80
C	16,470	0.378	0.0005908	0.38	0.00	0.00	80
D	34,837	0.800	0.0012496	0.76	0.04	0.00	81
E	32,126	0.738	0.0011524	0.70	0.04	0.00	81
F	17,786	0.408	0.0006380	0.41	0.00	0.00	80
H	53,959	1.239	0.0019355	0.39	0.04	0.91	96
TOTALS	333,527	7.657	0.0119636				

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							*Shallow Concentrated*						*Channel*											
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A	100	GRASS	0.24	760.00	758.30	1.70%	13.29	485	UNPAVED	758.30	752.00	1.30%	3.49	-	-	-	-	-	-	-	-	-	-	17	10
B	100	GRASS	0.24	764.00	762.00	2.00%	12.46	655	UNPAVED	762.00	753.20	1.34%	5.84	-	-	-	-	-	-	-	-	-	-	18	11
C	100	GRASS	0.24	758.00	756.50	1.50%	13.98	245	UNPAVED	756.50	754.00	1.02%	2.51	-	-	-	-	-	-	-	-	-	-	14	8
D	100	GRASS	0.24	763.10	761.80	1.30%	14.80	382	UNPAVED	761.80	755.50	1.65%	3.07	-	-	-	-	-	-	-	-	-	-	18	11
E	100	GRASS	0.24	763.10	761.60	1.50%	13.98	340	UNPAVED	761.60	755.80	1.71%	2.69	-	-	-	-	-	-	-	-	-	-	17	10
F	100	GRASS	0.24	760.30	758.60	1.70%	13.29	180	UNPAVED	758.60	756.00	1.44%	1.55	-	-	-	-	-	-	-	-	-	-	13	8
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6

Project: 3427 EXISTING Simulation Run: EXISTING 2 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time: 16Apr2024, 08:33:38 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	3.9	1 January 2000, 01:40	0.2
EX-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-F	0.0	0.8	1 January 2000, 01:40	0.0
EX-H	0.0	5.4	1 January 2000, 01:35	0.2
EX-SP-A	0.0	8.5	1 January 2000, 01:40	0.4
EX-SP-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-SP-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-SP-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-SP-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-SP-F	0.0	0.8	1 January 2000, 01:40	0.0

Project: 3427 EXISTING Simulation Run: EXISTING 25 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time: 16Apr2024, 08:33:44 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	10.5	1 January 2000, 01:40	0.6
EX-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-F	0.0	1.9	1 January 2000, 01:40	0.1
EX-H	0.0	9.1	1 January 2000, 01:35	0.5
EX-SP-A	0.0	18.2	1 January 2000, 01:35	1.1
EX-SP-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-SP-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-SP-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-SP-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-SP-F	0.0	1.9	1 January 2000, 01:40	0.1

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Existing Conditions

Basin	Area mi2	CN	S	Ia
A	0.0035169	81	2.35	0.47
B	0.0028805	80	2.50	0.50
C	0.0005908	80	2.50	0.50
D	0.0012496	81	2.35	0.47
E	0.0011524	81	2.35	0.47
F	0.0006380	80	2.50	0.50
H	0.0019355	96	0.42	0.08

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.9	8.0	10.5	14.4
B	2.9	6.0	8.0	10.8
C	0.7	1.4	1.8	2.5
D	1.4	2.7	3.6	4.8
E	1.3	2.6	3.4	4.6
F	0.8	1.5	1.9	2.7
H	5.4	7.7	9.1	11.1
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7

Project: 3427 EXISTING Simulation Run: EXISTING 10 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time: 16Apr2024, 08:33:25 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	8.0	1 January 2000, 01:40	0.4
EX-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-F	0.0	1.5	1 January 2000, 01:40	0.1
EX-H	0.0	7.7	1 January 2000, 01:35	0.4
EX-SP-A	0.0	14.7	1 January 2000, 01:40	0.8
EX-SP-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-SP-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-SP-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-SP-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-SP-F	0.0	1.5	1 January 2000, 01:40	0.1

Project: 3427 EXISTING Simulation Run: EXISTING 100 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time: 16Apr2024, 08:33:32 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	14.1	1 January 2000, 01:40	0.8
EX-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-F	0.0	2.7	1 January 2000, 01:40	0.2
EX-H	0.0	11.1	1 January 2000, 01:35	0.6
EX-SP-A	0.0	23.9	1 January 2000, 01:40	1.5
EX-SP-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-SP-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-SP-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-SP-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-SP-F	0.0	2.7	1 January 2000, 01:40	0.2

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\17 EXISTING DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:25 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

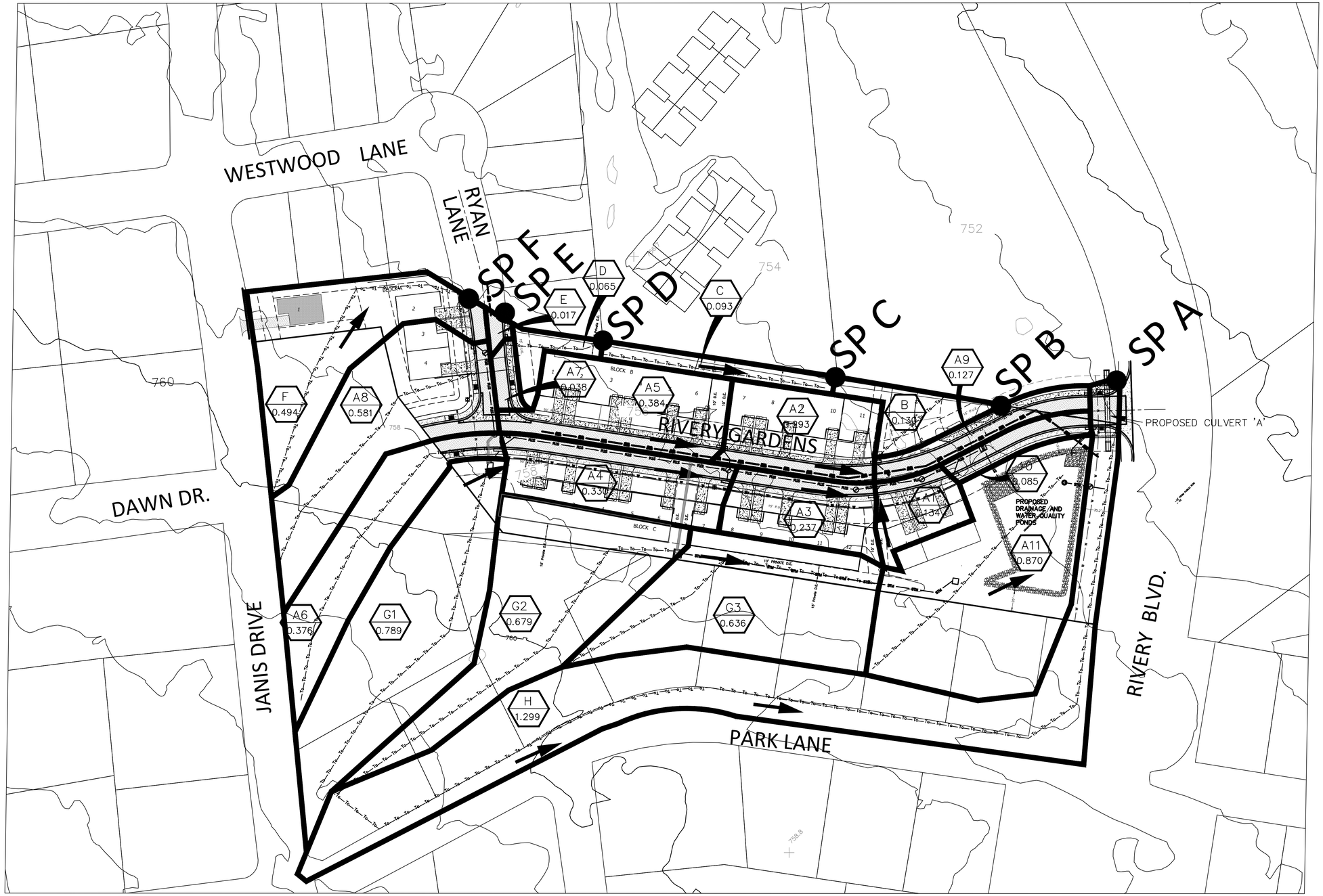
STATE OF TEXAS TIMOTHY E. HAYNIE 36982 LICENSED PROFESSIONAL ENGINEER 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE CALCULATIONS

CITY OF GEORGETOWN



0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
Ac – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

TIME OF CONCENTRATION PATH

SUBDIVISION BOUNDARY

BASIN AREAS

BASIN No.	TOTAL AREA S.F.	TOTAL AREA ACRES	TOTAL AREA SQ. MI.
A1	5,851	0.134	0.0002099
A2	12,754	0.293	0.0004575
A3	10,340	0.237	0.0003709
A4	14,375	0.330	0.0005156
A5	16,726	0.384	0.0006000
A6	16,377	0.376	0.0005874
A7	1,654	0.038	0.0000593
A8	25,301	0.581	0.0009075
A9	5,520	0.127	0.0001980
A10	3,710	0.085	0.0001331
A11	37,892	0.870	0.0013592
B	5,645	0.130	0.0002025
C	4,066	0.093	0.0001458
D	2,817	0.065	0.0001010
E	725	0.017	0.0000260
F	21,509	0.494	0.0007715
G1	34,381	0.789	0.0012332
G2	29,574	0.679	0.0010608
G3	27,717	0.636	0.0009942
H	56,593	1.299	0.0020300
TOTALS	333,527	7.657	0.0119636

EXISTING FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

PROPOSED FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.1	21.6	29.5	42.5

PROPOSED DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

18 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\18 PROPOSED DRAINAGE AREA MAP.dwg Sep 29, 24 6:26 pm

SCS CURVE NUMBER CALCULATIONS
DEVELOPED CONDITIONS

BASIN	TOTAL AREA	TOTAL AREA	TOTAL AREA	RESIDENTIAL 1/6 Ac.	BUILDING/POND	GRASS	PAVEMENT	COMPOSITE
	BASIN AREAS			SCS CURVE NUMBERS				
No.	S.F.	ACRES	SQ. MI.	CN 90 (HSG D)	CN 98 (HSG D)	CN 80 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A1	5,851	0.134	0.0002099	0.000	0.036	0.042	0.056	92.1
A2	12,754	0.293	0.0004575	0.000	0.110	0.062	0.121	94.3
A3	10,340	0.237	0.0003709	0.000	0.076	0.032	0.129	95.4
A4	14,375	0.330	0.0005156	0.000	0.112	0.023	0.195	96.7
A5	16,726	0.384	0.0006000	0.000	0.112	0.090	0.182	93.8
A6	16,377	0.376	0.0005874	0.229	0.000	0.123	0.024	87.2
A7	1,654	0.038	0.0000593	0.000	0.000	0.008	0.030	94.2
A8	25,301	0.581	0.0009075	0.093	0.066	0.382	0.040	84.9
A9	5,520	0.127	0.0001980	0.000	0.000	0.025	0.101	94.4
A10	3,710	0.085	0.0001331	0.000	0.000	0.017	0.068	94.4
A11	37,892	0.870	0.0013592	0.330	0.250	0.240	0.050	90.0
B	5,645	0.130	0.0002025	0.000	0.000	0.130	0.000	80.3
C	4,066	0.093	0.0001458	0.000	0.000	0.093	0.000	79.7
D	2,817	0.065	0.0001010	0.000	0.000	0.065	0.000	80.4
E	725	0.017	0.0000260	0.000	0.000	0.002	0.015	97.9
F	21,509	0.494	0.0007715	0.000	0.030	0.414	0.050	83.0
G1	34,381	0.789	0.0012332	0.668	0.000	0.121	0.000	88.4
G2	29,574	0.679	0.0010608	0.483	0.078	0.118	0.000	89.2
G3	27,717	0.636	0.0009942	0.524	0.044	0.068	0.000	89.4
H	56,593	1.299	0.0020300	0.698	0.00	0.146	0.455	91.7
TOTALS	333,527	7.657	0.0119636	3.03	0.91	2.20	1.52	

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							Shallow Concentrated					Channel										
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A1	75	GRASS	0.24	756.00	754.50	2.00%	9.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5.9
A2	65	GRASS	0.24	755.90	754.60	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A3	65	GRASS	0.24	756.00	754.50	2.31%	8.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5.0
A4	65	GRASS	0.24	757.80	756.50	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A5	65	GRASS	0.24	758.00	756.70	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A6	100	GRASS	0.24	763.10	761.80	1.30%	14.80	237	UNPAVED	761.80	757.80	1.69%	1.88	-	-	-	-	-	-	-	-	-	-	15	8.9
A7	10	GRASS	0.24	757.20	757.00	2.00%	1.97	64	PAVED	757.32	757.00	0.50%	0.74	-	-	-	-	-	-	-	-	-	-	6	3.6
A8	100	GRASS	0.24	761.00	759.50	1.50%	13.98	221	UNPAVED	759.50	757.00	1.13%	1.70	-	-	-	-	-	-	-	-	-	-	14	8.4
A9	10	GRASS	0.24	754.00	753.80	2.00%	1.97	158	PAVED	753.80	752.30	0.95%	1.33	-	-	-	-	-	-	-	-	-	-	6	3.6
A10	10	GRASS	0.24	754.00	753.80	2.00%	1.97	110	PAVED	753.80	752.80	0.91%	0.95	-	-	-	-	-	-	-	-	-	-	6	3.6
A11	100	GRASS	0.24	755.90	754.40	1.50%	13.98	165	UNPAVED	754.40	747.00	4.48%	0.64	-	-	-	-	-	-	-	-	-	-	14	8.4
B	90	GRASS	0.24	754.70	753.70	1.11%	14.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	8.7
C	100	GRASS	0.24	755.80	755.00	0.80%	17.97	124	UNPAVED	755.00	754.00	0.81%	1.13	-	-	-	-	-	-	-	-	-	-	18	10.8
D	94	GRASS	0.24	756.40	755.80	0.64%	18.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	11.2
E	10	GRASS	0.24	756.30	756.10	2.00%	1.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	3.6
F	100	GRASS	0.24	756.50	756.00	0.50%	21.69	237	UNPAVED	758.50	756.00	1.05%	2.38	-	-	-	-	-	-	-	-	-	-	22	13.0
G1	100	GRASS	0.24	764.00	762.20	1.80%	12.99	275	UNPAVED	762.20	758.00	1.53%	2.30	-	-	-	-	-	-	-	-	-	-	13	7.8
G2	100	GRASS	0.24	764.00	762.00	2.00%	12.46	332	UNPAVED	762.00	757.50	1.36%	2.95	-	-	-	-	-	-	-	-	-	-	15	9.2
G3	100	GRASS	0.24	760.00	758.30	1.70%	13.29	244	UNPAVED	758.30	756.00	0.94%	2.60	-	-	-	-	-	-	-	-	-	-	16	9.5
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6.4

Project: Rivery Proposed Offsite incl Simulation Run: COG-2 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time:29Apr2024, 14:52:56 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.51	1 January 2000, 01:36	0.02
A10	0.00	0.39	1 January 2000, 01:33	0.01
A11	0.00	2.77	1 January 2000, 01:39	0.12
A2	0.00	1.23	1 January 2000, 01:36	0.05
A3	0.00	1.05	1 January 2000, 01:33	0.04
A4	0.00	1.49	1 January 2000, 01:36	0.06
A5	0.00	1.58	1 January 2000, 01:36	0.06
A6	0.00	1.04	1 January 2000, 01:39	0.05
A7	0.00	0.06	1 January 2000, 02:18	0.01
A8	0.00	1.48	1 January 2000, 01:39	0.06
A9	0.00	0.59	1 January 2000, 01:33	0.02
B	0.00	0.00	1 January 2000, 03:00	0.00
Batch Detention Pond	0.01	7.71	1 January 2000, 01:54	0.62
C	0.00	0.00	1 January 2000, 03:00	0.00
D	0.00	0.00	1 January 2000, 03:00	0.00
E	0.00	0.09	1 January 2000, 01:33	0.00
F	0.00	1.07	1 January 2000, 01:45	0.06
G1	0.00	2.37	1 January 2000, 01:39	0.10
G2	0.00	1.99	1 January 2000, 01:39	0.09
G3	0.00	1.85	1 January 2000, 01:39	0.08
H	0.00	4.86	1 January 2000, 01:36	0.20
J1	0.01	13.92	1 January 2000, 01:39	0.62
J2	0.01	11.71	1 January 2000, 01:36	0.52
J3	0.01	10.51	1 January 2000, 01:39	0.47
J4	0.00	9.61	1 January 2000, 01:39	0.43
J5	0.00	7.65	1 January 2000, 01:36	0.34
J6	0.00	4.91	1 January 2000, 01:39	0.22
J7	0.00	1.50	1 January 2000, 01:39	0.07
J8	0.00	0.98	1 January 2000, 01:33	0.04
SP-A	0.01	9.92	1 January 2000, 01:45	0.82
SP-B	0.00	0.00	1 January 2000, 03:00	0.00
SP-C	0.00	0.00	1 January 2000, 03:00	0.00
SP-D	0.00	0.00	1 January 2000, 03:00	0.00
SP-E	0.00	0.09	1 January 2000, 01:33	0.00
SP-F	0.00	1.07	1 January 2000, 01:45	0.06

Project: Rivery Proposed Offsite incl Simulation Run: COG-10 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time:29Apr2024, 14:52:24 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.79	1 January 2000, 01:36	0.04
A10	0.00	0.58	1 January 2000, 01:33	0.03
A11	0.00	4.47	1 January 2000, 01:39	0.24
A2	0.00	1.81	1 January 2000, 01:36	0.09
A3	0.00	1.53	1 January 2000, 01:33	0.07
A4	0.00	2.13	1 January 2000, 01:33	0.11
A5	0.00	2.36	1 January 2000, 01:36	0.12
A6	0.00	1.78	1 January 2000, 01:39	0.09
A7	0.00	0.10	1 January 2000, 02:15	0.01
A8	0.00	2.62	1 January 2000, 01:39	0.14
A9	0.00	0.86	1 January 2000, 01:33	0.04
B	0.00	0.12	1 January 2000, 01:51	0.01
Batch Detention Pond	0.01	15.36	1 January 2000, 01:51	1.26
C	0.00	0.08	1 January 2000, 01:57	0.01
D	0.00	0.06	1 January 2000, 01:57	0.00
E	0.00	0.12	1 January 2000, 01:33	0.01
F	0.00	1.87	1 January 2000, 01:45	0.11
G1	0.00	3.93	1 January 2000, 01:39	0.20
G2	0.00	3.32	1 January 2000, 01:39	0.18
G3	0.00	3.09	1 January 2000, 01:39	0.17
H	0.00	7.49	1 January 2000, 01:36	0.37
J1	0.01	22.53	1 January 2000, 01:36	1.21
J2	0.01	18.90	1 January 2000, 01:36	1.01
J3	0.01	17.08	1 January 2000, 01:36	0.92
J4	0.00	15.64	1 January 2000, 01:39	0.84
J5	0.00	12.49	1 January 2000, 01:36	0.66
J6	0.00	8.36	1 January 2000, 01:39	0.44
J7	0.00	2.65	1 January 2000, 01:39	0.15
J8	0.00	1.43	1 January 2000, 01:33	0.07
SP-A	0.01	19.37	1 January 2000, 01:45	1.63
SP-B	0.00	0.12	1 January 2000, 01:51	0.01
SP-C	0.00	0.08	1 January 2000, 01:57	0.01
SP-D	0.00	0.06	1 January 2000, 01:57	0.00
SP-E	0.00	0.12	1 January 2000, 01:33	0.01
SP-F	0.00	1.87	1 January 2000, 01:45	0.11

Project: Rivery Proposed Offsite incl Simulation Run: COG-25 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time:29Apr2024, 14:53:09 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.94	1 January 2000, 01:33	0.05
A10	0.00	0.67	1 January 2000, 01:33	0.03
A11	0.00	5.39	1 January 2000, 01:36	0.31
A2	0.00	2.20	1 January 2000, 01:33	0.11
A3	0.00	1.84	1 January 2000, 01:33	0.09
A4	0.00	2.56	1 January 2000, 01:33	0.13
A5	0.00	2.87	1 January 2000, 01:33	0.15
A6	0.00	2.18	1 January 2000, 01:39	0.12
A7	0.00	0.12	1 January 2000, 02:15	0.01
A8	0.00	3.24	1 January 2000, 01:39	0.18
A9	0.00	1.00	1 January 2000, 01:33	0.05
B	0.00	0.26	1 January 2000, 01:48	0.02
Batch Detention Pond	0.01	21.47	1 January 2000, 01:48	1.67
C	0.00	0.17	1 January 2000, 01:51	0.01
D	0.00	0.12	1 January 2000, 01:51	0.01
E	0.00	0.14	1 January 2000, 01:33	0.01
F	0.00	2.35	1 January 2000, 01:42	0.15
G1	0.00	4.83	1 January 2000, 01:36	0.27
G2	0.00	4.06	1 January 2000, 01:39	0.23
G3	0.00	3.79	1 January 2000, 01:39	0.22
H	0.00	8.94	1 January 2000, 01:36	0.48
J1	0.01	27.70	1 January 2000, 01:36	1.57
J2	0.01	23.12	1 January 2000, 01:36	1.30
J3	0.01	21.02	1 January 2000, 01:36	1.19
J4	0.00	19.31	1 January 2000, 01:36	1.09
J5	0.00	15.36	1 January 2000, 01:36	0.86
J6	0.00	10.22	1 January 2000, 01:36	0.58
J7	0.00	3.29	1 January 2000, 01:39	0.19
J8	0.00	1.67	1 January 2000, 01:33	0.08
SP-A	0.01	26.49	1 January 2000, 01:45	2.15
SP-B	0.00	0.26	1 January 2000, 01:48	0.02
SP-C	0.00	0.17	1 January 2000, 01:51	0.01
SP-D	0.00	0.12	1 January 2000, 01:51	0.01
SP-E	0.00	0.14	1 January 2000, 01:33	0.01
SP-F	0.00	2.35	1 January 2000, 01:42	0.15

Project: Rivery Proposed Offsite incl Simulation Run: COG-100 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time:29Apr2024, 14:52:38 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

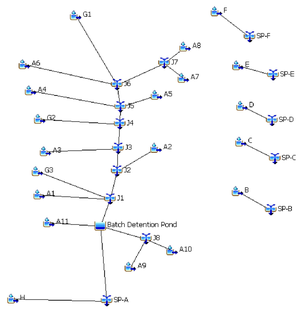
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	1.18	1 January 2000, 01:36	0.07
A10	0.00	0.83	1 January 2000, 01:33	0.04
A11	0.00	6.86	1 January 2000, 01:39	0.41
A2	0.00	2.66	1 January 2000, 01:33	0.15
A3	0.00	2.21	1 January 2000, 01:33	0.12
A4	0.00	3.05	1 January 2000, 01:33	0.17
A5	0.00	3.46	1 January 2000, 01:33	0.19
A6	0.00	2.82	1 January 2000, 01:39	0.17
A7	0.00	0.16	1 January 2000, 02:15	0.02
A8	0.00	4.25	1 January 2000, 01:39	0.25
A9	0.00	1.24	1 January 2000, 01:33	0.06
B	0.00	0.51	1 January 2000, 01:42	0.03
Batch Detention Pond	0.01	30.72	1 January 2000, 01:48	2.26
C	0.00	0.34	1 January 2000, 01:45	0.02
D	0.00	0.23	1 January 2000, 01:48	0.01
E	0.00	0.17	1 January 2000, 01:33	0.01
F	0.00	3.08	1 January 2000, 01:45	0.20
G1	0.00	6.14	1 January 2000, 01:39	0.36
G2	0.00	5.18	1 January 2000, 01:39	0.31
G3	0.00	4.82	1 January 2000, 01:39	0.29
H	0.00	11.21	1 January 2000, 01:36	0.63
J1	0.01	34.81	1 January 2000, 01:36	2.09
J2	0.01	29.10	1 January 2000, 01:36	1.73
J3	0.01	26.46	1 January 2000, 01:36	1.58
J4	0.00	24.30	1 January 2000, 01:36	1.46
J5	0.00	19.39	1 January 2000, 01:36	1.15
J6	0.00	13.26	1 January 2000, 01:39	0.78
J7	0.00	4.31	1 January 2000, 01:39	0.26
J8	0.00	2.07	1 January 2000, 01:33	0.11
SP-A	0.01	38.16	1 January 2000, 01:45	2.89
SP-B	0.00	0.51	1 January 2000, 01:42	0.03
SP-C	0.00	0.34	1 January 2000, 01:45	0.02
SP-D	0.00	0.23	1 January 2000, 01:48	0.01
SP-E	0.00	0.17	1 January 2000, 01:33	0.01
SP-F	0.00	3.08	1 January 2000, 01:45	0.20

FLOW DATA
PROPOSED CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A1	0.51	0.79	0.94	1.18
A2	1.23	1.81	2.20	2.66
A3	1.05	1.53	1.84	2.21
A4	1.49	2.13	2.56	3.05
A5	1.58	2.36	2.87	3.46
A6	1.04	1.78	2.18	2.82
A7	0.06	0.10	0.12	0.16
A8	1.48	2.62	3.24	4.25
A9	0.59	0.86	1.00	1.24
A10	0.39	0.58	0.67	0.83
A11	2.77	4.47	5.39	6.86
B	-	0.12	0.26	0.51
C	-	0.08	0.17	0.34
D	-	0.06	0.12	0.23
E	0.09	0.12	0.14	0.17
F	1.07	1.87	2.35	3.08
G1	2.37	3.93	4.83	6.14
G2	1.99	3.32	4.06	5.18
G3	1.85	3.09	3.79	4.82
H	4.86	7.49	8.94	11.21
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.08	21.62	29.53	42.49

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Proposed Conditions

Basin	Area mi2	CN	S	Ia
A1	0.0002099	93	0.75	0.15
A2	0.0004575	94	0.64	0.13
A3	0.0003709	94	0.64	0.13
A4	0.0005156	94	0.64	0.13
A5	0.0006000	93	0.75	0.15
A6	0.0005874	90	1.11	0.22
A7	0.0000593	94	0.64	0.13
A8	0.0009075	89	1.24	0.25
A9	0.0001980	94	0.64	0.13
A10	0.0001331	94	0.64	0.13
A11	0.0013592	92	0.87	0.17
B	0.0002025	80	2.50	0.50
C	0.0001458	80	2.50	0.50
D	0.0001010	80	2.50	0.50
E	0.0000260	98	0.20	0.04
F	0.0007715	95	0.53	0.11
G1	0.0012332	90	1.11	0.22
G2	0.0010608	90	1.11	0.22
G3	0.0009942	90	1.11	0.22
H	0.0020300	95	0.53	0.11



ROUTING DIAGRAM

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

19 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\19 PROPOSED DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:27 pm

ATTACHMENT "H"

Temporary Sediment Pond Plans & Specifications

Not Applicable. No Temporary Sediment Ponds are required for this project.

ATTACHMENT "I"

Inspection & Maintenance for Temporary BMPs

SUMMARY OF EROSION AND SEDIMENT CONTROL MAINTENANCE/INSPECTION PROCEDURES

- All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be completed within 24 hours of report.
- Built-up sediment will be removed from silt fences when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- Sediment basins, if present, will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 10% of the design capacity or at the end of the project.
- Diversion dikes and Rock Berms, if present, will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. Examples of the report forms to be used are included in this section.
- The site job superintendent will select the individuals who will be responsible for inspections, maintenance and repair activities, and maintaining the inspection and maintenance reports.
- Personnel selected for inspection and maintenance responsibilities will receive training from the site job superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

FINAL STABILIZATION/TERMINATION CHECKLIST

1. All soil disturbing activities are complete

2. Temporary erosion and sediment control measures have been removed or will be removed at an appropriate time.

3. All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

STABILIZATION MEASURES

INSPECTOR: _____ DATE: _____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

AREA	DATE SINCE LAST RAINFALL	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

SILT FENCE

INSPECTOR: _____ DATE:_____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

IS THE BOTTOM OF THE FABRIC STILL BURIED? _____

IS THE FABRIC TORN OR SAGGING? Y/N?

ARE THE POSTS TIPPED OVER? Y/N?

HOW DEEP IS THE SEDIMENT?_____ inches

MAINTENANCE REQUIRED FOR SILT FENCE: _____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

EXAMPLE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION AND MAINTENANCE REPORT FORM

STABILIZED CONSTRUCTION EXIT

INSPECTOR: _____ DATE:_____

QUALIFICATIONS OF INSPECTOR:

_____

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL _____

DOES MUCH SEDIMENT GET TRACKED ON TO ROAD? _____

IS THE GRAVEL CLEAN OR FILLED WITH SEDIMENT? _____

DOES ALL TRAFFIC USE THE STABILIZED EXIT TO LEAVE THE JOB SITE?

IS THE CULVERT BENEATH THE EXIT WORKING? _____

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION EXIT: _____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

ATTACHMENT "J"

Schedule of Interim and Permanent Soil Stabilization Practices

All areas within the project limits that are disturbed during construction will be revegetated and restabilized immediately following completion of related construction activities.

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Timothy E. Haynie

Date: 05/14/2024

Signature of Customer/Agent



Regulated Entity Name: Rivery Crossing Phase 2

Permanent Best Management Practices (BMPs)

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

1. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

   ☐ N/A

2. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

   ☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____

☐ N/A

3. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

   ☐ N/A

4. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.
   ☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.
   ☒ The site will not be used for low density single-family residential development.

5. The executive director may waive the requirement for other permanent BMPs for 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"

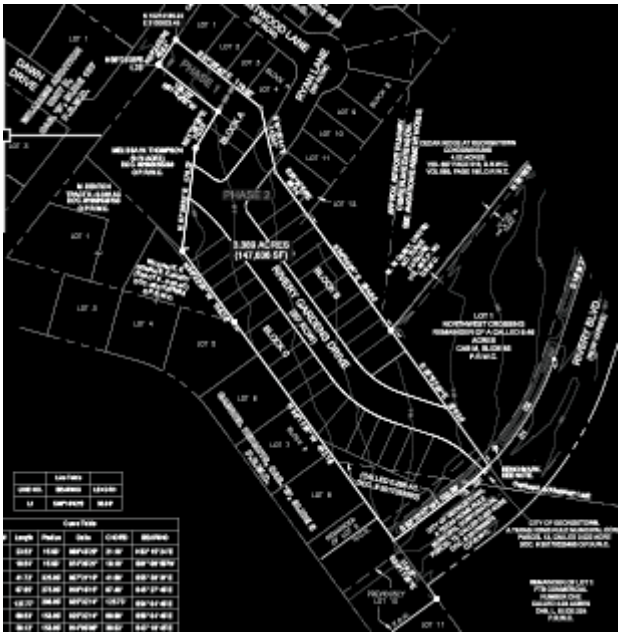
20% or less Impervious Cover Waiver

Not Applicable.

ATTACHMENT "B"

BMPs for Upgradient Storm Water

Up-gradient drainage areas are existing single-family homes, Lots 1-9, Block 6 in the Gabriel Heights subdivision as recorded in Cabinet B, Slide 5 of the Plat Records of Wiliamson County, Texas. These lots are approximately 0.25 acres in size and subdivided in 1964. No treatment of storm water for these areas is planned.



ATTACHMENT “C”

BMPs for On-Site Storm Water

The permanent BMPs, designed according to the TCEQ’s RG-348 Technical Manual titled Complying with the Edwards Aquifer Rules, Technical Guidance on Best Management Practices, July 2005., that shall apply for this development will be a batch detention system (see system information in Attachment D).

The site will be divided into several basins, A1 though A11 and G1-G3, which are delineated on the Proposed Drainage Area Map of the plan set. These areas are routed through the batch detention pond. Areas B through F are off-site flows as shown per the Proposed drainage map.

ATTACHMENT “D”

BMPs for Surface Streams

The Surface waters will be captured and treated in a combination Batch Detention Pond. The permanent BMP for this project is to use batch detention with a rotary Smart Pond system (attached). Discharge of the system shall be into a roadside ditch along Rivery Boulevard to a detention and WQ facility downstream of the project.
The project is in the uplands of the basin and no streams traverse through the project.

ATTACHMENT "E"

Request to Seal Features

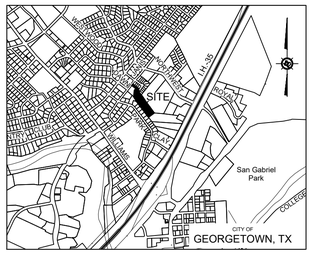
Not Applicable.

ATTACHMENT "F"

Construction Plans for BMPs

A complete set of Construction Plans are provided with this attachment.

See plan sheets 21 Thru 23 for Batch Detention design details.



LOCATION MAP
SCALE: 1" = 2,000'

SUBMITTAL DATE: APRIL 19TH 2024

ADDRESS: 206 E. JANIS DRIVE &
2005 RIVERY BOULEVARD
GEORGETOWN, TEXAS 78628

OWNER: EWING DEVELOPMENT COMPANY, LLC
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: (512) 837-2446
EMAIL: tehaynie45@yahoo.com

SURVEYOR: HAYNIE CONSULTING, INC.
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: (512) 837-2446
EMAIL: tehaynie45@yahoo.com

ENGINEER: HAYNIE CONSULTING, INC.
309 PALMETTO LANE
GEORGETOWN, TEXAS 78633
PHONE: 512-837-2446
EMAIL: tehaynie45@yahoo.com

DOC. NO. 2016070988 CORRECTION AFFIDAVIT (3.0665 ACRES) AND
DOC. NO. 2017083503 REMAINDER OF LOT 1 (0.295 ACRE)

SURVEY: NICHOLAS PORTER SURVEY, ABSTRACT NO. 497
TOTAL ACRES: 3.389 ACRES (147,636 sq. ft.)
NUMBER OF LOTS: 30 LOTS
NUMBER OF BLOCKS: 3 BLOCKS
ZONING: TH

NOTES:
1. REMAINING PORTION (CALLED 0.295 ACRE) OF LOT 1, FTB COMMERCIAL NUMBER ONE, A CALLED 4.02 ACRE RECORDED IN, CAB. L, SLIDE 224, P.R.W.C. , DESCRIBED AND CONVEYED TO 180 HOLLY STREET, INC. IN DOCUMENT NO. 2017083503, O.P.R.W.C.
2. 20' EXCLUSIVE EASEMENT TO THE CITY OF GEORGETOWN DOC. #2017059975, O.P.R.W.C.
3. AVERAGE DAILY TRIP COUNT: = 288 TRIPS (ITE 10TH EDITION)
4. NUMBER OF LOTS:
30 TOWNHOUSE LOTS
5. PROPOSED RIGHT-OF-WAY AREA: 39,824 S.F. OR 0.9142 ACRES
PROPOSED RIGHT-OF-WAY DEDICATION: 37,106 S.F. OR 0.8518 ACRES
6. NUMBER OF BLOCKS: 3
7. AREA OF SMALLEST LOT: (2,080 S.F.)
8. THIS TRACT IS LOCATED WITHIN THE CITY LIMITS OF THE CITY OF GEORGETOWN.
9. STREET LENGTHS & TYPE:

RYAN LANE 125.27 L.F. - LOCAL URBAN - 50' R.O.W.

DAWN DRIVE 813.16 L.F. - LOCAL URBAN - 50' R.O.W.

TOTAL ALL STREETS = 938.43 L.F.

10. UTILITY PROVIDERS:
WATER - CITY OF GEORGETOWN
WASTEWATER - CITY OF GEORGETOWN
ELECTRIC - CITY OF GEORGETOWN
TELECOM - SUDDENLINK COMMUNICATIONS

SURVEY NOTES:

1. COORDINATES ARE BASED ON THE CITY OF GEORGETOWN CONTROL NETWORK.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99986856.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWESTCORNER
OF A CONCRETE HEADWALL LOCATED NORTHEAST
OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'

CONSTRUCTION PLANS FOR

RIVERY CROSSING PHASE 2

A TOWNHOUSE RESIDENTIAL COMMUNITY
IN GEORGETOWN, WILLIAMSON COUNTY, TEXAS

SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

2022-44-CON

NOTES:
1. THESE PLANS WERE PREPARED, SEALED, SIGNED, AND DATED BY A TEXAS LICENSED PROFESSIONAL ENGINEER. THEREFORE, BASED ON THE ENGINEER'S CONCURRENCE OF COMPLIANCE, THE PLANS FOR CONSTRUCTION OF THE PROPOSED PROJECT ARE HEREBY APPROVED SUBJECT TO THE STANDARD CONSTRUCTION SPECIFICATIONS AND DETAILS MANUAL AND ALL OTHER APPLICABLE CITY, STATE AND FEDERAL REQUIREMENTS AND CODES.
2. THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY.
3. ALL ELECTRIC DISTRIBUTION LINES AND INDIVIDUAL SERVICE LINES SHALL BE INSTALLED UNDERGROUND. IF OVERHEAD LINES EXISTED PRIOR TO UNDERGROUND INSTALLATION, SUCH POLES, GUY WIRES, AND RELATED STRUCTURES SHALL BE REMOVED FOLLOWING CONSTRUCTION OF THE UNDERGROUND INFRASTRUCTURE (ONLY APPLICABLE FOR RESIDENTIAL PROPERTY).
4. WHERE NO EXISTING OVERHEAD INFRASTRUCTURE EXISTS, UNDERGROUND ELECTRIC UTILITY LINES SHALL BE LOCATED ALONG THE STREET AND WITHIN THE SITE. WHERE EXISTING OVERHEAD INFRASTRUCTURE IS TO BE RELOCATED, IT SHALL BE RE-INSTALLED UNDERGROUND AND THE EXISTING FACILITIES SHALL BE REMOVED AT THE DISCRETION OF THE DEVELOPMENT ENGINEER(ONLY APPLICABLE FOR NON-RESIDENTIAL AND MULTI-FAMILY DEVELOPMENT).
5. ALL ELECTRIC AND COMMUNICATION INFRASTRUCTURE SHALL COMPLY WITH UDC SECTION13.06.ADDITIONAL NOTES FOR PROPERTIES LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE:
6. THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
7. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON 8-13-2020. NO SPRINGS OR STREAMS WERE IDENTIFIED IN THE GEOLOGIC ASSESSMENT PER THE ASSESSMENT FROM CAPITOL ENVIRONMENTAL, REPORT DATED 8-13-2020.

I, TIMOTHY E. HAYNIE, 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, WILLIAMSON COUNTY, TEXAS.

TIMOTHY E. HAYNIE, P.E. 9-26-2024 DATE

SUBMITTED BY:

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock , Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S.Firm No. 100250-00

Sheet List Table

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3	GENERAL NOTES (2 OF 2)
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6	RIVERY CROSSING PRELIMINARY PLAT (2 OF 3)
7	RIVERY CROSSING PRELIMINARY PLAT (3 OF 3)
8	REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3)
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Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

COVER SHEET

CITY OF GEORGETOWN

SHEET NO.

1 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\1 COVER SHEET.dwg Sep 29, 24 5:34 pm

SEQUENCE OF CONSTRUCTION

1. CALL ALL AFFECTED PARTIES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION TO SCHEDULE A PRE-CONSTRUCTION CONFERENCE AND SECURE ALL REQUIRED PERMITS.
2. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND GRUBBING. NOTIFY THE CITY OF GEORGETOWN WHEN INSTALLED.
3. INSTALL DRAINAGE FACILITIES NECESSARY TO MITIGATE INCREASE STORMWATER RUNOFF.
4. INSTALL ALL UNDERGROUND UTILITIES
5. INSURE THAT ALL UNDERGROUND UTILITIES ARE COMPLETE. LAY FIRST COURSE OF BASE MATERIAL.
6. COMPLETE ALL CONSTRUCTION AND INSTALLATIONS WITHIN THE SITE.
7. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.
8. FINAL WALK THROUGH AND PUNCH LIST
9. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL AND TREE PROTECTION.
10. COMPLETE ANY NECESSARY FINAL DRESS-UP
11. FINAL ACCEPTANCE

City of Georgetown General Construction Notes

1. These construction plans were prepared, sealed, signed and dated by a Texas Licensed Professional Engineer. Therefore, based on the engineer's concurrence of compliance, the construction plans for construction of the proposed project are hereby approved subject to the standard Construction Specifications and Details Manual and all other applicable City, State and Federal Requirements and Codes.
2. This project is subject to all City Standard Specifications and Details in effect at the time of submittal of the project to the City.
3. The site construction plans shall meet all requirements of the approved site plan.
4. Wastewater mains and service lines shall be SDR 26 PVC.
5. Wastewater mains shall be installed without horizontal or vertical bends.
6. Maximum distance between wastewater manholes is 500 feet.
7. Wastewater mains shall be low pressure air tested and mandrel tested by the contractor according to City of Georgetown and TCEQ requirements.
8. Wastewater manholes shall be vacuum tested and coated by the contractor according to City of Georgetown and TCEQ requirements.
9. Wastewater mains shall be camera tested by the contractor and submitted to the City on DVD format prior to paving the streets.
10. Private water system fire lines shall be tested by the contractor to 200 psi for 2 hours.
11. Private water system fire lines shall be ductile iron piping from the water main to the building sprinkler system, and 200 psi C900 PVC for all others.
12. Public water system mains shall be 150 psi C900 PVC and tested by the contractor at 150 psi for 2 hours.
13. All bends and changes in direction on water mains shall be restrained and thrust blocked.
14. Long fire hydrant leads shall be restrained.
15. All water lines are to be bacteria tested by the contractor according to the City standards and specifications.
16. Water and Sewer main crossings shall meet all requirements of the TCEQ and the City.
17. Flexible base material for public streets shall be TXDOT Type A Grade 1.
18. Hot mix asphaltic concrete pavement shall be Type D unless otherwise specified and shall be a minimum of 2 inches thick on public streets and roadways.
19. All sidewalk ramps are to be installed with the public infrastructure.
20. A maintenance bond is required to be submitted to the City prior to acceptance of the public improvements. This bond shall be established for 2 years in the amount of 10% of the cost of the public improvements and shall follow the City format.
21. Record drawings of public improvements shall be submitted to the City by the design engineer prior to acceptance of the project. These record drawings be a pdf emailed to the City.

