

Sewage Collection System (SCS)

Parkside on the River Sections 9A & 10A

CITY OF GEORGETOWN WILLIAMSON COUNTY, TEXAS

December 19, 2023

HR Green Project No: 2303295

Prepared For: HM Parkside, LP 1011 North Lamar Boulevard Austin, Texas 78703

Prepared By: HR Green Development TX, LLC 5508 Highway 290 West, Suite 150 Austin, Texas 78735 TBPE Firm No. F-16384





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Texas Commission on Environmental Quality Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

1. <u>Edwards Aquifer applications</u> 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: <u>http://www.tceq.texas.gov/field/eapp</u>.

- 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 N Sections 9A & 10A	ame: P	arksi	de on t	the Ri	iver	2. Regulated Entity No.:				
3. Customer Name: HM Parkside,			LP			4. Cı	4. Customer No.: CN605721653			
5. Project Type: (Please circle/check one)	New X		Modif	icatior	1	Exter	nsion	Exception		
6. Plan Type: (Please circle/check one)	WPAP	CZP	SCS X	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures	
7. Land Use: (Please circle/check one)	Resider X	ntial	Non-r	esiden	tial		8. Sit	e (acres):	34.42 (LOC = 33.14) Legal Boundary = 75.68	
9. Application Fee:	\$2,965	.50	10. P	ermai	nent l	BMP(s):	Batch Detenti	on Pond	
11. SCS (Linear Ft.):	5,931		12. AS	ST/US	ST (N	o. Tar	nks):	N/A		
13. County:	William County	son	14. W	aters	hed:			South Fork Sa	n Gabriel River	

Application Distribution

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

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

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

Austin Region											
County:	Hays	Travis	Williamson								
Original (1 req.)			<u>_X</u>								
Region (1 req.)			<u>_X</u>								
County(ies)			<u>_X</u>								
Groundwater Conservation District(s)	Edwards Aquifer 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								

	S	an 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.

Christine Campbell
Print Name of Customer/Authorized Agent

An

A.

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Signature of Customer/Authorized Agent

12/19/2023 Date

FOR TCEQ INTERNAL USE ONLY									
Date(s)Reviewed: Date Administratively Complete:									
Received From:		Correct N	Number of Copies:						
Received By:		Distribut	ion Date:						
EAPP File Number:		Complexa	:						
Admin. Review(s) (No.):		No. AR Rounds:							
Delinquent Fees (Y/N):		Review Time Spent:							
Lat./Long. Verified:		SOS Cust	tomer Verification:						
Agent Authorization Complete/Notarized (Y/N):		Payable to TCEQ (Y/N):							
Core Data Form Complete (Y/N):		Check: 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: Christine Campbell, P.E.

Date: 12/19/2023

Signature of Customer/Agent:

Chata Carpull

Project Information

- 1. Regulated Entity Name: Parkside on the River Sections 9A & 10A
- 2. County: Williamson
- 3. Stream Basin: Brazos River Basin
- 4. Groundwater Conservation District (If applicable): N/A
- 5. Edwards Aquifer Zone:

Recharge Zone

6. Plan Type:

WPAP	AST
\leq scs	UST
Modification	Exception Request

7. Customer (Applicant):

Contact Person: <u>Blake Magee</u> Entity: <u>HM Parkside, LP</u> Mailing Address: <u>1011 North Lamar Boulevard</u> City, State: <u>Austin, TX</u> Telephone: <u>512-481-0303</u> Email Address: <u>Blake@blakemageeco.com</u>

Zip: <u>78703</u> FAX: _____

8. Agent/Representative (If any):

Contact Person: Christine CampbellEntity: HR Green Development TX, LLCMailing Address: 5508 US Highway 290 West Suite #150City, State: Austin, TXZip: 78735Telephone: 512-872-6696FAX: _____Email Address: christine.campbell@hrgreen.com

9. Project Location:

The project site is located inside the city limits of _____

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of <u>Georgetown</u>.

- 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.

Located east of Parkside Parkway. East of Parkside on the River Phase 3 Sections 4, 7A & 7B. Property ID R574025, R312360, R574027, R500990, R500991, R500992, R501370

- 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: <u>November 17, 2023</u>
- 14. Attachment C Project Description. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:
 - Area of the site
 Offsite areas
 Impervious cover
 Permanent BMP(s)
 Proposed site use
 - Site history
 - Previous development
 - \boxtimes 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:

 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.



_____D



U.S. DEPARTMENT OF THE INTERIOR U.S. GEOLOGICAL SURVEY



LEANDER QUADRANGLE TEXAS 7.5-MINUTE SERIES





Produced by the United States Geological Survey North American Datum of 1983 (NAD83) World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid:Universal Transverse Mercator, Zone 14R This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

.....NAIP, September 2016 - November 2016 U.S. Census Bureau, 2015GNIS, 1979 - 2018National Hydrography Dataset, 2002 - 2018National Elevation Dataset, 2002Aultiple sources; see metadata file 2016 - 2017 Imagery.... Roads..... Names..... Hydrography..... Contours.... Boundaries.... 1982 Wetlands... ..FWS National Wetlands Inventory



NSN. 7643016396981 NGA REF NO. USGSX24K25238

State Route



ATTACHMENT C – PROJECT NARRATIVE

The Parkside on the River Sections 9A & 10A development is a proposed single-family residential development tract, including associated right-of-way, drainage, and utilities located in the City of Georgetown and Williamson County. The project site is located within the Edwards Aquifer Recharge Zone, the Edwards Aquifer Contributing Zone, and within the San Gabriel River watershed. The overall project site encompasses a 34.42-acre tract of land located east of Parkside Parkway and east of Parkside on the River Phase 3 Sections 4, 7A & 7B. There will be roughly 33.14-acres of disturbed land and a 75.68-acre legal boundary for application fee purposes.