REFERENCE SPECIFICATIONS AND CODES

1. OSHA REQUIREMENTS AND LOCAL CODES OR THOSE OF ANY REGULATORY AGENCY OR BODY THAT HAS JURISDICTION SHALL BE STRICTLY ADHERED TO.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS, DRAINAGE CRITERIA MANUAL, AND TRANSPORTATION CRITERIA MANUAL AS ADOPTED AND AMENDED BY THE CITY OF GEORGETOWN, TEXAS.
3. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE AUTHORITIES.
4. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS AND TO THE STATE LAW (VERNON'S ANNOTATED TEXAS STATUTES, ARTICLE 1436(C) AND THE NEED FOR EFFECTIVE PRECAUTIONARY MEASURES WHEN OPERATING EQUIPMENT IN THE VICINITY OF ELECTRICAL LINES. IF THE CONTRACTOR CHOOSES TO USE EQUIPMENT WITH THE POTENTIAL OF COMING WITHIN THE DISTANCE PRESCRIBED BY STATUTE, THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE WORK WITH THE APPROPRIATE ELECTRIC UTILITY COMPANY.

TREE PROTECTION NOTES:

1. ALL TREES SHOWN ON THIS PLAN TO BE RETAINED OR REPLANTED SHALL BE PROTECTED DURING CONSTRUCTION WITH TEMPORARY TREE PROTECTION FENCING PER THE EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES (DETAIL EC01A) ON SHEET PI - C9.
2. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING), AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT.
3. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES; SHALL BE LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIPLINE); AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT IN ORDER TO PREVENT THE FOLLOWING:
   A. SOIL COMPACTION IN THE ROOT ZONE AREA RESULTING FROM VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MATERIALS.
   B. ROOT ZONE DISTURBANCES DUE TO GRADE CHANGES (GREATER THAN 6 INCHES CUT OR FILL) OR TRENCHING NOT REVIEWED AND AUTHORIZED BY THE PARK NATURALIST.
   C. WOUNDS TO EXPOSED ROOTS, TRUNKS OR LIMBS BY MECHANICAL EQUIPMENT.
   D. OTHER ACTIVITIES DETRIMENTAL TO TREES SUCH AS CHEMICAL STORAGE, CONCRETE TRUCK CLEANING AND FIRES.
4. EXCEPTIONS TO INSTALLING FENCES AT TREE DRIPLINES MAY BE PERMITTED IN THE FOLLOWING CASES:
   A. WHERE PERMEABLE PAVING IS TO BE INSTALLED, ERECT THE FENCE AT THE OUTER LIMITS OF THE PERMEABLE PAVING AREA.
   B. WHERE TREES ARE CLOSE TO PROPOSED BUILDINGS, ERECT THE FENCE NO CLOSER THAN 6 FEET TO THE BUILDING.
5. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN A FENCE THAT IS CLOSER THAN 4 FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8 FEET (OR THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE REDUCED FENCING PROVIDED.
6. WHERE ANY OF THE ABOVE EXCEPTIONS RESULT IN AREAS OF UNPROTECTED ROOT ZONES (UNDER DRIPLINES) THOSE AREAS SHOULD BE COVERED WITH 4 INCHES OF ORGANIC MULCH OR GRAVEL TO MINIMIZE SOIL COMPACTION.
7. ALL GRADING WITHIN PROTECTED ROOT ZONE AREAS SHALL BE DONE BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2 FEET BEHIND THE GRADE CHANGE AREA.
8. ANY ROOTS EXPOSED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
9. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIPLINES, A CLEAN CUT SHALL BE MADE BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE DAMAGE TO REMAINING ROOTS.

FIRE DEPARTMENT NOTES

At the conclusion of construction and as part of the process for the city to accept this phase. The fire hydrants shall be flowed and tested a copy of the report shall be emailed into the fire department and the hydrants shall be painted and color coded.
*** CAUTION If pressure reducing valves were installed in this phasing they must be set prior to fire hydrant flow testing.***

Per City Ordinance Sec. 13.15.120. - Private fire hydrant maintenance.
A. All private hydrant barrels will be painted red with the bonnet painted using the hydrant flow standard in Paragraph C of this Section to indicate flow. It will be the customer's responsibility to test and maintain their private fire hydrant(s). B. All private fire hydrants should be tested annually and shall be color coded to indicate the expected fire flow from the hydrant during normal operation. Such color applied to the fire hydrant by painting the bonnet the appropriate color for the expected flow condition. C. Hydrant Flow Coding Standards. Public hydrants will have the bonnets painted silver, the hydrants will be flow tested, and the bonnet painted using the hydrant flow standard in paragraph C.
Flow will be determined at 20 Psi Residual Pressure

FLOW COLOR
Greater than 1500 GPM BLUE
1000 to 1500 GPM GREEN
500 to 999 GPM ORANGE
Less than 500 GPM RED
NOT WORKING BLACK OR BAGGED

1. On subdivision streets where parking is not allowed on one side or both sides of the STREET, fire lanes are required shall be marked and maintained in the following manner:
   (i.) A sign 12-inches wide and 18-inches in height with red lettering on a white reflective background and border in red stating "FIRE LANE - TOW AWAY ZONE", along with the words "THIS SIDE OF THE STREET" or "BOTH SIDES OF THE STREET". The words "Fire Lane" by themselves are not acceptable. Sign shall be mounted conspicuously along the edge of the fire lane. Sign must be at the beginning of a street and spaced no more than 250 feet apart at a minimum height of 7 feet above finished grade.

D102.1 Access and loading.
Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).

Provide FIRE LANE markings or signage on both sides of the street if the fire apparatus access road is less than 26 feet wide. If the street is 26.1 to 30 feet wide then only one side will be required to be marked as a FIRE LANE. If the street has mountable curbing then parking on both sides of the street will be allowed if the street width is 30 feet or greater in width.

ADDITIONAL FIRE NOTES::

TOWNHOUSES REQUIRE A 13-D FIRE SPRINKLER. IF THE FIRE WALLS ARE NOT BUILT TO TOWN HOME STANDARDS THEY ARE CONSIDERED MULTI-FAMILY AND WILL NEED A 13-R SPRINKLER SYSTEM. SEPARATE SUBMITTALS SHALL DETERMINE IF A FIRE SPRINKLER SYSTEM IS REQUIRED AND IF A SUBMITTAL IS REQUIRED FOR AN UNDERGROUND FIRE LINE.

13-D SYSTEMS CAN COME OFF OF THE METER AND SPLIT INSIDE THE RESIDENCE OR OUTSIDE.

GRADING NOTES:

1. ALL GRADES AND CONTOURS SHOWN ARE FINAL, TOP OF FINISH SURFACE ELEVATIONS, UNLESS OTHERWISE NOTED.
2. POSITIVE DRAINAGE SHALL BE MAINTAINED ON ALL SURFACE AREAS WITHIN THE SCOPE OF THIS PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR TO TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.
3. CONTRACTOR TO OBTAIN GRADES SHOWN HEREON ± ONE-TENTH (0.10) FOOT.
4. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 2.0% UNLESS OTHERWISE NOTED.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WHERE NOT SPECIFICALLY COVERED IN THE PROJECT SPECIFICATIONS SHALL CONFORM TO ALL APPLICABLE LOCAL CODES AND TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (LATEST EDITION).
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGES DONE TO EXISTING BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS.
8. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
9. TREE PROTECTION SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT PLANS.
10. CONTRACTOR SHALL GRADE AREAS OUTSIDE OF PARKING LOTS TO MATCH EXISTING SITE GRADES BASED ON MAXIMUM SLOPES OF 3:1 UNLESS OTHERWISE NOTED.
11. ALL EXCAVATION IS UNCLASSIFIED.
12. SITE AREAS REQUIRING FILL PLACEMENT SHALL BE SCARIFIED AND MOISTURE ADJUSTED TO WITHIN ± 3% OF OPTIMUM MOISTURE CONTENT. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY.
13. CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT AS PROVIDED BY OWNER.
14. CONTRACTOR IS REQUIRED TO HAVE A TCEQ TPDES PERMIT ISSUED BY TCEQ. A COPY OF THE PERMIT SHALL BE POSTED ON THE JOBSITE PER TCEQ REQUIREMENTS.
15. CONTRACTOR SHALL HYDRO MULCH ALL DISTURBED AREAS NOT INCLUDED IN LANDSCAPE PLANS AND GUARANTEE COVERAGE ACCORDING TO CONSTRUCTION SPECIFICATIONS.

SITE ACCESSIBILITY GRADING NOTES:

1. ALL ACCESSIBLE ROUTES AND PATHWAYS SHALL CONFORM TO ADA STANDARDS FOR ACCESSIBLE DESIGN LATEST EDITION.
2. SIDEWALKS AND PATH WAYS SHALL MEET MAXIMUM 2% CROSS SLOPE AND MAXIMUM 5% RUNNING SLOPE REQUIREMENTS.
3. ALL ACCESSIBLE PARKING SPACES AND SHARED ACCESS AISLES SHALL BE LEVEL AND MEET MAXIMUM 2% SLOPE REQUIREMENTS IN ANY DIRECTION.
4. ALL ACCESSIBLE RAMPS SHALL MEET MAXIMUM 2% CROSS SLOPE AND MAXIMUM 8.33% (1:12) RUNNING SLOPE REQUIREMENTS.

EROSION CONTROL NOTES:

1. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASHOUT PIT AND CONSTRUCTION EQUIPMENT STORAGE AREA ARE TO BE DETERMINED IN THE FIELD. THEY ARE SHOWN ON THIS PLAN FOR ILLUSTRATIVE PURPOSES ONLY. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AROUND CONCRETE WASH PIT AND MATERIAL STORAGE AREA BASED ON FINAL LOCATION AND SIZE.
2. CONTRACTOR MAY MODIFY STORM WATER CONTROLS TO ACHIEVE THE DESIRED INTENT. ANY CHANGES ARE TO BE NOTED, SIGNED AND DATED BY THE RESPONSIBLE PARTY IN THE TPDES BOOK (NO SEPARATE PAY ITEM).
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORM WATER CONTROLS.
4. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY QUESTIONS REGARDING THE INTENT OF THIS PLAN.
5. IF REQUIRED, CONTRACTOR SHALL FILE NOI'S (NOTICE OF INTENT) AND NOT'S (NOTICE OF TERMINATION) FOR THIS PROJECT. REFER TO TPDES FOR PROPER POSTING REQUIREMENTS AND DOCUMENTS.
6. CONTRACTOR SHALL PERFORM INSPECTIONS OF CONTROLS ONCE EVERY FOURTEEN (14) DAYS AND WITHIN TWENTY-FOUR (24) HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER OR AS AN ALTERNATIVE METHOD CONTRACTOR SHALL PERFORM INSPECTIONS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS.
7. A COPY OF THIS PLAN, TPDES BOOK AND INSPECTION REPORTS MUST REMAIN AT THE CONSTRUCTION SITE AT ALL TIMES.
8. BARE SOILS SHALL HAVE STABILIZATION MEASURES INSTALLED WITHIN 14 CALENDAR DAYS AFTER FINAL GRADING OR WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED FOR MORE THAN 21 DAYS.THE ACCUMULATION OF DEBRIS AND MATERIALS RESULTING FROM CONSTRUCTION AND/OR DEMOLITION SHALL BE CONTAINED ON-SITE AND REMOVED IN A TIMELY MANNER.
9. ALL DEBRIS AND CONSTRUCTION MATERIALS SHALL BE REMOVED PRIOR TO FINAL INSPECTION AND THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE CITY RETAINS THE RIGHT TO REQUIRE THE PLACEMENT OF A COMMERCIAL DUMPSTER FOR COLLECTION OF DEBRIS IF THE SITE IS NOT PROPERLY MAINTAINED. THE COST ASSOCIATED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER.
10. DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM PRODUCTS BASED UPON TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
11. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ADJACENT ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
12. REFER TO THE TPDES BOOK FOR THIS PROJECT FOR MORE INFORMATION/ DETAILS.
13. SCREENING AND LOCATION OF OUTDOOR STORAGE SHALL COMPLY WITH SECTION 5.09 OF THE UDC.

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C2 GENERAL NOTES (1 OF 2).dwg Sep 29, 24 5:36 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

811 Know what's below. Call before you dig.
ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

GENERAL NOTES (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.

2 OF 52

2022-44-CON

GENERAL UTILITY NOTES:

1. ALL MAINS SHALL BE FLUSHED, HYDROSTATICALLY TESTED AND DISINFECTED BY THE CONTRACTOR, PER THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. FOR PURPOSES OF RECORD DRAWINGS FOR THE CITY OF GEORGETOWN, THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.
3. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.
4. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED AND DISPOSED OF FROM THE SITE BY THE CONTRACTOR, AT THEIR EXPENSE.
5. ALL TRENCH BACKFILL FOR THIS PROJECT SHALL BE ACCOMPLISHED ACCORDING TO THE UTILITY DETAIL SHEET AND SHALL MEET ALL REQUIREMENTS OF THE CITY OF GEORGETOWN. NO WATER JETTING WILL BE ALLOWED. OBSERVATION OF TRENCH BACKFILL WILL BE SUPPLEMENTED BY MOISTURE-DENSITY TESTING CONDUCTED AT PERIODIC INTERVALS DURING THE COMPACTION PROCESS. THE CONTRACTOR WILL BE REQUIRED TO MAKE SUITABLE EXCAVATION TO ALLOW ACCESS FOR SUCH TESTING, AND WILL BE REQUIRED TO REMOVE AND REPLACE BACKFILL AS MANY TIMES AS NECESSARY TO ACHIEVE 95% STANDARD PROCTOR.
6. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE TCEQ AND CITY OF GEORGETOWN WATER STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION(LATEST EDITION), CITY OF GEORGETOWN BUILDING CODE AND REGULATIONS, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.
7. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITY OR IMPROVEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS.
8. THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS, PRIOR TO ANY CONSTRUCTION IN THE AREA.
9. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
10. THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.
11. FIRE HYDRANTS SHALL BE A MINIMUM OF EIGHTEEN (18) INCHES AND A MAXIMUM OF TWENTY FOUR (24) INCHES TO THE BACK OF THE CURB. THE STEAMER CONNECTION SHALL BE A MINIMUM OF ONE AND ONE-HALF (1.5) FEET AND A MAXIMUM OF TWO (2) FEET ABOVE GRADE. HYDRANTS SHALL BE KEPT CLEAR OF ALL OBSTACLES WITHIN THREE (3) FEET.
12. CONTRACTOR SHALL USE SPECIAL CARE AND MINIMIZE ANY DISTURBANCE WITHIN EXCAVATING NEAR OR WITHIN THE DRIPLINE OF TREES TO REMAIN.
13. THE ELECTRIC UTILITY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY VEGETATION AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE THE CITY OF GEORGETOWN ELECTRIC UTILITY DEPARTMENT WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES.
14. THE TRENCH EXCAVATION STANDARDS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ARE HEREBY INCLUDED AND SHALL BE APPLICABLE TO ALL TRENCH EXCAVATION WORK WITHIN THE CITY WHICH EXCEEDS FOUR (4) FEET IN DEPTH.
15. ALL STORM DRAIN PIPES FOR THIS PROJECT SHALL BE REINFORCED CONCRETE PIPE OR CONCRETE BOX CULVERTS PRECAST OR CAST IN PLACE WITH AN N=0.013.
16. ALL NON-PRESSURE RATED SANITARY SEWER PIPE FOR THIS PROJECT SHALL BE SDR 26 PVC ASTM D-3034 WITH A BELLED JOINT TYPE CONFORMING TO ASTM D-3212. ALL PRESSURE RATED SANITARY SEWER PIPE FOR THIS PROJECT SHALL BE SDR 26 IPS PRESSURE ASTM 2241, CLASS160 PVC PIPE WITH INTEGRAL BELL JOINT TYPE CONFORMING TO ASTM D-3139 (160 PSI MIN. WORKING PRESSURE). ALL STANDARD GASKETS FOR JOINTS ASSOCIATED WITH THIS PROJECT SHALL CONFORM TO ASTM F-477. ALL SEWER SERVICE CONNECTION THAT CROSS A WATERLINE SHALL BE PRESSURE RATED SDR 26 CLASS 160 CONFORMING TO ASTM D-2241, ALL OTHER SEWER SERVICE CONNECTIONS SHALL BE SDR 26 CLASS 115 CONFORMING TO ASTM D-3034.
17. ALL WATER DISTRIBUTION LINES (8" OR 12" DIAMETER PIPE) SHALL BE AWWA C-900 PVC CLASS 150 PSI, UNLESS OTHERWISE SPECIFIED.

TCEQ WATER DISTRIBUTION NOTES:

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.

O THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{LD\sqrt{P}}{148{,}000}$$

TCEQ WATER DISTRIBUTION NOTES (CONTINUED):

WHERE:

- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

O THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$LQ = \frac{SD\sqrt{P}}{148{,}000}$$

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C- 651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

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Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

GENERAL NOTES (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

3 OF 52

2022-44-CON

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet __ of __.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____.

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____.

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
    (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
        (1) *Low Pressure Air Test.*
            (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
            (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
                (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
                (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3 $$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter *(inches)*	Minimum Time *(seconds)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
    (1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
        (A) *Mandrel Sizing.*
            (i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
            (ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
            (iii) All dimensions must meet the appropriate standard.
        (B) *Mandrel Design.*
            (i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
            (ii) A mandrel must have nine or more odd number of runners or legs.
            (iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
            (iv) Each size mandrel must use a separate proving ring.
        (C) *Method Options.*
            (i) An adjustable or flexible mandrel is prohibited.
            (ii) A test may not use television inspection as a substitute for a deflection test.
            (iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
    (2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
    (3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
    (4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
    (5) Gravity collection system pipe deflection must not exceed five percent (5%).
    (6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
    (a) All manholes must pass a leakage test.
    (b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
        (1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.

(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.

4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

7. Sediment must be removed from the sediment traps or sedimentation basins not later than

when it occupies 50% of the basin's design capacity.

8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.

10. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

11. The following records shall be maintained and made available to the TCEQ upon request:
    - 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.

12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;

    C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\4 TCEQ NOTES.dwg Sep 29, 24 5:38 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

TCEQ NOTES

CITY OF GEORGETOWN

SHEET NO.

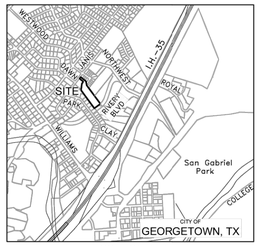
4 OF 52

2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.



LOCATION MAP
SCALE: 1" = 2,000'

SUBMITTAL DATE: NOVEMBER 16, 2020

ADDRESS: 206 E. JANIS DRIVE,
2201 RIVERY BLVD.
GEORGETOWN, TEXAS 78628

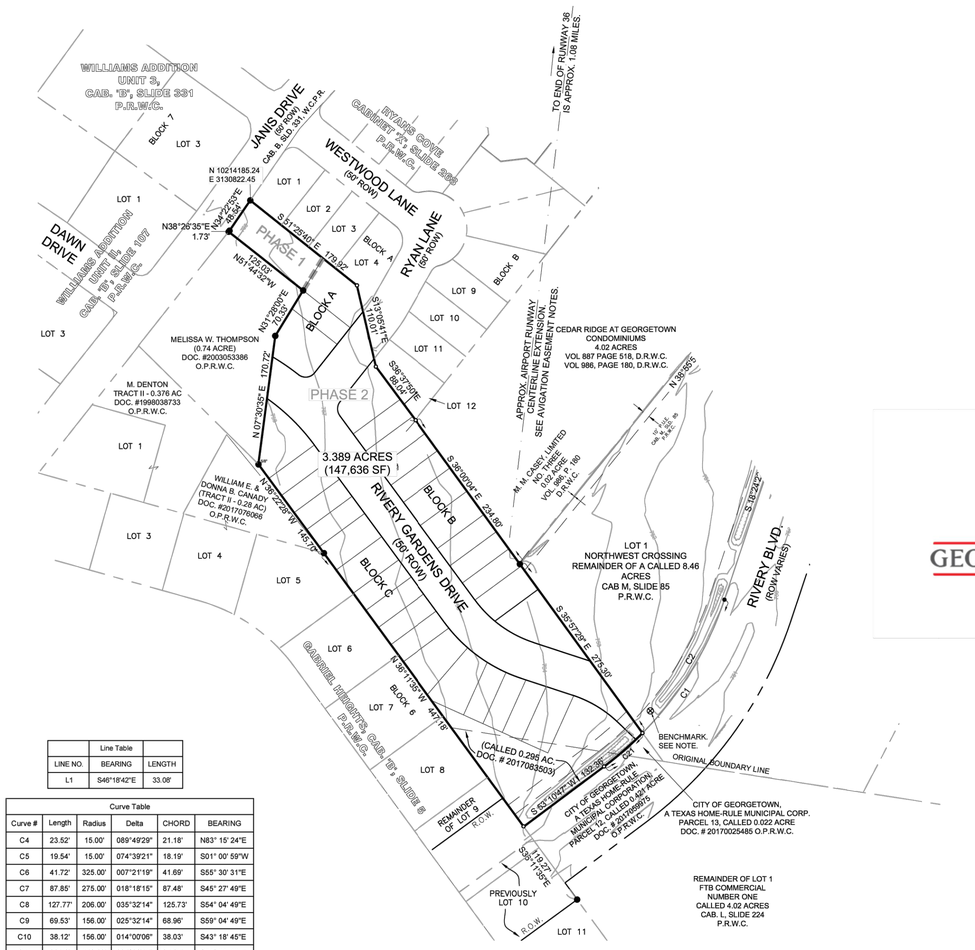
OWNER: EWING DEVELOPMENT COMPANY, LLC
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: (512) 837-2446
EMAIL: tehaynie@haynieconsulting.com

SURVEYOR: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: pyglesias@haynieconsulting.com

ENGINEER: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: thaynie@haynieconsulting.com

DOC. NO. 2016070988 CORRECTION AFFIDAVIT (3.0665 ACRES)
AND DOC. NO. 2017083503 REMAINDER OF LOT 1 (0.295 ACRE)

SURVEY: NICHOLAS PORTER SURVEY,
ABSTRACT NO. 497
TOTAL ACRES: 3.389 ACRES (147,636 sq. ft.)
NUMBER OF LOTS: 34
SMALLEST LOT AREA: 0.05 ACRE (2,080 sq. ft.)
NUMBER OF BLOCKS: 3 BLOCKS



SURVEY NOTES:

1. COORDINATES ARE BASED ON THE GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWEST CORNER OF A CONCRETE CULVERT HEADWALL LOCATED NORTHEAST OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'

Line Table		
LINE NO.	BEARING	LENGTH
L1	S46°18'42"E	33.08'

Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C1	275.58'	454.07'	034°46'25"	271.37'	S35° 47' 34"W
C2	170.45'	454.07'	021°30'29"	169.45'	N29° 09' 36"E
C3	58.64'	156.00'	021°32'09"	58.29'	N61° 04' 52"W

Record Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C4	(111.76')	-	(11°30'14")	-	(N22°35'22"E)

Curve Table					
Curve #	Length	Radius	Delta	CHORD	BEARING
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C14	55.10'	454.07'	006°57'11"	55.07'	S49° 42' 11"W
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C16	36.04'	206.00'	010°01'23"	35.99'	S43° 54' 37"E
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C21	67.29'	454.07'	008°29'27"	67.23'	S48° 56' 04"W
C22	68.36'	156.00'	025°06'31"	67.82'	S58° 51' 54"E

STREET DATA TABLE (STREETS ARE PUBLIC)					
STREET NAME / CLASSIFICATION	R.O.W. / LENGTH	DESIGN SPEED	PAVEMENT WIDTH	CURB TYPE	PEDESTRIAN CLEAR ZONE
RYAN LANE (LOCAL)	50' R.O.W. / 123 L.F.	30 MPH	28' BOC TO BOC	CURB & GUTTER	FIVE FEET
RIVERY GARDENS DRIVE (LOCAL)	50' R.O.W. / 697 L.F.	30 MPH	28' BOC TO BOC	CURB & GUTTER	FIVE FEET
RIVERY BLVD. (COLLECTOR)	92' R.O.W./ NA	45 MPH	63' BOC TO BOC	CURB & GUTTER	TWELVE FEET

0 100 200 Ft
SCALE: 1" = 100'

SHEET INDEX

SHEET 1 - COVER
SHEET 2 - PLAT
SHEET 3 - NOTES & CERTIFICATIONS

LEGEND

- ● 1/2" IRON ROD FOUND (IRF) (UNLESS OTHERWISE NOTED)
- ○ 1/2" IRON ROD SET
- ⊗ BENCHMARK
- ( ) RECORD INFORMATION
- P.R.W.C. PLAT RECORDS WILLIAMSON COUNTY
- D.R.W.C. DEED RECORDS OF WILLIAMSON COUNTY
- O.P.R.W.C. OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY
- R.O.W. RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT CENTERED ON LOTLINE
- ADJACENT PROPERTY LINE
- PHASE LINE

GEORGETOWN TEXAS

Approved by the City of Georgetown Planning & Zoning Commission on:

April 5, 2022

Per Section 3.08.070.E of the Unified Development Code, this Preliminary Plat will expire on **April 5, 2024** if a Final Plat is not recorded.

ENGINEER'S PRELIMINARY REVIEW NOTE:

FOR REVIEW. THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY TIM HAYNIE. P.E. #91819 ON AUGUST 12, 2020. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2020-23-PP
SHEET NO. 1 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: kstockton
PLOTTED: Sep 29, 2024 - 1:30pm
DRAWING: X:\002 Ewing Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\5 RIVERY CROSSING PRELIMINARY PLAT (1 OF 3).dwg Sep 29, 24 6:05 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

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T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (1 OF 3)

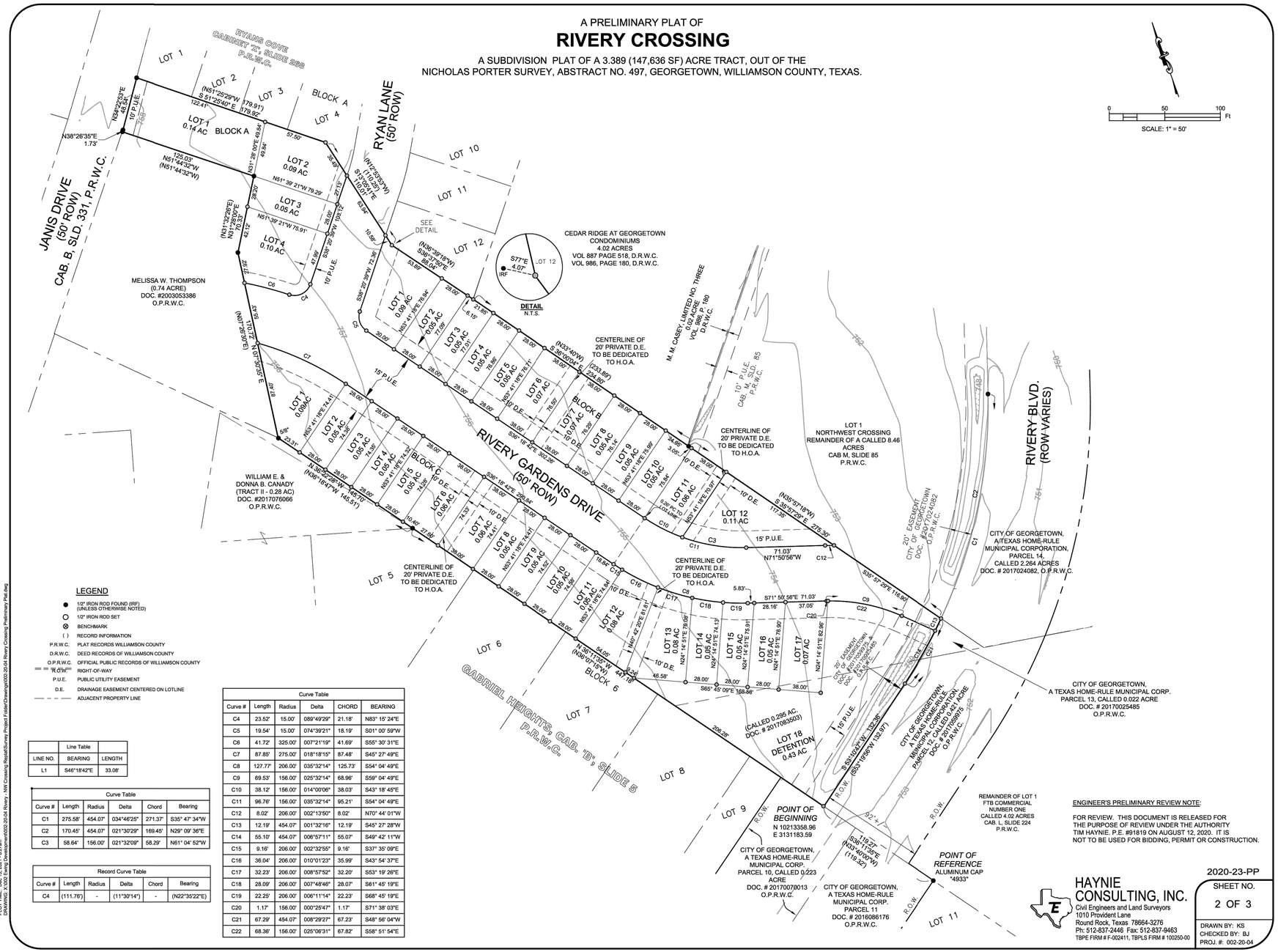
CITY OF GEORGETOWN

SHEET NO.
5 OF 52
2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.



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TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2020-23-PP
SHEET NO. 2 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: sabodkin
PLOT TIME: Dec 15, 2021 - 8:27am
P:\Work\CAD\Rivery Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\6 RIVERY CROSSING PRELIMINARY PLAT (2 OF 3).dwg Sep 29, 24 6:06 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (2 OF 3)

CITY OF GEORGETOWN

SHEET NO.

6 OF 52

2022-44-CON

A PRELIMINARY PLAT OF

RIVERY CROSSING

A SUBDIVISION PLAT OF A 3.389 (147,636 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

PLAT NOTES

1. UTILITY PROVIDERS FOR THIS DEVELOPMENT ARE WATER: CITY OF GEORGETOWN, WASTEWATER: CITY OF GEORGETOWN, AND ELECTRIC: CITY OF GEORGETOWN.

2. THERE ARE NO AREAS WITHIN THE BOUNDARIES OF THIS SUBDIVISION IN THE 100-YEAR FLOODPLAIN AS DEFINED BY FIRM MAP NUMBER 48491C0295F, EFFECTIVE DATE OF DECEMBER 20, 2019.

3. IN ORDER TO PROMOTE DRAINAGE AWAY FROM A STRUCTURE, THE SLAB ELEVATION SHOULD BE BUILT AT LEAST ONE-FOOT ABOVE THE SURROUNDING GROUND, AND THE GROUND SHOULD BE GRADED AWAY FROM THE STRUCTURE AT A SLOPE OF 1/2" PER FOOT FOR A DISTANCE OF AT LEAST 10 FEET.

4. ALL SEDIMENTATION, FILTRATION, DETENTION, AND/OR RETENTION BASINS AND RELATED APPURTENANCES SHOWN SHALL BE SITUATED WITHIN A DRAINAGE EASEMENT OR DRAINAGE LOT. THE OWNERS, HOA, OR ASSIGNEES OF THE TRACTS UPON WHICH ARE LOCATED SUCH EASEMENTS, APPURTENANCES, AND DETENTION FACILITIES SHALL MAINTAIN SAME AND BE RESPONSIBLE FOR THEIR MAINTENANCE, ROUTINE INSPECTION, AND UPKEEP.

5. ALL STRUCTURES / OBSTRUCTIONS ARE PROHIBITED IN DRAINAGE EASEMENTS.

6. PARKLAND DEDICATION REQUIREMENTS ARE BEING MET BY FEE-IN-LIEU OF.

7. THE MONUMENTS OF THIS PLAT HAVE BEEN ROTATED TO THE CITY OF GEORGETOWN CONTROL NETWORK.

8. THE MAXIMUM IMPERVIOUS COVERAGE PER RESIDENTIAL LOT IS 50 PERCENT.

9. THE MAXIMUM IMPERVIOUS COVERAGE PER NON-RESIDENTIAL LOT SHALL BE PERSUANT TO THE UDC AT THE TIME OF SITE PLAN APPLICATION BASED ON THE ZONING DESIGNATION OF THE PROPERTY.

10. THE LANDOWNER ASSUMES ALL RISKS ASSOCIATED WITH IMPROVEMENTS LOCATED IN THE RIGHT-OF-WAY, OR ROAD WIDENING EASEMENTS. BY PLACING ANYTHING IN THE RIGHT-OF-WAY OR ROAD WIDENING EASEMENTS, THE LANDOWNER INDEMNIFIES AND HOLDS THE CITY OF GEORGETOWN, WILLIAMSON COUNTY, THEIR OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM ANY LIABILITY OWING TO PROPERTY DEFECTS OR NEGLIGENCE NOT ATTRIBUTABLE TO THEM AND ACKNOWLEDGES THAT THE IMPROVEMENTS MAY BE REMOVED BY THE CITY AND/OR COUNTY AND THAT THE OWNER OF THE IMPROVEMENTS WILL BE RESPONSIBLE FOR THE RELOCATION AND/OR REPLACEMENT OF THE IMPROVEMENTS.

11. THE BUILDING OF ALL STREETS, ROADS, AND OTHER PUBLIC THOROUGHFARES AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IS THE RESPONSIBILITY OF THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE CITY OF GEORGETOWN AND/OR WILLIAMSON COUNTY, TEXAS. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY OBLIGATION TO BUILD ANY OF THE STREETS, ROADS, OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT OR OF CONSTRUCTING ANY OF THE BRIDGES OR DRAINAGE IMPROVEMENTS IN CONNECTION THEREWITH. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR DRAINAGE WAYS OR EASEMENTS IN THE SUBDIVISION, OTHER THAN THOSE DRAINING OR PROTECTING THE ROAD SYSTEM AND STREETS IN THEIR RESPECTIVE JURISDICTIONS.

12. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR THE ACCURACY OF REPRESENTATIONS BY OTHER PARTIES IN THIS PLAT. FLOODPLAIN DATA, IN PARTICULAR, MAY CHANGE DEPENDING ON SUBSEQUENT DEVELOPMENT. IT IS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE STREETS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE CITY AND / OR COUNTY.

13. RIGHT-OF-WAY EASEMENTS FOR WIDENING ROADWAYS OR IMPROVING DRAINAGE SHALL BE MAINTAINED BY THE LANDOWNER UNTIL ROAD OR DRAINAGE IMPROVEMENTS ARE ACTUALLY CONSTRUCTED ON THE PROPERTY. THE CITY AND/OR COUNTY HAVE THE RIGHT AT ANY TIME TO TAKE POSSESSION OF ANY ROAD WIDENING EASEMENT FOR CONSTRUCTION, IMPROVEMENT, OR MAINTENANCE OF THE ADJACENT ROAD.

14. THIS PLAT IS SUBJECT TO THE PROVISIONS OF THE CITY OF GEORGETOWN WATER CONSERVATION ORDINANCE.

15. THE SUBDIVISION SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.

16. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON AUGUST 25, 2020. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGIC ASSESSMENT ARE SHOWN HEREON.

17. A 10-FOOT PUBLIC UTILITY EASEMENT IS DEDICATED ALONG ALL STREET FRONTAGES WITHIN THIS PLAT. A 15-FOOT PUBLIC UTILITY EASEMENT IS DEDICATED ALONGSIDE AND PARALLEL TO THE EXISTING 20-FOOT EASEMENT PREVIOUSLY DEDICATED IN DOCUMENT NO. 2017059975 AND DOCUMENT NO. 20170025485.

AVIGATION EASEMENT

1. THERE IS HEREBY GRANTED FOR THE USE AND BENEFIT OF THE PUBLIC A CONTINUING AVIGATION EASEMENT FOR THE FREE AND UNOBSTRUCTED FLIGHT OF AIRCRAFT (WHICH TERM SHALL INCLUDE ANY CONTRIVANCE NOW OR HEREAFTER USED FOR FLIGHT THROUGH THE AIR) AND THE RIGHT OF FLIGHT FOR THE PASSAGE OF AIRCRAFT IN THE AIRSPACE ABOVE THE SURFACE OF THE PROPERTY, TOGETHER WITH SUCH NOISE AND OTHER EFFECTS AS MAY BE INHERENT IN THE OPERATION OF AIRCRAFT LANDING AT, TAKING OFF FROM, OR ENGAGED IN OTHER FLIGHT ACTIVITIES AT THE GEORGETOWN AIRPORT.

2. GRANTORS DO HEREBY GRANT AND CONVEY AN EASEMENT FOR THE APPROACH ZONE, AS THAT TERM IS DEFINED IN SECTION 12.36 OF THE CITY OF GEORGETOWN CODE OF ORDINANCES AND AS SHOWN ON THIS PLAT, BEING FURTHER DESCRIBED AS AN APPROACH SURFACE THAT BEGINS AT THE END OF RUNWAY 36 AND EXTENDS OUT TO 10,200 FEET, AND EXPANDS TO A WIDTH OF 3,500 FEET WITH A SLOPE OF ONE FOOT IN HEIGHT FOR EACH 34 FEET IN HORIZONTAL DISTANCE (SEC12.36.040.A). THIS SUBDIVISION IS LOCATED BENEATH THE APPROACH ZONE ELEVATION OF 889.5 FEET. THE MAXIMUM HEIGHT OF ANY TREE OR STRUCTURE LOCATED IN THE EASEMENT IS 134 FEET ABOVE THE SURFACE OF THE LAND (SEC12.36.040.E).