The project site is primarily undeveloped wooded land with grass. Runoff flows towards the South Fork San Gabriel River. No portion of the project site is located within the 100-year floodplain as defined by FEMA FIRM Panel No. 48491C0460F, dated December 20, 2019.

The proposed site's SCS system will be composed of a total of 5,931 LF of wastewater line. There is 4,504 LF of 8-inch (8") 115 psi (ASTM D3034) gravity wastewater pipe, 100 LF of 8-inch (8") pressure rated (ASTM D2241) wastewater pipe, and 1,327 LF of 6-inch (6") gravity wastewater pipe. The proposed improvements will tie into an existing wastewater manhole associated with the existing Barton Tributary Wastewater Line, which connects to the San Gabriel River Interceptor, and ultimately flows to the Dove Springs WWTP for treatment. The Dove Springs Wastewater Treatment Plant has the capacity to adequately treat the proposed peak flow.

The proposed development results in an impervious cover of approximately 47.6% and will have the associated runoff treated by the batch detention pond associated with Parkside on the River Section 8. Of the 34.42 acres of the proposed Parkside on the River Section 9A & 10A property, there is approximately 16.28 acres of impervious cover. There is an additional 0.11 acres of impervious cover proposed for a temporary turnaround, resulting in a total of approximately 16.39 acres of proposed impervious cover for this project. Based on the 80% TSS removal requirement by TCEQ we need to provide 14,266 lbs of TSS removal for the proposed development. As shown in the calculations, the Section 8 pond satisfies the TSS removal requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied by the Section 8 batch detention pond.

The proposed conditions for the overall area propose approximately 30.56 acres of post-development impervious cover, of which approximately 1.60 acres are existing from Parkside on the River Phase 3 Sections 4, 7A & 7B, 12.57 acres from Parkside on the River Section 8, and 16.39 acres proposed with Parkside on the River Sections 9A & 10A. Based on the 80% TSS removal requirement by TCEQ we need to provide 25,207 lbs of TSS removal in the proposed case. As shown in the calculations, the Section 8 pond and vegetative filter strip satisfy this requirement. The 85% TSS removal requirement by the City of Georgetown is also satisfied for the Section 8 batch detention pond. In the proposed condition, the Section 8 batch detention pond (BDP-01) will treat a total of 25.88 acres of impervious cover (1.60 acres of existing impervious cover from Sections 9A & 10A) and provide 23,750 lbs of TSS removal. Approximately 2.13 acres of impervious cover proposed with Sections 9A & 10A is bypassing treatment. The BMPs are overtreating to account for the bypass impervious cover.

Refer to the construction plans for the water quality calculations and the attached Parkside on the River Section 8 plans for the batch detention pond design. Refer to the table below for the proposed sedimentation treatment breakdown provided.

A tree demolition schedule is included in the construction plans.

The associated combination of roadway, drainage, water quality, water, and wastewater improvements will be designed and built to serve this residential development.



Parkside on the River Sections 9A & 10A Sewage Collection System (SCS) Project No.: 2303295

			PARKS	SIDE ON THE	RIVER SEC	TIONS 9A & 1	0A - TSS RE	MOVAL SUM	MARY - PRO	POSED			
		MAXTSS	BASIN AREA	PRE-	PROPO	SED I.C.	POST-DEVE	OPMENT LC.	TCEQ REQUIRED	CITY OF GEORGETOWN REQUIRED 85%	PROVIDED TSS	VOLUME	VOLUME
DRAINAGE AREA	BMP TYPE	REMOVAL EFFICIENCY	DASINANCA	I.C.	SECTION 8	SECTION 9A 10A	TOST-DEVEL		REMOVAL	POND TSS LOAD REMOVAL	LOAD REMOVAL	REQUIRED	PROVIDED
			AC	AC	AC	AC	AC	%	LB	LB	LB	CF	CF
BDP-01	BATCH DETENTION POND	91%	57.62	1.60	10.02	14.26	25.88	45%	21,133	22,454	23,750	132,879	137,853
VFS-01	VEGETATIVE FILTER STRIP	85%	4.00	0.00	1.92		1.92	48%	1,671		1 ,838		
BP-01	BY-PASS	0%	1.17	0.00	0.63		0.63	54%	548				
BP-02	BY-PASS	0%	2.90	0.00		1.48	1.48	51%	1,288				
BP-03	BY-PASS	0%	1.33	0.00		0.65	0.65	49%	566				
	TOTAL:		67.02	1.60	12.57	16.39	30.56	46%	25,207		25,588		
1 - FOR THE GEO	RGETOWN TSS F	REMOVAL REQUIR	EMENT, WE CON	SIDER 85% OF TS	S REMOVAL FOR	THE DRAINAGE A	REA THAT DRAIN	S TOWARD THE B	ATCH DETENTION	PONDS.			



Narrative Description of Site-Specific Geology for the Parkside on the River Property (Phase 3, Sections 8, 9A, & 10A) Located in Georgetown, Williamson County, Texas

Prepared for:

HM PARKSIDE DEVELOPMENT, INC

Prepared by:

CAMBRIAN ENVIRONMENTAL

October 18th, 2023

NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY FOR THE PARKSIDE ON THE RIVER PROPERTY (PHASE 3, SECTIONS 8, 9A, & 10A) LOCATED IN GEORGETOWN, WILLIAMSON COUNTY, TEXAS

Prepared for:

HM Parkside Development, Inc. Blake Magee Co. 1011 North Lamar Blvd. Austin, Texas 78703

Prepared by:

Craig Crawford, P.G. TX Geoscience License #10791

Cambrian Environmental

4422 Pack Saddle Pass Suite 204 Austin, Texas 78745

TX Geoscience Firm Registration #50484

As a licensed professional geoscientist, I attest that the contents of this report are complete and accurate to the best of my knowledge.



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.

Telephone: 512.705.5541

AST UST

Print Name of Geologist: Craig Crawford, PG

Date: 18 October 2023

Fax: _____ Representing: Cambrian Environmental (TBPG Firm # 50484) (Name of Company in

TBPE registration number)

Signature of Geologist:



Regulated Entity Name: HM Parkside Development, Inc. (Parkside on the River - Ph. 3, Sec. 8, 9A, & 10A)

Project Information

- 1. Date(s) Geologic Assessment was performed: August 30th through September 12th 2023
- 2. Type of Project:

\times	WPAP
	SCS

3.	Location	of	Proj	ect:
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Recharge Zone Transition Zone Contributing Zone within the Transition Zone

1 of 3

TCEQ-0585 (Rev.02-11-15)

- 4. X Attachment A Geologic Assessment Table. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.
- 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, InfiltrationCharacteristics and Thickness

Soil Name	Group*	Thickness(feet)
Denton (DnB)	D	< 3.5
Eckrant (EeB,ErE,ErG)	D	< 2

- * 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" = 400'

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.

TCEQ-0585 (Rev.02-11-15)

2 of 3

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.



NARRATIVE DESCRIPTION OF SITE-SPECIFIC GEOLOGY FOR THE PARKSIDE ON THE RIVER PROPERTY (PHASE 3, SECTIONS 8, 9A, & 10A) LOCATED IN GEORGETOWN, WILLIAMSON COUNTY, TEXAS

INTRODUCTION

This narrative Geologic Assessment accompanies the Texas Commission on Environmental Quality (TCEQ) Geologic Assessment Form TCEQ-0585 completed for the Parkside on the River property in Georgetown, Williamson County, Texas (see Site Location Map). This assessment covers a portion of Phase 3, and includes Sections 8, 9A, and 10A. The project area is located on the north side of Leander Road (FM 2243), approximately 5.25 miles west of the intersection with Interstate Highway (IH) 35.

METHODOLOGY

A Cambrian Environmental Registered Professional Geoscientist (Texas License #10791) and several karst technicians conducted a field survey for a TCEQ Geologic Assessment on various dates between August 30th and September 12th 2023. The pedestrian survey was completed by walking parallel transects spaced approximately 50 feet apart as directed by the TCEQ in the Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones (Rev. 10-01-04). Closer spacing was used where vegetation inhibited clear observation. The project site was thoroughly examined for the presence of potential karst features, including depressions, holes, and animal burrows. A number of techniques can be used for this effort, including probing with a digging implement to determine the thickness and consistency of fill material and feeling for the presence of air flow, which may indicate the presence of a sub-surface void space. Other techniques include making observations of any notable characteristics of the feature site such as the presence of various types of vegetation or a semi-circular burrow mound produced by the activities of small mammals.

RESULTS

<u>Soils</u>

Soils mapped within the project area consist of the Denton silty clay (DnB), Eckrant extremely stony clay (EeB), Eckrant-Rock outcrop (ErE, ErG) series soils¹ (see Site Soils Map). The Denton and Eckrant series soils are within the "D" classification of the hydrologic soil groups. Type "D" soils have a very slow infiltration rate (very high runoff potential) when thoroughly wet.

Geology

The mapped bedrock lithology underlying the majority of the project area consists of the Edwards Limestone (Ked), with the Comanche Peak Limestone (Kc) present in the lower elevation areas. The Comanche Peak Limestone serves as the lower confining unit of the Edwards Aquifer. The western portion of this tract is mapped as being within the Edwards Aquifer Recharge Zone, and the eastern portion is within the Contributing Zone (see Site Geologic Map). The portion of the tract mapped as Contributing Zone coincides with areas where topography drops off towards a drainage, and also where the Comanche Peak Limestone is present. Based on topographic and geologic maps, the Edwards outcrop present on this

¹ United States Department of Agriculture, Natural Resource Conservation Service. Online Web Soil Survey, Williamson County, Texas. http://websoilsurvey.sc.egov.usda.gov/

property is likely no more than 50 to 60 feet thick in the areas of highest elevation. The geology of the property has been mapped most recently at a useful scale by Collins (2005) and we find his interpretation of the geology to be generally accurate.² Bedrock outcrops were common in some areas, while other areas seemed to have relatively thick soil cover. No faults are mapped within the project limits, and none were observed during the pedestrian survey.