3. THESE EASEMENTS SHALL BE PERPETUAL AND SHALL BE BINDING ON GRANTOR AND ITS ASSIGNS, HEIRS AND SUCCESSORS.

LEGAL DESCRIPTION

BEING 3.389 ACRES (147,636 SQ. FT.) OF LAND OUT OF THE NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS, AND BEING ALL OF A CALLED 3.066 ACRE TRACT TO EWING DEVELOPMENT COMPANY, L.L.C. AS TRACT 1 IN DOCUMENT NO. 2020010587 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, (O.P.R.W.C.), AND DESCRIBED IN DOCUMENT NO. 2016070985 OF THE O.P.R.W.C., AND BEING ALL OF A CALLED 0.295 ACRE TRACT TO EWING DEVELOPMENT COMPANY, L.L.C IN DOCUMENT NO. 2020010587 AND DESCRIBED IN DOCUMENT NO. 2017083503 OF THE O.P.R.W.C.; SAID 3.389 ACRES OF LAND BEING MORE PARTICUARLY LOCATED AND DESCRIBED AS FOLLOWS; (BEARINGS OF LINES REFER TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE) AS COMPUTED FROM GPS VECTORS; DISTANCES EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99986856; PARENTHETICAL BEARINGS AND DISTANCES REFER TO PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED):

COMMENCING at a 1/2 inch iron rod with aluminum cap stamped "4933" found in the Southeasterly right-of-way line of Rivery Blvd., (ROW Varies), at a common Northeasterly corner of Lot 10 and Lot 11, Block 6 of "Gabriel Heights", a subdivision recorded in Cabinet B, Slide 5 of the Plat Records of Williamson County, Texas, (P.R.W.C.), in the Southwesterly line of Lot 1 of "FTB Commercial Number One", a subdivision recorded in Cabinet L, Slide 224 of the P.R.W.C.;

THENCE, N36°11'35"W, (N33°40'00"W), with the Northeasterly line of said Block 6 of "Gabriel Heights" subdivision, a distance of 119.27, (119.32'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Northwesterly right-of-way line of said Rivery Blvd., at the most Westerly corner of a called 0.421 acre tract, Parcel 12, to the City of Georgetown, a Texas Home-Rule Municipal Corporation, recorded in Document No. 2017059975 of the O.P.R.W.C., and being the most Southerly corner and **POINT OF BEGINNING** of this tract;

THENCE, with the Northeast boundary line of said Block 6 of "Gabriel Heights" subdivision, the following two (2) courses and distances;

1. N36°11'35"W, (N36°07'15"W) a distance of 447.18, feet to a 1/2 inch iron rod found for an angle point in the Northerly line of Lot 5 of said Block 6 of "Gabriel Heights" subdivision, also being the Southeast corner of a called 0.28 acre, Tract II, conveyed to William E. and Donna B. Canady in Document No. 2017076066 of the O.P.R.W.C.;

2. N36°22'28"W, (N36°18'47"W), a distance of 145.70, (145.51'), feet to a 1/2 inch iron rod found at the most Southerly corner of a called 0.74 acre tract described in a deed to Melissa W. Thompson, recorded in Document No. 2003053386 of the O.P.R.W.C., for a Westerly corner of this tract;

THENCE, with the common line of said 0.74 acre tract and the Westerly boundary lines of this tract, the following three (3) courses and distances;

1. N07°30'35"E, (N07°26'30"E), a distance of 170.72 feet to a 1/2 inch iron rod found;

2. N31°28'00"E, (N31°32'26"E), a distance of 70.33 feet to a 1/2 inch iron rod found for an interior ell corner of this tract;

3. N51°44'32"W, (N51°44'32"W), a distance of 125.03 feet to a 1/2 inch iron rod found in the Southeasterly right-of-way line of Janis Drive (50' ROW) as dedicated in "Williams Addition Unit 3", a plat recorded in Cabinet B, Slide 331 in the P.R.W.C., being the North corner of said 0.74 acre tract, for a Northwesterly corner of this tract;

THENCE, with Southeast right-of-way lines of said Janis Drive, the following two (2) courses and distances:

1. N38°26'35"E", a distance of 1.73 feet to a 1/2 inch iron rod found for an angle point;

2. N34°22'53"E", a distance of 48.54 feet to a 1/2 inch iron rod found at the Westernmost corner of Lot 1, Block A, of "Ryan's Cove", a subdivision recorded in Cabinet X, Slides 268-269, for the Northernmost corner of this tract;

THENCE, with Southwest boundary lines of said "Ryan's Cove", the following three (3) courses and distances:

1. S51°25'40"E, (N51°25'29"W), a distance of 179.92 (179.91'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for an angle point in the Southwest boundary line of Lot 4, Block A of said "Ryan's Cove";

2. S13°05'41"E, (S12°53'53"E), a distance of 110.01, (110.25'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Westerly line of Lot 12, Block B of said "Ryan's Cove" for an angle point;

3. S36°37'50"E, (N36°39'18"W), a distance of 88.04 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the Southerly corner of Lot 12, Block B of said "Ryan's Cove", being the Westerly corner of a called 4.02 acre tract described as "Cedar Ridge at Georgetown Condominiums" recorded in Volume 887, Page 518 and in Volume 986, Page 180 of the Deed Records of Williamson County, Texas, (D.R.W.C.), for an angle point in this tract;

THENCE, S36°00'04"E, (N33°40'W), with the Southwest boundary line of said called 4.02 acre tract a distance of 234.80, (233.89'), feet to a 1/2 inch iron rod found at the Southwest corner of Lot 1 of "Northwest Crossing", a subdivision recorded in Cabinet M, Slide 85 of the P.R.W.C., also being the Southwest corner of a called 0.02 acre tract conveyed to M. M. Casey, Limited No. Three in Volume 986, Page 180, D.R.W.C. for an angle point in this tract;

THENCE, S35°57'29"E, (N35°57'18"W), with the Southwest boundary line of Lot 1 of said "Northwest Crossing", a distance of 275.30 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in a curve to the right in the Westerly right-of-way line of said Rivery Blvd., being the North corner of a called 0.022 acre tract, Parcel 13, to the City of Georgetown, a Texas Home-Rule Municipal Corporation, recorded in Document No. 20170025485 of the O.P.R.W.C., and being the most Southerly corner of said Lot 1 of "Northwest Crossing", for the Easternmost corner of this tract;

THENCE, (C21), with said Westerly right-of-way line of Rivery Blvd, along a curve to the right having a radius of 454.07 feet, an arc length of 67.29 feet, and a chord bearing and distance of S48°56'04"W, 67.23 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the point of tangency;

THENCE, S 53°10'47" W, (S 53°19'56" W), a distance of 132.36, (132.97'), feet to the **POINT OF BEGINNING** and containing a computed area of 3.389 acres, (147,636 sq. ft.), of land.

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

I, TIMOTHY E. HAYNIE , REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE FROM AN ACTUAL SURVEY MADE ON THE GROUND OF THE PROPERTY LEGALLY DESCRIBED HEREON, AND THAT THERE ARE NO APPARENT DISCREPANCIES, CONFLICTS, OVERLAPPING OF IMPROVEMENTS, VISIBLE UTILITY LINES OR ROADS IN PLACE, EXCEPT AS SHOWN ON THE ACCOMPANYING PLAT, AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY SUPERVISION IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF THE CITY OF GEORGETOWN, TEXAS.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS,
THIS_____ DAY OF_____, 20__.

_____ _____
TIMOTHY E. HAYNIE DATE
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 2360- STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

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

I, TIM HAYNIE , REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS SUBDIVISION IS IN THE EDWARDS AQUIFER RECHARGE ZONE AND IS NOT ENCROACHED BY A ZONE A FLOOD AREA, AS DENOTED HEREIN, AND AS DEFINED BY FEDERAL EMERGENCY MANAGEMENT ADMINISTRATION FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL NUMBER 48491C0295F EFFECTIVE DATE DECEMBER 20, 2019 AND THAT EACH LOT CONFORMS TO THE CITY OF GEORGETOWN REGULATIONS. THE FULLY DEVELOPED, CONCENTRATED STORMWATER RUNOFF RESULTING FROM THE ONE HUNDRED (100) YEAR FREQUENCY STORM IS CONTAINED WITHIN THE DRAINAGE EASEMENTS AND DETENTION SHOWN AND/OR PUBLIC RIGHTS-OF-WAY DEDICATED BY THIS PLAT.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS,
THIS _____ DAY OF_____, 20__.

_____ _____
TIM HAYNIE DATE
REGISTERED PROFESSIONAL ENGINEER
No. 91819 - STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

ENGINEER'S PRELIMINARY REVIEW NOTE:

FOR REVIEW. THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY TIM HAYNIE, P.E. #91819 ON AUGUST 21, 2020. IT IS NOT TO BE USED FOR BIDDING, PERMIT OR CONSTRUCTION.

2020-23-PP

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

SHEET NO.
3 OF 3

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: Inkollon
PLOT TIME: Dec 14, 2021 - 1:30pm
DRAWING: X:\2021\wip Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Rivery Crossing Preliminary Plat.dwg

G:\PROJECTS\3427 – Rivery Crossing Phase 2\CY7 RIVERY CROSSING PRELIMINARY PLAT (3 OF 3).dwg Sep 29, 24 6:07 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

RIVERY CROSSING PRELIMINARY PLAT (3 OF 3)

CITY OF GEORGETOWN

SHEET NO.

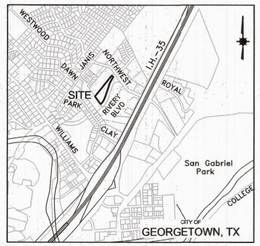
7 OF 52

2022-44-CON

Doc #2022034124

A REPLAT OF
LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN,
WILLIAMSON COUNTY, TEXAS.



LOCATION MAP
SCALE: 1" = 2,000'

SHEET INDEX

1. COVER - PLAT DETAIL
2. PLAT DETAIL
3. DEDICATIONS

SUBMITTAL DATE: JUNE 21, 2021

ADDRESS: 2201 RIVERY BLVD.
GEORGETOWN, TEXAS 78628

OWNER: W. D. KELLEY FOUNDATION
DALE ILLIG, PRESIDENT
707 ROCK STREET
GEORGETOWN, TEXAS 78626
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: CPI INVESTMENTS, LTD.
DALE ILLIG, GENERAL PARTNER
707 ROCK STREET
GEORGETOWN, TEXAS 78626
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: PATRICIA A. KATT
314 LOGAN RANCH ROAD
GEORGETOWN, TEXAS 78628
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

OWNER: ELIZABETH I. MEADOWS
3900 SPRING HOLLOW ST.
COLLEYVILLE, TEXAS 76034
PHONE: (512) 930-5012
EMAIL: dale@dale-illig.com

SURVEYOR: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: tehaynie@haynieconsulting.com

ENGINEER: HAYNIE CONSULTING, INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS 78664
PHONE: 512-837-2446
EMAIL: thaynie@haynieconsulting.com

NORTHWEST CROSSING, CAB. M, SLIDE 85
(OUT OF A CALLED 8.46 ACRES)

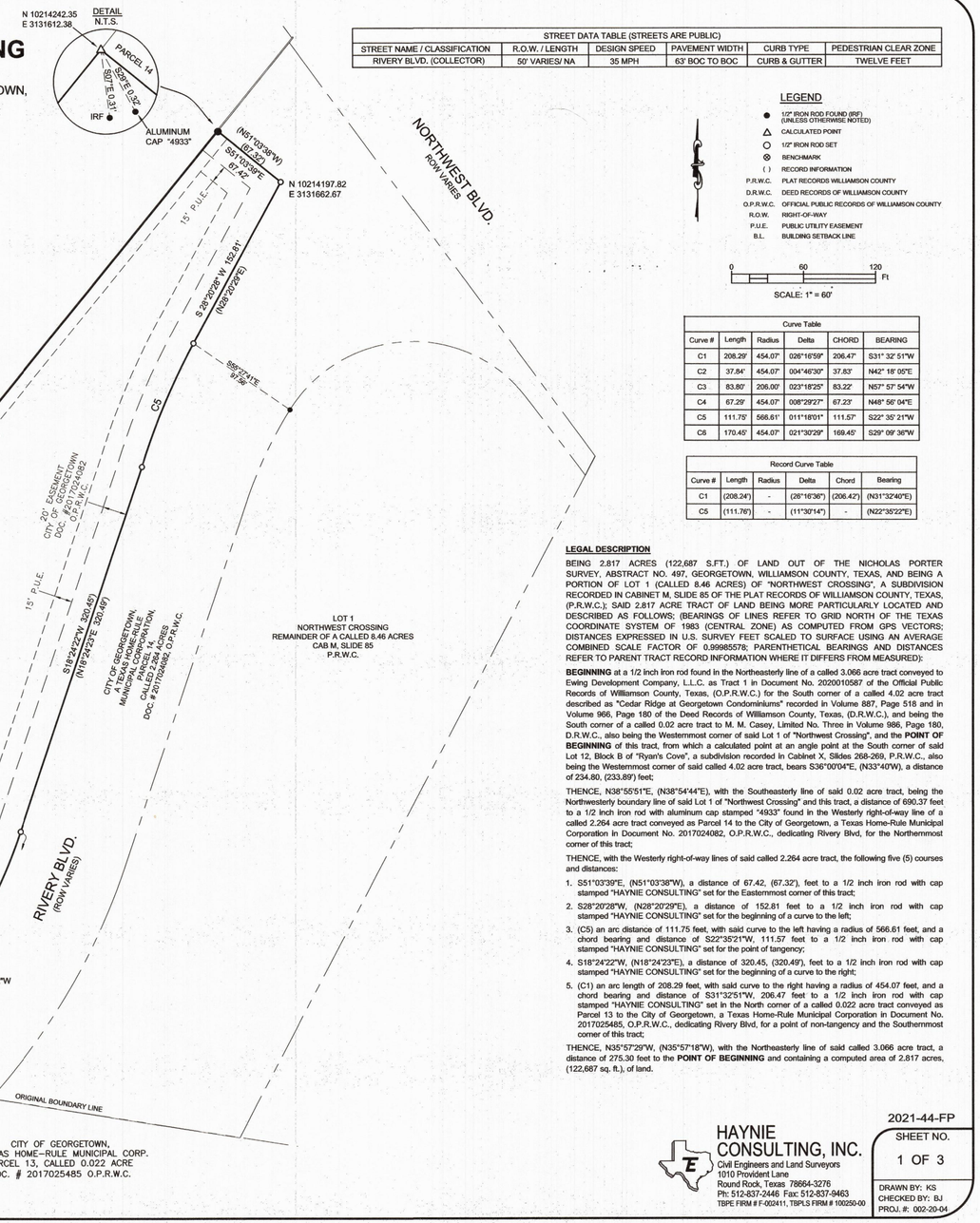
SURVEY: NICHOLAS PORTER SURVEY,
ABSTRACT NO. 497
TOTAL ACRES: 2.817 ACRES (122,687 sq. ft.)
NUMBER OF LOTS: 2
NUMBER OF BLOCKS: 1 BLOCK

SURVEY NOTES:

1. COORDINATES ARE BASED ON THE GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE.
2. DISTANCES ARE EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578.
3. PARENTHETICAL BEARINGS AND DISTANCES INDICATE PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED.

PERMANENT BENCHMARK NOTE:

A CHISELED "X" FOUND AT THE NORTHWEST CORNER OF A CONCRETE CULVERT HEADWALL LOCATED NORTHEAST OF A DRIVE ENTRANCE ALONG RIVERY BLVD. AS SHOWN.
N=10213511.802, E=3131350.018 ELEVATION: 751.51'



STREET DATA TABLE (STREETS ARE PUBLIC)					
STREET NAME / CLASSIFICATION	R.O.W. / LENGTH	DESIGN SPEED	PAVEMENT WIDTH	CURB TYPE	PEDESTRIAN CLEAR ZONE
RIVERY BLVD. (COLLECTOR)	50' VARIES/ NA	35 MPH	63' BOC TO BOC	CURB & GUTTER	TWELVE FEET

LEGEND

- ● 1/2" IRON ROD FOUND (IRF) (UNLESS OTHERWISE NOTED)
- △ CALCULATED POINT
- ○ 1/2" IRON ROD SET
- ⊗ BENCHMARK
- ( ) RECORD INFORMATION
- P.R.W.C. PLAT RECORDS WILLIAMSON COUNTY
- D.R.W.C. DEED RECORDS OF WILLIAMSON COUNTY
- O.P.R.W.C. OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY
- R.O.W. RIGHT-OF-WAY
- P.U.E. PUBLIC UTILITY EASEMENT
- B.L. BUILDING SETBACK LINE

0 60 120 Ft
SCALE: 1" = 60'

Curve Table					
Curve #	Length	Radius	Delta	CHORD	BEARING
C1	208.29'	454.07'	026°16'59"	206.47'	S31° 32' 51"W
C2	37.84'	454.07'	004°46'30"	37.83'	N42° 18' 05"E
C3	83.80'	205.00'	023°18'25"	83.22'	N57° 57' 54"W
C4	67.29'	454.07'	008°29'27"	67.23'	N48° 56' 04"E
C5	111.75'	566.61'	011°18'01"	111.57'	S22° 35' 21"W
C6	170.45'	454.07'	021°30'29"	169.45'	S29° 09' 36"W

Record Curve Table					
Curve #	Length	Radius	Delta	Chord	Bearing
C1	(208.24')	-	(26°16'36")	(206.42')	(N31°32'40"E)
C5	(111.76')	-	(11°30'14")	-	(N22°35'22"E)

LEGAL DESCRIPTION

BEING 2.817 ACRES (122,687 S.F.T.) OF LAND OUT OF THE NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS, AND BEING A PORTION OF LOT 1 (CALLED 8.46 ACRES) OF "NORTHWEST CROSSING", A SUBDIVISION RECORDED IN CABINET M, SLIDE 85 OF THE PLAT RECORDS OF WILLIAMSON COUNTY, TEXAS, (P.R.W.C.); SAID 2.817 ACRE TRACT OF LAND BEING MORE PARTICULARLY LOCATED AND DESCRIBED AS FOLLOWS; (BEARINGS OF LINES REFER TO GRID NORTH OF THE TEXAS COORDINATE SYSTEM OF 1983 (CENTRAL ZONE) AS COMPUTED FROM GPS VECTORS; DISTANCES EXPRESSED IN U.S. SURVEY FEET SCALED TO SURFACE USING AN AVERAGE COMBINED SCALE FACTOR OF 0.99985578; PARENTHETICAL BEARINGS AND DISTANCES REFER TO PARENT TRACT RECORD INFORMATION WHERE IT DIFFERS FROM MEASURED):

BEGINNING at a 1/2 inch iron rod found in the Northeasterly line of a called 3.066 acre tract conveyed to Ewing Development Company, L.L.C. as Tract 1 in Document No. 2020010587 of the Official Public Records of Williamson County, Texas, (O.P.R.W.C.) for the South corner of a called 4.02 acre tract described as "Cedar Ridge at Georgetown Condominiums" recorded in Volume 887, Page 518 and in Volume 966, Page 180 of the Deed Records of Williamson County, Texas, (D.R.W.C.), and being the South corner of a called 0.02 acre tract to M. M. Casey, Limited No. Three in Volume 986, Page 180, D.R.W.C., also being the Westernmost corner of said Lot 1 of "Northwest Crossing", and the **POINT OF BEGINNING** of this tract, from which a calculated point at an angle point at the South corner of said Lot 12, Block B of "Ryan's Cove", a subdivision recorded in Cabinet X, Slides 268-269, P.R.W.C., also being the Westernmost corner of said called 4.02 acre tract, bears S36°00'04"E, (N33°40'W), a distance of 234.80, (233.89') feet;

THENCE, N38°55'51"E, (N38°54'44"E), with the Southeasterly line of said 0.02 acre tract, being the Northwesterly boundary line of said Lot 1 of "Northwest Crossing" and this tract, a distance of 690.37 feet to a 1/2 inch iron rod with aluminum cap stamped "4933" found in the Westerly right-of-way line of a called 2.264 acre tract conveyed as Parcel 14 to the City of Georgetown, a Texas Home-Rule Municipal Corporation in Document No. 2017024082, O.P.R.W.C., dedicating Rivery Blvd, for the Northernmost corner of this tract;

THENCE, with the Westerly right-of-way lines of said called 2.264 acre tract, the following five (5) courses and distances:

1. S51°03'39"E, (N51°03'38"W), a distance of 67.42, (67.32'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the Easternmost corner of this tract;
2. S28°20'28"W, (N28°20'29"E), a distance of 152.81 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the beginning of a curve to the left;
3. (C5) an arc distance of 111.75 feet, with said curve to the left having a radius of 566.61 feet, and a chord bearing and distance of S22°35'21"W, 111.57 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the point of tangency;
4. S18°24'22"W, (N18°24'23"E), a distance of 320.45, (320.49'), feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set for the beginning of a curve to the right;
5. (C1) an arc length of 208.29 feet, with said curve to the right having a radius of 454.07 feet, and a chord bearing and distance of S31°32'51"W, 206.47 feet to a 1/2 inch iron rod with cap stamped "HAYNIE CONSULTING" set in the North corner of a called 0.022 acre tract conveyed as Parcel 13 to the City of Georgetown, a Texas Home-Rule Municipal Corporation in Document No. 2017025485, O.P.R.W.C., dedicating Rivery Blvd, for a point of non-tangency and the Southernmost corner of this tract;

THENCE, N35°57'29"W, (N35°57'18"W), with the Northeasterly line of said called 3.066 acre tract, a distance of 275.30 feet to the **POINT OF BEGINNING** and containing a computed area of 2.817 acres, (122,687 sq. ft.), of land.

2021-44-FP
SHEET NO. 1 OF 3

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: tadcotton
PLOT TIME: Jan 27, 2023 - 3:42pm
Pathname: J:\2020 Projects\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\8 REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3).dwg Sep 29, 24 6:08 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

REPLAT OF LOT 1 NORTHWEST CROSSING (1 OF 3)

CITY OF GEORGETOWN

SHEET NO.
8 OF 52
2022-44-CON

Doc # 2022034124

A REPLAT OF

LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

AVIGATION EASEMENT

1. THERE IS HEREBY GRANTED FOR THE USE AND BENEFIT OF THE PUBLIC A CONTINUING AVIGATION EASEMENT FOR THE FREE AND UNOBSTRUCTED FLIGHT OF AIRCRAFT (WHICH TERM SHALL INCLUDE ANY CONTRIVANCE NOW OR HEREAFTER USED FOR FLIGHT THROUGH THE AIR) AND THE RIGHT OF FLIGHT FOR THE PASSAGE OF AIRCRAFT IN THE AIRSPACE ABOVE THE SURFACE OF THE PROPERTY, TOGETHER WITH SUCH NOISE AND OTHER EFFECTS AS MAY BE INHERENT IN THE OPERATION OF AIRCRAFT LANDING AT, TAKING OFF FROM, OR ENGAGED IN OTHER FLIGHT ACTIVITIES AT THE GEORGETOWN AIRPORT.

2. GRANTORS DO HEREBY GRANT AND CONVEY AN EASEMENT FOR THE APPROACH ZONE, AS THAT TERM IS DEFINED IN SECTION 12.36 OF THE CITY OF GEORGETOWN CODE OF ORDINANCES AND AS SHOWN ON THIS PLAT, BEING FURTHER DESCRIBED AS AN APPROACH SURFACE THAT BEGINS AT THE END OF RUNWAY 36 AND EXTENDS OUT TO 10,200 FEET, AND EXPANDS TO A WIDTH OF 3,500 FEET WITH A SLOPE OF ONE FOOT IN HEIGHT FOR EACH 34 FEET IN HORIZONTAL DISTANCE (SEC12.36.040.A). THIS SUBDIVISION IS LOCATED BENEATH THE APPROACH ZONE ELEVATION OF 889.5 FEET. THE MAXIMUM HEIGHT OF ANY TREE OR STRUCTURE LOCATED IN THE EASEMENT IS 134 FEET ABOVE THE SURFACE OF THE LAND (SEC12.36.040.E).

3. THESE EASEMENTS SHALL BE PERPETUAL AND SHALL BE BINDING ON GRANTOR AND ITS ASSIGNS, HEIRS AND SUCCESSORS.

PLAT NOTES

1. Utility providers for this development are Water: City of Georgetown, and Wastewater/septic: City of Georgetown and Electric: City of Georgetown.
2. All structures/ obstructions are prohibited in drainage easements.
3. There are no areas within the boundaries of this subdivision in the 100-year floodplain as defined by FIRM Map Number 48491C0295F, effective December 20, 2019.
4. In order to promote drainage away from a structure, the slab elevation should be built at least one-foot above the surrounding ground, and the ground should be graded away from the structure at a slope of 1/2" per foot for a distance of at least 10 feet.
5. All sedimentation, filtration, detention, and/or retention basins and related appurtenances shown shall be situated within a drainage easement or drainage lot. The owners, HOA, or assignees of the tracts upon which are located such easements, appurtenances, and detention facilities shall maintain same and be responsible for their maintenance, routine inspection, and upkeep.
6. The maximum impervious cover per non-residential lot shall be pursuant to the UDC at the time of Site Plan application based on the zoning designation of the property.
7. A 15-foot public utility easement is dedicated along all road frontages within this plat..
8. The monuments of this plat have been rotated to the NAD 83/93 HARN - Texas Central Zone and NAVD 88.
9. This subdivision is subject to all general notes and restrictions appearing on the plat of Northwest Crossing, recorded in Cabinet M, Slide 85, Plat Records of Williamson County.
10. The landowner assumes all risks associated with improvements located in the road. By placing anything in the road, the landowner indemnifies and holds the City of Georgetown, Williamson County, their officers, agents and employees harmless from any liability owing to property defects or negligence not attributable to them and acknowledges that the improvements may be removed by the City and/or County and that the owner of the improvements will be responsible for the relocation and/or replacement of the improvements.
11. The building of all roads, and any bridges or culverts necessary to be constructed or placed is the responsibility of the owners of the tract of land covered by this plat in accordance with the plans and specifications prescribed by the City of Georgetown and/or Williamson County, Texas. Neither the City of Georgetown nor Williamson County assumes any obligation to build any of the roads shown on this plat or of constructing any of the bridges or drainage improvements in connection therewith. Neither the City of Georgetown nor Williamson County assumes any responsibility for drainage ways or easements in the subdivision, other than those draining or protecting the road system and streets in their respective jurisdictions.
12. Neither the City of Georgetown nor Williamson County assumes any responsibility for the accuracy of representations by other parties in this plat. floodplain data, in particular, may change depending on subsequent development. it is further understood that the owners of the tract of land covered by this plat must install at their own expense all traffic control devices and signage that may be required before the streets in the subdivision have finally been accepted for maintenance by the city and / or county.
13. Right-of-way easements for widening roadways or improving drainage shall be maintained by the landowner until road or drainage improvements are actually constructed on the property. the City and/or County have the right at any time to take possession of any road widening easement for construction, improvement, or maintenance of the adjacent road.
14. The subdivision subject to this application is subject to the Water Quality Regulations of the City of Georgetown.
15. A Geologic Assessment, in accordance with the City of Georgetown Water Quality Regulations, was completed on August 25, 2020. Any springs and streams as identified in the Geologic Assessment are shown herein. (for properties over the Edwards Aquifer Recharge Zone)

PLOTTED BY: kscordoo
PLOTTED ON: Sep 29, 2022 - 2:45pm
DRAWING: K:\002 Ewing Development\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

2021-44-FP
SHEET NO.
2 OF 3
DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\9 REPLAT OF LOT 1 NORTHWEST CROSSING (2 of 3).dwg Sep 29, 24 6:09 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

REPLAT OF LOT 1 NORTHWEST CROSSING (2 of 3)

CITY OF GEORGETOWN

SHEET NO.
9 OF 52
2022-44-CON

Doc# 2022034124

A REPLAT OF

LOT 1, NORTHWEST CROSSING

A 2.817 (122,687 SF) ACRE TRACT, OUT OF THE
NICHOLAS PORTER SURVEY, ABSTRACT NO. 497, GEORGETOWN, WILLIAMSON COUNTY, TEXAS.

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

I, DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2002011129, EXHIBIT B OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION
707 ROCK STREET, GEORGETOWN, TEXAS 78626

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, PRESIDENT OF W.D. KELLEY FOUNDATION, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD., CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2002006743, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD.
707 ROCK STREET, GEORGETOWN, TEXAS 78626

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, GENERAL PARTNER OF CPI INVESTMENTS, LTD., KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 1997006910, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT
314 LOGAN RANCH RD., GEORGETOWN TEXAS 78628

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, AS ATTORNEY-IN-FACT FOR PATRICIA A. KATT, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

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

I, DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS, FORMERLY KNOWN AS ELIZABETH F. ILLIG, CO-OWNER OF THE CERTAIN TRACT OF LAND SHOWN HEREON AND DESCRIBED IN A DEED RECORDED IN DOCUMENT NO. 2017012464, OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, DO HEREBY STATE THAT THERE ARE NO LIEN HOLDERS OF THE CERTAIN TRACT OF LAND, AND DO HEREBY RESUBDIVIDE SAID TRACT AS SHOWN HEREON, AND DO HEREBY CONSENT TO ALL PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY DEDICATE TO THE PUBLIC THE ROADS, ALLEYS, RIGHTS-OF-WAY, EASEMENTS AND PUBLIC PLACES SHOWN HEREON FOR SUCH PUBLIC PURPOSES AS WILLIAMSON COUNTY MAY DEEM APPROPRIATE AND DO HEREBY STATE THAT ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. THIS SUBDIVISON IS TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"**.

TO CERTIFY WHICH, WITNESS BY MY HAND THIS 17 DAY OF Feb, 2022 A.D.

DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS
3900 SPRING HOLLOW ST., COLLEYVILLE, TEXAS 76034

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

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, ON THIS DAY PERONALLY APPEARED DALE ILLIG, AS ATTORNEY-IN-FACT FOR ELIZABETH I. MEADOWS, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 17 DAY OF Feb, 2022 A.D.

NOTARY PUBLIC IN AND FOR THE STATE OF TEXAS

JEANNIE C. COFFMAN
Notary Public, State of Texas
Comm. Expires 02-02-2024
Notary ID 1626743

CITY BUILDING OFFICIAL

BASED UPON THE ABOVE REPRESENTATIONS OF THE ENGINEER OR SURVEYOR WHOSE SEAL IS AFFIXED HERETO, AND AFTER A REVIEW OF THE PLAT AS REPRESENTED BY THE SAID ENGINEER OR SURVEYOR, I FIND THAT THIS PLAT COMPLIES WITH THE REQUIREMENTS OF CHAPTER 15.44, FLOOD DAMAGE PREVENTION, OF THE GEORGETOWN MUNICIPAL CODE. THIS CERTIFICATION IS MADE SOLELY UPON SUCH REPRESENTATIONS AND SHOULD NOT BE RELIED UPON FOR VERIFICATIONS OF THE FACTS ALLEGED. THE CITY OF GEORGETOWN DISCLAIMS ANY RESPONSIBILITY TO ANY MEMBER OF THE PUBLIC OR INDEPENDENT VERIFICATIONS OF THE REPRESENTATION, FACTUAL OR OTHERWISE, CONTAINED IN THIS PLAT AND THE DOCUMENTS ASSOCIATED WITH IT.

GLEN HOLCOMB, BUILDING OFFICIAL — DATE: 03-02-2022
CITY OF GEORGETOWN

PLANNING & ZONING

THIS SUBDIVISION TO BE KNOWN AS **"A REPLAT OF LOT 1, NORTHWEST CROSSING"** HAS BEEN ACCEPTED AND APPROVED FOR FILING OF RECORD WITH THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS, ACCORDING TO THE MINUTES OF THE MEETING OF THE GEORGETOWN PLANNING AND ZONING COMMISSION ON THE 1 DAY OF December, 2021 A.D.

R. TRAVIS PERTHUIS, CHAIRMAN — DATE: 3/1/2022

KAYLAN MCCORD, SECRETARY — DATE: 3/1/2022
Steve Dilsaver

PLANNING DIRECTOR

I, SOFIA NELSON, PLANNING DIRECTOR OF THE CITY OF GEORGETOWN, TEXAS, DO HEREBY CERTIFY THIS PLAT IS APPROVED FOR FILING OF RECORD WITH THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS.

SOFIA NELSON, PLANNING DIRECTOR — DATE: 3/2/22

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

I, TIMOTHY E. HAYNIE , REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE FROM AN ACTUAL SURVEY MADE ON THE GROUND OF THE PROPERTY LEGALLY DESCRIBED HEREON, AND THAT THERE ARE NO APPARENT DISCREPANCIES, CONFLICTS, OVERLAPPING OF IMPROVEMENTS, VISIBLE UTILITY LINES OR ROADS IN PLACE, EXCEPT AS SHOWN ON THE ACCOMPANYING PLAT, AND THAT THE CORNER MONUMENTS SHOWN THEREON WERE PROPERLY PLACED UNDER MY SUPERVISION IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF THE CITY OF GEORGETOWN, TEXAS.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS, THIS 2nd DAY OF Feb., 2022 A.D.

TIMOTHY E. HAYNIE
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 2380- STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

STATE OF TEXAS
TIMOTHY E. HAYNIE
2380
PROFESSIONAL LAND SURVEYOR

02-02-22
DATE

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

I, TIM HAYNIE , REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS SUBDIVISION IS IN THE EDWARDS AQUIFER RECHARGE ZONE AND IS NOT ENCROACHED BY A ZONE A FLOOD AREA, AS DENOTED HEREIN, AND AS DEFINED BY FEDERAL EMERGENCY MANAGEMENT ADMINISTRATION FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL NUMBER 48491C0250F EFFECTIVE DATE DECEMBER 20, 2019 AND THAT EACH LOT CONFORMS TO THE CITY OF GEORGETOWN REGULATIONS. THE FULLY DEVELOPED, CONCENTRATED STORMWATER RUNOFF RESULTING FROM THE ONE HUNDRED (100) YEAR FREQUENCY STORM IS CONTAINED WITHIN THE DRAINAGE EASEMENTS SHOWN AND/OR PUBLIC RIGHTS-OF-WAY DEDICATED BY THIS PLAT.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT ROUND ROCK, WILLIAMSON COUNTY, TEXAS, THIS 3rd DAY OF FEBRUARY, 2022

TIM HAYNIE
REGISTERED PROFESSIONAL ENGINEER
No. 91819 - STATE OF TEXAS
HAYNIE CONSULTING INC.
1010 PROVIDENT LANE
ROUND ROCK, TEXAS, 78664

STATE OF TEXAS
TIM HAYNIE
91819
LICENSED PROFESSIONAL ENGINEER

03-FEB-2022
DATE

STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS;
COUNTY OF WILLIAMSON §

I, NANCY E. RISTER, CLERK OF THE COUNTY COURT OF SAID COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT IN WRITING, WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORD IN MY OFFICE ON THE 17th DAY OF March, 2022 A.D., AT 1:35 O'CLOCK, P M., AND DULY RECORDED THIS THE 17th DAY OF March, 2022 A.D., AT 1:57 O'CLOCK, P M., IN THE OFFICIAL PUBLIC RECORDS OF SAID COUNTY IN INSTRUMENT NO. 2022034124.

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

NANCY E. RISTER, CLERK COUNTY COURT
OF WILLIAMSON COUNTY, TEXAS
BY: Brenda McKenzie, DEPUTY
Brenda McKenzie

COUNTY COURT
WILLIAMSON COUNTY, TEXAS

2021-44-FP

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664-3276
Ph: 512-837-2446 Fax: 512-837-9463
TBPE FIRM # F-002411, TBPLS FIRM # 100250-00

SHEET NO.
3 OF 3

DRAWN BY: KS
CHECKED BY: BJ
PROJ. #: 002-20-04

PLOTTED BY: kstevenson
PLOT TIME: Jan 27, 2022 - 2:46pm
DRAWING: K:\002 Engineering\002-20-04 Rivery - NW Crossing Replat\Survey Project Folder\Drawings\002-20-04 Lot 1 Northwest Crossing Replat.dwg

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\10 REPLAT OF LOT 1 NORTHWEST CROSSING (3 of 3).dwg Sep 29, 24 6:09 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
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Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

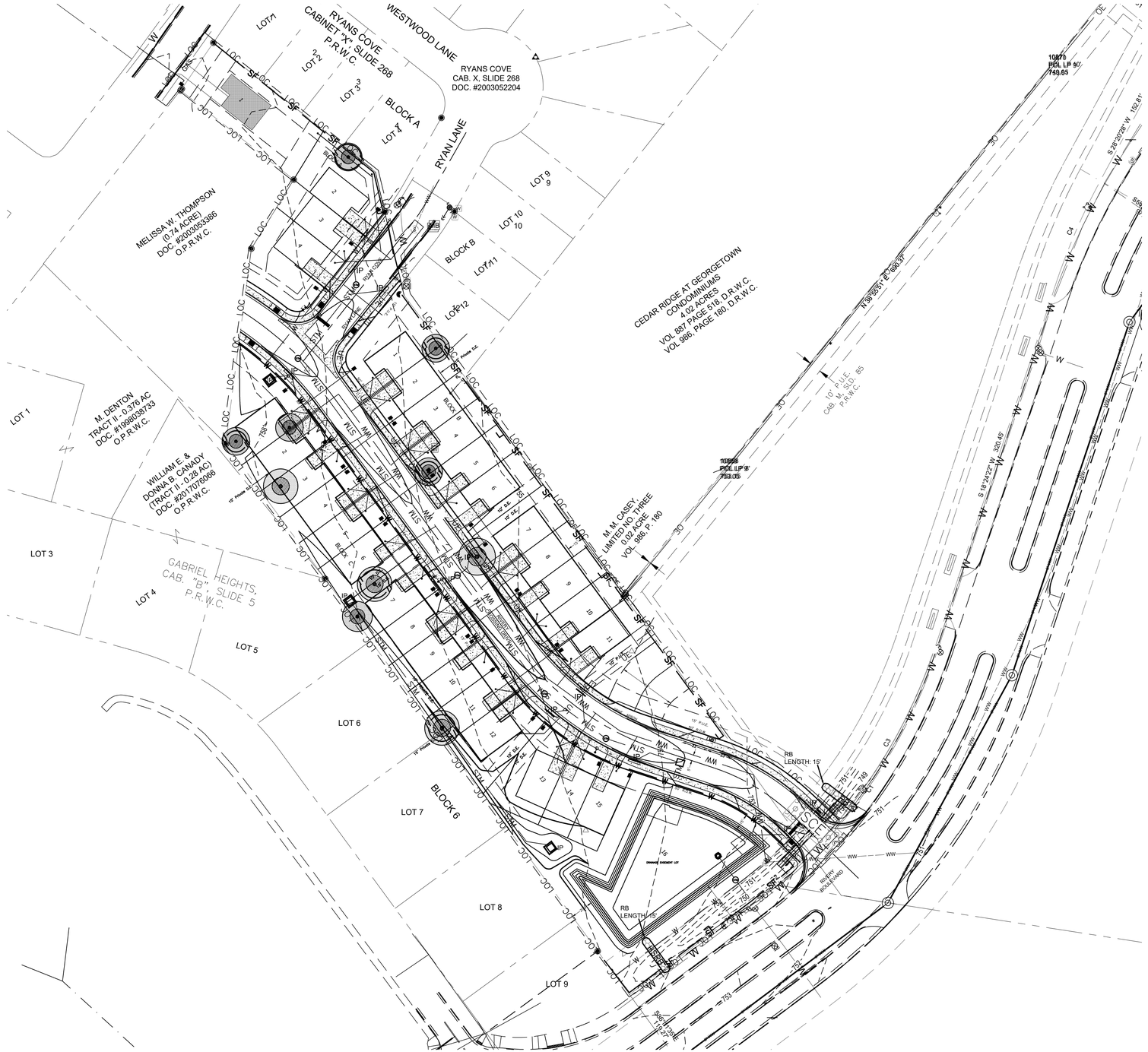
REPLAT OF LOT 1 NORTHWEST CROSSING (3 of 3)

CITY OF GEORGETOWN

SHEET NO.

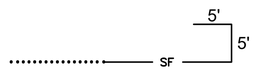
10 OF 52

2022-44-CON



LEGEND

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- TP — TREES TO BE PROTECTED
- CONCRETE WASHOUT STATION
- PROPERTY/ROW LINE
- RB — ROCK BERM
- IP — INLET PROTECTION
- DROP INLET PROTECTION
- SF — SILT FENCE
- LOC — LIMITS OF CONSTRUCTION
- TREE PROTECTION FENCE



"J" HOOK SILT FENCE
DETAIL

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
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29-Sep-2024

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1010 Provident Lane
Round Rock, Texas 78664
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RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EROSION & SEDIMENTATION
CONTROL PLAN
CITY OF GEORGETOWN

SHEET NO.

13 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\13 EROSION & SEDIMENTATION CONTROL PLAN.dwg Sep 29, 24 6:14 pm

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 – 10%
	200 FEET	2 ACRES	10 – 20%
	100 FEET	1 ACRE	20 – 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 – 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW.

** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC01
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SW3P) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 100LB/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNGICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANTEED ANALYSIS.
5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN.
6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10–DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.
7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1–1/2 INCHES HIGH WITH 95% COVERAGE, PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION.
9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS.
12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED–ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
13. TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'–4') BEHIND THE AREA IN QUESTION.
18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE.
19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
20. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

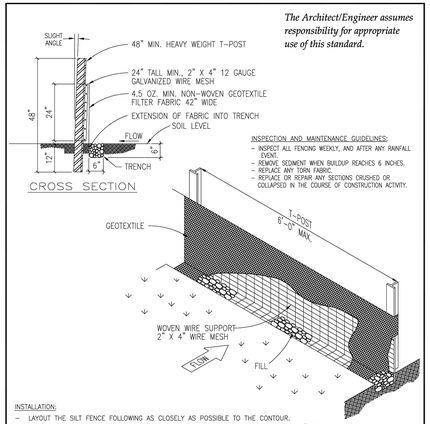
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC01A
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T–POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T–POST WITH 11 1/2 GAUGE GALVANIZED T–POST CLIPS, THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

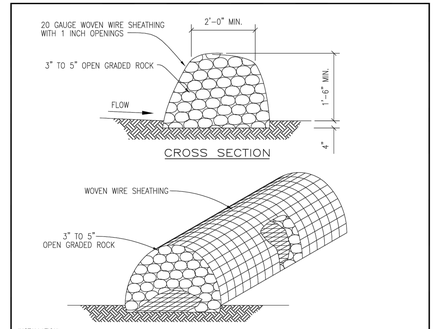
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SILT FENCE DETAIL

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC02
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

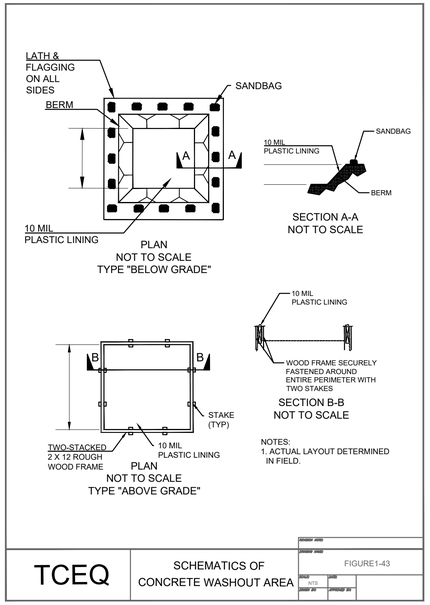
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
ROCK BERM DETAIL

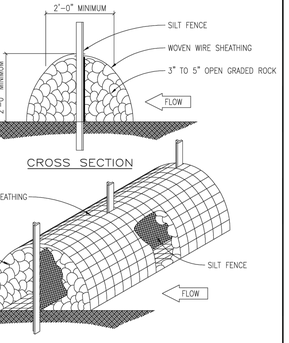
REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC03
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.

TCEQ — SCHEMATICS OF CONCRETE WASHOUT AREA — FIGURE1-43

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



INSTALLATION:
- LAYOUT THE ROCK BERM FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE WOVEN WIRE FABRIC ON THE GROUND ALONG THE PROPOSED INSTALLATION WITH ENOUGH OVERLAP TO COMPLETELY ENCIRCLE THE FINISHED SIZE OF THE BERM.
- INSTALL THE SILT FENCE ALONG THE CENTER OF THE PROPOSED BERM PLACEMENT. INSTALLATION SHOULD BE AS DESCRIBED IN DRAWING NO. EC–02 "SILT FENCE DETAIL".
- PLACE THE ROCK ALONG THE CENTER OF THE WIRE AND ON BOTH SIDES OF THE SILT FENCE TO THE DESIGNATED HEIGHT.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE.
- SECURE WITH TIE WIRE.
- THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

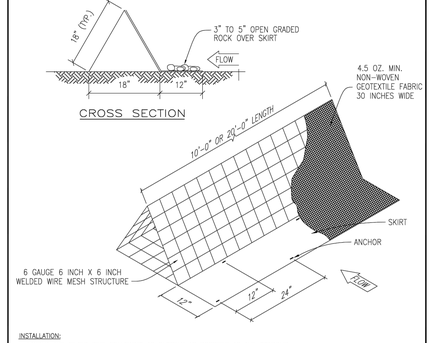
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL EVENT BY THE CONTRACTOR. FOR THE INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE ON ROCK BERM.
- REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER.
- REPAIR ANY LOOSE WIRE SHEATHING.
- THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.
- THE BERM SHOULD BE REPLACES WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
HIGH SERVICE ROCK BERM DETAIL

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC04
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



INSTALLATION:
- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'–0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'–0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

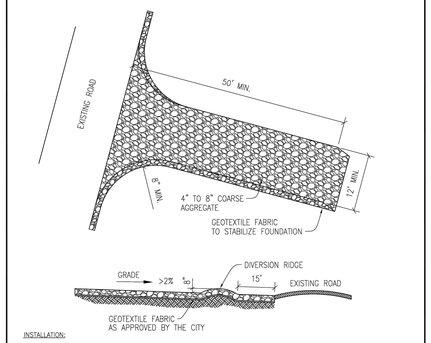
The Architect/Engineer assumes responsibility for appropriate use of this standard.

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRIANGULAR FILTER DIKE

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC05
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

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



INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS–OF–WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

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

CITY OF GEORGETOWN, TEXAS — Georgetown Utility Systems "Exit Community Owned Utility"

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STABILIZED CONSTRUCTION ENTRANCE

REVISION NOTE: ADOPTED 6/21/2006
DRAWING NAME: EC06
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB

If the drop inlet is above the finished grade, the grate may be completely covered with filter fabric. The fabric should be securely attached to the entire perimeter of the inlet using 1"x 2" wood strips and appropriate fasteners.

Gravel and Wire Mesh Drop Inlet Sediment Filter

(1) Wire mesh should be laid over the drop inlet so that the wire extends a minimum of 1 foot beyond each side of the inlet structure. Wire mesh with 1/2-inch openings should be used. If more than one strip of mesh is necessary, the strips should be overlapped (see Figure 1-34).

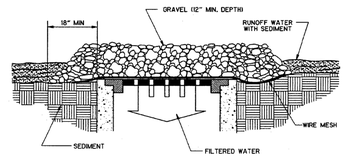
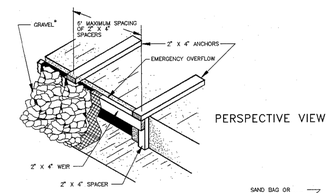


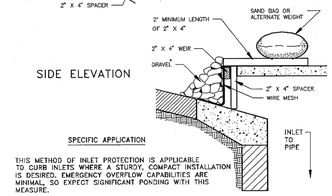
Figure 1-34 Wire Mesh and Gravel Inlet Protection (NCTCOG, 1993)

(2) Coarse aggregate should be placed over the wire mesh as indicated in Figure 1-34. The depth of stone should be at least 12 inches over the entire inlet opening. The stone should extend beyond the inlet opening at least 18 inches on all sides.

(3) If the stone filter becomes clogged with sediment so that it no longer adequately performs its function, the stones must be pulled away from the inlet, cleaned and/or replaced.

Note: This filtering device has no overflow mechanism; therefore, ponding is likely especially if sediment is not removed regularly. This type of device should never be used where overflow may endanger an exposed fill slope. Consideration should also be given to the possible effects of ponding on traffic movement, nearby structures, working areas, adjacent property, etc.





SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE TO CURB INLETS WHERE A STURDY, COMPACT INSTALLATION IS DESIRED. EMERGENCY OVERFLOW CAPABILITIES ARE MINIMAL, SO EXPECT SIGNIFICANT PONDING WITH THIS MEASURE.

Figure 1-37 Wooden Weir Curb Inlet Protection (VA Dept of Conservation, 1992)

Common Trouble Points:

(1) Gaps between the inlet protection and the curb (flows bypass around side of filter).

(2) Filter fabric skirt not anchored to pavement (flows pass under filter).

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

Know what's below. Call before you dig.

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

STATE OF TEXAS — RELEASED FOR REVIEW — THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF REVIEW UNDER THE AUTHORITY OF TIMOTHY E. HAYNIE, P.E. 93924 ON 29-Sep-2024. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

HAYNIE CONSULTING, INC.
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T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EROSION CONTROL DETAILS

CITY OF GEORGETOWN

SHEET NO.

14 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\14 EROSION CONTROL DETAILS.dwg Sep 29, 24 6:15 pm

EXISTING							peak Q=	23.6	PROPOSED							peak Q=	27.9	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.06	0.06	0	0	0	0	1-Jan-00	0:05	0.06	0.03	0.03	0.3	0	0.3		5.0	0.3	90	REQ'D CF = **14,130**
1-Jan-00	0:10	0.06	0.06	0	0	0	0	1-Jan-00	0:10	0.06	0.03	0.03	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:15	0.07	0.07	0	0	0	0	1-Jan-00	0:15	0.07	0.04	0.04	1.1	0	1.1		5.0	1.1	330	
1-Jan-00	0:20	0.08	0.08	0	0	0	0	1-Jan-00	0:20	0.08	0.04	0.04	1.4	0	1.4		5.0	1.4	420	
1-Jan-00	0:25	0.07	0.06	0.01	0.1	0	0.1	1-Jan-00	0:25	0.07	0.03	0.04	1.5	0	1.5		5.0	1.4	420	
1-Jan-00	0:30	0.09	0.07	0.02	0.2	0	0.2	1-Jan-00	0:30	0.09	0.04	0.05	1.7	0	1.7		5.0	1.5	450	
1-Jan-00	0:35	0.08	0.06	0.02	0.4	0	0.4	1-Jan-00	0:35	0.08	0.03	0.05	1.9	0	1.9		5.0	1.5	450	
1-Jan-00	0:40	0.1	0.07	0.03	0.6	0	0.6	1-Jan-00	0:40	0.1	0.04	0.06	2.1	0	2.1		5.0	1.5	450	
1-Jan-00	0:45	0.11	0.07	0.04	0.9	0	0.9	1-Jan-00	0:45	0.11	0.04	0.07	2.5	0	2.5		5.0	1.6	480	
1-Jan-00	0:50	0.12	0.07	0.05	1.2	0	1.2	1-Jan-00	0:50	0.12	0.04	0.08	2.9	0	2.9		5.0	1.7	510	
1-Jan-00	0:55	0.13	0.07	0.06	1.6	0	1.6	1-Jan-00	0:55	0.13	0.03	0.1	3.3	0	3.3		5.0	1.7	510	
1-Jan-00	1:00	0.16	0.08	0.08	2.1	0	2.1	1-Jan-00	1:00	0.16	0.04	0.12	3.9	0	3.9		5.0	1.8	540	
1-Jan-00	1:05	0.18	0.08	0.1	2.7	0	2.7	1-Jan-00	1:05	0.18	0.04	0.14	4.7	0	4.7		5.0	2	600	
1-Jan-00	1:10	0.22	0.08	0.14	3.5	0	3.5	1-Jan-00	1:10	0.22	0.04	0.18	5.7	0	5.7		5.0	2.2	660	
1-Jan-00	1:15	0.27	0.09	0.18	4.6	0	4.6	1-Jan-00	1:15	0.27	0.04	0.23	7.1	0	7.1		5.0	2.5	750	
1-Jan-00	1:20	0.37	0.1	0.27	6.2	0	6.2	1-Jan-00	1:20	0.37	0.05	0.32	9.3	0	9.3		5.0	3.1	930	
1-Jan-00	1:25	0.55	0.12	0.43	8.9	0	8.9	1-Jan-00	1:25	0.55	0.06	0.49	13.2	0	13.2		5.0	4.3	1290	
1-Jan-00	1:30	0.99	0.15	0.84	14.3	0	14.3	1-Jan-00	1:30	0.99	0.07	0.92	21.3	0	21.3		5.0	7	2100	
1-Jan-00	1:35	0.71	0.08	0.63	21.2	0	21.2	1-Jan-00	1:35	0.71	0.04	0.67	27.9	0	27.9		5.0	6.7	2010	
1-Jan-00	1:40	0.45	0.04	0.41	23.6	0	23.6	1-Jan-00	1:40	0.45	0.02	0.43	25.7	0	25.7		5.0	2.1	630	
1-Jan-00	1:45	0.31	0.02	0.29	20.9	0	20.9	1-Jan-00	1:45	0.31	0.01	0.3	19.9	0	19.9		5.0	-1	0	
1-Jan-00	1:50	0.25	0.02	0.23	16.8	0	16.8	1-Jan-00	1:50	0.25	0.01	0.24	15	0	15		5.0	-1.8	0	
1-Jan-00	1:55	0.2	0.01	0.19	13.3	0	13.3	1-Jan-00	1:55	0.2	0.01	0.19	11.5	0	11.5		5.0	-1.8	0	
1-Jan-00	2:00	0.16	0.01	0.15	10.5	0	10.5	1-Jan-00	2:00	0.16	0.01	0.15	9.1	0	9.1		5.0	-1.4	0	
1-Jan-00	2:05	0.15	0.01	0.14	8.5	0	8.5	1-Jan-00	2:05	0.15	0	0.15	7.4	0	7.4		5.0	-1.1	0	
1-Jan-00	2:10	0.12	0.01	0.11	7.1	0	7.1	1-Jan-00	2:10	0.12	0	0.12	6.2	0	6.2		5.0	-0.9	0	
1-Jan-00	2:15	0.11	0.01	0.1	6	0	6	1-Jan-00	2:15	0.11	0	0.11	5.3	0	5.3		5.0	-0.7	0	
1-Jan-00	2:20	0.1	0.01	0.09	5.1	0	5.1	1-Jan-00	2:20	0.1	0	0.1	4.7	0	4.7		5.0	-0.4	0	
1-Jan-00	2:25	0.1	0.01	0.09	4.5	0	4.5	1-Jan-00	2:25	0.1	0	0.1	4.3	0	4.3		5.0	-0.2	0	
1-Jan-00	2:30	0.08	0	0.08	4.1	0	4.1	1-Jan-00	2:30	0.08	0	0.08	3.9	0	3.9		5.0	-0.2	0	
1-Jan-00	2:35	0.08	0	0.08	3.7	0	3.7	1-Jan-00	2:35	0.08	0	0.08	3.5	0	3.5		5.0	-0.2	0	
1-Jan-00	2:40	0.08	0	0.08	3.4	0	3.4	1-Jan-00	2:40	0.08	0	0.08	3.3	0	3.3		5.0	-0.1	0	
1-Jan-00	2:45	0.07	0	0.07	3.2	0	3.2	1-Jan-00	2:45	0.07	0	0.07	3.1	0	3.1		5.0	-0.1	0	
1-Jan-00	2:50	0.06	0	0.06	3	0	3	1-Jan-00	2:50	0.06	0	0.06	2.9	0	2.9		5.0	-0.1	0	
1-Jan-00	2:55	0.07	0.01	0.06	5.5	0	5.5	1-Jan-00	2:55	0.07	0	0.07	6	0	6		5.0	0.5	150	
1-Jan-00	3:00	0.05	0	0.05	5	0	5	1-Jan-00	3:00	0.05	0	0.05	5.4	0	5.4		5.0	0.4	120	

100-YEAR DETENTION CALCULATIONS

EXISTING							peak Q=	17.9	PROPOSED							peak Q=	22.4	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.04	0.04	0	0	0	0	1-Jan-00	0:05	0.04	0.02	0.02	0.2	0	0.2		5.0	0.2	60	REQ'D CF = **12,030**
1-Jan-00	0:10	0.05	0.05	0	0	0	0	1-Jan-00	0:10	0.05	0.03	0.03	0.6	0	0.6		5.0	0.6	180	
1-Jan-00	0:15	0.05	0.05	0	0	0	0	1-Jan-00	0:15	0.05	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:20	0.05	0.05	0	0	0	0	1-Jan-00	0:20	0.05	0.02	0.02	1	0	1		5.0	1	300	
1-Jan-00	0:25	0.06	0.06	0	0	0	0	1-Jan-00	0:25	0.06	0.03	0.03	1.1	0	1.1		5.0	1.1	330	
1-Jan-00	0:30	0.06	0.06	0	0	0	0	1-Jan-00	0:30	0.06	0.03	0.03	1.2	0	1.2		5.0	1.2	360	
1-Jan-00	0:35	0.07	0.06	0.01	0.1	0	0.1	1-Jan-00	0:35	0.07	0.03	0.04	1.3	0	1.3		5.0	1.2	360	
1-Jan-00	0:40	0.07	0.06	0.01	0.2	0	0.2	1-Jan-00	0:40	0.07	0.03	0.04	1.5	0	1.5		5.0	1.3	390	
1-Jan-00	0:45	0.08	0.06	0.02	0.4	0	0.4	1-Jan-00	0:45	0.08	0.03	0.05	1.7	0	1.7		5.0	1.3	390	
1-Jan-00	0:50	0.09	0.06	0.03	0.6	0	0.6	1-Jan-00	0:50	0.09	0.03	0.06	2	0	2		5.0	1.4	420	
1-Jan-00	0:55	0.1	0.06	0.04	0.9	0	0.9	1-Jan-00	0:55	0.1	0.03	0.07	2.3	0	2.3		5.0	1.4	420	
1-Jan-00	1:00	0.12	0.07	0.05	1.2	0	1.2	1-Jan-00	1:00	0.12	0.04	0.08	2.7	0	2.7		5.0	1.5	450	
1-Jan-00	1:05	0.14	0.07	0.07	1.6	0	1.6	1-Jan-00	1:05	0.14	0.04	0.1	3.3	0	3.3		5.0	1.7	510	
1-Jan-00	1:10	0.16	0.08	0.08	2.1	0	2.1	1-Jan-00	1:10	0.16	0.04	0.12	4	0	4		5.0	1.9	570	
1-Jan-00	1:15	0.22	0.09	0.13	2.9	0	2.9	1-Jan-00	1:15	0.22	0.05	0.17	5.1	0	5.1		5.0	2.2	660	
1-Jan-00	1:20	0.29	0.1	0.19	4.1	0	4.1	1-Jan-00	1:20	0.29	0.05	0.24	6.9	0	6.9		5.0	2.8	840	
1-Jan-00	1:25	0.54	0.15	0.39	6.5	0	6.5	1-Jan-00	1:25	0.54	0.07	0.47	10.8	0	10.8		5.0	4.3	1290	
1-Jan-00	1:30	0.82	0.16	0.66	11.4	0	11.4	1-Jan-00	1:30	0.82	0.08	0.74	18.1	0	18.1		5.0	6.7	2010	
1-Jan-00	1:35	0.52	0.08	0.44	16.7	0	16.7	1-Jan-00	1:35	0.52	0.04	0.48	22.4	0	22.4		5.0	5.7	1710	
1-Jan-00	1:40	0.35	0.04	0.31	17.9	0	17.9	1-Jan-00	1:40	0.35	0.02	0.33	19.7	0	19.7		5.0	1.8	540	
1-Jan-00	1:45	0.25	0.03	0.22	15.7	0	15.7	1-Jan-00	1:45	0.25	0.01	0.24	15.3	0	15.3		5.0	-0.4	0	
1-Jan-00	1:50	0.19	0.02	0.17	12.7	0	12.7	1-Jan-00	1:50	0.19	0.01	0.18	11.5	0	11.5		5.0	-1.2	0	
1-Jan-00	1:55	0.15	0.01	0.14	10	0	10	1-Jan-00	1:55	0.15	0.01	0.14	8.8	0	8.8		5.0	-1.2	0	
1-Jan-00	2:00	0.13	0.01	0.12	7.9	0	7.9	1-Jan-00	2:00	0.13	0.01	0.12	6.9	0	6.9		5.0	-1	0	
1-Jan-00	2:05	0.11	0.01	0.1	6.4	0	6.4	1-Jan-00	2:05	0.11	0	0.11	5.6	0	5.6		5.0	-0.8	0	
1-Jan-00	2:10	0.09	0.01	0.08	5.3	0	5.3	1-Jan-00	2:10	0.09	0	0.09	4.7	0	4.7		5.0	-0.6	0	
1-Jan-00	2:15	0.09	0.01	0.08	4.4	0	4.4	1-Jan-00	2:15	0.09	0	0.09	4	0	4		5.0	-0.4	0	
1-Jan-00	2:20	0.08	0.01	0.07	3.9	0	3.9	1-Jan-00	2:20	0.08	0	0.08	3.6	0	3.6		5.0	-0.3	0	
1-Jan-00	2:25	0.06	0	0.06	3.4	0	3.4	1-Jan-00	2:25	0.06	0	0.06	3.2	0	3.2		5.0	-0.2	0	
1-Jan-00	2:30	0.07	0.01	0.06	3	0	3	1-Jan-00	2:30	0.07	0	0.07	2.8	0	2.8		5.0	-0.2	0	
1-Jan-00	2:35	0.06	0	0.06	2.7	0	2.7	1-Jan-00	2:35	0.06	0	0.06	2.7	0	2.7		5.0	0	0	
1-Jan-00	2:40	0.05	0	0.05	2.5	0	2.5	1-Jan-00	2:40	0.05	0	0.05	2.4	0	2.4		5.0	-0.1	0	
1-Jan-00	2:45	0.05	0	0.05	2.2	0	2.2	1-Jan-00	2:45	0.05	0	0.05	2.2	0	2.2		5.0	0	0	
1-Jan-00	2:50	0.05	0	0.05	2.1	0	2.1	1-Jan-00	2:50	0.05	0	0.05	2	0	2		5.0	-0.1	0	
1-Jan-00	2:55	0.05	0	0.05	2	0	2	1-Jan-00	2:55	0.05	0	0.05	2	0	2		5.0	0	0	
1-Jan-00	3:00	0.04	0	0.04	1.9	0	1.9	1-Jan-00	3:00	0.04	0	0.04	1.9	0	1.9		5.0	0	0	

25-YEAR DETENTION CALCULATIONS

PROPOSED POND VOLUME SUMMARY

ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS	
747	20				0	0	
		2333	0.5	1166.5			
747.5	4646				1167	0	
		4890.5	0.5	2445			Sediment Volume (1492 Cu. Ft.) = 747.57
748	5135				3612	0	
		5388.5	0.5	2694			
748.5	5642				6306	0	
		6872.5	0.5	3436			WQV (Req'd)=8,954 CF for 1563 lb. Load Removal @ 748.89
749	8103				9742	0.000	WQ Volume Provided @ 749.0 = 9742 CF
		8425.5	1	8426		1.177	
750	8748				18168	3.330	
		9080.5	1	9081		6.118	
751	9413				27248	9.419	
		9753.5	1	9754		13.160	
752	10094				37002	17.300	
		10443	1	10443		21.800	Max. 100 Yr. W.S. EL. = 752.58
753	10792				47445	33.570	Freeboard = 0.68' (0.5' Required)
		11308	0.5	5654			
753.5	11824				53099	55.100	Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

STORM FREQUENCY	VOLUME REQUIRED (CF)	ELEVATION REQUIRED (FT.)
2-YEAR	8280	750.0
10-YEAR	10770	750.26
25-YEAR	12030	750.4
100-YEAR	14130	750.63

Area Ac.	EX. CN	EX. I.C. %	PROP. CN	PROP. I.C. %
3.389	84	0	84	50

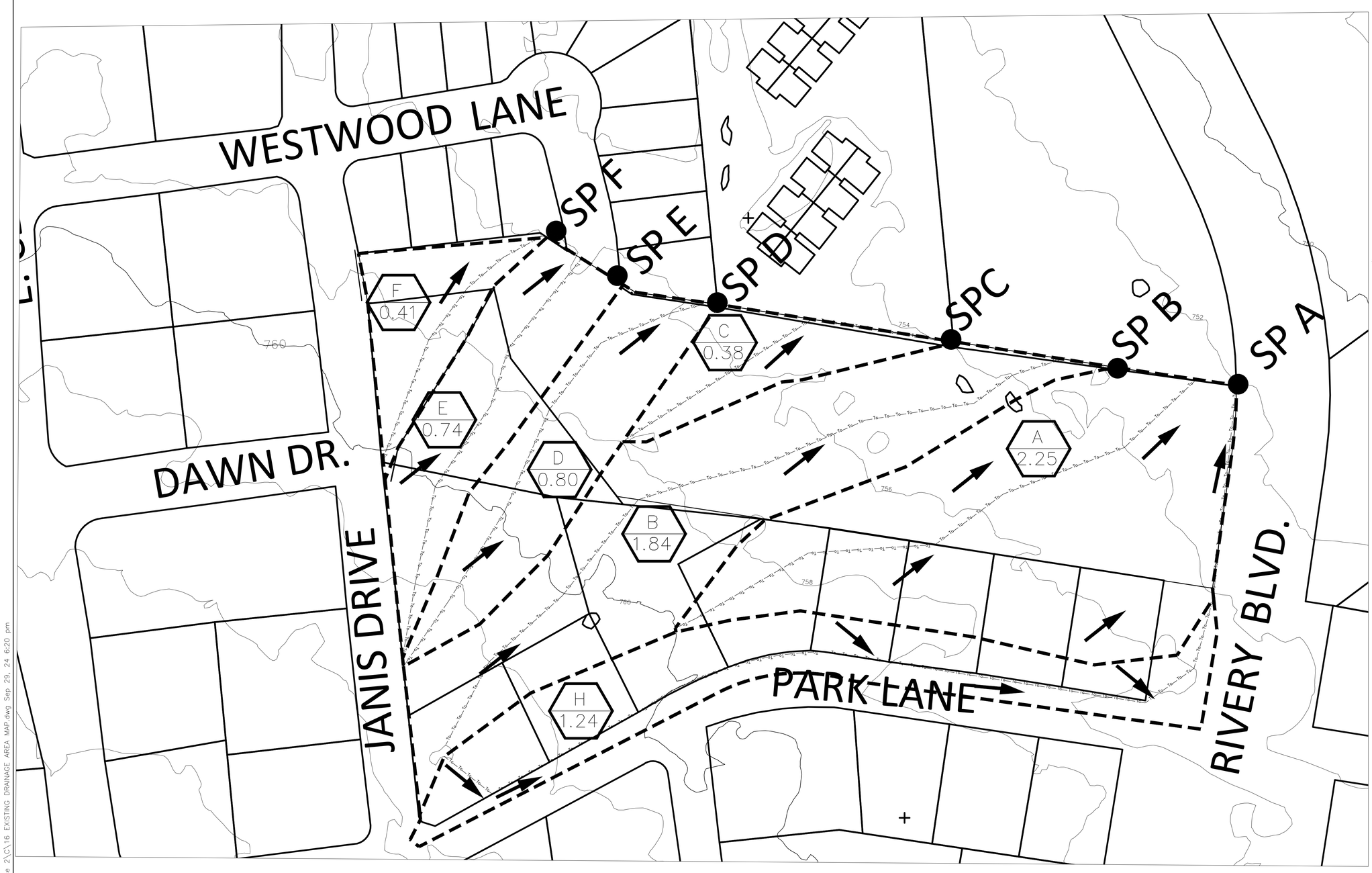
DETENTION POND TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow						*Shallow Concentrated*							
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	T_c Total (min)	Tlag
EX-A1	100	PASTURE	0.15	756.90	755.35	1.55%	9.47	255	UNPAVED	755.35	751.80	1.39%	1.77	11	7
PR-A1	100	GRASS	0.15	1010.00	1007.60	2.40%	7.95	855	UNPAVED	1007.60	994.00	1.59%	7.00	15	9

EXISTING							peak Q=	14.4	PROPOSED							peak Q=	18.5	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.03	0.03	0	0	0	0	1-Jan-00	0:05	0.03	0.01	0.01	0.1	0	0.1		5.0	0.1	30	REQ'D CF **10,770**
1-Jan-00	0:10	0.04	0.04	0	0	0	0	1-Jan-00	0:10	0.04	0.02	0.02	0.5	0	0.5		5.0	0.5	150	
1-Jan-00	0:15	0.04	0.04	0	0	0	0	1-Jan-00	0:15	0.04	0.02	0.02	0.7	0	0.7		5.0	0.7	210	
1-Jan-00	0:20	0.04	0.04	0	0	0	0	1-Jan-00	0:20	0.04	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:25	0.04	0.04	0	0	0	0	1-Jan-00	0:25	0.04	0.02	0.02	0.8	0	0.8		5.0	0.8	240	
1-Jan-00	0:30	0.05	0.05	0	0	0	0	1-Jan-00	0:30	0.05	0.02	0.03	0.9	0	0.9		5.0	0.9	270	
1-Jan-00	0:35	0.05	0.05	0	0	0	0	1-Jan-00	0:35	0.05	0.02	0.03	1	0	1		5.0	1	300	
1-Jan-00	0:40	0.06	0.05	0.01	0.1	0	0.1	1-Jan-00	0:40	0.06	0.03	0.03	1.1	0	1.1		5.0	1	300	
1-Jan-00	0:45	0.06	0.05	0.01	0.2	0	0.2	1-Jan-00	0:45	0.06	0.03	0.03	1.3	0	1.3		5.0	1.1	330	
1-Jan-00	0:50	0.07	0.05	0.02	0.3	0	0.3	1-Jan-00	0:50	0.07	0.03	0.04	1.4	0	1.4		5.0	1.1	330	
1-Jan-00	0:55	0.08	0.06	0.02	0.5	0	0.5	1-Jan-00	0:55	0.08	0.03	0.05	1.7	0	1.7		5.0	1.2	360	
1-Jan-00	1:00	0.09	0.06	0.03	0.7	0	0.7	1-Jan-00	1:00	0.09	0.03	0.06	2	0	2		5.0	1.3	390	
1-Jan-00	1:05	0.11	0.07	0.04	0.9	0	0.9	1-Jan-00	1:05	0.11	0.03	0.08	2.4	0	2.4		5.0	1.5	450	
1-Jan-00	1:10	0.13	0.07	0.06	1.3	0	1.3	1-Jan-00	1:10	0.13	0.04	0.09	3	0	3		5.0	1.7	510	
1-Jan-00	1:15	0.18	0.09	0.09	1.9	0	1.9	1-Jan-00	1:15	0.18	0.05	0.13	3.9	0	3.9		5.0	2	600	
1-Jan-00	1:20	0.24	0.1	0.14	2.8	0	2.8	1-Jan-00	1:20	0.24	0.05	0.19	5.3	0	5.3		5.0	2.5	750	
1-Jan-00	1:25	0.36	0.13	0.23	4.4	0	4.4	1-Jan-00	1:25	0.36	0.06	0.3	7.7	0	7.7		5.0	3.3	990	
1-Jan-00	1:30	0.72	0.19	0.53	7.8	0	7.8	1-Jan-00	1:30	0.72	0.09	0.63	13.5	0	13.5		5.0	5.7	1710	
1-Jan-00	1:35	0.5	0.1	0.4	12.5	0	12.5	1-Jan-00	1:35	0.5	0.05	0.45	18.5	0	18.5		5.0	6	1800	
1-Jan-00	1:40	0.29	0.05	0.24	14.4	0	14.4	1-Jan-00	1:40	0.29	0.02	0.27	17	0	17		5.0	2.6	780	
1-Jan-00	1:45	0.2	0.03	0.17	12.8	0	12.8	1-Jan-00	1:45	0.2	0.01	0.19	12.9	0	12.9		5.0	0.1	30	
1-Jan-00	1:50	0.15	0.02	0.13	10.1	0	10.1	1-Jan-00	1:50	0.15	0.01	0.14	9.4	0	9.4		5.0	-0.7	0	
1-Jan-00	1:55	0.12	0.02	0.1	7.9	0	7.9	1-Jan-00	1:55	0.12	0.01	0.11	7	0	7		5.0	-0.9	0	
1-Jan-00	2:00	0.1	0.01	0.09	6.1	0	6.1	1-Jan-00	2:00	0.1	0.01	0.09	5.4	0	5.4		5.0	-0.7	0	
1-Jan-00	2:05	0.08	0.01	0.07	4.9	0	4.9	1-Jan-00	2:05	0.08	0	0.08	4.3	0	4.3		5.0	-0.6	0	
1-Jan-00	2:10	0.08	0.01	0.07	4	0	4	1-Jan-00	2:10	0.08	0	0.08	3.6	0	3.6		5.0	-0.4	0	
1-Jan-00	2:15	0.07	0.01	0.06	3.4	0	3.4	1-Jan-00	2:15	0.07	0	0.07	3.2	0	3.2		5.0	-0.2	0	
1-Jan-00	2:20	0.06	0.01	0.05	3	0	3	1-Jan-00	2:20	0.06	0	0.06	2.8	0	2.8		5.0	-0.2	0	
1-Jan-00	2:25	0.05	0.01	0.04	2.6	0	2.6	1-Jan-00	2:25	0.05	0	0.05	2.4	0	2.4		5.0	-0.2	0	
1-Jan-00	2:30	0.05	0.01	0.04	2.2	0	2.2	1-Jan-00	2:30	0.05	0	0.05	2.2	0	2.2		5.0	0	0	
1-Jan-00	2:35	0.05	0.01	0.04	2	0	2	1-Jan-00	2:35	0.05	0	0.05	2	0	2		5.0	0	0	
1-Jan-00	2:40	0.04	0	0.04	1.9	0	1.9	1-Jan-00	2:40	0.04	0	0.04	1.9	0	1.9		5.0	0	0	
1-Jan-00	2:45	0.04	0	0.04	1.7	0	1.7	1-Jan-00	2:45	0.04	0	0.04	1.7	0	1.7		5.0	0	0	
1-Jan-00	2:50	0.04	0	0.04	1.6	0	1.6	1-Jan-00	2:50	0.04	0	0.04	1.6	0	1.6		5.0	0	0	
1-Jan-00	2:55	0.03	0	0.03	1.5	0	1.5	1-Jan-00	2:55	0.03	0	0.03	1.5	0	1.5		5.0	0	0	
1-Jan-00	3:00	0.03	0	0.03	1.3	0	1.3	1-Jan-00	3:00	0.03	0	0.03	1.3	0	1.3		5.0	0	0	

10-YEAR DETENTION CALCULATIONS

EXISTING							peak Q=	8.2	PROPOSED							peak Q=	12.2	FLOW	INCREMENTAL	
TIME				FLOW				TIME				FLOW					TIME STEP	DIFFERENCE	VOLUME	
1-Jan-00	0:00				0	0	0	1-Jan-00	0:00				0	0	0				0	
1-Jan-00	0:05	0.01	0.01	0	0	0	0	1-Jan-00	0:05	0.01	0	0	0	0	0		5.0	0	0	REQ'D CF= ***8,280***
1-Jan-00	0:10	0.02	0.02	0	0	0	0	1-Jan-00	0:10	0.02	0.01	0.01	0.2	0	0.2		5.0	0.2	60	
1-Jan-00	0:15	0.01	0.01	0	0	0	0	1-Jan-00	0:15	0.01	0	0	0.3	0	0.3		5.0	0.3	90	
1-Jan-00	0:20	0.02	0.02	0	0	0	0	1-Jan-00	0:20	0.02	0.01	0.01	0.3	0	0.3		5.0	0.3	90	
1-Jan-00	0:25	0.02	0.02	0	0	0	0	1-Jan-00	0:25	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:30	0.02	0.02	0	0	0	0	1-Jan-00	0:30	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:35	0.02	0.02	0	0	0	0	1-Jan-00	0:35	0.02	0.01	0.01	0.4	0	0.4		5.0	0.4	120	
1-Jan-00	0:40	0.03	0.03	0	0	0	0	1-Jan-00	0:



N

0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

/ AC. — DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
AC. – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

Tc — TIME OF CONCENTRATION PATH

SEE NEXT SHEET FOR CALCULATIONS

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.90	8.00	10.50	14.40
B	2.90	6.00	8.00	10.80
C	0.70	1.40	1.80	2.50
D	1.40	2.70	3.60	4.80
E	1.30	2.60	3.40	4.60
F	0.80	1.50	1.90	2.70
H	5.40	7.70	9.10	11.10
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

BASIN AREAS

BASIN	TOTAL AREA		
No.	S.F.	ACRES	SQ. MI.
A	98,045	2.251	0.0035169
B	80,304	1.844	0.0028805
C	16,470	0.378	0.0005908
D	34,837	0.800	0.0012496
E	32,126	0.738	0.0011524
F	17,786	0.408	0.0006380
H	53,959	1.239	0.0019355
TOTALS	333,527	7.657	0.0119636

EXISTING DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
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RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

16 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\16 EXISTING DRAINAGE AREA MAP.dwg Sep 29, 24 6:20 pm

SCS CURVE NUMBER CALCULATIONS
EXISTING CONDITIONS

BASIN	BASIN AREAS			SCS CURVE NUMBERS			
	TOTAL AREA			PASTURE & RANGE	RESIDENTIAL 1/6 Ac.	PAVEMENT	COMPOSITE
No.	S.F.	ACRES	SQ. MI.	CN 80 (HSG D)	CN 90 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A	98,045	2.251	0.0035169	2.00	0.25	0.00	81
B	80,304	1.844	0.0028805	1.80	0.04	0.00	80
C	16,470	0.378	0.0005908	0.38	0.00	0.00	80
D	34,837	0.800	0.0012496	0.76	0.04	0.00	81
E	32,126	0.738	0.0011524	0.70	0.04	0.00	81
F	17,786	0.408	0.0006380	0.41	0.00	0.00	80
H	53,959	1.239	0.0019355	0.39	0.04	0.91	96
TOTALS	333,527	7.657	0.0119636				

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							*Shallow Concentrated*						*Channel*											
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A	100	GRASS	0.24	760.00	758.30	1.70%	13.29	485	UNPAVED	758.30	752.00	1.30%	3.49	-	-	-	-	-	-	-	-	-	-	17	10
B	100	GRASS	0.24	764.00	762.00	2.00%	12.46	655	UNPAVED	762.00	753.20	1.34%	5.84	-	-	-	-	-	-	-	-	-	-	18	11
C	100	GRASS	0.24	758.00	756.50	1.50%	13.98	245	UNPAVED	756.50	754.00	1.02%	2.51	-	-	-	-	-	-	-	-	-	-	14	8
D	100	GRASS	0.24	763.10	761.80	1.30%	14.80	382	UNPAVED	761.80	755.50	1.65%	3.07	-	-	-	-	-	-	-	-	-	-	18	11
E	100	GRASS	0.24	763.10	761.60	1.50%	13.98	340	UNPAVED	761.60	755.80	1.71%	2.69	-	-	-	-	-	-	-	-	-	-	17	10
F	100	GRASS	0.24	760.30	758.60	1.70%	13.29	180	UNPAVED	758.60	756.00	1.44%	1.55	-	-	-	-	-	-	-	-	-	-	13	8
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6

Project: 3427 EXISTING Simulation Run: EXISTING 2 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time: 16Apr2024, 08:33:38 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	3.9	1 January 2000, 01:40	0.2
EX-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-F	0.0	0.8	1 January 2000, 01:40	0.0
EX-H	0.0	5.4	1 January 2000, 01:35	0.2
EX-SP-A	0.0	8.5	1 January 2000, 01:40	0.4
EX-SP-B	0.0	2.9	1 January 2000, 01:45	0.1
EX-SP-C	0.0	0.7	1 January 2000, 01:40	0.0
EX-SP-D	0.0	1.4	1 January 2000, 01:45	0.1
EX-SP-E	0.0	1.3	1 January 2000, 01:40	0.1
EX-SP-F	0.0	0.8	1 January 2000, 01:40	0.0

Project: 3427 EXISTING Simulation Run: EXISTING 25 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time: 16Apr2024, 08:33:44 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	10.5	1 January 2000, 01:40	0.6
EX-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-F	0.0	1.9	1 January 2000, 01:40	0.1
EX-H	0.0	9.1	1 January 2000, 01:35	0.5
EX-SP-A	0.0	18.2	1 January 2000, 01:35	1.1
EX-SP-B	0.0	8.0	1 January 2000, 01:40	0.5
EX-SP-C	0.0	1.8	1 January 2000, 01:40	0.1
EX-SP-D	0.0	3.6	1 January 2000, 01:40	0.2
EX-SP-E	0.0	3.4	1 January 2000, 01:40	0.2
EX-SP-F	0.0	1.9	1 January 2000, 01:40	0.1

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Existing Conditions

Basin	Area mi2	CN	S	Ia
A	0.0035169	81	2.35	0.47
B	0.0028805	80	2.50	0.50
C	0.0005908	80	2.50	0.50
D	0.0012496	81	2.35	0.47
E	0.0011524	81	2.35	0.47
F	0.0006380	80	2.50	0.50
H	0.0019355	96	0.42	0.08

FLOW DATA
EXISTING CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A	3.9	8.0	10.5	14.4
B	2.9	6.0	8.0	10.8
C	0.7	1.4	1.8	2.5
D	1.4	2.7	3.6	4.8
E	1.3	2.6	3.4	4.6
F	0.8	1.5	1.9	2.7
H	5.4	7.7	9.1	11.1
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7

Project: 3427 EXISTING Simulation Run: EXISTING 10 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time: 16Apr2024, 08:33:25 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	8.0	1 January 2000, 01:40	0.4
EX-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-F	0.0	1.5	1 January 2000, 01:40	0.1
EX-H	0.0	7.7	1 January 2000, 01:35	0.4
EX-SP-A	0.0	14.7	1 January 2000, 01:40	0.8
EX-SP-B	0.0	6.0	1 January 2000, 01:45	0.3
EX-SP-C	0.0	1.4	1 January 2000, 01:40	0.1
EX-SP-D	0.0	2.7	1 January 2000, 01:45	0.2
EX-SP-E	0.0	2.6	1 January 2000, 01:40	0.1
EX-SP-F	0.0	1.5	1 January 2000, 01:40	0.1

Project: 3427 EXISTING Simulation Run: EXISTING 100 YEAR FLOWS

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Existing
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time: 16Apr2024, 08:33:32 Control Specifications: COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
EX-A	0.0	14.1	1 January 2000, 01:40	0.8
EX-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-F	0.0	2.7	1 January 2000, 01:40	0.2
EX-H	0.0	11.1	1 January 2000, 01:35	0.6
EX-SP-A	0.0	23.9	1 January 2000, 01:40	1.5
EX-SP-B	0.0	10.8	1 January 2000, 01:40	0.7
EX-SP-C	0.0	2.5	1 January 2000, 01:40	0.1
EX-SP-D	0.0	4.8	1 January 2000, 01:40	0.3
EX-SP-E	0.0	4.6	1 January 2000, 01:40	0.3
EX-SP-F	0.0	2.7	1 January 2000, 01:40	0.2

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Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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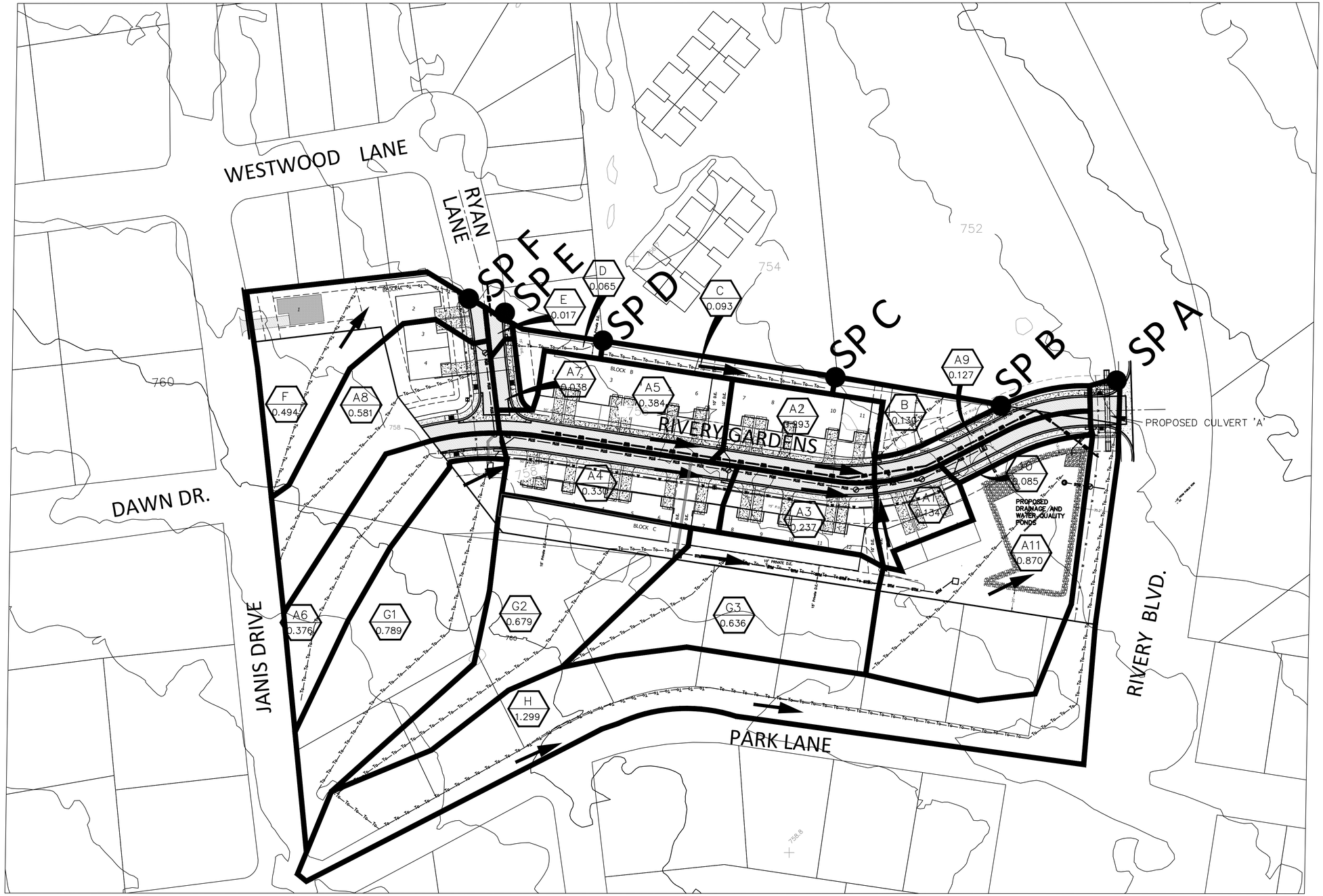
STATE OF TEXAS TIMOTHY E. HAYNIE 36982 LICENSED PROFESSIONAL ENGINEER 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

EXISTING DRAINAGE CALCULATIONS

CITY OF GEORGETOWN



0 50 100 200 Feet

Scale: 1"=50'

—LEGEND—

DRAINAGE BASIN DESIGNATION

– BASIN NUMBER/LETTER
Ac – BASIN ACREAGE

FLOW DIRECTION ARROW

DRAINAGE BASIN BOUNDARY

TIME OF CONCENTRATION PATH

SUBDIVISION BOUNDARY

BASIN AREAS

BASIN No.	TOTAL AREA S.F.	TOTAL AREA ACRES	TOTAL AREA SQ. MI.
A1	5,851	0.134	0.0002099
A2	12,754	0.293	0.0004575
A3	10,340	0.237	0.0003709
A4	14,375	0.330	0.0005156
A5	16,726	0.384	0.0006000
A6	16,377	0.376	0.0005874
A7	1,654	0.038	0.0000593
A8	25,301	0.581	0.0009075
A9	5,520	0.127	0.0001980
A10	3,710	0.085	0.0001331
A11	37,892	0.870	0.0013592
B	5,645	0.130	0.0002025
C	4,066	0.093	0.0001458
D	2,817	0.065	0.0001010
E	725	0.017	0.0000260
F	21,509	0.494	0.0007715
G1	34,381	0.789	0.0012332
G2	29,574	0.679	0.0010608
G3	27,717	0.636	0.0009942
H	56,593	1.299	0.0020300
TOTALS	333,527	7.657	0.0119636

EXISTING FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP A	8.9	14.7	18.2	23.9
SP B	2.9	6.0	8.0	10.5
SP C	0.7	1.4	1.8	2.5
SP D	1.4	2.7	3.6	4.8
SP E	1.3	2.6	3.4	4.6
SP F	0.8	1.5	1.9	2.7
	16.0	28.9	37	49.0

PROPOSED FLOW SUMMARY

Analysis Point	Q2	Q10	Q25	Q100
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.1	21.6	29.5	42.5

PROPOSED DRAINAGE AREA MAP

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE AREA MAP

CITY OF GEORGETOWN

SHEET NO.