Recharge into the aquifer primarily occurs in areas where the Edwards Group and upper confining units are exposed at the surface. Most recharge is from direct infiltration via precipitation and streamflow loss. Recharge occurs predominantly along secondary porosity features such as faults, fractures, and karst features (caves, solution cavities, sinkholes, etc.); and these types of karst features are commonly formed along joints, fractures, and bedding plane surfaces formed within the Edwards Group Limestone.

Site Hydrogeologic Assessment

One sensitive feature was identified during the pedestrian survey (feature "F-2"). Recharge to the aquifer on this property has the greatest potential to occur in the immediate vicinity of this feature. Other areas of the property had a very low density of discovered features and thick soil cover, and the potential for recharge to occur is thought to be low in these areas. Additionally, should any karst features be discovered during the construction phase of the project, they should be reported to TCEQ to determine the appropriate mitigation measures.

Feature Descriptions

- F-1 The feature consists of a non-karst closed depression that measures approximately 8 feet by 10 feet by 2.5 feet deep. The depression is located near the top of drainage, and appears to be the result of bedrock scour and headward erosional processes. There are no signs of any portals, or any other indicators that this feature contributes to subsurface infiltration. The feature is lined with cobbles, soil, and grassy vegetation. The feature is ranked as "non-sensitive".
- F-2 The feature consists of small sinkhole that measures approximately 4 feet in diameter by at least 2 feet deep. Within the bowl of the sinkhole there is an opening that measures 14 inches by 8 inches. No airflow was detected during this investigation, however the rocks surrounding the opening were covered in green moss, which can be an indicator that subsurface airflow occurs periodically. Small persimmon trees are present around the bowl of the sinkhole, and the feature is lined with loose organic debris and cobbles. The feature is ranked as "sensitive" and Cambrian recommends a minimum of a 50-foot radius protective buffer around this feature.

² E.W. Collins, 2005, Geologic Map of the West Half of the Taylor Texas 30x60 Quadrangle: Central Texas Urban Corridor Encompassing Round Rock, Georgetown, Salado, Briggs, Liberty Hill, and Leander, Bureau of Economic Geology, University of Texas at Austin. Scale 1:100,000

City of Georgetown Salamander Ordinance

No springs were identified within the interior of the property during the pedestrian survey, and therefore no occupied site protection, or spring buffer protection measures will be required for the property. A mapped stream is present on the property (flowing from west to east, see Site Geologic Map), but it appears to only flow during heavy rain when there is high runoff potential. This mapped stream consists of a shallow and gently sloping drainage that did not have any water present, even after a moderate precipitation event that occurred during the course of the pedestrian survey. The catchment area of this mapped stream is less than 64 acres, and therefore no stream protection buffer will be required. A second and larger mapped stream is present along the southeastern boundary of the property, and it was actively flowing at the time of the pedestrian survey. This stream is present in the lowest elevation portion of this property and is within the Edwards Aquifer Contributing Zone, and therefore will not require a stream protection buffer. The 100-year floodplain is present along this channel, with a small portion being within the bounds of the limits of the project area included in this assessment.

Additionally, all regulated activities within the Recharge Zone must follow water quality best management practices, and development of the property will need to comply with the water quality protection measures as outlined in Section 8 of the Ordinance.

Stratigraphic Column

*Area shaded gray represents the lithology directly underlying the project site

Period	Group	Stratigraphic Unit	Hydrologic Unit	Maximum Thickness (Feet)
		Stream and river alluvium (Qal)		
Quaternary to Tertiary		Terrace alluvium (Qt)	Overlying Units	70
		Older alluvium (QTa)		
	Taylor	Taylor Clay (Ktl)		300
	Austin	Austin Chalk (Kau)		400
Upper Cretaceous (Gulf Series)	Eagle Ford	Eagle Ford Shale (Kef)	Confining Units	60
	Washita	Buda Limestone (Kbu)		20
	W donna	Del Rio Clay (Kdr)		60
		Georgetown Limestone (Kgt)		100
	Fredericksburg	Edwards Limestone (Ked)	Edwards Aquifer	120
Lower Cretaceous (Comanche Series)		Comanche Peak Formation (Kc)		50
		Walnut Formation (Kw)	Confining Unit	140
	Trinity	Upper Glen Rose Limestone (Kgru)	Upper Trinity Aquifer	200