18 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\18 PROPOSED DRAINAGE AREA MAP.dwg Sep 29, 24 6:26 pm

SCS CURVE NUMBER CALCULATIONS
DEVELOPED CONDITIONS

BASIN	TOTAL AREA	TOTAL AREA	TOTAL AREA	RESIDENTIAL 1/6 Ac.	BUILDING/POND	GRASS	PAVEMENT	COMPOSITE
	BASIN AREAS			SCS CURVE NUMBERS				
No.	S.F.	ACRES	SQ. MI.	CN 90 (HSG D)	CN 98 (HSG D)	CN 80 (HSG D)	CN 98 (HSG D)	CN (HSG D)
A1	5,851	0.134	0.0002099	0.000	0.036	0.042	0.056	92.1
A2	12,754	0.293	0.0004575	0.000	0.110	0.062	0.121	94.3
A3	10,340	0.237	0.0003709	0.000	0.076	0.032	0.129	95.4
A4	14,375	0.330	0.0005156	0.000	0.112	0.023	0.195	96.7
A5	16,726	0.384	0.0006000	0.000	0.112	0.090	0.182	93.8
A6	16,377	0.376	0.0005874	0.229	0.000	0.123	0.024	87.2
A7	1,654	0.038	0.0000593	0.000	0.000	0.008	0.030	94.2
A8	25,301	0.581	0.0009075	0.093	0.066	0.382	0.040	84.9
A9	5,520	0.127	0.0001980	0.000	0.000	0.025	0.101	94.4
A10	3,710	0.085	0.0001331	0.000	0.000	0.017	0.068	94.4
A11	37,892	0.870	0.0013592	0.330	0.250	0.240	0.050	90.0
B	5,645	0.130	0.0002025	0.000	0.000	0.130	0.000	80.3
C	4,066	0.093	0.0001458	0.000	0.000	0.093	0.000	79.7
D	2,817	0.065	0.0001010	0.000	0.000	0.065	0.000	80.4
E	725	0.017	0.0000260	0.000	0.000	0.002	0.015	97.9
F	21,509	0.494	0.0007715	0.000	0.030	0.414	0.050	83.0
G1	34,381	0.789	0.0012332	0.668	0.000	0.121	0.000	88.4
G2	29,574	0.679	0.0010608	0.483	0.078	0.118	0.000	89.2
G3	27,717	0.636	0.0009942	0.524	0.044	0.068	0.000	89.4
H	56,593	1.299	0.0020300	0.698	0.00	0.146	0.455	91.7
TOTALS	333,527	7.657	0.0119636	3.03	0.91	2.20	1.52	

TIME OF CONCENTRATION CALCULATIONS

	Sheet Flow							Shallow Concentrated					Channel										
Drainage Area	Length (ft)	Surface Condition	"n"	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	Surface Condition	U/S Elev	D/S Elev	Slope (%)	T_t	Length (ft)	A (ft2)	P (ft)	R (ft)	U/S Elev	D/S Elev	S (ft/ft)	n	Velocity (fps)	T_t	T_c Total (min)	Tlag
A1	75	GRASS	0.24	756.00	754.50	2.00%	9.90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5.9
A2	65	GRASS	0.24	755.90	754.60	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A3	65	GRASS	0.24	756.00	754.50	2.31%	8.33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	5.0
A4	65	GRASS	0.24	757.80	756.50	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A5	65	GRASS	0.24	758.00	756.70	2.00%	8.82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	5.3
A6	100	GRASS	0.24	763.10	761.80	1.30%	14.80	237	UNPAVED	761.80	757.80	1.69%	1.88	-	-	-	-	-	-	-	-	-	-	15	8.9
A7	10	GRASS	0.24	757.20	757.00	2.00%	1.97	64	PAVED	757.32	757.00	0.50%	0.74	-	-	-	-	-	-	-	-	-	-	6	3.6
A8	100	GRASS	0.24	761.00	759.50	1.50%	13.98	221	UNPAVED	759.50	757.00	1.13%	1.70	-	-	-	-	-	-	-	-	-	-	14	8.4
A9	10	GRASS	0.24	754.00	753.80	2.00%	1.97	158	PAVED	753.80	752.30	0.95%	1.33	-	-	-	-	-	-	-	-	-	-	6	3.6
A10	10	GRASS	0.24	754.00	753.80	2.00%	1.97	110	PAVED	753.80	752.80	0.91%	0.95	-	-	-	-	-	-	-	-	-	-	6	3.6
A11	100	GRASS	0.24	755.90	754.40	1.50%	13.98	165	UNPAVED	754.40	747.00	4.48%	0.64	-	-	-	-	-	-	-	-	-	-	14	8.4
B	90	GRASS	0.24	754.70	753.70	1.11%	14.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	8.7
C	100	GRASS	0.24	755.80	755.00	0.80%	17.97	124	UNPAVED	755.00	754.00	0.81%	1.13	-	-	-	-	-	-	-	-	-	-	18	10.8
D	94	GRASS	0.24	756.40	755.80	0.64%	18.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	11.2
E	10	GRASS	0.24	756.30	756.10	2.00%	1.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	3.6
F	100	GRASS	0.24	756.50	756.00	0.50%	21.69	237	UNPAVED	758.50	756.00	1.05%	2.38	-	-	-	-	-	-	-	-	-	-	22	13.0
G1	100	GRASS	0.24	764.00	762.20	1.80%	12.99	275	UNPAVED	762.20	758.00	1.53%	2.30	-	-	-	-	-	-	-	-	-	-	13	7.8
G2	100	GRASS	0.24	764.00	762.00	2.00%	12.46	332	UNPAVED	762.00	757.50	1.36%	2.95	-	-	-	-	-	-	-	-	-	-	15	9.2
G3	100	GRASS	0.24	760.00	758.30	1.70%	13.29	244	UNPAVED	758.30	756.00	0.94%	2.60	-	-	-	-	-	-	-	-	-	-	16	9.5
H	70	GRASS	0.24	764.00	763.00	1.43%	10.71	800	PAVED	763.00	757.00	0.75%	7.57	278	0.00	0.00	0.00	0.00	0.00	0.00%	0.040	2.00	2.32	11	6.4

Project: Rivery Proposed Offsite incl Simulation Run: COG-2 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-002yr
Compute Time:29Apr2024, 14:52:56 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.51	1 January 2000, 01:36	0.02
A10	0.00	0.39	1 January 2000, 01:33	0.01
A11	0.00	2.77	1 January 2000, 01:39	0.12
A2	0.00	1.23	1 January 2000, 01:36	0.05
A3	0.00	1.05	1 January 2000, 01:33	0.04
A4	0.00	1.49	1 January 2000, 01:36	0.06
A5	0.00	1.58	1 January 2000, 01:36	0.06
A6	0.00	1.04	1 January 2000, 01:39	0.05
A7	0.00	0.06	1 January 2000, 02:18	0.01
A8	0.00	1.48	1 January 2000, 01:39	0.06
A9	0.00	0.59	1 January 2000, 01:33	0.02
B	0.00	0.00	1 January 2000, 03:00	0.00
Batch Detention Pond	0.01	7.71	1 January 2000, 01:54	0.62
C	0.00	0.00	1 January 2000, 03:00	0.00
D	0.00	0.00	1 January 2000, 03:00	0.00
E	0.00	0.09	1 January 2000, 01:33	0.00
F	0.00	1.07	1 January 2000, 01:45	0.06
G1	0.00	2.37	1 January 2000, 01:39	0.10
G2	0.00	1.99	1 January 2000, 01:39	0.09
G3	0.00	1.85	1 January 2000, 01:39	0.08
H	0.00	4.86	1 January 2000, 01:36	0.20
J1	0.01	13.92	1 January 2000, 01:39	0.62
J2	0.01	11.71	1 January 2000, 01:36	0.52
J3	0.01	10.51	1 January 2000, 01:39	0.47
J4	0.00	9.61	1 January 2000, 01:39	0.43
J5	0.00	7.65	1 January 2000, 01:36	0.34
J6	0.00	4.91	1 January 2000, 01:39	0.22
J7	0.00	1.50	1 January 2000, 01:39	0.07
J8	0.00	0.98	1 January 2000, 01:33	0.04
SP-A	0.01	9.92	1 January 2000, 01:45	0.82
SP-B	0.00	0.00	1 January 2000, 03:00	0.00
SP-C	0.00	0.00	1 January 2000, 03:00	0.00
SP-D	0.00	0.00	1 January 2000, 03:00	0.00
SP-E	0.00	0.09	1 January 2000, 01:33	0.00
SP-F	0.00	1.07	1 January 2000, 01:45	0.06

Project: Rivery Proposed Offsite incl Simulation Run: COG-10 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-010yr
Compute Time:29Apr2024, 14:52:24 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.79	1 January 2000, 01:36	0.04
A10	0.00	0.58	1 January 2000, 01:33	0.03
A11	0.00	4.47	1 January 2000, 01:39	0.24
A2	0.00	1.81	1 January 2000, 01:36	0.09
A3	0.00	1.53	1 January 2000, 01:33	0.07
A4	0.00	2.13	1 January 2000, 01:33	0.11
A5	0.00	2.36	1 January 2000, 01:36	0.12
A6	0.00	1.78	1 January 2000, 01:39	0.09
A7	0.00	0.10	1 January 2000, 02:15	0.01
A8	0.00	2.62	1 January 2000, 01:39	0.14
A9	0.00	0.86	1 January 2000, 01:33	0.04
B	0.00	0.12	1 January 2000, 01:51	0.01
Batch Detention Pond	0.01	15.36	1 January 2000, 01:51	1.26
C	0.00	0.08	1 January 2000, 01:57	0.01
D	0.00	0.06	1 January 2000, 01:57	0.00
E	0.00	0.12	1 January 2000, 01:33	0.01
F	0.00	1.87	1 January 2000, 01:45	0.11
G1	0.00	3.93	1 January 2000, 01:39	0.20
G2	0.00	3.32	1 January 2000, 01:39	0.18
G3	0.00	3.09	1 January 2000, 01:39	0.17
H	0.00	7.49	1 January 2000, 01:36	0.37
J1	0.01	22.53	1 January 2000, 01:36	1.21
J2	0.01	18.90	1 January 2000, 01:36	1.01
J3	0.01	17.08	1 January 2000, 01:36	0.92
J4	0.00	15.64	1 January 2000, 01:39	0.84
J5	0.00	12.49	1 January 2000, 01:36	0.66
J6	0.00	8.36	1 January 2000, 01:39	0.44
J7	0.00	2.65	1 January 2000, 01:39	0.15
J8	0.00	1.43	1 January 2000, 01:33	0.07
SP-A	0.01	19.37	1 January 2000, 01:45	1.63
SP-B	0.00	0.12	1 January 2000, 01:51	0.01
SP-C	0.00	0.08	1 January 2000, 01:57	0.01
SP-D	0.00	0.06	1 January 2000, 01:57	0.00
SP-E	0.00	0.12	1 January 2000, 01:33	0.01
SP-F	0.00	1.87	1 January 2000, 01:45	0.11

Project: Rivery Proposed Offsite incl Simulation Run: COG-25 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-025yr
Compute Time:29Apr2024, 14:53:09 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	0.94	1 January 2000, 01:33	0.05
A10	0.00	0.67	1 January 2000, 01:33	0.03
A11	0.00	5.39	1 January 2000, 01:36	0.31
A2	0.00	2.20	1 January 2000, 01:33	0.11
A3	0.00	1.84	1 January 2000, 01:33	0.09
A4	0.00	2.56	1 January 2000, 01:33	0.13
A5	0.00	2.87	1 January 2000, 01:33	0.15
A6	0.00	2.18	1 January 2000, 01:39	0.12
A7	0.00	0.12	1 January 2000, 02:15	0.01
A8	0.00	3.24	1 January 2000, 01:39	0.18
A9	0.00	1.00	1 January 2000, 01:33	0.05
B	0.00	0.26	1 January 2000, 01:48	0.02
Batch Detention Pond	0.01	21.47	1 January 2000, 01:48	1.67
C	0.00	0.17	1 January 2000, 01:51	0.01
D	0.00	0.12	1 January 2000, 01:51	0.01
E	0.00	0.14	1 January 2000, 01:33	0.01
F	0.00	2.35	1 January 2000, 01:42	0.15
G1	0.00	4.83	1 January 2000, 01:36	0.27
G2	0.00	4.06	1 January 2000, 01:39	0.23
G3	0.00	3.79	1 January 2000, 01:39	0.22
H	0.00	8.94	1 January 2000, 01:36	0.48
J1	0.01	27.70	1 January 2000, 01:36	1.57
J2	0.01	23.12	1 January 2000, 01:36	1.30
J3	0.01	21.02	1 January 2000, 01:36	1.19
J4	0.00	19.31	1 January 2000, 01:36	1.09
J5	0.00	15.36	1 January 2000, 01:36	0.86
J6	0.00	10.22	1 January 2000, 01:36	0.58
J7	0.00	3.29	1 January 2000, 01:39	0.19
J8	0.00	1.67	1 January 2000, 01:33	0.08
SP-A	0.01	26.49	1 January 2000, 01:45	2.15
SP-B	0.00	0.26	1 January 2000, 01:48	0.02
SP-C	0.00	0.17	1 January 2000, 01:51	0.01
SP-D	0.00	0.12	1 January 2000, 01:51	0.01
SP-E	0.00	0.14	1 January 2000, 01:33	0.01
SP-F	0.00	2.35	1 January 2000, 01:42	0.15

Project: Rivery Proposed Offsite incl Simulation Run: COG-100 Year Flows

Start of Run: 01Jan2000, 00:00 Basin Model: Rivery Crossing Proposed
End of Run: 01Jan2000, 03:00 Meteorologic Model: COG-100yr
Compute Time:29Apr2024, 14:52:38 Control Specifications:COG 3HR

Show Elements: All Elements Volume Units: IN ACRE-FT Sorting: Alphabetic

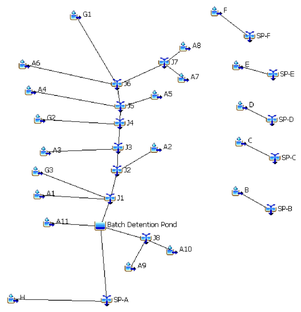
Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
A1	0.00	1.18	1 January 2000, 01:36	0.07
A10	0.00	0.83	1 January 2000, 01:33	0.04
A11	0.00	6.86	1 January 2000, 01:39	0.41
A2	0.00	2.66	1 January 2000, 01:33	0.15
A3	0.00	2.21	1 January 2000, 01:33	0.12
A4	0.00	3.05	1 January 2000, 01:33	0.17
A5	0.00	3.46	1 January 2000, 01:33	0.19
A6	0.00	2.82	1 January 2000, 01:39	0.17
A7	0.00	0.16	1 January 2000, 02:15	0.02
A8	0.00	4.25	1 January 2000, 01:39	0.25
A9	0.00	1.24	1 January 2000, 01:33	0.06
B	0.00	0.51	1 January 2000, 01:42	0.03
Batch Detention Pond	0.01	30.72	1 January 2000, 01:48	2.26
C	0.00	0.34	1 January 2000, 01:45	0.02
D	0.00	0.23	1 January 2000, 01:48	0.01
E	0.00	0.17	1 January 2000, 01:33	0.01
F	0.00	3.08	1 January 2000, 01:45	0.20
G1	0.00	6.14	1 January 2000, 01:39	0.36
G2	0.00	5.18	1 January 2000, 01:39	0.31
G3	0.00	4.82	1 January 2000, 01:39	0.29
H	0.00	11.21	1 January 2000, 01:36	0.63
J1	0.01	34.81	1 January 2000, 01:36	2.09
J2	0.01	29.10	1 January 2000, 01:36	1.73
J3	0.01	26.46	1 January 2000, 01:36	1.58
J4	0.00	24.30	1 January 2000, 01:36	1.46
J5	0.00	19.39	1 January 2000, 01:36	1.15
J6	0.00	13.26	1 January 2000, 01:39	0.78
J7	0.00	4.31	1 January 2000, 01:39	0.26
J8	0.00	2.07	1 January 2000, 01:33	0.11
SP-A	0.01	38.16	1 January 2000, 01:45	2.89
SP-B	0.00	0.51	1 January 2000, 01:42	0.03
SP-C	0.00	0.34	1 January 2000, 01:45	0.02
SP-D	0.00	0.23	1 January 2000, 01:48	0.01
SP-E	0.00	0.17	1 January 2000, 01:33	0.01
SP-F	0.00	3.08	1 January 2000, 01:45	0.20

FLOW DATA
PROPOSED CONDITIONS

BASIN	Q2	Q10	Q25	Q100
A1	0.51	0.79	0.94	1.18
A2	1.23	1.81	2.20	2.66
A3	1.05	1.53	1.84	2.21
A4	1.49	2.13	2.56	3.05
A5	1.58	2.36	2.87	3.46
A6	1.04	1.78	2.18	2.82
A7	0.06	0.10	0.12	0.16
A8	1.48	2.62	3.24	4.25
A9	0.59	0.86	1.00	1.24
A10	0.39	0.58	0.67	0.83
A11	2.77	4.47	5.39	6.86
B	-	0.12	0.26	0.51
C	-	0.08	0.17	0.34
D	-	0.06	0.12	0.23
E	0.09	0.12	0.14	0.17
F	1.07	1.87	2.35	3.08
G1	2.37	3.93	4.83	6.14
G2	1.99	3.32	4.06	5.18
G3	1.85	3.09	3.79	4.82
H	4.86	7.49	8.94	11.21
Analysis Point	**Q2**	**Q10**	**Q25**	**Q100**
SP-A	9.92	19.37	26.49	38.16
SP-B	-	0.12	0.26	0.51
SP-C	-	0.08	0.17	0.34
SP-D	-	0.06	0.12	0.23
SP-E	0.09	0.12	0.14	0.17
SP-F	1.07	1.87	2.35	3.08
	11.08	21.62	29.53	42.49

Rivery Crossing Phase 2
Surface Storage (S) S=(1000/CN)-10
Initial Abstraction (Ia) Ia = 0.2 x S
Proposed Conditions

Basin	Area mi2	CN	S	Ia
A1	0.0002099	93	0.75	0.15
A2	0.0004575	94	0.64	0.13
A3	0.0003709	94	0.64	0.13
A4	0.0005156	94	0.64	0.13
A5	0.0006000	93	0.75	0.15
A6	0.0005874	90	1.11	0.22
A7	0.0000593	94	0.64	0.13
A8	0.0009075	89	1.24	0.25
A9	0.0001980	94	0.64	0.13
A10	0.0001331	94	0.64	0.13
A11	0.0013592	92	0.87	0.17
B	0.0002025	80	2.50	0.50
C	0.0001458	80	2.50	0.50
D	0.0001010	80	2.50	0.50
E	0.0000260	98	0.20	0.04
F	0.0007715	95	0.53	0.11
G1	0.0012332	90	1.11	0.22
G2	0.0010608	90	1.11	0.22
G3	0.0009942	90	1.11	0.22
H	0.0020300	95	0.53	0.11



ROUTING DIAGRAM

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

PROPOSED DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

19 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\19 PROPOSED DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:27 pm

RIVERY GARDENS CURB & ROW CAPACITY PERFORMANCE CURVE DATA							
STRUCTURE TYPE	DEPTH; WATER (Dn) [ft]	FLOW (Q) [cfs]	MANNING'S "n"	SLOPE (%) [%]	VELOCITY; WATER (Vn) [ft/s]	SPREAD (Wp) [ft]	DEPTH; CAPACITY (D) [ft]
Parabolic	0.33	2.52	0.013	0.59	2.46	6.90	0.50
	0.50	6.22	Composite	0.59	1.89	20.30	
Parabolic	0.33	3.15	0.013	0.92	3.07	6.90	0.50
	0.50	7.76	Composite	0.92	2.36	20.30	
Parabolic	0.33	3.84	0.013	1.37	3.74	6.90	0.50
	0.50	9.47	Composite	1.37	2.87	20.30	
RYAN LANE CURB & ROW CAPACITY PERFORMANCE CURVE DATA							
STRUCTURE TYPE	DEPTH; WATER (Dn) [ft]	FLOW (Q) [cfs]	MANNING'S "n"	SLOPE (%) [%]	VELOCITY; WATER (Vn) [ft/s]	SPREAD (Wp) [ft]	DEPTH; CAPACITY (D) [ft]
Parabolic	0.33	4.32	0.013	1.73	4.21	6.90	0.50
	0.50	10.64	Composite	1.73	3.23	20.30	

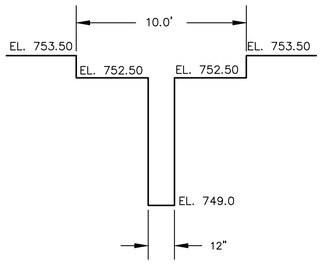
PARABOLIC CROSS-SECTION DATA														
Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.	Sta.	Elev.
0	749.96	9	749.78	10.58	749.45	11	749.50	14.5	749.72	18	749.87	21.5	749.97	25	750

STREET CURB CAPACITY CALCULATIONS

PROPOSED POND VOLUME SUMMARY							
ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS	
747	20				0	0	
		2333	0.5	1166.5			
747.5	4646				1167	0	
		4890.5	0.5	2445			Sediment Volume (1519 Cu. Ft.) = 747.57
748	5135				3612	0	
		5388.5	0.5	2694			
748.5	5642				6306	0	
		6872.5	0.5	3436			WQV (Req'd)=9,114 CF for 1563 lb. Load Removal @ 748.91
749	8103				9742	0.000	WQ Volume Provided @ 749.0 = 9742 CF
		8425.5	1	8426		1.177	
750	8748				18168	3.330	
		9080.5	1	9081		6.118	
751	9413				27248	9.419	
		9753.5	1	9754		13.160	
752	10094				37002	17.300	
		10443	1	10443		21.800	Max. 100 Yr. W.S. EL. = 752.58
753	10792				47445	33.570	Freeboard = 0.92' (0.5' Required)
		11308	0.5	5654			
753.5	11824				53099	55.100	Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

BATCH DETENTION POND – STAGE – STORAGE – DISCHARGE



BATCH DETENTION POND WEIR

Detention Pond Summary

Description	Storm Frequecy				Maximum
	2-Year	10-Year	25-Year	100-Year	W.S.ELEV.
Detention Volume Required (Ac-Ft.)	0.19	0.25	0.28	0.32	752.82
Detention Volume Provided (Ac-Ft.)	0.37	0.60	0.72	0.85	752.26
Allowable Discharge (CFS)	12.13	22.29	28.88	37.54	751.75
Actual Discharge (CFS)	7.71	15.36	21.47	30.72	750.72

DETENTION POND SUMMARY

CURB INLET ON GRADE - 25 YEAR

INLET	Q25 Surface Flow (CFS)	Q25 Upstream Bypass (CFS)	Q25 Total (CFS)	LONGITUDINAL SLOPE (S_L) (FT/FT)	MANNING'S 'n'	(Se) (FT/FT)	LENGTH FOR 100% CAPTURE (Lt) (FT)	USED (FT)	INLET EFFICENCY (%)	Q25 CAPTURED (CFS)	Q25 BYPASS (CFS)	Q25 DEPTH AT CURB INLET (FT)	BYPASS TO
A-1	0.94	0.00	0.94	0.0059	0.013	0.05	4.57	10	100	0.94	0	0.41	A-9
A-2	2.20	0.00	2.20	0.0059	0.013	0.05	6.53	10	100	2.20	0	0.56	A-10
A-3	1.84	0.00	1.84	0.0059	0.013	0.05	6.06	10	100	1.84	0	0.52	A-1
A-4	2.56	0.00	2.56	0.0059	0.013	0.05	6.96	10	100	2.56	0	0.58	A-3
A-5	2.87	0.00	2.87	0.0059	0.013	0.05	7.30	10	100	2.87	0	0.60	A-2
A-6	2.18	0.00	2.18	0.0092	0.013	0.05	7.43	10	100	2.18	0	0.51	A-4
A-7	0.12	0.00	0.12	0.0173	0.013	0.05	2.66	10	100	0.12	0	0.15	RYAN LN.
A-8	3.24	0.00	3.24	0.0173	0.013	0.05	10.61	10	94.2%	3.05	0.19	0.53	RYAN LN.
A-9	1.00	0.00	1.00	0.0137	0.013	0.05	6.04	10	100	1.00	0	0.36	RIVERY
A-10	0.67	0.00	0.67	0.0137	0.013	0.05	5.10	10	100	0.67	0	0.31	RIVERY
Maximum depth at inlet = 0.33'+0.33' = 0.66'													

CURB INLET ON GRADE - 100 YEAR

INLET	Q100 Surface Flow (CFS)	Q100 Upstream Bypass (CFS)	Q100 Total (CFS)	LONGITUDINAL SLOPE (S_L) (FT/FT)	MANNING'S N	(Se) (FT/FT)	LENGTH FOR 100% CAPTURE (Lt) (FT)	USED (FT)	INLET EFFICENCY (%)	Q100 CAPTURED (CFS)	Q100 BYPASS (CFS)	Q100 DEPTH AT CURB INLET (FT)	BYPASS TO
A-1	1.18	0.00	1.18	0.0059	0.013	0.05	5.03	10	100	1.18	0	0.45	A-9
A-2	2.66	0.00	2.66	0.0059	0.013	0.05	7.07	10	100	2.66	0	0.59	A-10
A-3	2.21	0.00	2.21	0.0059	0.013	0.05	6.54	10	100	2.21	0	0.56	A-1
A-4	3.05	0.00	3.05	0.0059	0.013	0.05	7.49	10	100	3.05	0	0.61	A-3
A-5	3.46	0.00	3.46	0.0059	0.013	0.05	7.90	10	100	3.46	0	0.65	A-2
A-6	2.82	0.00	2.82	0.0092	0.013	0.05	8.28	10	100	2.82	0	0.64	A-4
A-7	0.16	0.00	0.16	0.0173	0.013	0.05	3.00	10	100	0.16	0	0.17	RYAN LN.
A-8	4.25	0.00	4.25	0.0173	0.013	0.05	11.89	10	84.1%	3.57	0.68	0.58	RYAN LN.
A-9	1.24	0.00	1.24	0.0137	0.013	0.05	6.61	10	100	1.24	0	0.39	RIVERY
A-10	0.83	0.00	0.83	0.0137	0.013	0.05	5.58	10	100	0.83	0	0.33	RIVERY
Maximum depth at inlet = 0.51'+0.33' = 0.84'													

CURB INLET CALCULATIONS

4-SIDED FIELD INLET - SUMP - 25 YEAR

INLET	Q25 Surface Flow (CFS)	Q25 Upstream Bypass (CFS)	Q25 Total (CFS)	Length of Opening (FT.)	Throat Height (FT.)	(Sx) (FT/FT)	INLET EFFICENCY (%)	Q25 DEPTH AT FIELD INLET (FT)	BYPASS TO
G-1	4.83	0.00	4.83	12	0.5	0.50	100	0.26	A-6
G-2	4.06	0.00	4.06	12	0.5	0.50	100	0.36	G-3
G-3	3.79	0.00	3.79	12	0.5	0.50	100	0.22	POND
Maximum depth at inlet = 1.0'									

4-SIDED FIELD INLET - SUMP - 100 YEAR

INLET	Q100 Surface Flow (CFS)	Q100 Upstream Bypass (CFS)	Q100 Total (CFS)	Length of Opening (FT.)	Throat Height (FT.)	(Sx) (FT/FT)	INLET EFFICENCY (%)	Q100 DEPTH AT FIELD INLET (FT)	BYPASS TO
G-1	6.14	0.00	6.14	12	0.5	0.50	100	0.31	A-6
G-2	5.18	0.00	5.18	12	0.5	0.50	100	0.43	G-3
G-3	4.82	0.00	4.82	12	0.5	0.50	100	0.26	POND
Maximum depth at inlet = 1.0'									

FOUR–SIDED AREA INLET CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

MISCELLANEOUS DRAINAGE CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

20 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\20 MISCELLANEOUS DRAINAGE CALCULATIONS.dwg Sep 29, 24 6:31 pm

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivery Crossing Phase 2
Date Prepared: 2/15/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	**Williamson**	
Total project area included in plan * =	**3.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**1.72**	acres
Total post-development impervious cover fraction * =	**0.50**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1497**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**3.45**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.69**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.49**	
$L_{M\ THIS\ BASIN}$ =	**1471**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin** Batch Detention Basin
Removal efficiency = **91** percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**3.45**	acres
A_I =	**1.72**	acres
A_P =	**1.73**	acres
L_R =	**1760**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **1471** lbs.

F = **0.84**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.26**	inches
Post Development Runoff Coefficient =	**0.36**	
On-site Water Quality Volume =	**5629**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**1126**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**6755**	cubic feet

TCEQ REQUIRED WATER QUALITY CALCULATIONS

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Rivery Crossing Phase 2
Date Prepared: 2/15/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.9(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	**Williamson**	
Total project area included in plan * =	**3.45**	acres
Predevelopment impervious area within the limits of the plan * =	**0.00**	acres
Total post-development impervious area within the limits of the plan* =	**1.72**	acres
Total post-development impervious cover fraction * =	**0.50**	
P =	**32**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**1591**	lbs.

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

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

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

Drainage Basin/Outfall Area No. = **1**

Total drainage basin/outfall area =	**3.45**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**1.72**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.50**	
$L_{M\ THIS\ BASIN}$ =	**1591**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = **Batch Detention Basin**
Removal efficiency = **91** percent Batch Detention

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**3.45**	acres
A_I =	**1.72**	acres
A_P =	**1.73**	acres
L_R =	**1760**	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = **1591** lbs.

F = **0.90**

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	**1.70**	inches
Post Development Runoff Coefficient =	**0.36**	
On-site Water Quality Volume =	**7595**	cubic feet

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

Off-site area draining to BMP =	**0.00**	acres
Off-site Impervious cover draining to BMP =	**0.00**	acres
Impervious fraction of off-site area =	**0**	
Off-site Runoff Coefficient =	**0.00**	
Off-site Water Quality Volume =	**0**	cubic feet
Storage for Sediment =	**1519**	
Total Capture Volume (required water quality volume(s) x 1.20) =	**9114**	cubic feet

CITY OF GEORGETOWN REQUIRED WATER QUALITY CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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TIMOTHY E. HAYNIE
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29-Sep-2024

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T.B.P.E. Firm No. F-002411
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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER QUALITY CALCULATIONS

CITY OF GEORGETOWN

SHEET NO.

21 OF 52

2022-44-CON

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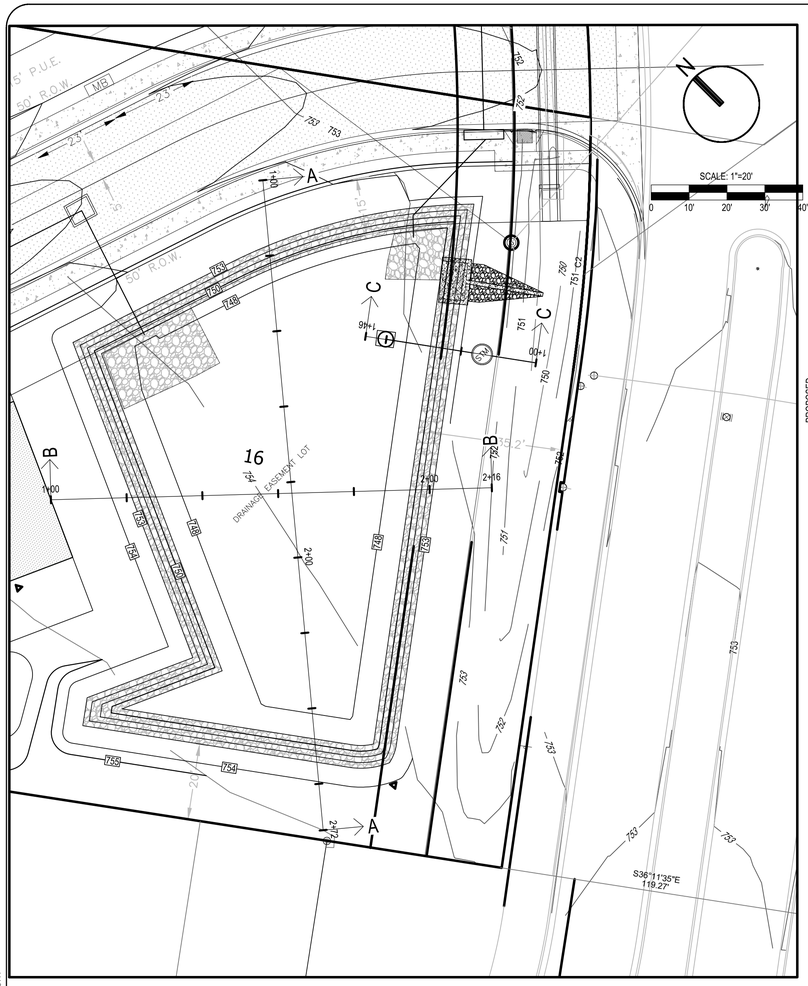


POND PLAN

SCALE = HORZ: 1"=20'

PROPOSED POND VOLUME SUMMARY						
ELEVATION (Ft.)	AREA (Sq. Ft.)	AVERAGE AREA (Sq. Ft.)	INC. ELEV. (Ft.)	INC. VOLUME (Cu.-Ft.)	TOTAL VOL. (Cu. Ft.)	DISCHARGE CFS
747	20				0	0
		2333	0.5	1166.5		
747.5	4646				1167	0
		4890.5	0.5	2445		
748	5135				3612	0
		5388.5	0.5	2694		
748.5	5642				6306	0
		6872.5	0.5	3436		
749	8103				9742	0.000
		8425.5	1	8426		1.177
750	8748				18168	3.330
		9080.5	1	9081		6.118
751	9413				27248	9.419
		9753.5	1	9754		13.160
752	10094				37002	17.300
		10443	1	10443		21.800
753	10792				47445	33.570
		11308	0.5	5654		
753.5	11824				53099	55.100

Sediment Volume (1519 Cu. Ft.) = 747.57

WQV (Req'd)=9,114 CF for 1563 lb. Load Removal @ 748.91
WQ Volume Provided @ 749.0 = 9742 CF

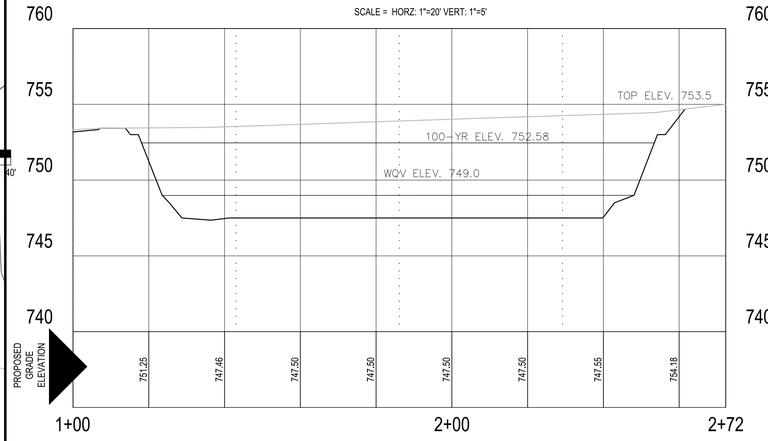
Max. 100 Yr. W.S. EL. = 752.58
Freeboard = 0.92' (0.5' Required)

Emergency Overflow

Sharp crested weir, 12" wide x 3.5' high @ 749.0'
Weir Coefficient = 3.33
Emergency Weir 10' wide x 1.0' high at 752.5'

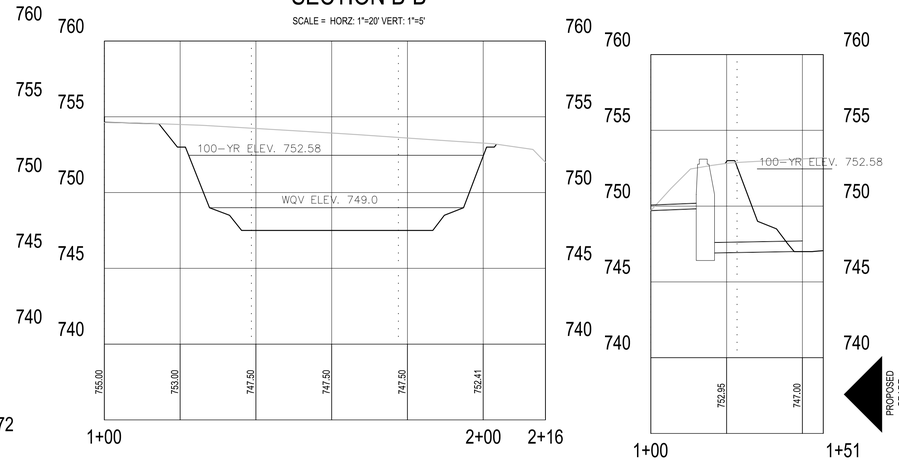
SECTION A-A

SCALE = HORZ: 1"=20' VERT: 1"=5'



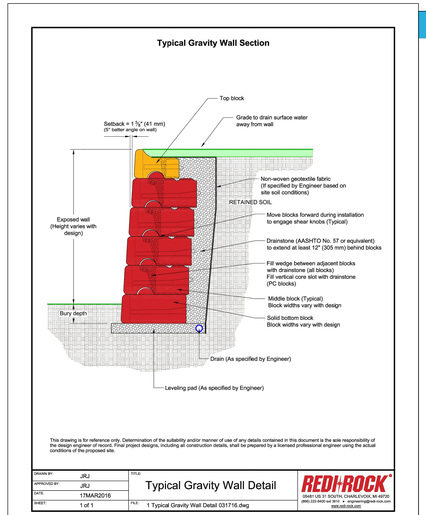
SECTION B-B

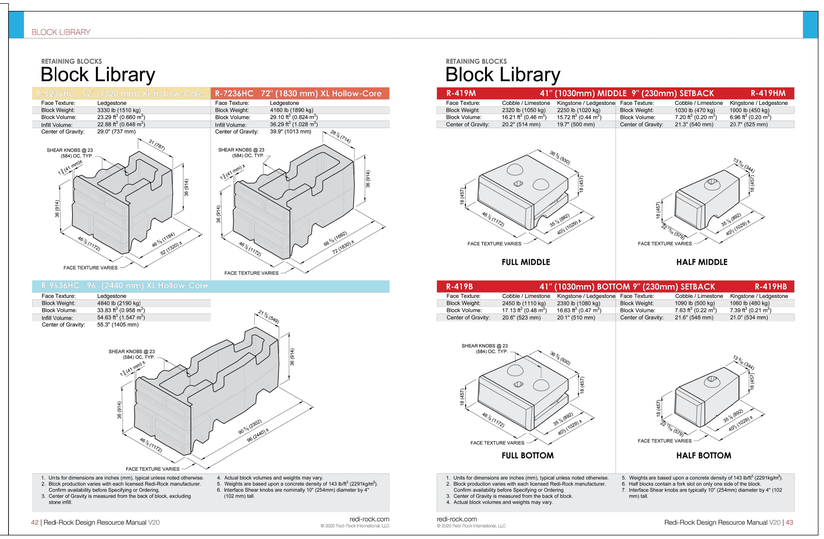
SCALE = HORZ: 1"=20' VERT: 1"=5'

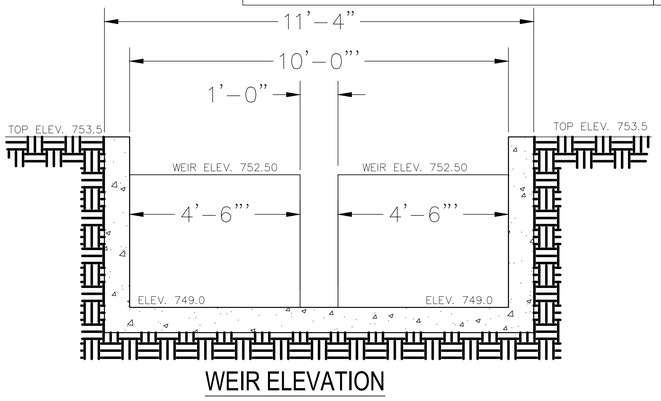


SECTION C-C

SCALE = HORZ: 1"=20' VERT: 1"=5'







WEIR ELEVATION

SCALE 1"=2'

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

BATCH DETENTION POND PLAN

CITY OF GEORGETOWN

SHEET NO.