Photo 1. View of feature F-1



Photo 2. View of feature F-2

GEOLOGIC A	SSESSMEN	TABLE	2.15				PR	OJE	CT NA	ME	: Parks	ide or	the R	iver - Ph	ase	3 Se	ctio	ns 8	, 9A,	10A
L	OCATION					F	EAT	URE	CHARA	CTE	RISTICS				EVA	LUAT	TION		PHYS	SICAL 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	DIME	NSIONS (FEET)	TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENS	ITIVITY	CATCHM (AC	ENT AREA RES)	TOPOGRAPHY
						х	Y	Z		10						<40	<u>>40</u>	<1.6	<u>>1.6</u>	
F-1	30.60843	-97.76876	CD	5	Ked	8	10	2.5					C,F,O	15	20	X		Х		Hilltop
F-2	30.60888	-97.76689	SH	20	Ked	4	4	2+					0	25	45		Х	Х		Hilltop
						-											-			
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* DATUM: WGS84																				
2A TYPE		TYPE		28	POINTS						8A	INFILLIN	G							
С	Cave				30		N	None	exposed	bedro	ock									
SC	Solution cavity				20		С	Coars	e - cobble	es, bre	akdown, sa	and, grave	el							
SF	Solution-enlarge	d fracture(s)			20		0	Loose	e or soft m	ud or	soil. organi	cs. leaves	s. sticks. d	ark colors						
F	Fault				20		F	Fines	compact	ed cla	v-rich sedir	ment, soil	profile, an	ay or red cold	ors					
0	Other natural be	drock features			5		V	Vege	tation. Giv	e deta	ails in narrat	tive descr	iption	,						
MB	Manmade featur	e in bedrock			30		FS	Flows	tone, cem	nents,	cave depos	sits								
SW	Swallow hole				30		х	Other	materials											
SH	Sinkhole				20										and the set of					
CD	Non-karst closed	depression			5					13	2 TOPOGR	APHY								
Z	Zone, clustered	or aligned feature	es		30		Cliff,	Hilltop	, Hillside,	Drain	age, Floodp	olain, Stre	ambed							

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 18 October 2023

Sheet 1 of 1



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



















Site Geologic Map



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: Parkside on the River Sections 9A & 10A

 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

 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: <u>Blake Magee</u> Entity: <u>HM Parkside, LP</u> Mailing Address: <u>1011 North Lamar Boulevard</u> City, State: <u>Austin, TX</u> Zip: <u>78703</u> Telephone: <u>512-481-0303</u> Fax: _____ Email Address: <u>Blake@blakemageeco.com</u> 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: <u>Shervin Nooshin, P.E.</u>		
Texas Licensed Professional Engineer's Number: <u>96807</u>		
Entity: <u>HR Green Development TX, LLC</u>		
Mailing Address: <u>5508 Highway 290 West, #150</u>		
City, State: <u>Austin, TX</u>	Zip: <u>78735</u>	
Telephone: <u>512-872-6696</u> Fax:		
Email Address:shervin.nooshin@hrgreen.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):

\boxtimes	Residential: Number of single-family lots: <u>103</u>
	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:

<u>100</u> % Domestic	<u>25,750</u> gallons/day
% Industrial	gallons/day
% Commingled	gallons/day
Total gallons/day: <u>25,750</u>	

- Existing and anticipated infiltration/inflow is <u>34,420 (per City of Georgetown I&I calculations</u> <u>of 1,000 gallons/day/acre</u> gallons/day. This will be addressed by: <u>Using standard</u> <u>manholes and included in out calculations for pipe design and flow determination</u>.
- 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 $\frac{12}{19}/23$, 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"	4,504	PVC SDR 26	ASTM D3034
8"	100	PVC SDR 26	ASTM D2241
6"	1,327	PVC SDR 26	ASTM D3034

Total Linear Feet: 5,931

- (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 Dove Springs WWTP (name) Treatment Plant. The treatment facility is:



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

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

			Manhole or Clean-
Line	Shown on Sheet	Station	out?
A1	66 Of 84	2+80.10	MH
A2	66 Of 84	3+82.20	MH
A3	66 Of 84	4+84.30	MH
A4	66 Of 84	5+86.40	MH
A5	66 Of 84	6+88.50	MH
A6	66 Of 84	7+90.60	MH

Table 2 - Manholes and Cleanouts

Line	Shown on Sheet	Station	Manhole or Clean- out?
Α7	67 Of 84	8+92.70	MH
A8	67 Of 84	9+94.80	MH
A9	67 Of 84	10+96.91	MH
A10	67 Of 84	13+13.89	MH

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

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Site Plan Scale: 1" = <u>100</u>'.
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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:

 \boxtimes 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

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 concretelined channels constructed above sewer lines.)

Table 4 - 5-Year Floodplain

Line	Sheet	Station
	of	to

24. \boxtimes 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.

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWL A	19+34.22	Crossing	-	4.20'
WWL B	1+25.12	Crossing	-	4.81'
WWL C	1+25.00	Crossing	-	4.53'
WWL D	1+25.00	Crossing	-	3.88'
WWL E	1+25.03	Crossing	-	4.35'

Table 5 - Water Line Crossings

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(I)(2)(H).

Table 7 - Drop Manholes

Line	Manhole	Station	Sheet
WWL A	A1	2+80.10	66 OF 84
WWL A	A9	10+96.91	67 OF 84

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.