22 OF 52

2022-44-CON

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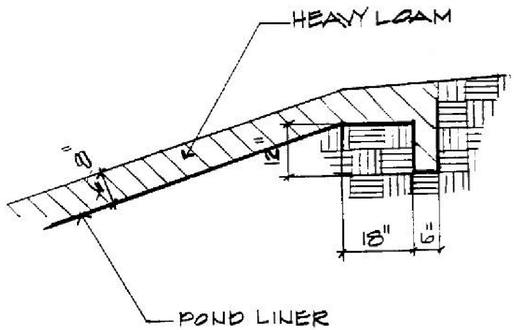


LINER DATA

IMPERMEABLE LINERS MAY BE CLAY, CONCRETE OR GEOMEMBRANE.

CLAY LINERS SHOULD MEET THE SPECIFICATIONS AS SHOWN BELOW AND HAVE A MINIMUM THICKNESS OF 12 INCHES.

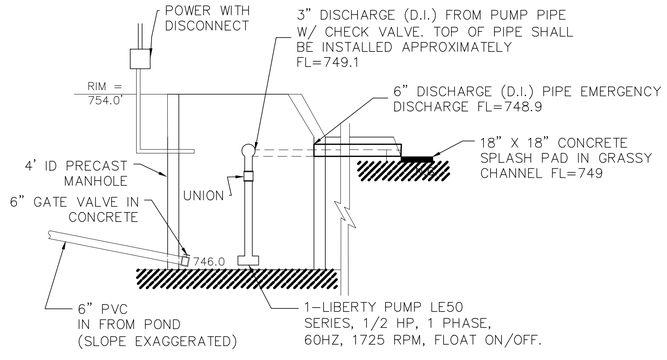
CLAY LINER SPECIFICATIONS (MIN. THICKNESS = 12")			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	Cm/Sec	$1X10^{(-6)}$
PLASTICITY INDEX OF CLAY	ASTM D-423 & D-424	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD PROCTOR DENSITY AT OR ABOVE OPTIMUM MOISTURE CONTENT

IF A GEOMEMBRANE IS USED IT SHALL HAVE A MINIMUM THICKNESS OF (30) THIRTY MILS AND BE ULTRAVIOLET RESISTANT. CONTRACTOR TO USE A GeoCHEM LLDPE 3000B GEOMEMBRANE OR APPROVED EQUAL. THE GEOTEXTILE FABRIC (FOR PROTECTION OF GEOMEMBRANE) SHOULD BE NONWOVEN GEOTEXTILE FABRIC AND MEET THE SPECIFICATIONS AS SHOWN BELOW. SUITABLE GEOTEXTILE FABRIC SHOULD BE PLACED ON THE TOP AND BOTTOM OF THE MEMBRANE FOR PUNCTURE PROTECTION AND THE LINERS COVERED WITH A MINIMUM OF 6 INCHES OF COMPACTED TOPSOIL. THE TOPSOIL SHOULD BE STABILIZED WITH APPROPRIATE VEGETATION. SEE SECTION G7 – "LOAMING, HYDROSEEDING AND PERMANENT EROSION CONTROL" SPECIFICATIONS FOR TOPSOIL AND SEEDING REQUIREMENTS. REFER TO APPROVED WPAP FOR ADDITIONAL INSTALLATION, QA/QC AND MAINTENANCE REQUIREMENTS.

GEOTEXTILE FABRIC DATA			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
MATERIAL	NON-WOVEN GEOTEXTILE FABRIC		
UNIT WEIGHT		OZ./SQ. YD.	8 (MIN.)
FILTRATION WEIGHT		IN./SEC.	0.08 (MIN)
PUNCTURE STRENGTH	ASTM D-751 (MODIFIED)	LB.	125 (MIN)
MULLEN BURST STRENGTH	ASTM D-751	P.S.I.	400 (MIN.)
TENSILE STRENGTH	ASTM D-1682	LB.	200 (MIN.)
EQUIV. OPENING SIZE	U.S. STANDARD SIEVE	NO.	80 (MIN.)

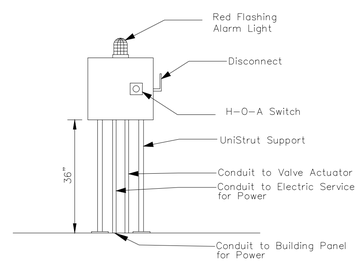
PUMP RATING CURVE	
FLOW (GPM)	FT HEAD
0	24.0
20	23.0
40	21.5
60	19.5
80	16.8
100	13.7
120	9.8
140	5.2
160	0.0

PUMP CURVE FOR SED-FILT PUMP



FILTRATION POND PUMP SECTION

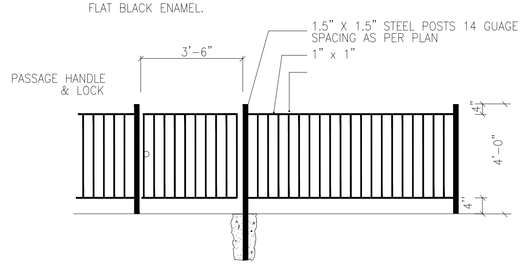
N.T.S.



CONTROL / ALARM

NTS

NOTES:
- ALL METAL TO BE DEGREASED, PHOSPHATIZED WITH RUST RETARDANT UNDERCOAT AND DIP COATED WITH TWO COATS OF INDUSTRIAL GRADE FLAT BLACK ENAMEL.

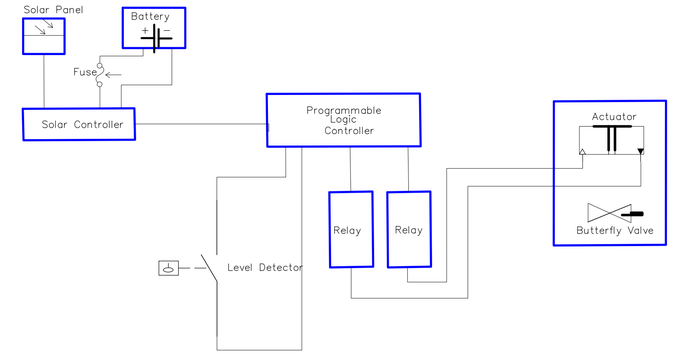


POND FENCING

Table 3-7 Geotextile Fabric Specifications (COA, 2004)

Property	Test Method	Unit	Specification (min)
Unit Weight		oz/yd	8
Filtration Rate		in/sec	0.08
Puncture Strength	ASTM D-751*	lb	125
Mullen Burst Strength	ASTM D-751	psi	400
Tensile Strength	ASTM D-1682	lb	200
Equiv. Opening Size	US Standard Sieve	No.	80

*modified

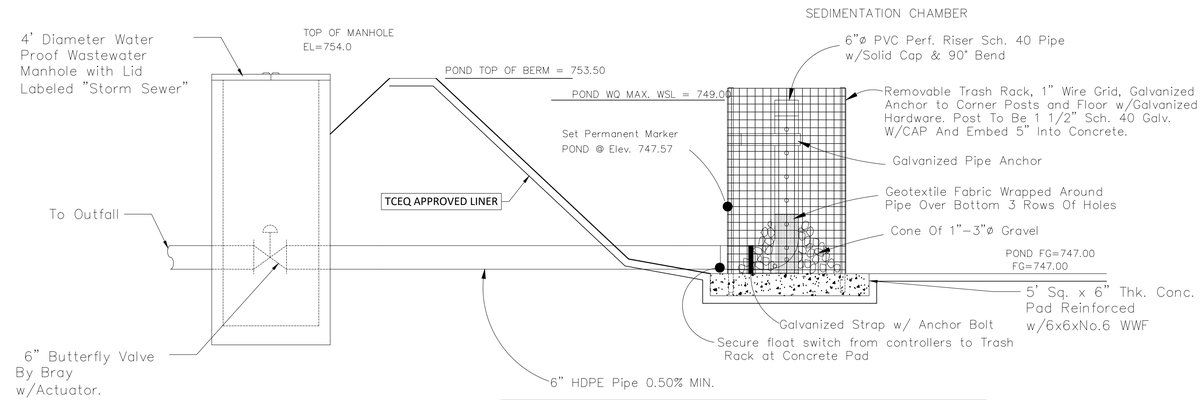


CONTROLLER CIRCUIT BOX DIAGRAM

NTS

BATCH POND CONTROLLER NOTES:

1. Submittals – The contractor shall provide the engineer with batch pond controller submittals for review and approval prior to construction. Submittals shall include: power source, battery backup, logic controller, lockable parts enclosure, float, valve, actuator, relay, alarm system, signage, etc. Total wattage of power consumption and w-hours of actuator, controller and relay shall be provided. A copy of the approved submittals shall be provided to TCEQ with the engineers certification of project completion for inclusion in the TCEQ project file .
2. Controller – The controller consists of a level sensor in the detention basin, a valve (with a default closed position), an actuator, and the associated control. The controller detects water filling the basin from the level sensor and initiates a 12-hour detention time. At the end of the required detention time, the controller opens the valve and drains into the second basin. Subsequent rainfall events that occur prior to the basin draining should cause the valve to remain open and allow the additional stormwater runoff to pass through the basin. Once the basin is drained the controller closes the valve. The drawdown time of the basin should not exceed 48 hours for a single storm event after the 12 hour required detention time. All cables should be protected by conduit and buried to prevent damage during maintenance activities. Information on the design and configuration of an existing system, including the system schematic, can be viewed at the Austin or San Antonio Regional Offices.
3. Logic Controller – The controller should be programmed to begin draining stormwater runoff from the basin 12 hours after the first stormwater runoff is sensed. The system should be programmed to have the valve remain open for two hours after the level sensor indicates the basin is empty to allow any remaining shallow water to be discharged. The system should provide the following: a test sequence, be able to deal with low battery/power outages, an on/off/reset switch, manual open/close switches (maintenance/spill), clearly visible external indicator to indicate a cycle is in progress without opening the box, and ability to exercise the valve to prevent seizing.
4. Power – The pond control system controller and actuator shall be 120 volt powdered or 120 volt solar powered with backup battery power to respond to a loss of power in the middle of a cycle.
5. Parts Enclosure & Alarm System – The parts enclosure shall be lockable. An alarm system clearly visible to indicate system malfunction, with phone numbers of the owner and TCEQ Region 11 office shall be provided.
6. Temperature/Weather – The system shall be be capable of operation from 0 to 130 degrees Fahrenheit and from 10 to 90% humidity.
7. Reliability – The system shall have a minimum reliability of 40,000 hours (4.6 years).



Perforated Riser Pipes			
Riser Pipe ø	Vert. Spacing Between Rows O.C.	No. Perforations Per Row	Diameter of Perforations
6"	4"	4	1"

SEDIMENTATION RISER PIPE

NTS

Revision #	Description	Approval

Date: 29-Sep-2024
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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 29-Sep-2024

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T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

BATCH DETENTION POND DETAILS

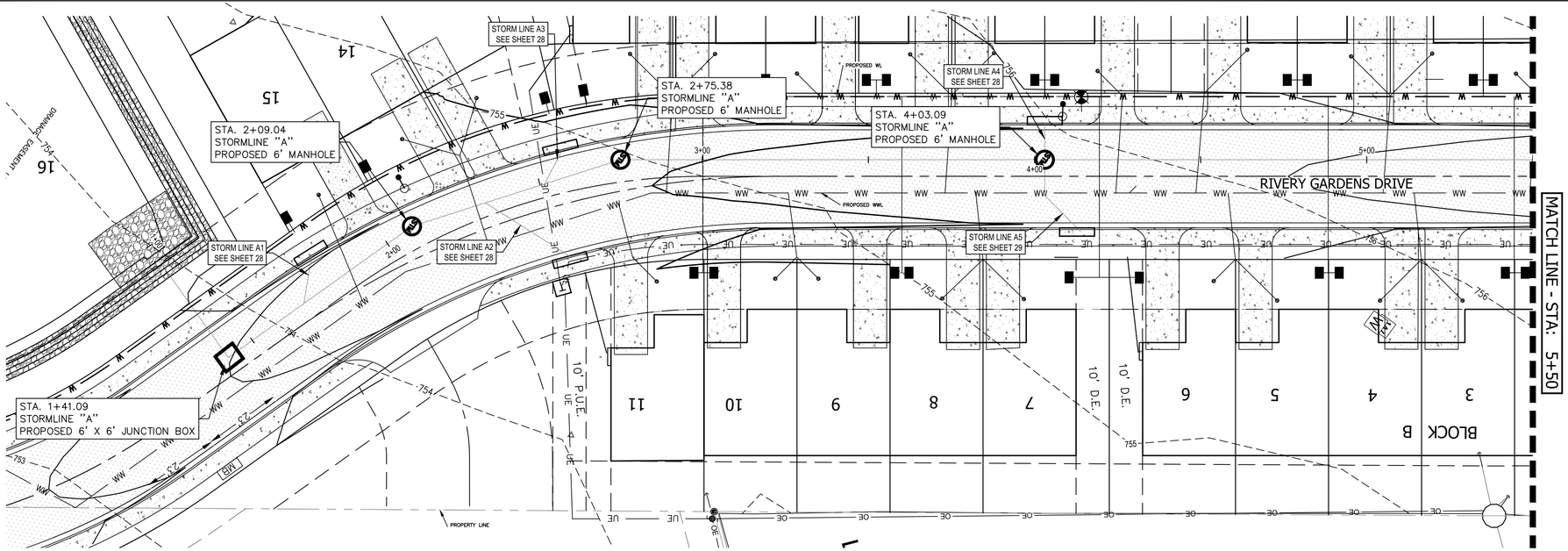
CITY OF GEORGETOWN

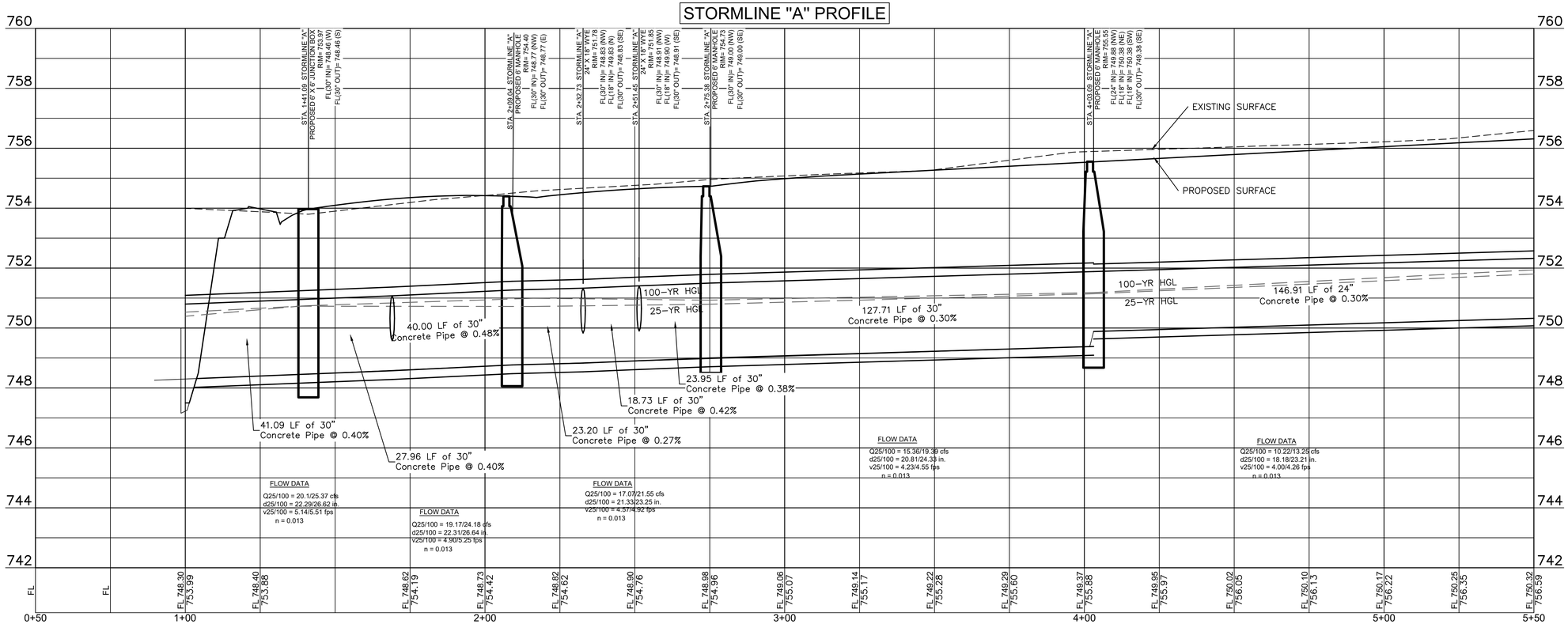
SHEET NO.

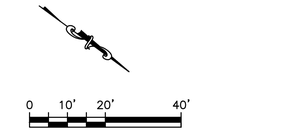
23 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\23 BATCH DETENTION POND DETAILS.dwg Sep 29, 24 6:34 pm







LEGEND

- BOUNDARY LINE
- ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
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- PROPOSED ELECTRIC TRANSFORMER
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A' - PLAN & PROFILE (1 OF 2)

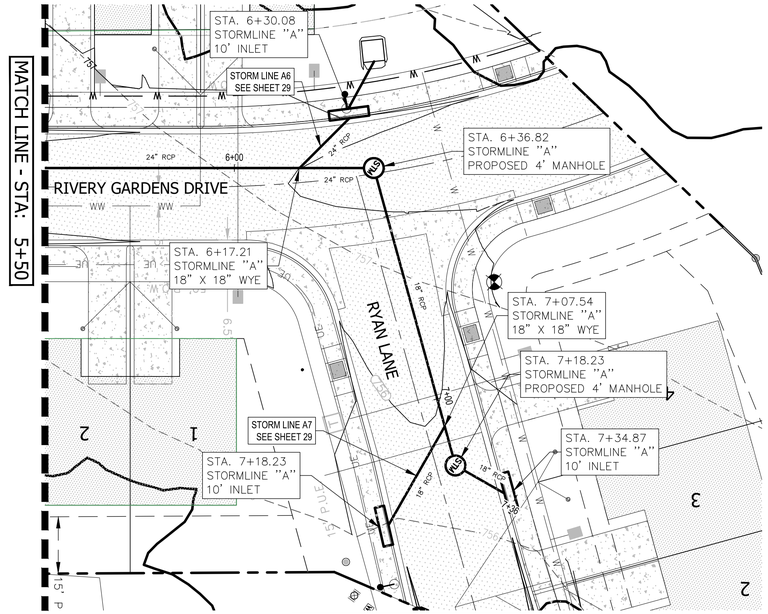
CITY OF GEORGETOWN

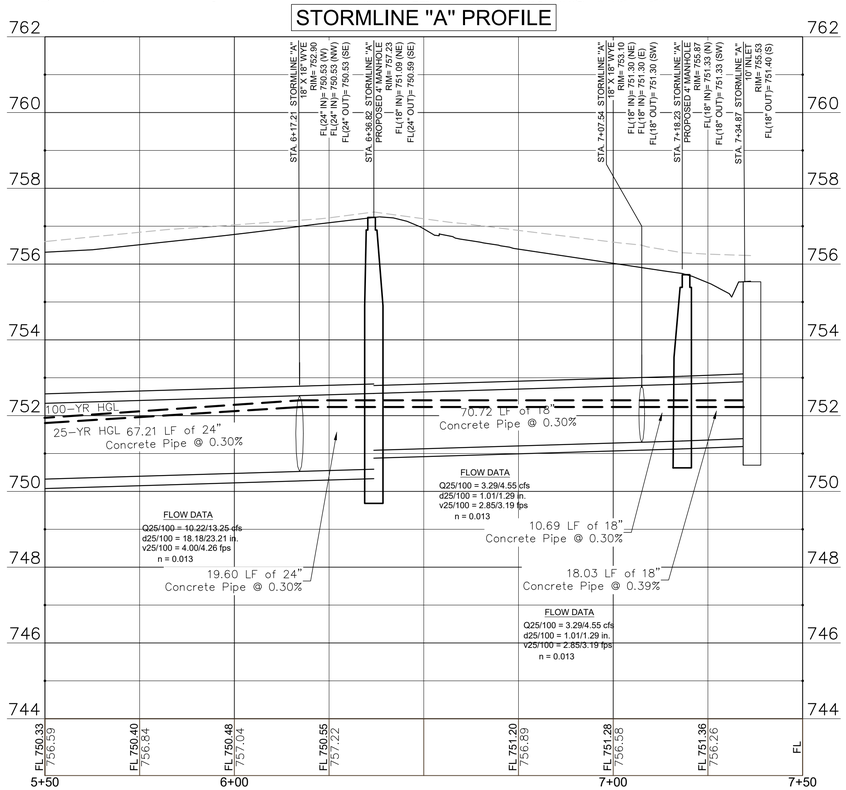
SHEET NO.

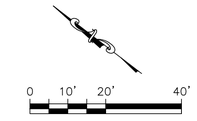
24 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\24 STORM LINE 'A' - PLAN & PROFILE (1 OF 2).dwg Sep 29, 24 6:36 pm







SCALE 1" = 20'

LEGEND

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- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
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- 701 — EXISTING MINOR CONTOUR
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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A' - PLAN & PROFILE (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

25 OF 52

2022-44-CON

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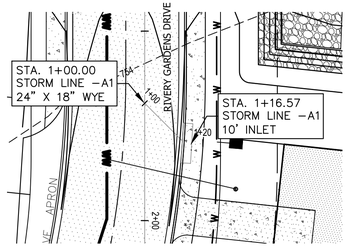

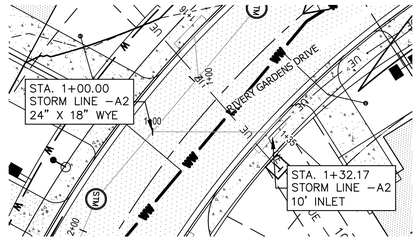

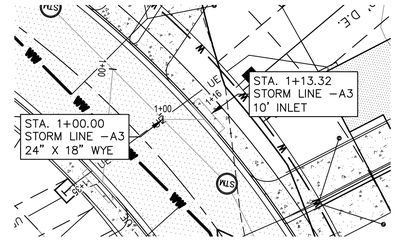

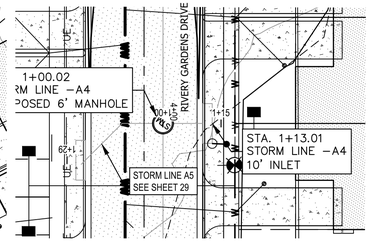

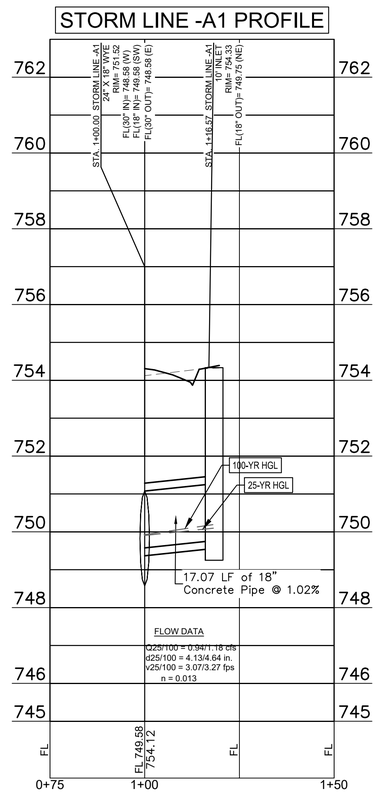

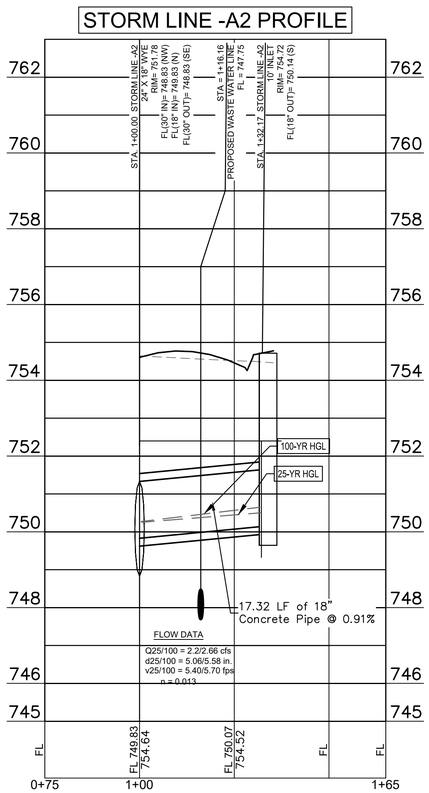

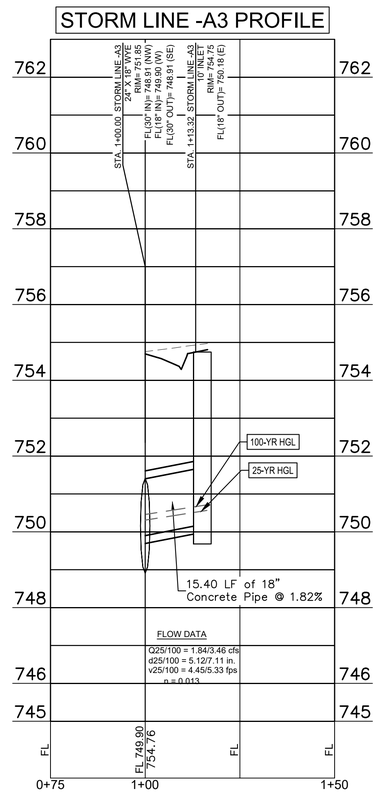

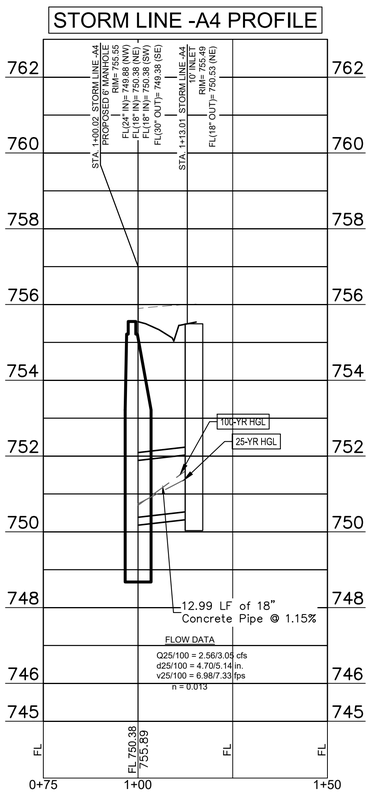

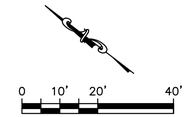

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINES 'A1' - 'A4' - PLANS & PROFILES

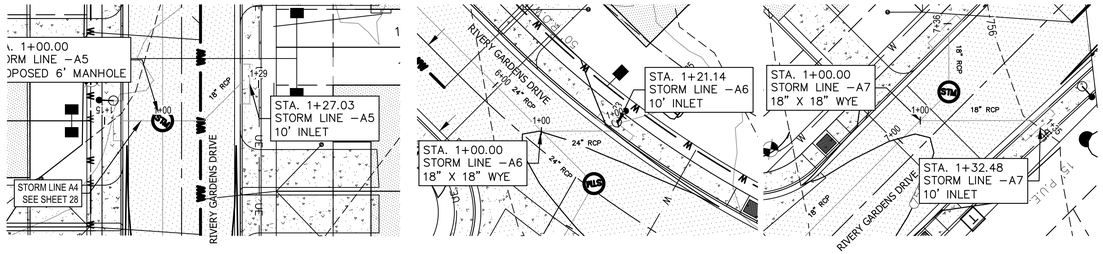
CITY OF GEORGETOWN

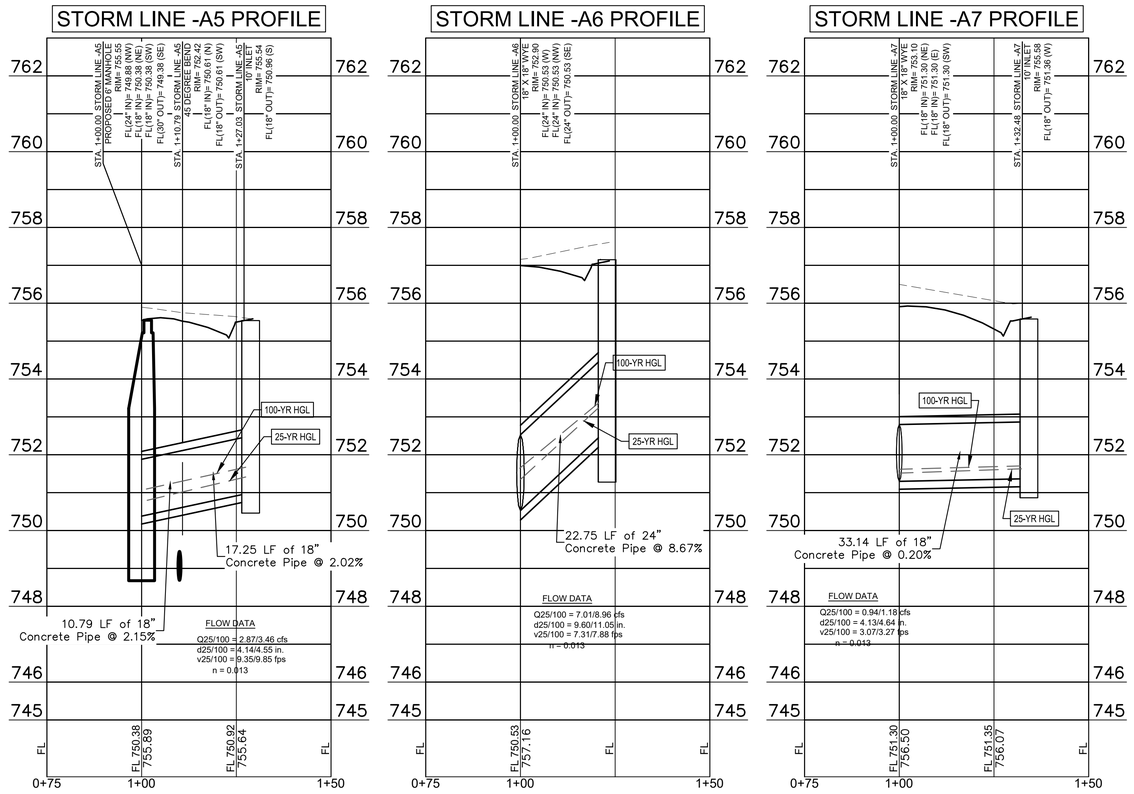
SHEET NO.

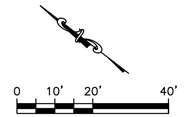
26 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\26 STORM LINES 'A1' – 'A4' – PLANS & PROFILES.dwg Sep 29, 24 6:38 pm







LEGEND

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINES 'A5' - 'A7' - PLANS & PROFILES

CITY OF GEORGETOWN

SHEET NO.

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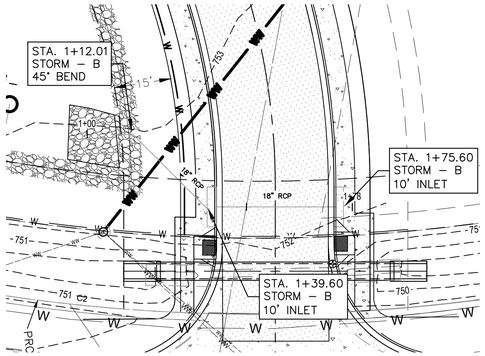
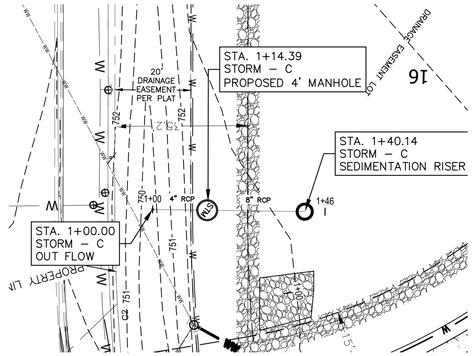
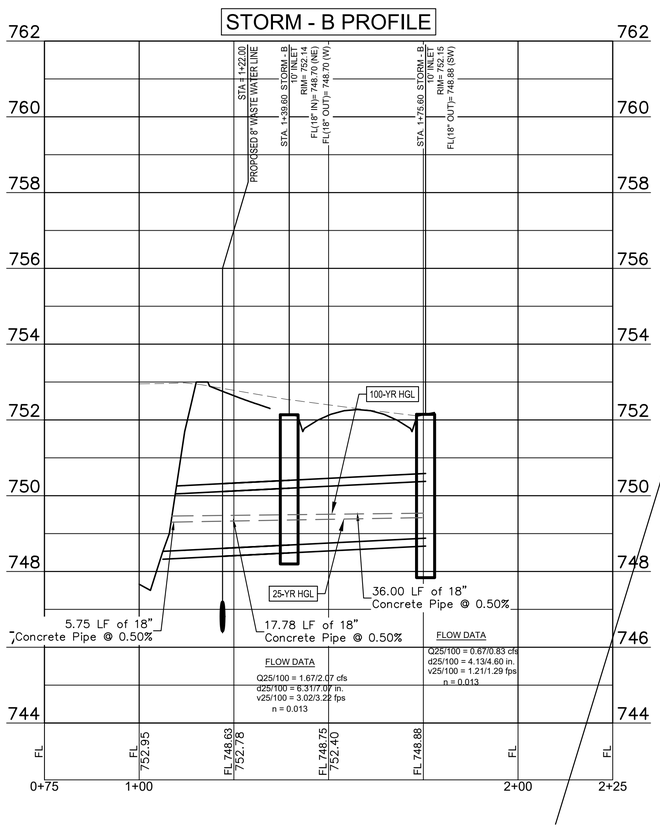
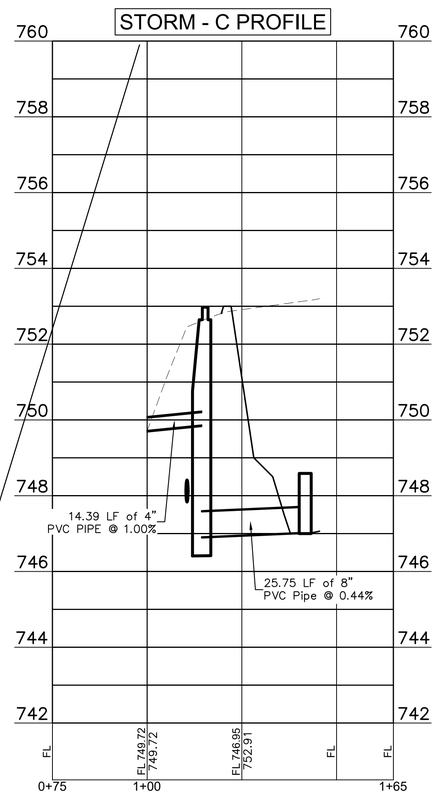
2022-44-CON

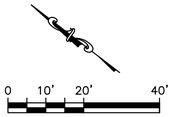
G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\27 STORM LINES 'A5' – 'A7' – PLANS & PROFILES.dwg Sep 29, 24 6:42 pm











SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\28 STORM LINES 'A9' & 'A10' – PLANS & PROFILES.dwg Sep 29, 24 6:39 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

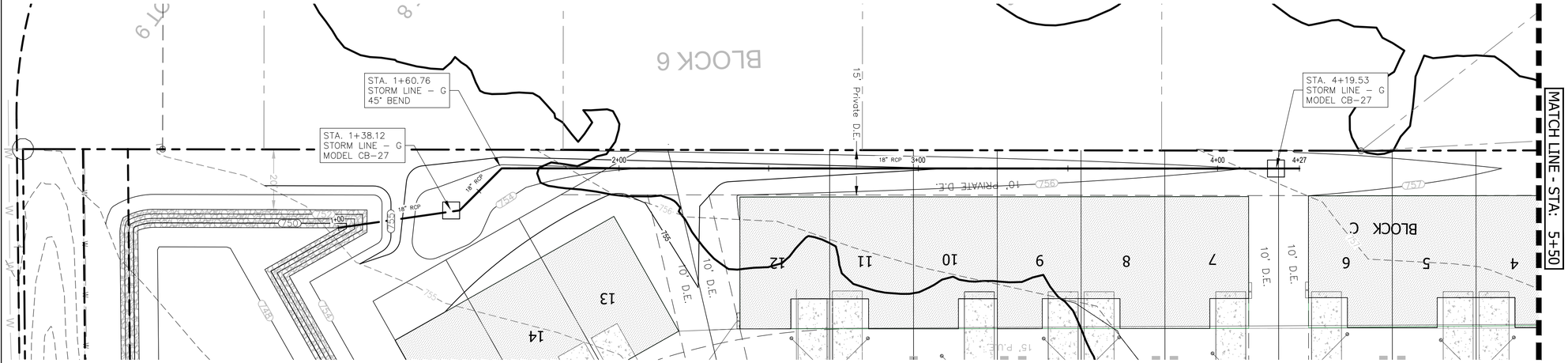
STORM LINES 'A9' & 'A10' - PLANS & PROFILES

CITY OF GEORGETOWN

SHEET NO.

28 OF 52

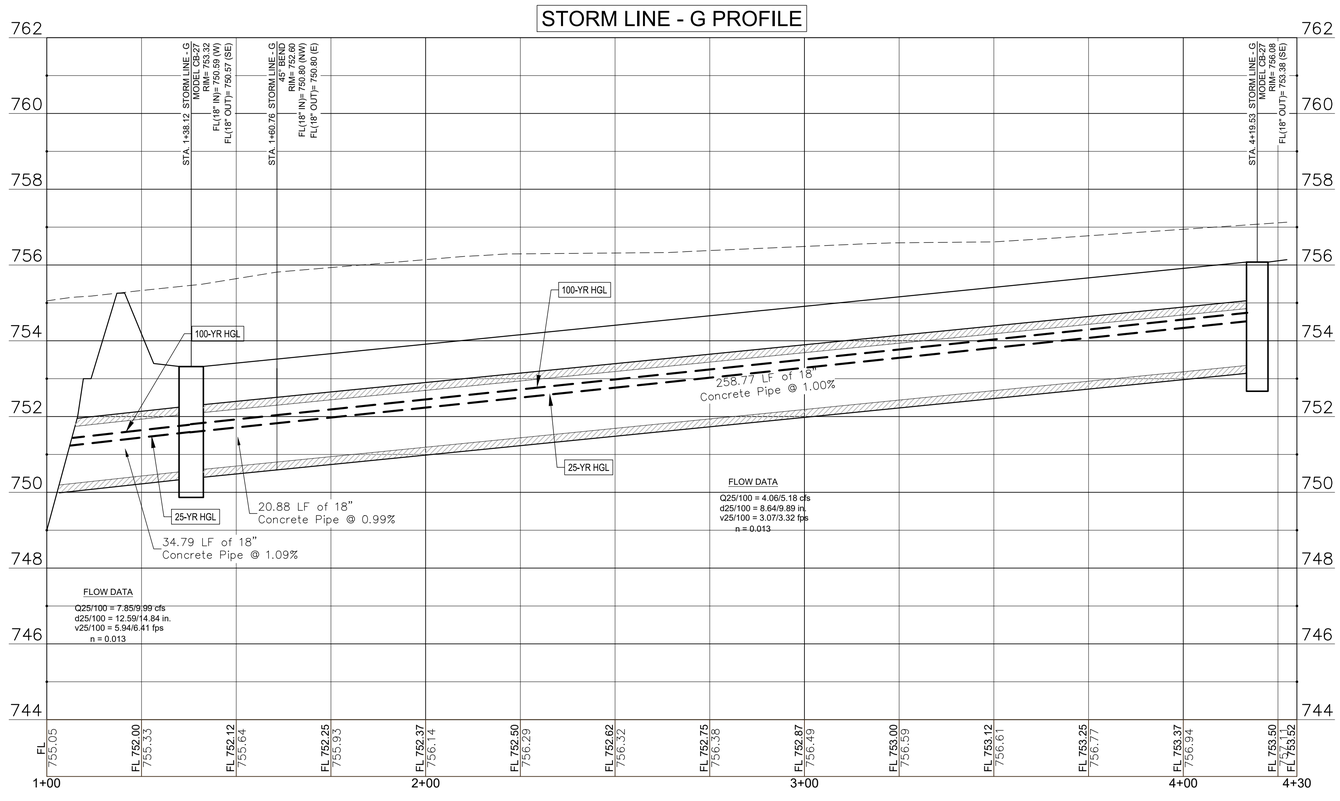
2022-44-CON



0 10' 20' 40'

SCALE 1" = 20'

STORM LINE - G PROFILE



LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 750 — EXISTING MAJOR CONTOUR
- 751 — EXISTING MINOR CONTOUR
- 7000 — PROPOSED MAJOR CONTOUR
- 7001 — PROPOSED MINOR CONTOUR

Revision #	Description	Approval

Date: 29-Sep-2024
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Project No: 002-20-01
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Drawn By: KS, TED
Checked By: TH
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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'G' - PLAN & PROFILE

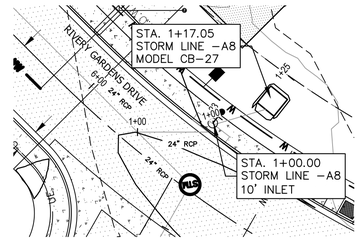
CITY OF GEORGETOWN

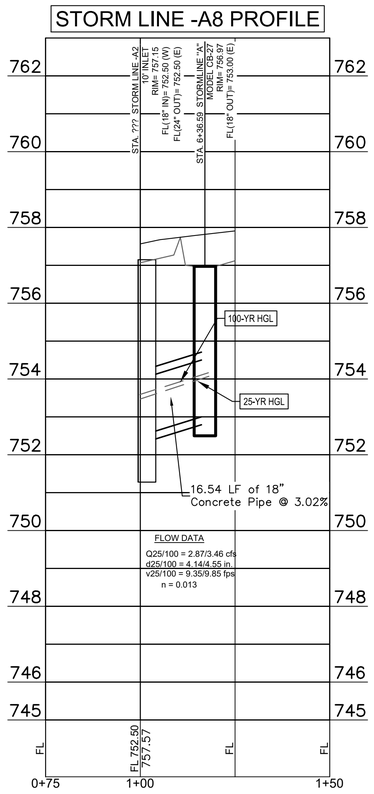
SHEET NO.

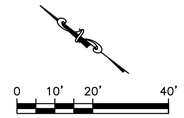
29 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\29 STORM LINE 'G' – PLAN & PROFILE.dwg Sep 29, 24 6:41 pm







LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
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- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- STORM SEWER MANHOLE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\30 STORM LINE 'A8' - PLAN & PROFILE.dwg Sep 29, 24 6:50 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

STORM LINE 'A8' - PLAN & PROFILE

CITY OF GEORGETOWN

SHEET NO.

30 OF 52

2022-44-CON

GENERAL UTILITY NOTES:

1. ALL MAINS SHALL BE FLUSHED, HYDROSTATICALLY TESTED AND DISINFECTED BY THE CONTRACTOR, PER THE CITY OF GEORGETOWN UTILITIES STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT.
3. ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED AND DISPOSED OF FROM THE SITE BY THE CONTRACTOR, AT THEIR EXPENSE.
4. ALL TRENCH BACKFILL FOR THIS PROJECT SHALL BE ACCOMPLISHED ACCORDING TO UTILITY DETAIL SHEET CU501 AND SHALL MEET ALL REQUIREMENTS OF THE CITY OF GEORGETOWN. NO WATER JETTING WILL BE ALLOWED. OBSERVATION OF TRENCH BACKFILL WILL BE SUPPLEMENTED BY MOISTURE-DENSITY TESTING CONDUCTED AT PERIODIC INTERVALS DURING THE COMPACTION PROCESS. THE CONTRACTOR WILL BE REQUIRED TO MAKE SUITABLE EXCAVATION TO ALLOW ACCESS FOR SUCH TESTING, AND WILL BE REQUIRED TO REMOVE AND REPLACE BACKFILL AS MANY TIMES AS NECESSARY TO ACHIEVE 95% STANDARD PROCTOR.
5. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO ALL APPLICABLE TCEQ AND THE CITY OF GEORGETOWN UTILITIES STANDARD CONSTRUCTION DETAILS AND SPECIFICATIONS, AS WELL AS OTHER SAFETY CODES AND INSPECTION PROVISIONS APPLICABLE TO THE PROJECT.
6. ALL ITEMS NOT SPECIFICALLY CALLED FOR ON THE PLANS, OR IN THE SPECIFICATIONS, BUT NECESSARY TO REASONABLY CONSTRUCT THE FACILITY OR IMPROVEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT AND NO SEPARATE PAYMENTS WILL BE MADE FOR THESE ITEMS.
7. THE CONTRACTOR SHALL EXCAVATE AROUND EXISTING UTILITIES WHICH INTERSECT THE PROPOSED ALIGNMENT OF THE SERVICES AND NOTIFY THE ENGINEER OF POTENTIAL CONFLICTS, PRIOR TO ANY CONSTRUCTION IN THE AREA.
8. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS OF UTILITIES MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
9. THE CONTRACTOR SHALL NOTIFY THE GOVERNMENTAL AND/OR UTILITY COMPANIES REGARDING THE LOCATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION.
10. THE ELECTRIC UTILITY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY, VEGETATION, AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE THE ELECTRIC UTILITY COMPANY WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES.
11. THE TRENCH EXCAVATION STANDARDS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ARE HEREBY INCLUDED AND SHALL BE APPLICABLE TO ALL TRENCH EXCAVATION WORK WITHIN THE CITY WHICH EXCEEDS FOUR (4) FEET IN DEPTH.

0 20' 40' 80'

SCALE 1" = 40'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- EASEMENT LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
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- PROPOSED WATER METER
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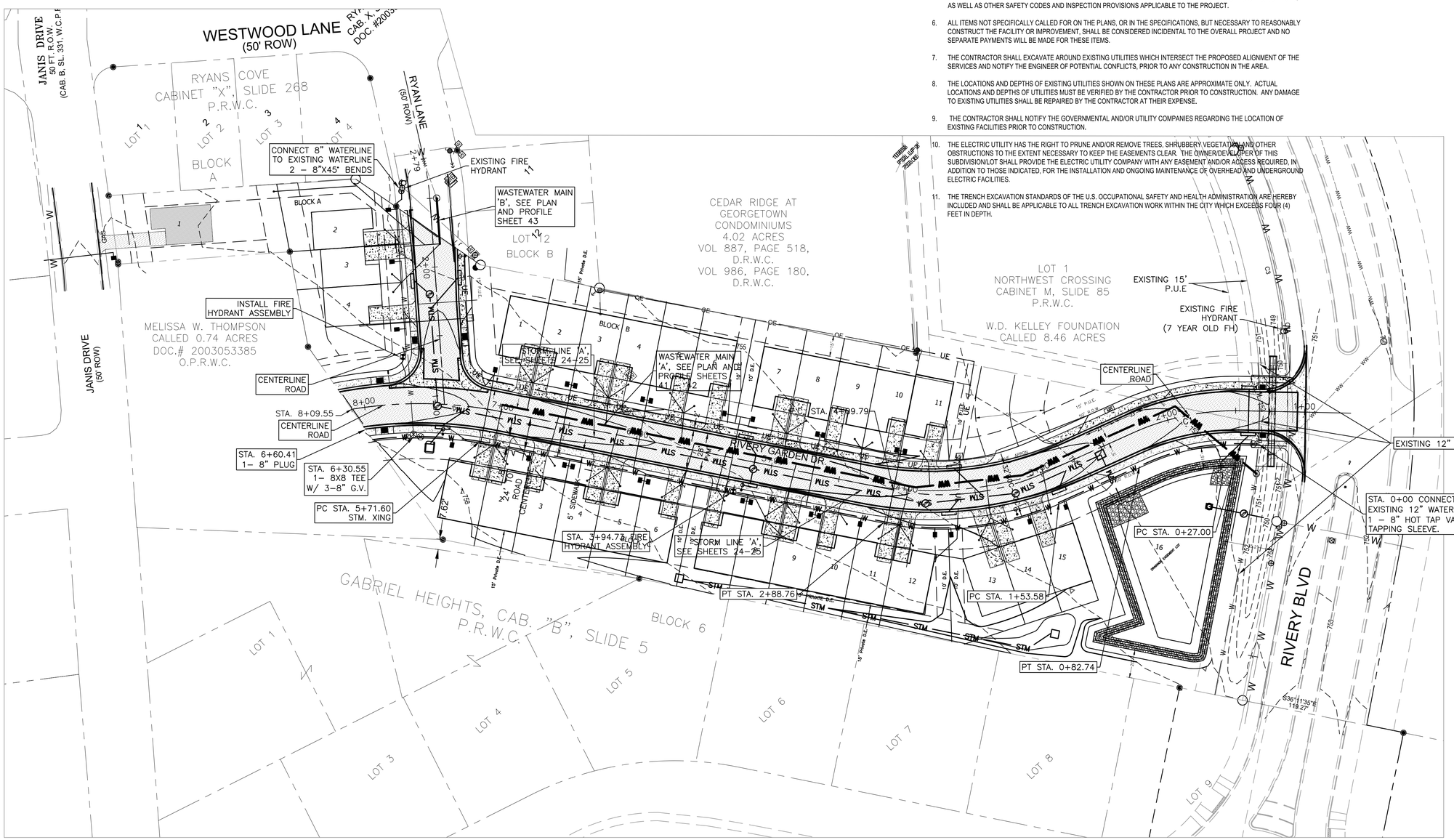
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683
- W — EXISTING WATER LINE



Revision #	Description	Approval

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Project No: 002-20-01
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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

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T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER DISTRIBUTION PLAN

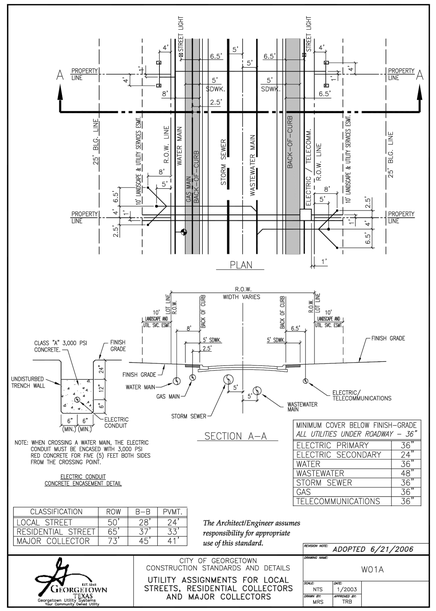
CITY OF GEORGETOWN

SHEET NO.

37 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\37 WATER DISTRIBUTION PLAN.dwg Sep 29, 24 7:00 pm



CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

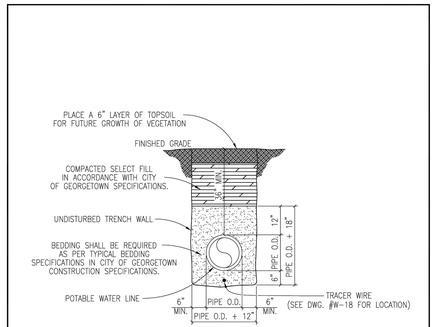
MINIMUM COVER BELOW FINISH-GRADE *ALL UTILITIES UNDER ROADWAY – 36"*	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
UTILITY ASSIGNMENTS FOR LOCAL STREETS, RESIDENTIAL COLLECTORS AND MAJOR COLLECTORS

DRAWING NAME: W01A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



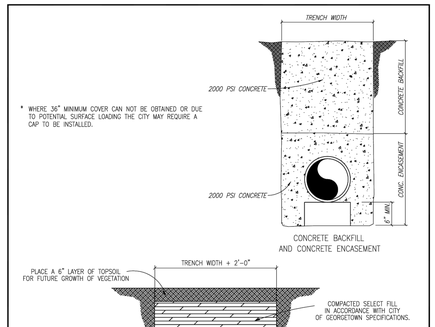
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS

DRAWING NAME: W02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



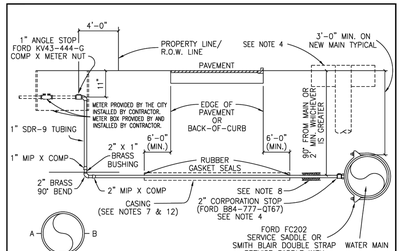
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
CONCRETE TRENCH CAP DETAIL

DRAWING NAME: W02A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



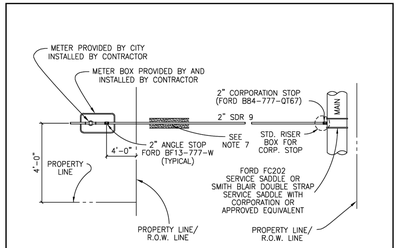
NOTES:
1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE SPACED A MINIMUM OF 18" OFFSET AND AT THE CENTERLINE AS SHOWN ON DETAIL "A".
2. WHERE NO SIDEWALK EXISTS, METER BOXES SHALL BE SET TO CONFORM TO FINISHED GRADE.
3. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
4. ROTATE THE CORPORATION STOP SO THAT THE OPERATING NUT IS ACTUATED FROM THE VERTICAL POSITION RATHER THAN THE HORIZONTAL. SEE STD. RISER FOR CORP. STOP DETAIL. (DWG # W08).
5. SERVICE LINES SHALL BE CONTINUOUS FROM CORPORATION STOP TO CORPORATION STOP WITH NO FITTINGS IN BETWEEN.
6. SERVICE CASING SHALL NOT BE INSTALLED BY WATER JETTING UNDER ROADWAY.
7. CASING REQUIRED FOR ALL PAVEMENT CROSSINGS. 4" SDR-26 REQUIRED FOR OPEN-CUT. STEEL CASING PIPE REQUIRED FOR JACK AND BORE. LIMITS OF CASING SHOULD EXTEND SIX FEET BEYOND THE EDGE OF PAVEMENT OR BACK-OF-CURB.
8. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. METER BOX TO BE CAPABLE OF HOUSING ITRON AUTOMATIC METER READING DEVICE. USE DFW-PLASTICS, INC. PART NO. 1200.SBAMR OR APPROVED EQUAL.
11. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY. SEE DETAIL W23.
12. CASING SHALL EXTEND OUT TO WITHIN 4' INSIDE OF THE R.O.W. LINE, ON BOTH SIDES.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL WATER SERVICE-ELEVATION

DRAWING NAME: W03 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH



NOTES;
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SINGLE WATER SERVICE PLAN

DRAWING NAME: W04 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
DOUBLE WATER SERVICE PLAN

DRAWING NAME: W05 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. AUTHORIZED SERVICE LINE MATERIAL: POLYETHYLENE TUBING SHALL BE SDR-9. CLASS 200, SDR TUBING SHALL HAVE STAINLESS STEEL STIFFENERS.
2. ANGLE STOP SHALL BE 1" MINIMUM.
3. 1" ANGLE STOPS WITH 3/4" VALVES SHALL NOT BE PERMITTED.
4. MULTIPLE SERVICE/METER INSTALLATIONS OF MORE THAN 4 METERS PER SERVICE AND SERVICE LINES LARGER THAN 2" IN DIAMETER SHALL BE HANDLED ON AN INDIVIDUAL BASIS.
5. ANGLE STOPS 1 1/2" AND 2" IN SIZE SHALL BE PROVIDED WITH BOTH A LOCKING CAP AND METER FLANGE.
6. ANGLE STOPS SHALL BE INSTALLED 8" BELOW FINISHED GRADE AND MARKED WITH A 2" X 2" X 48" TREATED WOOD STAKE, PAINTED BLUE.
7. BEDDING MATERIAL AS PER CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS.
8. CASING REQUIREMENTS FOR SERVICE LINES CROSSING ROADWAYS SEE DETAIL W-03 NOTE #7.
9. ANY VARIATIONS ON FITTINGS MUST BE APPROVED BY THE CITY ENGINEER.
10. ALL SERVICE LINES SHALL BE PLACED 90° PERPENDICULAR TO THE ROADWAY.

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

REVISION NOTE: ADOPTED 01/23/2013

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
QUADRUPLE WATER SERVICE PLAN

DRAWING NAME: W06 | SCALE: NTS | DATE: 1/2013 | DRAWN BY: – | APPROVED BY: WH

NOTES:
1. VALVE BOX SHALL BE 5 1/4" CAST IRON ADJUSTABLE HAVING AN ADJUSTABLE RANGE OF + OR – 6 INCHES FROM INSTALLED FINISH GRADE.
2. ACCEPTABLE GATE VALVES ARE:
   A. AMERICAN FLOW CONTROL – SERIES 2500
   B. MUELLER – 2360 SERIES
   C. CLOW

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TYPICAL VALVE SETTING

DRAWING NAME: W07 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD RISER BOX FOR CORPORATION STOP

DRAWING NAME: W08 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

NOTE:
1. ATTACH FIRE HYDRANT CONNECTION AT THE END OF THE BLOW OFF VALVE.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STANDARD BLOW-OFF

DRAWING NAME: W09 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C\38 WATER DETAILS (1 OF 2).dwg Sep 30, 24 4:38 pm

Revision #	Description	Approval

Date: 30-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS · TIMOTHY E. HAYNIE · 36982 · LICENSED PROFESSIONAL ENGINEER · 30-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
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T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

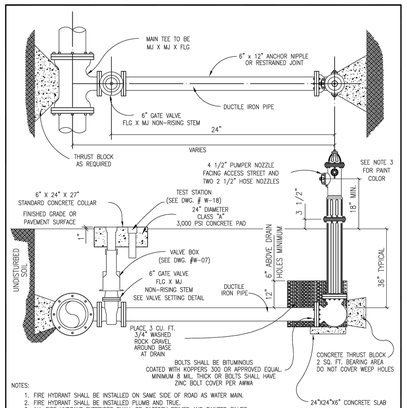
WATER DETAILS (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.

38 OF 52

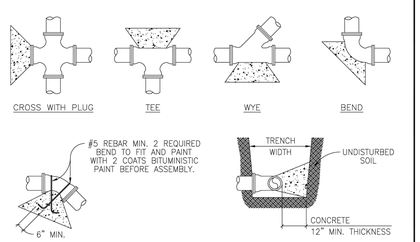
2022-44-CON



NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED ON SAME SIDE OF ROAD AS WATER MAIN.
2. FIRE HYDRANT SHALL BE INSTALLED PLUMB AND TRUE.
3. ALL FIRE HYDRANT EXTERIORS SHALL BE FACTORY PRIMED AND PAINTED SILVER USING A HIGH GRADE ENAMEL.
4. HEEL AND THRUST BLOCKS TO REST IN UNDISTURBED SOIL.
5. THE ONLY FIRE HYDRANTS ACCEPTABLE ARE:
   A. KENNEDY – K81
   B. AMERICAN DARLING – B84B
   C. CLOW MEDALLION
6. DOUBLE BLUE REFLECTOR "HYE-LITES" BRAND, MANUFACTURED BY PAVEMENT MARKERS INC. TO BE INSTALLED AT CENTERLINE OF STREET PERPENDICULAR TO HYDRANT.
7. ALL METALLIC PIPES AND FITTINGS SHALL BE WRAPPED WITH 8 MIL. POLYETHELENE FILM.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W10
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TYPICAL FIRE HYDRANT INSTALLATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



*DEADMAN

TYPICAL SECTION

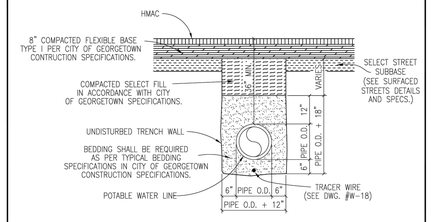
ALL THRUST BLOCKS SHALL BE FORMED. LAID FORMS SHALL BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO THE POURING OF CONCRETE AND SHALL ALSO BE INSPECTED BY THE CITY OF GEORGETOWN PRIOR TO COVERING. TYPICAL LOCATIONS WHICH REQUIRE CONCRETE REACTION (THRUST) BLOCKS, FOR PRESSURE MAINS FOUR INCHES (4") AND GREATER, CONCRETE SHALL HAVE 2,500 P.S.I. MINIMUM STRENGTH AT TWENTY EIGHT (28) DAYS AND BEAR AGAINST UNDISTURBED STABLE SOILS, AREA OF CONTACT SHALL BE GOVERNED BY PIPE SIZE, MAXIMUM PRESSURE IN PIPE, AND BEARING CAPACITY OF SOIL. PROTECT FITTINGS, BOLTS, ETC. BY COVERING WITH WSQUEEN OR OTHER ACCEPTABLE MATERIAL. CONCRETE SHALL BE A MINIMUM OF TWELVE INCHES (12") THICK.

PIPE SIZE	THRUST BLOCK AREA REQUIRED	PIPE SIZE	THRUST BLOCK AREA REQUIRED	REMARKS
4"	2.0 SQ. FT.	18"	30.0 SQ. FT.	VALUES ARE FOR 90° BENDS, BASED ON 2000 P.S.F. SAFE BEARING LOAD AND PIPE PRESSURE OF 150 P.S.I. PLUS 33% SAFETY FACTOR FOR OTHER SOILS AND PRESSURES, THE AREA REQUIRED IS IN DIRECT PROPORTION.
6"	4.0 SQ. FT.	20"	37.0 SQ. FT.	
8"	6.6 SQ. FT.	24"	53.0 SQ. FT.	
10"	10.0 SQ. FT.	27"	80.0 SQ. FT.	
12"	14.0 SQ. FT.	30"	98.0 SQ. FT.	
14"	18.0 SQ. FT.	36"	127.0 SQ. FT.	
16"	24.0 SQ. FT.			

* THE ENGINEER OF RECORD SHALL CALCULATE THE SIZE OF THE DEADMAN REQUIRED AS WELL AS ANY INSTALLATION WHICH IS NOT COVERED BY THE ABOVE.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W11
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TYPICAL THRUST BLOCKS FOR WATER AND FORCE MAIN
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

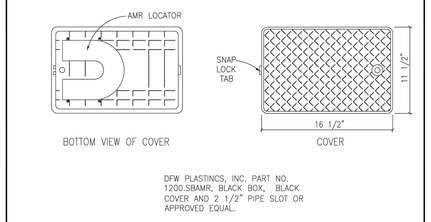


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

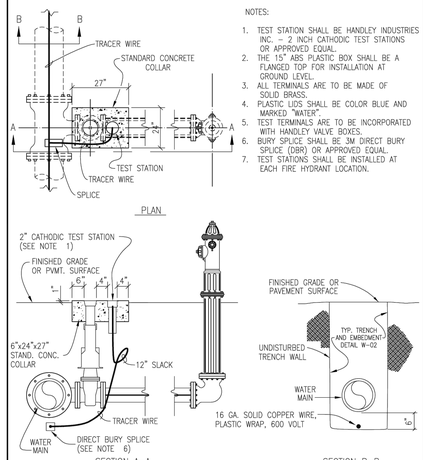
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W22
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



DFW PLASTINCS, INC. PART NO. 1200.SBAMR, BLACK BOX, BLACK COVER AND 2 1/2" PIPE SLOT OR APPROVED EQUAL.

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

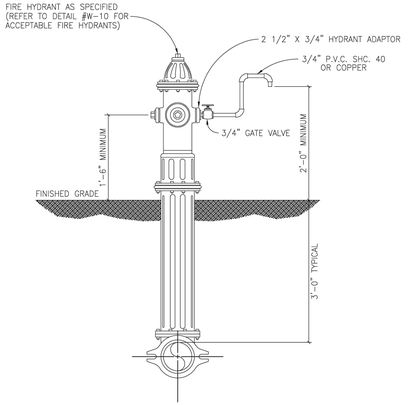
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W23
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	METER BOX (NON-TRAFFIC AREAS)
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. TEST STATION SHALL BE HANDLEY INDUSTRIES INC. – 2 INCH CATHODIC TEST STATIONS OR APPROVED EQUAL.
2. THE 15" ABS PLASTIC BOX SHALL BE A FLANGED TOP FOR INSTALLATION AT GROUND LEVEL.
3. ALL TERMINALS ARE TO BE MADE OF SOLID BRASS.
4. PLASTIC LIDS SHALL BE COLOR BLUE AND MARKED "WATER".
5. TEST TERMINALS ARE TO BE INCORPORATED WITH HANDLEY VALVE BOXES.
6. BURY SPLICE SHALL BE 3M DIRECT BURY SPLICE (DBR) OR APPROVED EQUAL.
7. TEST STATIONS SHALL BE INSTALLED AT EACH FIRE HYDRANT LOCATION.

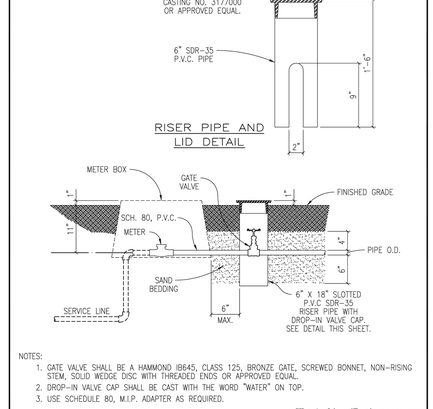
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W18
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	TRACER WIRE INSTALLATION AND TEST STATION LOCATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



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

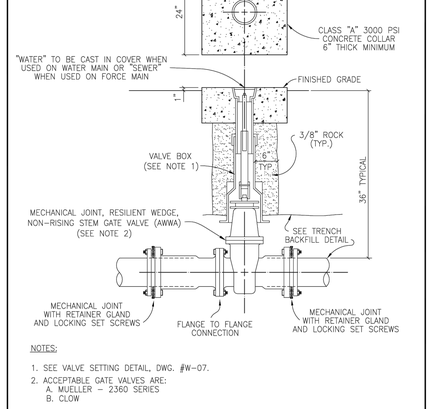
REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W19
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	FIRE HYDRANT SAMPLING POINT
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. GATE VALVE SHALL BE A HAMMOND IB645, CLASS 125, BRONZE GATE, SCREWED BONNET, NON-RISING STEM, SOLID WEDGE DISC WITH THREADED ENDS OR APPROVED EQUAL.
2. DROP-IN VALVE CAP SHALL BE CAST WITH THE WORD "WATER" ON TOP.
3. USE SCHEDULE 80, M.I.P. ADAPTER AS REQUIRED.

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W20
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	CUSTOMER'S CUT-OFF
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB



NOTES:
1. SEE VALVE SETTING DETAIL, DWG. #W-07.
2. ACCEPTABLE GATE VALVES ARE:
   A. MUELLER – 2360 SERIES
   B. CLOW

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

REVISION NOTE:	ADOPTED 6/21/2006
DRAWING NAME:	W21
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	INLINE VALVE INSTALLATION
SCALE: NTS	DATE: 1/2003
DRAWN BY: MRS	APPROVED BY: TRB

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WATER DETAILS (2 OF 2)

CITY OF GEORGETOWN

SHEET NO.

39 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\39 WATER DETAILS (2 OF 2).dwg Sep 29, 24 7:02 pm

PROJECT: RIVERY CROSSING PHASE 2 (3427)
SYSTEM: WASTEWATER FLOW CALCULATIONS

Inflow/Infiltration:

RDII (gal/acre/day)	Contributing Acreage (Ac.)	Conversion Factor	RDII (gpm)
1000	3.40	1440	2.36

Residential

Development Type	Total # of Units	Total LUE's	Gallons per day (BWF + GWI) (gpd)	Convert to MGD	DWF (gpm)	Peaking Factor	Peak DWF (gpm)	
Residential	30	30	7500	0.00750	5.2	4.01	20.9	
							20.9	Total Peak DWF (gpm)
							23.2	Total Design Flow (gpm)

*Residential peaking factor per section 2.1.2 of the Georgetown Wastewater Design Criteria
*Total design flow is the sum of the peak DWF and RDII

Capacity Analysis:
Maximum Allowable Flow
Assumed "n-value" = 0.013

Main Size (in.)	Inside dia (in.)	Min Slope (%)	Area (ft^2)	Hydraulic Radius (ft)	R^(2/3) (ft)	S^(1/2) (ft/ft)	Q(Full) (cfs)	Max Pipe %	Q max (gpm)	
8	7.921	0.5	0.34	0.17	0.30	0.071	0.83	80.00	299.58	Adequate

*Maximum allowable flow is derived from the Hazen Williams Equation based on AWWA C-900 Pipe

0 15' 30' 60'
SCALE 1" = 30'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- WW — PROPOSED 8" WASTEWATER LINE
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER 1683

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER COLLECTION PLAN

CITY OF GEORGETOWN

SHEET NO.
40 OF 52
2022-44-CON

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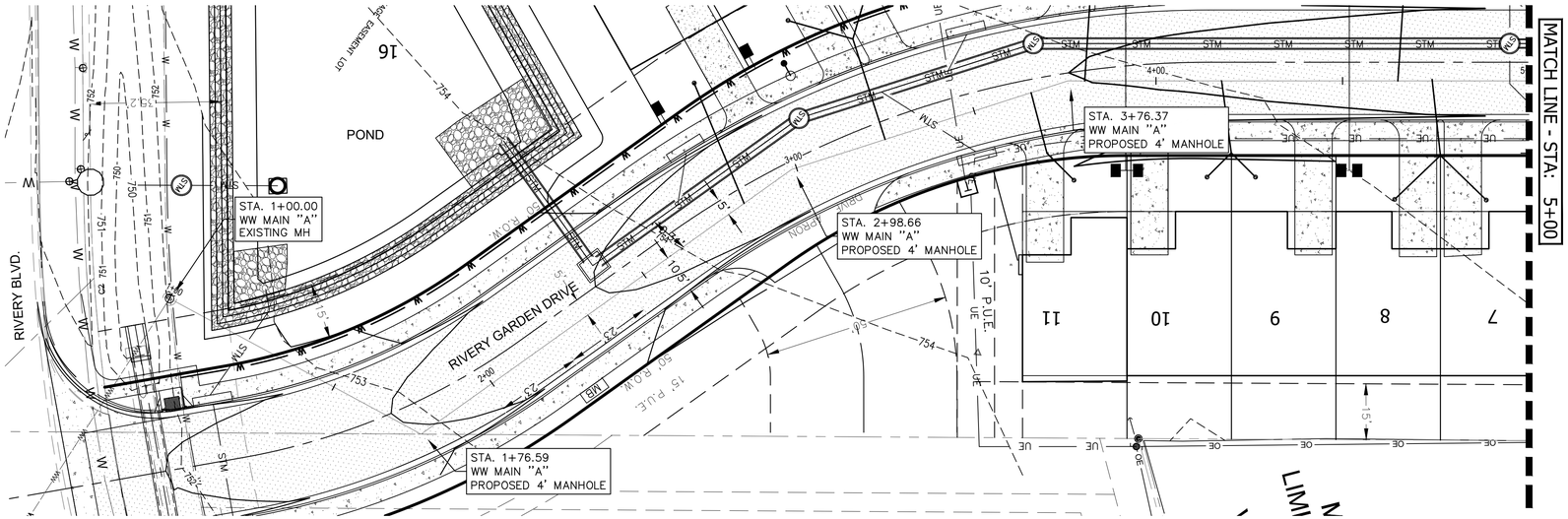

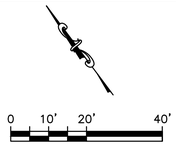

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
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- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
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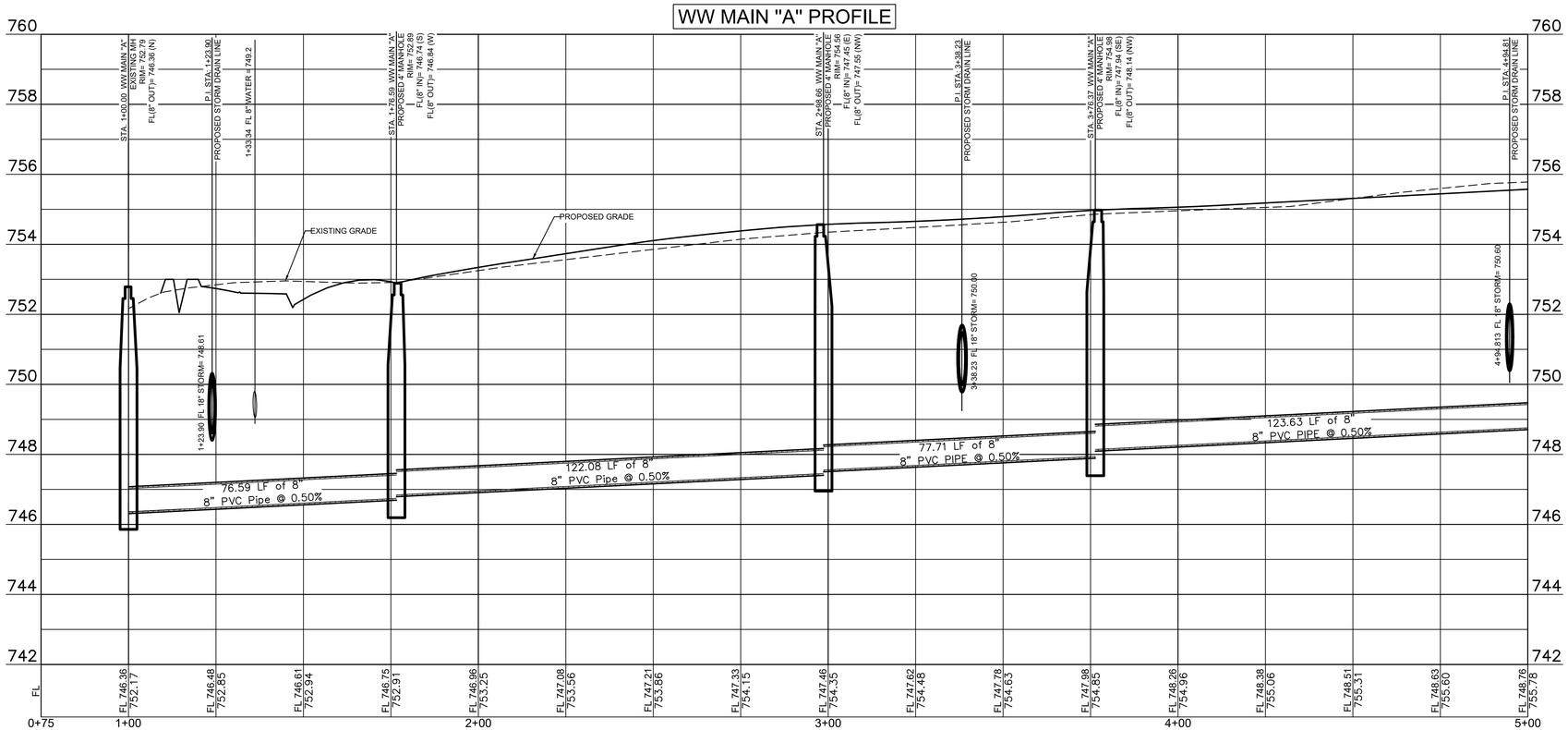
- TREE W/ TAG NUMBER 1683

WW MAIN "A" PROFILE



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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

CITY OF GEORGETOWN

SHEET NO.
41 OF 52
2022-44-CON

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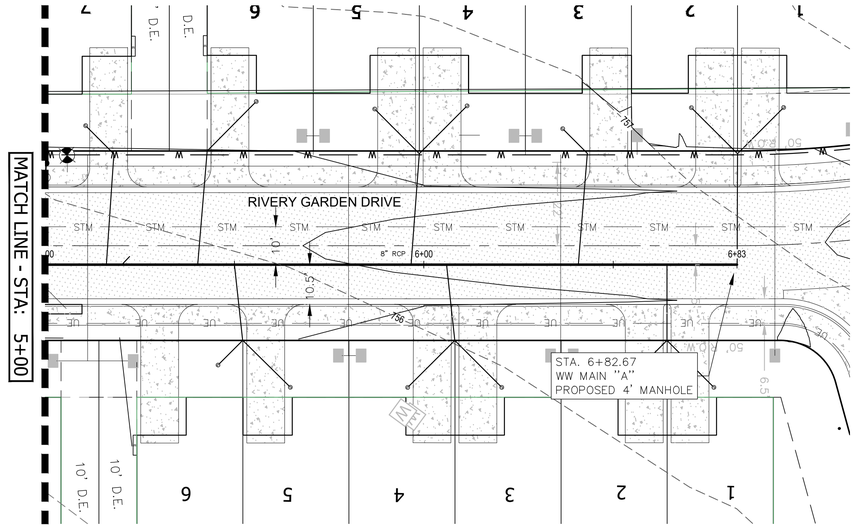

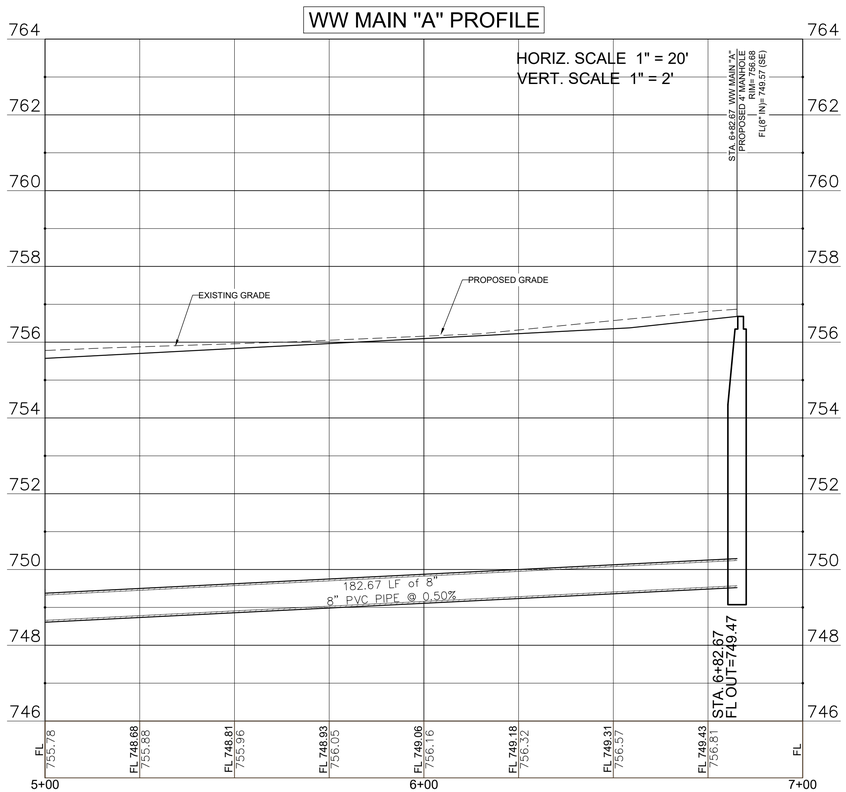

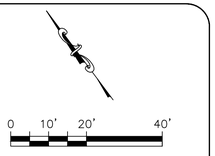

SCALE 1" = 20'

LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
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- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- TREE W/ TAG NUMBER (168.3)

Revision #	Description	Approval

Date: 29-Sep-2024
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Checked By: TH
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RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

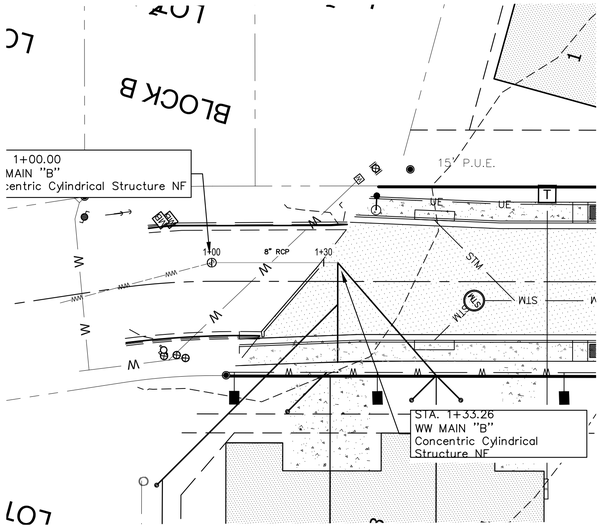
CITY OF GEORGETOWN

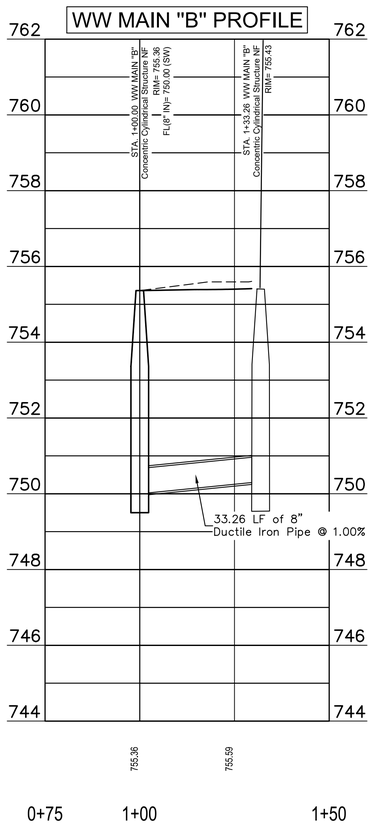
SHEET NO.