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

Table 8 - Flows Greater Than 10 Feet per Second

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

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:

Standard Details	Shown on Sheet
Lateral stub-out marking [Required]	76 of 84
Manhole, showing inverts comply with 30 TAC §217.55(I)(2) [Required]	76 of 84
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	76 of 84
Typical trench cross-sections [Required]	76 of 84
Bolted manholes [Required]	76 of 84
Sewer Service lateral standard details [Required]	76 of 84
Clean-out at end of line [Required, if used]	N/A of 84
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	N/A of 84
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	76 of 84
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	N/A of 84

Table 9 - Standard Details
Standard Details	Shown on Sheet
Drop manholes [Required, if a pipe entering a manhole is more than 24 inches above manhole invert]	76 of 84

- 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: November 17, 2023
- 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: Christine Campbell, P.E.

Date: <u>12/19/23</u>

Place engineer's seal here:



Signature of Licensed Professional Engineer:

Chath Confull

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.

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	*	*							

Table 10 - Slope Velocity

*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)



Attachment A - Engineering Design Report Organized Sewage Collection System

Parkside on the River Sections 9A & 10A

CITY OF GEORGETOWN WILLIAMSON COUNTY, TEXAS

December 19, 2023

HR Green Project No: 2303295

Prepared For: HM Parkside, LP 1011 North Lamar Boulevard Austin, Texas 78703

Prepared By: HR Green Development TX, LLC 5508 Highway 290 West, Suite 150 Austin, Texas 78735 TBPE Firm No. F-16384

HR Green® | Building Communities. Improving Lives.



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INTRODUCTION

The SCS and WPAP accompanying this submittal will serve the Parkside on the River Sections 9A & 10A Subdivision.

Parkside on the River is a master-planned subdivision located in Williamson County, Texas, within the City of Georgetown's ETJ. The Sections 9A & 10A property consists of 34.42 acres and 103 single-family lots located within the Edwards Aquifer recharge zone and contributing zone, east of Parkside Parkway and east of Parkside on the River Phase 3 Sections 4, 7A & 7B.

The proposed site's SCS system will be composed of a total of 5,931 LF of wastewater line. There is 4,504 LF of 8-inch (8") 115 psi (ASTM D3034) gravity wastewater pipe, 100 LF of 8-inch (8") pressure rated (ASTM D2241) wastewater pipe, and 1,327 LF of 6-inch (6") gravity wastewater pipe. The proposed improvements will tie into an existing wastewater manhole associated with the existing Barton Tributary Wastewater Line, which connects to the San Gabriel River Interceptor, and ultimately flows to the Dove Springs WWTP for treatment. The Dove Springs Wastewater Treatment Plant has the capacity to adequately treat the proposed peak flow.

WASTEWATER COLLECTION SYSTEM DESIGN

The wastewater collection system was designed based on a wastewater flow rate of 250 gallons per day per LUE per City of Georgetown's Criteria Manual. Based on the flow rate and slopes of the system, 8-inch gravity sewer pipe was selected for the collection system.

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWL A	19+34.22	Crossing	-	4.20'
WWL B	1+25.12	Crossing	-	4.81'
WWL C	1+25.00	Crossing	-	4.53'
WWL D	1+25.00	Crossing	-	3.88'
WWL E	1+25.03	Crossing	-	4.35'

The SCS and waterline system will maintain 9 feet of separation as required. Although, the SCS and waterline system has five (5) water crossings within 9 feet of separation due to design constraints at the intersections.

When wastewater lines are within 9 feet of a water line, the wastewater pipe will be 20 LF of pressure rated pipe (ASTM D2241) embedded in cement stabilized sand centered on the pipe's utility crossing. For further detail, refer to the Wastewater Plan & Profiles in the Construction Plans.

The gravity sewage collection system (all PVC SDR-26) in Parkside on the River Sections 9A & 10A will remain within the TCEQ minimums for pipe slopes: 0.33 - 8.40% for 8-inch pipe. The proposed slopes on the site range from 0.50% - 8.07% for 8-inch pipe. According to Manning's equation for an 8" pipe with a manning's coefficient of 0.013 at a 0.50% slope, the velocity at full flow is 2.44 feet per second. The velocity of an 8" pipe at a slope of 8.07% is 9.80 feet per second. All gravity sewage pipe in this project will be greater than 2.0 feet per second and less than 10 feet per second when flowing full.

The gravity sewage collection system six-inch (6") PVC SDR-26 pipe used for service laterals will remain within the TCEQ minimum 0.50% and maximum of 12.35%.