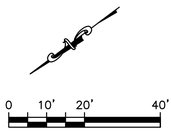
43 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\42 WASTEWATER MAIN 'A' - PLAN & PROFILE (2 OF 2).dwg Sep 29, 24 7:05 pm







LEGEND

- BOUNDARY LINE
- ROW — ROW
- BUILDING LINE
- PROPOSED WASTEWATER MANHOLE
- WW — PROPOSED WASTEWATER LINE
- WW — EXISTING WASTEWATER LINE
- WASTEWATER CLEANOUT
- WASTEWATER MANHOLE
- PROPOSED FIRE HYDRANT (FH) ASSEMBLY
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- W — PROPOSED 8" WATER LINE
- STM — PROPOSED STORM LINE
- PROPOSED ELECTRIC METERS
- T — PROPOSED ELECTRIC TRANSFORMER
- UE — PROPOSED UNDERGROUND ELECTRIC
- PROPOSED WOOD FENCE
- OE — EXISTING OVERHEAD ELECTRIC LINE
- POWER POLE
- GUY WIRE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- 1683 — TREE W/ TAG NUMBER

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

WASTEWATER MAIN 'A' - PLAN & PROFILE (1 OF 2)

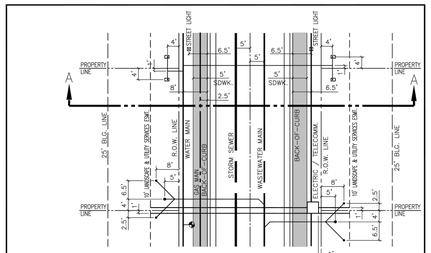
CITY OF GEORGETOWN

SHEET NO.

43 OF 52

2022-44-CON

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\43 WASTEWATER MAIN 'B' - PLAN & PROFILE.dwg Sep 29, 24 7:06 pm



NOTE: WHEN CROSSING A WATER MAIN, THE ELECTRIC CONDUIT MUST BE ENCASED WITH 3,000 PSI RED CONCRETE FOR FIVE (5) FEET BOTH SIDES FROM THE CROSSING POINT.

ELECTRIC CONDUIT CONCRETE ENCASEMENT DETAIL

CLASSIFICATION	ROW	B-B	PVMT.
LOCAL STREET	50'	28'	24'
RESIDENTIAL STREET	65'	37'	33'
MAJOR COLLECTOR	73'	45'	41'

MINIMUM COVER BELOW FINISH-GRADE *ALL UTILITIES UNDER ROADWAY – 36"*	
ELECTRIC PRIMARY	36"
ELECTRIC SECONDARY	24"
WATER	36"
WASTEWATER	48"
STORM SEWER	36"
GAS	36"
TELECOMMUNICATIONS	36"

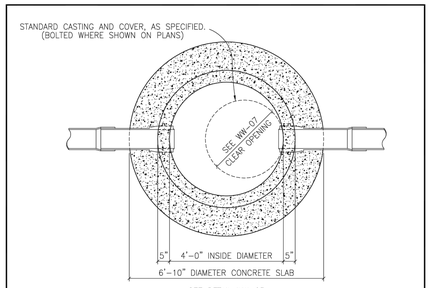
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

UTILITY ASSIGNMENTS FOR LOCAL STREETS, RESIDENTIAL COLLECTORS AND MAJOR COLLECTORS

DRAWING NAME: WW01A | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



SEE DETAIL WW-03

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.

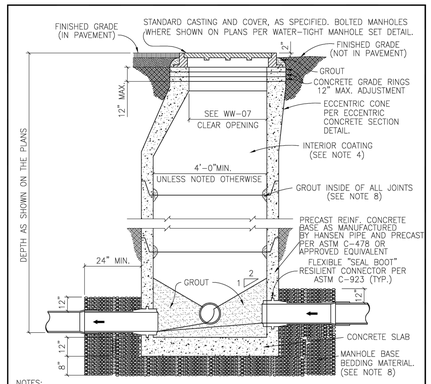
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – PLAN

DRAWING NAME: WW02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



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 GASKETTED 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 HS-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.

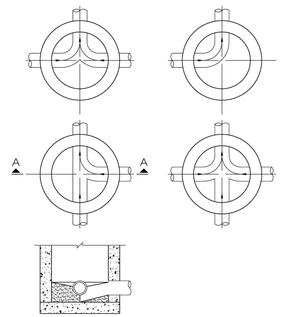
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – SECTION

DRAWING NAME: WW03 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

FLOW PATTERNS FOR INVERT CHANNELS



SECTION "A-A"

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.

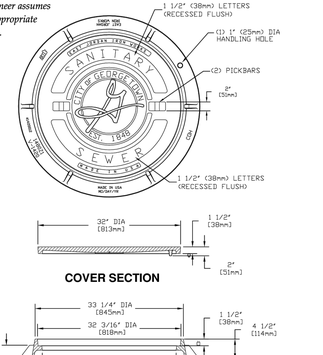
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

FLOW PATTERNS FOR INVERT CHANNELS

DRAWING NAME: WW06 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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



NOTES:

1. STANDARD WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480A V-1420/1480Z1, COVER TO BE STAMPED WITH "SANITARY SEWER".
2. STANDARD WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 41420012 00148390.
4. FOR BOLTED WASTEWATER MANHOLE SET REFER TO DETAIL WW07A.

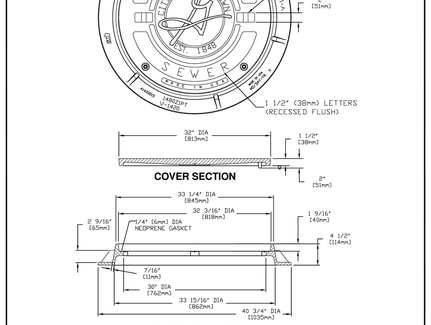
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

STANDARD WASTEWATER MANHOLE SET

DRAWING NAME: WW07 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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



NOTES:

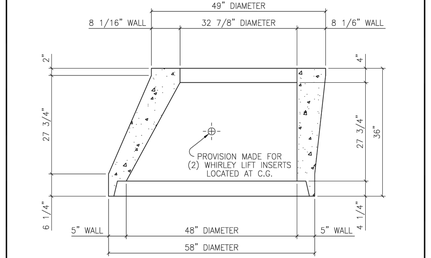
1. BOLTED WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480APT V-1420/1480Z1PT, COVER TO BE STAMPED WITH "SANITARY SEWER".
2. BOLTED WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT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

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

BOLTED WASTEWATER MANHOLE SET

DRAWING NAME: WW07A | SCALE: NTS | DATE: 1/2006 | DRAWN BY: MRS | APPROVED BY: TRB



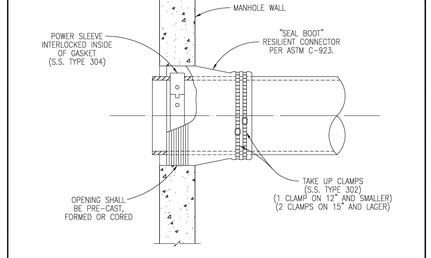
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

48"X5" TO 33"X8"X36" TALL ECCENTRIC CONCRETE SECTION

DRAWING NAME: WW08 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



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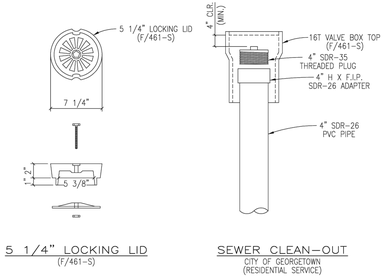
REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

FLEXIBLE "SEAL BOOT" CONNECTOR

DRAWING NAME: WW10 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



5 1/4" LOCKING LID (F/461-S)

SEWER CLEAN-OUT
CITY OF GEORGETOWN
(RESIDENTIAL SERVICE)

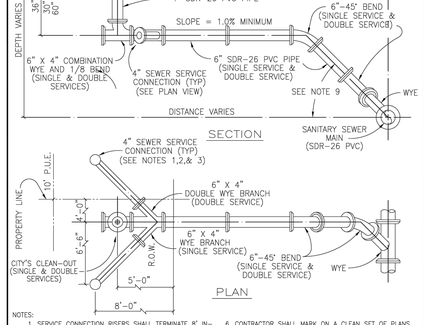
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

SEWER CLEAN-OUT DETAIL

DRAWING NAME: WW12 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

1. SERVICE CONNECTION RISERS SHALL TERMINATE 8' IN-SIDE THE PROPETY LINE.
2. THE END OF EACH SERVICE CONNECTION RISER SHALL BE EXTENDED 12" ABOVE FINISH GRADE.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATER-TIGHT WITH AN APPROVED CAP OR PLUG.
4. FOR P.V.C. INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPSITE END WITH P.V.C. TO P.V.C. KNOCK ON SLEEVE.
5. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT (1'-0") ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON PAVEMENT REPLACEMENT DETAIL.
6. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
7. ANY DEVIATION FROM THESE METHODS MUST BE APPROVED BY THE CITY OF GEORGETOWN ENGINEERING DEPARTMENT.
8. SERVICE LINE MATERIAL SHALL BE P.V.C., SDR-26.
9. SEWER SERVICE SLOPE TO BE 45° OFF CENTERLINE OF MAIN.

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

REVISION NOTE: *ADOPTED 6/21/2006*

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS

SEWER SERVICE CONNECTIONS

DRAWING NAME: WW13 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

WASTEWATER DETAILS (1 OF 2)

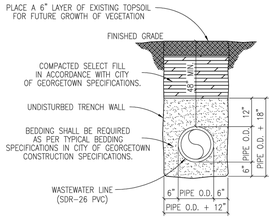
CITY OF GEORGETOWN

SHEET NO.

44 OF 52

2022-44-CON

G:\PROJECTS\3427 – Rivery Crossing Phase 2\C44 WASTEWATER DETAILS (1 OF 2).dwg Sep 29, 24 7:07 pm

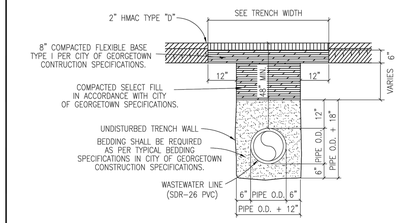


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS
WW16
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



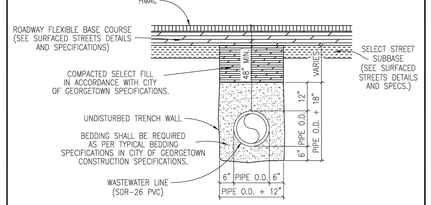
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
2. BASE MATERIAL SHALL BE PLACED IN MULTIPLE LIFTS NOT TO EXCEED 6". EACH LAYER SHALL BE THOROUGHLY ROLLED OR TAMPED TO SPECIFIED MAXIMUM DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
5. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
6. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL AND PAVEMENT REPLACEMENT DETAIL UNDER EXISTING ROADWAY
WW17
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



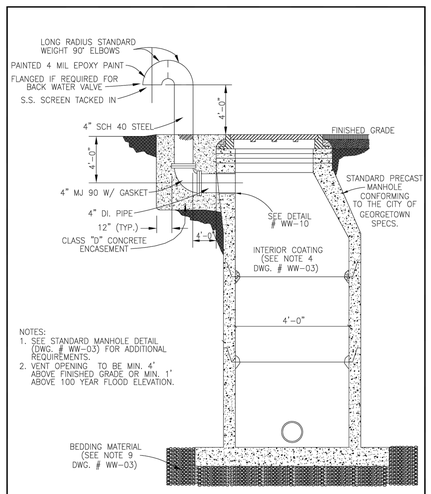
TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY
WW18
SCALE: NTS | DATE: 1/2003
DRAWN BY: MRS | APPROVED BY: TRB



NOTES:
1. SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.
2. VENT OPENING TO BE MIN. 4" ABOVE FINISHED GRADE OR MIN. 1' ABOVE 100 YEAR FLOOD ELEVATION.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
TYPICAL MANHOLE WITH VENT
WW19
SCALE: NTS | DATE: 11/2003
DRAWN BY: MRS | APPROVED BY: TRB

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 GASKETTED 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 HS-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
10. ALL PVC PIPE SHALL BE REMOVED FROM INVERT.

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

ADOPTED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
PRECAST MANHOLE ON CAST-IN-PLACE FOUNDATION
WW20
SCALE: NTS | DATE: 1/2006
DRAWN BY: MRS | APPROVED BY: TRB

SECTION A-A

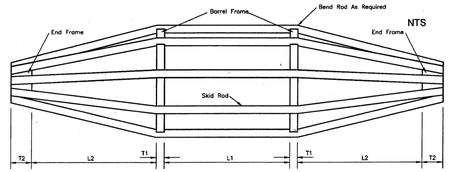
PLAN OF STRUCTURE IN ROADWAY

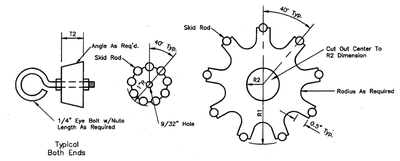
NOTE:
INSTALLATION OF THE CONCRETE CASTING IS REQUIRED FOR AND APPLIES TO ALL TYPES OF MANHOLES TO BE LOCATED IN THE ROADWAY.

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

APPROVED 6/21/2006

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
CONCRETE CASTING MANHOLE DETAIL
WW21
SCALE: NTS | DATE: 1/2006
DRAWN BY: MRS | APPROVED BY: TRB





End Frame | Barrel Frame

Note: Weld All Rods To Frame

Mandrel Shall Be Constructed From Metal That Can Withstand 200 PSI Without Being Deformed.

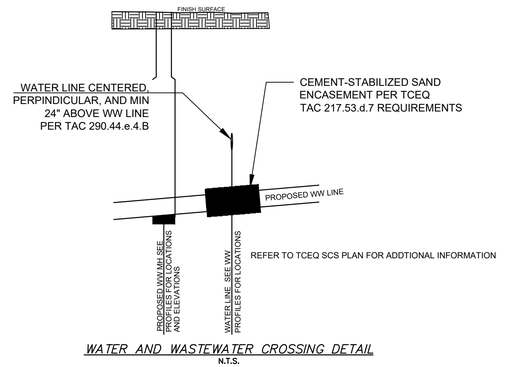
Mandrel Dimensions
5% Deflection
For O.D. Controlled PVC Pipe
(All Dimensions In Inches)

Size	Type	O.D. Average	Min. Wall Thickness	L1	L2	R1	R2	T1	T2	Rod Diameter	MANDREL O.D.
6"	D3034 SDR35	6.275	0.180	4.50	6	2.81	0.75	0.375	1.0	0.375	5.62
6"	D3034 SDR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
6"	D3034 DR26	6.275	0.241	4.50	6	2.75	0.75	0.375	1.0	0.375	5.50
8"	D3034 SDR35	8.400	0.240	6.00	6	3.96	1.25	0.375	1.0	0.375	7.52
8"	D3034 SDR26	8.400	0.323	6.00	6	3.68	1.25	0.375	1.0	0.375	7.37
8"	D3034 DR26	8.625	0.323	6.00	6	3.76	1.25	0.375	1.0	0.375	7.525
10"	D3034 SDR35	10.500	0.300	7.50	6	4.70	1.50	0.375	1.0	0.375	9.40
10"	D3034 SDR26	10.500	0.404	7.50	6	4.60	1.50	0.375	1.0	0.375	9.21
12"	D3034 SDR35	12.500	0.360	9.00	6	5.60	1.75	0.375	1.0	0.375	11.20
12"	D3034 SDR26	12.500	0.481	9.00	6	5.48	1.75	0.375	1.0	0.375	10.96
15"	D3034 SDR26	15.300	0.588	11.25	6	6.71	2.00	0.375	1.0	0.375	13.42
15"	D3034 SDR35	15.300	0.437	11.25	6	6.85	2.00	0.375	1.0	0.375	13.70
18"	F679 T-1	18.701	0.536	13.50	9	8.37	2.50	0.50	1.5	0.50	16.74
21"	F679 T-1	22.047	0.632	15.75	9	9.87	3.00	0.50	1.5	0.50	19.74
24"	F679 T-1	24.803	0.711	18.00	9	11.11	3.50	0.50	1.5	0.50	22.22
27"	F679 T-1	27.953	0.801	20.25	9	12.52	4.00	0.50	1.5	0.50	25.04
6"	CL350 D.I.	6.9	0.25	4.50	6	3.04	0.75	0.375	1.0	0.375	6.08
8"	CL350 D.I.	9.05	0.25	6.00	6	4.06	1.25	0.375	1.0	0.375	8.12

Typical Mandrel Details

No Scale

WASTEWATER ENCASEMENT DETAIL WATER/SEWER LINE CROSSING



WATER AND WASTEWATER CROSSING DETAIL
N.T.S.

G:\PROJECTS\3427 - Rivery Crossing Phase 2\C\45 WASTEWATER DETAILS (2 OF 2).dwg Sep 29, 24 7:08 pm

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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

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

STATE OF TEXAS — TIMOTHY E. HAYNIE — 36982 — LICENSED PROFESSIONAL ENGINEER — 29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

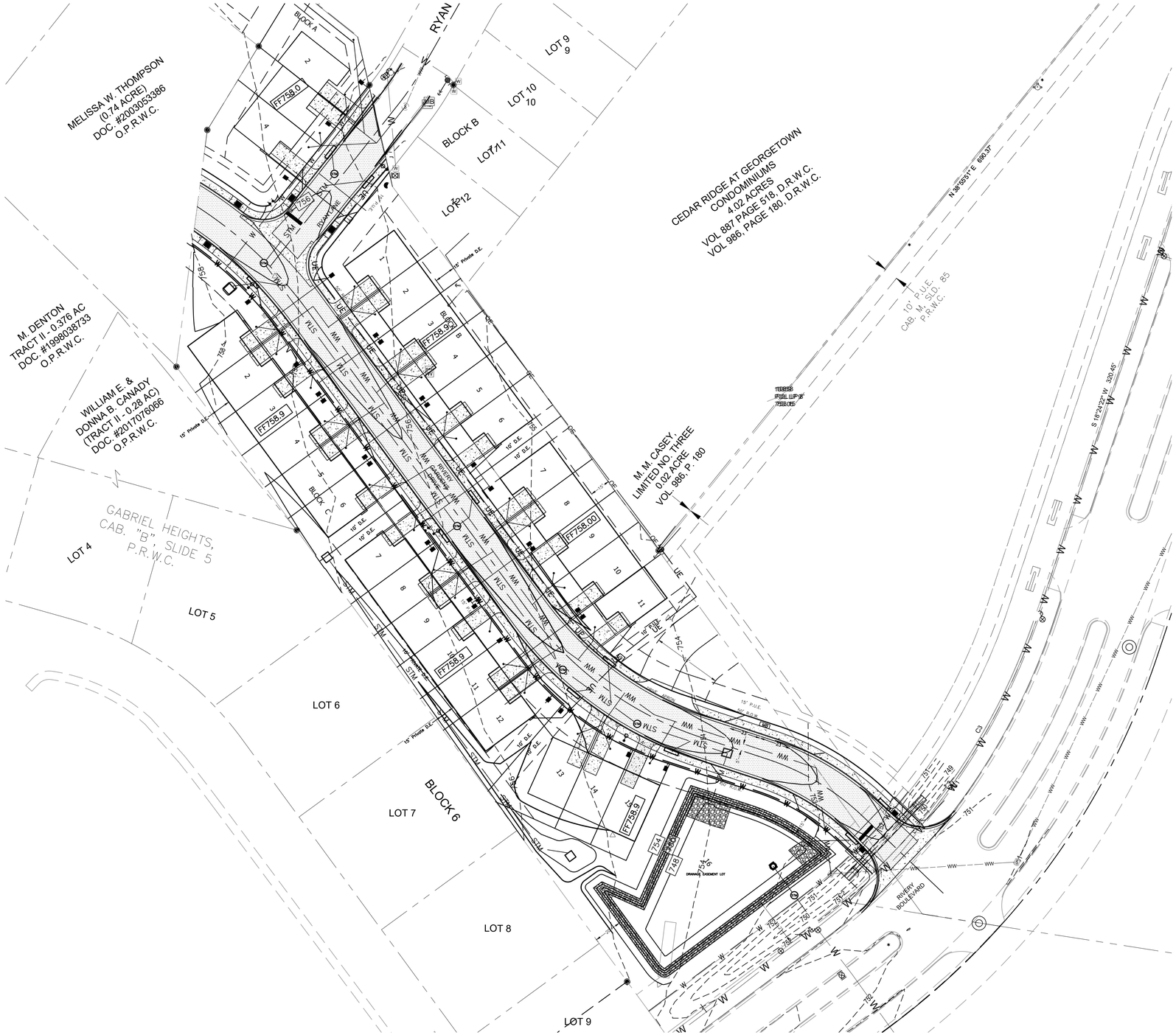
WASTEWATER DETAILS (2 OF 2)

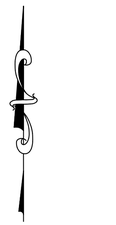
CITY OF GEORGETOWN

SHEET NO.

45 OF 52

2022-44-CON





0 40 80 Feet

SCALE 1" = 40'

LEGEND

BC	BACK OF CURB
G	GARAGE FLOOR
FF	FINISHED FLOOR
FG	FINAL GRADE
FL	FLOW LINE
●	TREE
FF 758.00	FINISHED FLOOR ELEVATION
WW	PROPOSED WASTEWATER MANHOLE (UNLESS NOTED)
WW	PROPOSED 12" WASTEWATER LINE
W	PROPOSED WATER LINE
	EASEMENT LINE
	EXISTING UTILITY POLE
OHE	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING CATTLE PANEL FENCE
W W	EXISTING WATER LINE
700	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
870	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED PAVING
	PROPOSED CONCRETE

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED
PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE
CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION
INFRASTRUCTURE IMPROVEMENTS

PAVING & GRADING PLAN

CITY OF GEORGETOWN

SHEET NO.

46 OF 52

2022-44-CON

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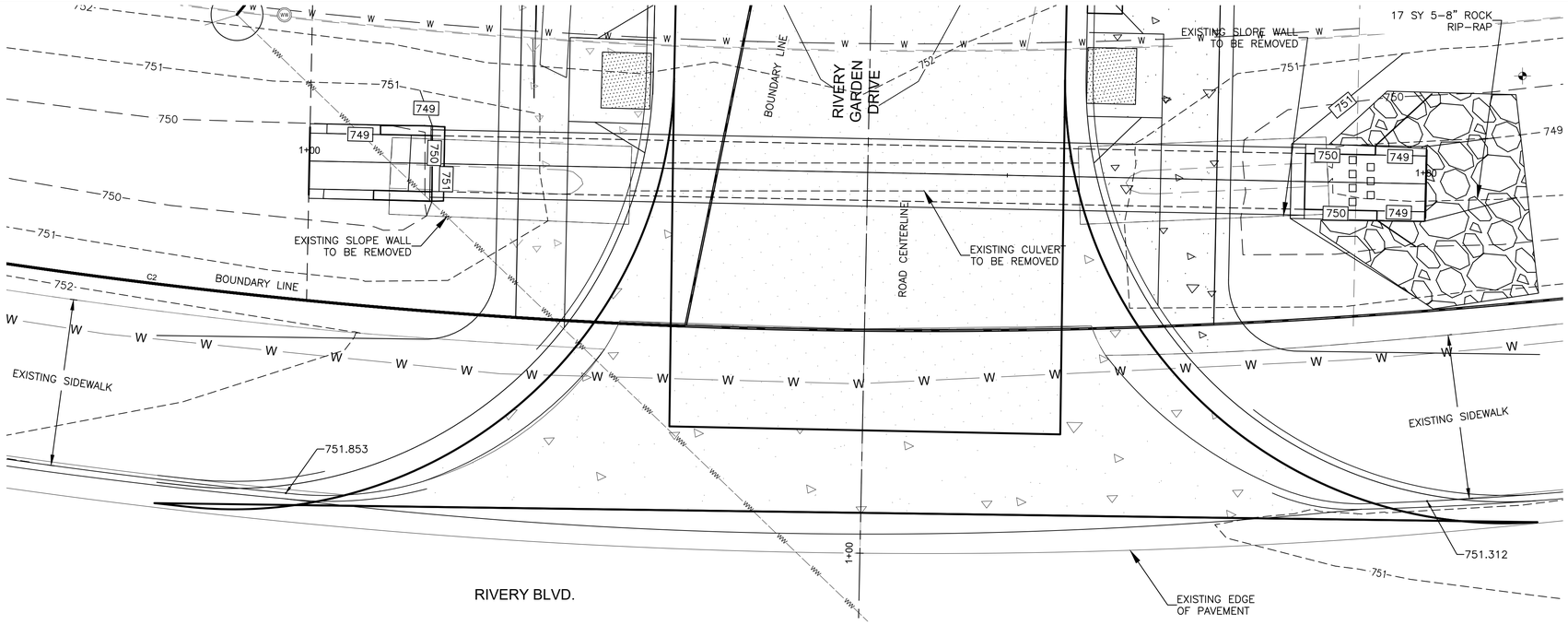
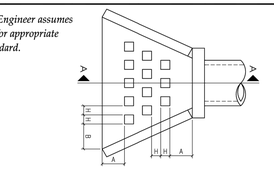


The Architect/Engineer assumes responsibility for appropriate use of this standard.



NOTES:

1. USE CLASS "A" CONCRETE, 3,000 PSI AT 28 DAYS, UNLESS NOTED.
2. REINFORCING STEEL – ASTM A615, GRADE 40, UNLESS NOTED.
3. LAP REINFORCING 30 BAR DIAMETERS MIN. AT SPLICES, UNLESS NOTED.
4. CHAMFER EXPOSED EDGES OF CONCRETE 3/4", UNLESS NOTED.
5. PLACE REINFORCING WITH THE CENTER OF THE OUTSIDE BARS 2 INCHES FROM THE SURFACE OF THE CONCRETE.

TABLE OF DIMENSIONS FOR ENERGY DISSIPATOR DETAIL

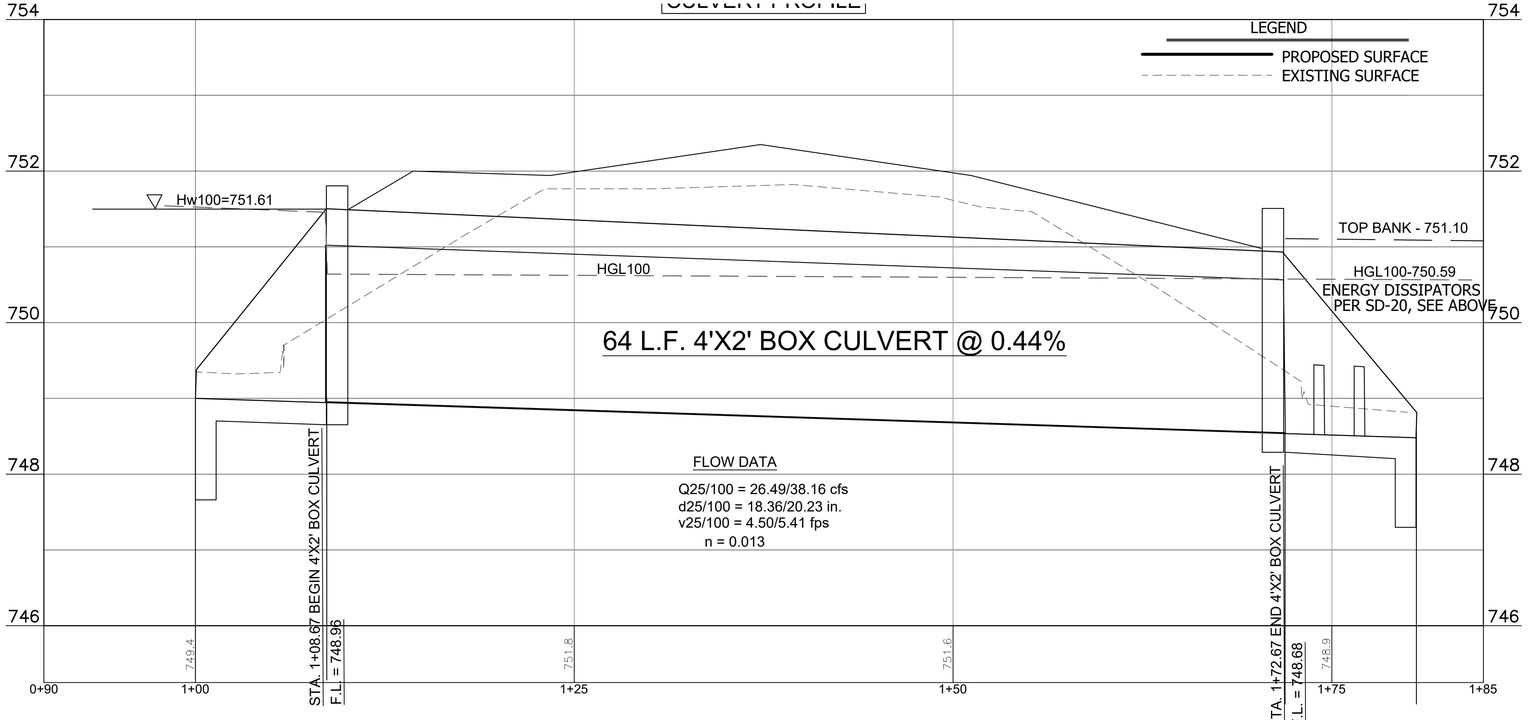
D PIPE DIAMETER (INCHES)	NUMBER OF ROWS OF DISSIPATORS	NUMBER OF DISSIPATORS IN FRONT ROW	H (INCHES)	A (INCHES)	B (INCHES)
12	1	3	4	4	9.1875
18	2	4	4 1/2	9 1/2	15.5625
24	2	5	6	14 3/4	16 1/2
30	3	6	7 1/2	12 1/2	14 3/8
36	3	6	9	16 1/4	18 5/16
42	3	6	10 1/2	20	22 1/4
48	3	6	12	23 3/4	26 1/4
54	3	6	13 1/2	27 1/2	27 3/4
60	3	6	15	31 1/4	31 5/8

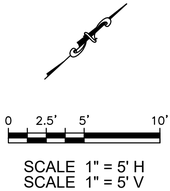
REVISION NOTE: ADOPTED 6/21/2006
STANDARD NAME: SD20

CITY OF GEORGETOWN
CONSTRUCTION STANDARDS AND DETAILS
ENERGY DISSIPATER DETAIL

DRAFT: NTS | DATE: 1/2003
DESIGN BY: MRS | APPROVED BY: TRB

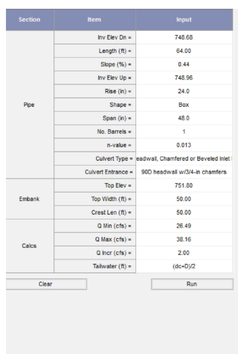
CULVERT 'A' PROFILE

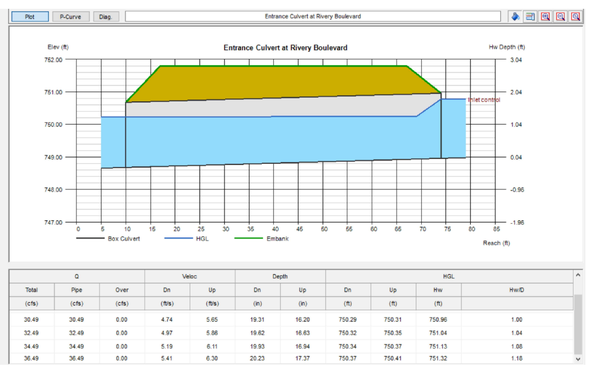




LEGEND

- BOUNDARY LINE / ROW
- ROW — RIGHT-OF-WAY
- WASTEWATER MANHOLE
- WW — WASTEWATER LINE
- STM — STORM LINE
- W — WATER LINE
- POWER POLE
- GUY WIRE
- FIRE HYDRANT
- WATER VALVE
- BUILDING LINE
- OE — OVERHEAD ELECTRIC LINE
- TEL — UNDERGROUND TELEPHONE LINE
- 700 — EXISTING MAJOR CONTOUR
- 701 — EXISTING MINOR CONTOUR
- 700 — PROPOSED MAJOR CONTOUR
- 701 — PROPOSED MINOR CONTOUR
- 1683 — TREE TO REMAIN W/ TAG NUMBER





Q			Velocity		Depth		HGL		
Total (cfs)	Pipe (cfs)	Over (cfs)	Dn (ft/s)	Up (ft/s)	Dn (in)	Up (in)	Dn (ft)	Up (ft)	Hw (ft)	Hw/D
30.49	30.49	0.00	4.74	5.65	19.31	16.28	750.29	750.31	750.96	1.00
32.49	32.49	0.00	4.97	5.86	19.82	16.83	750.32	750.35	751.04	1.04
34.49	34.49	0.00	5.19	6.11	19.93	16.94	750.34	750.37	751.13	1.08
36.49	36.49	0.00	5.41	6.30	20.23	17.37	750.37	750.41	751.32	1.16

CULVERT 'A' CALCULATIONS

Revision #	Description	Approval

Date: 29-Sep-2024
Scale:
Project No: 002-20-01
Designed By:
Drawn By: KS, TED
Checked By: TH
Revised By:

Know what's below. Call before you dig.

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STATE OF TEXAS
TIMOTHY E. HAYNIE
36982
LICENSED PROFESSIONAL ENGINEER
29-Sep-2024

HAYNIE CONSULTING, INC.
Civil Engineers and Land Surveyors
1010 Provident Lane
Round Rock, Texas 78664
T.B.P.E. Firm No. F-002411
T.B.P.L.S. Firm No. 100250-00
512.837.2446

RIVERY CROSSING SUBDIVISION INFRASTRUCTURE IMPROVEMENTS

CULVERT 'A' - PLAN & PROFILE

CITY OF GEORGETOWN

SHEET NO.

47 OF 52

2022-44-CON

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ATTACHMENT "G"

Inspection, Maintenance Repair, and Retrofit Plan

Permenant BMP's (Vegetative Filter Strips, if required)

1. After Rainfall: During construction, check the vegetated filter strip areas for erosion after each rainfall that exceeds one-half inch over a twenty-four hour period, based on local weather reports. Any erosion should be repaired as necessary.
2. Seasonal Care: Remove excessive plant growth as needed or a minimum of twice annually. Vegetation height should not exceed four inches. Control weed growth with minimal or no use of herbicides.
3. Quarterly: Inspect quarterly and remove debris and litter as necessary.
4. Semi-annually: Inspect at least twice annually for erosion or damage.
5. Sediment Removal: Remove excess sediment as needed to maintain uniform flow across the filter strips. Dispose of sediments in accordance with local regulations concerning water quality waste materials.
6. Documentation: All reports for inspections, repairs, and if necessary, retrofit shall be updated daily as occurrences arise. These reports shall be kept onsite and available for inspection.

Permenant BMP's (Batch Detention Pond)

7. After Rainfall: During construction, check the berms and sedimentation forebay for erosion after each rainfall that exceeds one-half inch over a twenty-four hour period, based on local weather reports. Any erosion should be repaired as necessary.
8. Seasonal Care: Remove excessive plant growth as needed or a minimum of twice annually. Vegetation height should not exceed four inches. Control weed growth with minimal or no use of herbicides.
9. Quarterly: Inspect quarterly and remove debris and litter as necessary.
10. Semi-annually: Inspect at least twice annually for erosion or damage.
11. Sediment Removal: Remove excess sediment as needed to maintain uniform flow through the rock gabion structure. Dispose of sediments in accordance with local regulations concerning water quality waste materials.
12. Documentation: All reports for inspections, repairs, and if necessary, retrofit shall be updated as occurrences arise. These reports shall be sent to the Owner listed below.

Owner's Signature:  Date: 5-14-2024

Print Owner's Name: Timothy E. Haynie, Ewing Development Company LLC

Print Owner's Address: 309 Palmetto, Georgetown, Texas, 78633

ATTACHMENT "H"

Pilot-Scale Field Testing Plan

Not Applicable.

ATTACHMENT "I"

Measures for minimizing Surface Stream Contamination

Temporary erosion and sediment controls will minimize surface stream contamination until site surface restoration is complete.

The applicant is responsible for maintaining the permanent BMP's after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property. 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 this use as a multi-family residential development.

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

I Timothy E. Haynie, P.E.,
Print Name

Owner,
Title - Owner/President/Other

of Ewing Development Company, LLC,
Corporation/Partnership/Entity Name

have authorized Kevin Mercer
Print Name of **Agent**/Engineer

of Matkin Hoover Engineering
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:

Applicant's Signature

05-17-24
Date

THE STATE OF Texas §

County of Williamson §

BEFORE ME, the undersigned authority, on this day personally appeared Timothy Haynie 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 17 day of May, 2024.

HADEN SIMMONS
My Notary ID # 134834447
Expires April 3, 2028

NOTARY PUBLIC

Haden Simmons
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: April 3, 2028

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Rivery Crossing Phase 2
Regulated Entity Location: 2005 Rivery Boulevard, Georgetown, Tx. 78628
Name of Customer: Ewing Developmeny Company, LLC
Contact Person: Timothy E. Haynie, P.E. Phone: 512-784-6670
Customer Reference Number (if issued):CN 604594721
Regulated Entity Reference Number (if issued):RN 111695524

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
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
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

Type of Plan	***Size***	***Fee Due***
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	3.389 Acres	$ 3,000
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	613 L.F.	$ 650
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: 5-15-2024

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 6, 2023

Mr. Timothy E. Haynie, P.E.
Ewing Development Company, LLC
1010 Provident Lane
Round Rock, Texas 78664

Re: Edwards Aquifer, Williamson County
NAME OF PROJECT: Rivery Crossing Phase 2; Located at 2005 Rivery Blvd.; Georgetown, Texas
TYPE OF PLAN: Request for Approval of a Water Pollution Abatement Plan (WPAP) & an Organized Sewage Collection System (SCS) Plan; 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer
Edwards Aquifer Protection Program ID No. 11003517 (WPAP) and 11003518 (SCS); Regulated Entity No. RN111695524

Dear Mr. Haynie:

The Texas Commission on Environmental Quality's (TCEQ) Austin Regional Office received a request to withdraw the above referenced WPAP and SCS applications on March 8, 2023 by Haynie Consulting, Inc. The request for the withdrawal of the above-mentioned applications has been granted. The $4,650.00 application fee will be held for a future resubmittal. Subsequent application(s) are subject to the administrative and technical review process.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Colin Gearing of the Edwards Aquifer Protection Program of the Austin Region Office at (512) 339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality
LIB/cmg

TCEQ Core Data Form

TCEQ Use Only

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.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ 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 604594721		RN 111695524

SECTION II: Customer Information

4. General Customer Information	5. Effective Date for Customer Information Updates (mm/dd/yyyy)	03/24/2024

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

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:*

Ewing Development Company 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*)
		742959763	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

309 Palmetto Lane

City	Georgetown	State	TX	ZIP	78633	ZIP + 4	

16. Country Mailing Information (*if outside USA*)	17. E-Mail Address (*if applicable*)
	tehaynie45@yahoo.com

18. Telephone Number	19. Extension or Code	20. Fax Number (*if applicable*)
(512) 784-6670	0	( ) -

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*)

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ 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.*)

Rivery Crossing Phase 2

23. Street Address of the Regulated Entity: *(No PO Boxes)*	2005 Rivery Boulevard							
	and 206 E. Janis Drive							
	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:	Property is 3.389-acres fronting Rivery Boulevard and adjoining Ryan Lane to the East. Located within the city limits of Georgetown.

26. Nearest City	**State**	**Nearest ZIP Code**
Georgetown	TX	78626

27. Latitude (N) In Decimal:	30.642537		**28. Longitude (W) In Decimal:**	97.669118	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	39	20	97	40	46

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)
6552	1611		

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Multiple single family housing development

34. Mailing Address:	**309 Palmetto Lane**							
	City	**Georgetown**	**State**	**TX**	**ZIP**	**78633**	**ZIP + 4**	

35. E-Mail Address:	**tehaynie45@yahoo.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 784-6670		**( ) -**

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.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		WPAP & SCS		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Kevin W. Mercer	**41. Title:**	Agent

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 844-6885		( ) -	kmercer@matkinhoover.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:	Ewing Development Company, LLC	**Job Title:**	Owner
Name *(In Print):*	Timothy E. Haynie	**Phone:**	(512) 784- **6670**
Signature:		**Date:**	5-14-2024