PROPOSED TYPE OF PIPE

6" SDR-26 PROPERTIES	
Pipe Compliance:	ASTM D-3034
Joint Compliance:	ASTM D-3212
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Average Inner Diameter (inch):	5.793
Average Outer Diameter (inch):	6.275
Wall Thickness (inch):	0.241
Approximate Trenching Width (feet):	5.583
Minimum Pipe Depth (Cover) used (feet):	2.50'
Maximum Pipe Depth (Cover) used (feet):	15.00'
8" SDR-26 PROPERTIES	
Pipe Compliance:	ASTM D-3034
Joint Compliance:	ASTM D-3212
Minimum Tensile Strength (psi):	7,000
Minimum Modulus of Elasticity (psi):	400,000
Average Inner Diameter (inch):	7.754
Average Outer Diameter (inch):	8.400
Wall Thickness (inch):	0.323
Approximate Trenching Width (feet):	5.583
Minimum Pipe Depth (Cover) used (feet):	8.08'
Maximum Pipe Depth (Cover) used (feet):	24.14'

STRUCTURAL CALCULATIONS

Since the deepest wastewater pipe is greater than 17 feet below ground, structural calculations have been prepared for this SCS application. The structural calculations for 6" and 8" PVC pipe are as follows. Please note, most pipes proposed in the SCS application meet the following requirements listed in 30 TAC 217.53(k)(4):

- (A) Open trench design All pipe construction will be open trench.
- (B) Flexible pipe with a pipe stiffness of 46 psi or greater The pipe stiffness for 8" SDR ASTM D3034 is greater than 46 psi.
- (C) Buried 17 feet or less Gravity pipes are buried greater than 17 feet. The deepest pipes have been evaluated for structural calculations.
- (D) Diameter of 12 inches or less All proposed wastewater pipe is less than 12 inches.
- (E) Modulus of soil reaction for the in-situ soil of 200 psi or greater The modulus of soil reaction is greater than 200 psi.
- (F) No effects on a pipe due to live loads The ring deflection of flexible pipe relieves the pipe of the major portion of the vertical soil load; which is then carried by the surrounding soil through the mechanism of an arching action over the pipe.
- (G) A unit weight of soil of 120 pounds per cubic foot or less The unit weight of soil will be 120 pcf.
- (H) A typical pipe trench width of 36 inches or greater Trench width of 67 inches will be used for manhole or wastewater lines deeper than 17 feet.



AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'

AVERAGE VALUES OF MODULUS OF SOIL REACTION, E' (For Initial Flexible Pipe Deflection)

	E' for Degree of Compaction of Pipe Zone Backfill, psi												
Soil type-pipe bedding material (Unified Classification System ^a) (1)	Loose (2)	Slight <85% Proctor, <40% relative density (3)	Moderate 85%-95% Proctor, 40%-70% relative density (4)	High >95% Proctor, >70% relative density (5)									
Fine-grained Soils (LL > 50) ^b Soils with medium to high plasticity CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E' = 0												
Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML ML-CL, with less than 25% coarse-grained particles	50	200	400	1,000									
 Fine-grained Soils (LL < 50) Soils with medium to no plasticity CL, ML, ML-CL, with more than 25% coarse-grained particles Coarse-grained Soils with Fines GM, GC, SM, SC^c contains more than 12% fines 	100	400	1,000	2,000									
Coarse-grained Soils with Little or No Fines GW, GP, SW, SP ^c contains less than 12% fines	200	1,000	2,000	3,000									
Crushed Rock	1,000	3,000	3,000	3,000									
Accuracy in Terms of Percentage Deflection ^d	±2	±2	±1	±0.5									
^a ASTM Designation D 2487, USBR Designation E-3 ^b LL = Liquid limit. ^c Or any borderline soil beginning with one of these s ^d For ±1% accuracy and predicted deflection of 3%, act Note: Values applicable only for fills less than 50 ft predicting initial deflections only, appropriate Deflecti bedding falls on the borderline between two compaction Percentage Proctor based on laboratory maximum dry (598,000 J/m ³) (ASTM D 698, AASHTO T-99, USBR	ymbols (i.e ual deflectic (15 m). Tal on Lag Fac n categories v density fre Designatio	, GM-GC, GG on would be be ble does not in tor must be a , select lower om test stand n E-11). 1 psi	C-SC). tween 2% and 4 include any safet pplied for long- E' value or aver ards using abou = 6.9 kN/m ² .	%. y factor. For use in term deflections. If age the two values. t 12,500 ft-lb/cu ft									

SOURCE: "Soil Reaction for Buried Flexible Pipe," by Amster K. Howard, U.S. Bureau of Reclamation, Denver, Colorado. Reprinted with Permission from American Society of Civil Engineers Journal of Geotechnical Engineering Division, January 1977, pp. 33-43.

Modulus of Soil Reaction for the in-situ soil is determined to be 200 psi based on fine-grained soils (CL) with slight to moderate proctor.



PIPE BEDDING CLASS AND MODULUS OF SOIL REACTION, Eb:

		Percentage Passing Sieve Size					Attert	erg Limits	Coeff	icients
						No. 200			Uni-	Curva-
Class	Tune	Soil Group	Description ASTM D 2487	1.5 in	No. 4	(0.075	L 11	PI	formity	ture
C1835	Type	Symoor	N3151 D 2467	(40 mm)	(4.75 min)	many			<u></u>	~
ы	Manufactured Aggregates: open-graded, clean.	None	Angular, crushed stone or rock, crushed gravel broken coral, crushed slag, cinders or shells; large void content, contain little or no fines	100%	≤10%	<5%	Non Plast	ic		
IB	Manufactured, Processed Aggregates; dense-graded, clean.	None	Angular, crushed stone (or other Class IA ma- terials) and stone/sand mixtures with grada- tions selected to minimize migration of adjacent soils; contain little or no fines	100%	≤50%	<5%	Non Plast	ic		
п	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	<50% of Coarse Fraction	<5%	Non Plast	ic	>4	1 to 3
		GP	Poorly-graded gravels and gravel-sand mix- tures; little or no fines						<4	<1 or >3
		SW	Well-graded sands and gravelly sands; little or no fines		>50% of Coarse Fraction	n			>6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines						<6	<1 or >3
	Coarse-Grained Soils, bor- derline clean to w/fines	e.g. GW-GC, SP-SM.	Sands and gravels which are border-line between clean and with fines	100%	Vanes	5% to 12%	Non Plast	ic	Same as fo GP, SW a	r GW, and SP
ш	Coarse-Grained Soils With Fines	GM	Silty gravels, gravel-sand-silt mixtures	100%	<50% of Coarse Fraction	>12% to n <50%	·	<4 or <"A" Line		
		GC	Clayey gravels, gravel-sand-clay mixtures				<	7 and >"A" Line		
		SM	Silty sands, sand-silt mixtures		>50% of Coarse Fraction	n		>4 or <"A" Line		
		SC	Clayey sands, sand-clay mixtures				>	7 and >"A" Line		
IVA ^A	Fine-Grained Soils (inor- ganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		a.	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays					>7 and >"A" Line		
IVB	Fine-Grained Soils (inor- ganic)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	100%	100%	>50%	>50	<"A" Line		
		CH	Inorganic clays of high plasticity, fat clays					>"A" Line		
v	Organic Soils	α.	Organic silts and organic silty clays of low plasticity	100%	100%	>50%	<50	<4 or <"A" Line		
		OH	Organic clays of medium to high plasticity, organic silts				>50	<"A" Line		
	Highly Organic	PT	Peat and other high organic soils							

TABLE 7 - DESCRIPTION OF MATERIAL CLASSIFICATION

Aincludes Test Method ASTM D 2487 borderline classifications and dual symbols depending on plasticity index and liquid limits. NOTE: "Coarse Fraction" as used in this table is defined as material retained on a No. 200 sieve.

SOURCE: ASTM D 2321 AND AASHTO M43, AND AS PUBLISHED ON TABLE 7, IN DEFLECTION: THE PIPE/SOIL MECHANISM UNI-TR-1-97, UNI-BELL PVC PIPE ASSOCIATION, PG. 24

Per TCEQ guidelines, a contractor is allowed to use ASTM D 2321 Bedding Class 1A, 1B, II, or III at no less than 85% compaction. The calculations in this Engineering Design Report reflect the use of Bedding Class III, at 85-95% compaction with an E_b value of 1,000 psi. This represents the worst-case bedding class a contractor can choose. All other bedding class options will provide an improved value for the zeta factor as well as pipe deflection.



PRISM LOAD DETERMINATION:

TABLE 3 PRISM LOAD (LBS/IN²)

D		wΗ
r	=	144

Height of	<u>s</u>	oil Wt.	(lbs/ft	3)	Height <u>Soil Wt. (lbs/ft³)</u> of	
Cover					Cover	
(ft)	100	110	120	130	(ft) <u>100 110 120 130</u>	
1	0.69	0.76	0.83	0.90	16 11.11 12.22 13.33 14.44	
2	1.39	1.53	1.67	1.81	17 11.81 12.97 14.17 15.35	
3	2.08	2.29	2.50	2.71	18 12.50 13.75 15.00 16.25	
4	2.78	3.06	3.33	3.61	19 13.19 14.51 15.83 17.15	
5	3.47	3.82	4.17	4.51	20 13.89 15.28 16.67 18.06	
6	4.17	4.58	5.00	5.42	21 14.58 16.04 17.50 18.96	
7	4.86	5.35	5.83	6.32	22 15.28 16.81 18.33 19.86	
8	5.56	6.11	6.67	7.22	23 15.97 17.57 19.17 20.76	
9	6.25	6.88	7.50	8.13	24 16.67 18.33 20.00 21.67	
10	6.94	7.64	8.33	9.03	25 17.36 19.10 20.83 22.57	
11	7.64	8.40	9.17	9.93	26 18.06 19.86 21.67 23.47	
12	8.33	9.17	10.00	10.83	27 18.75 20.63 22.50 24.38	
13	9.03	9.93	10.83	11.74	28 19.44 21.39 23.33 25.28	
14	9.72	10.69	11.67	12.64	29 20.14 22.15 24.17 26.18	
15	10.42	11.46	12.50	13.54	30 20.83 22.92 25.00 27.08	

Prism load is the "dead load" or the pressure acting on the pipe by the weight of the soil column above a given section of the pipe. The following prism load columns are industry standards as referenced from Table 3 in Deflection: The Pipe/Soil Mechanism INI-TR-1-97, Uni-Bell Pipe Association, Pg. 13.

The prism loads are calculated using the Marston Theory of Loads and is calculated using the formula:

$$P = \frac{y_s * H}{144}$$
, where y_s is the unit weight of the backfill material

6" Pipe: Based on the above table, at a maximum burial depth of 15.00' and a backfill soil weight of 120 lbs/ft³, the prism load is approximately 12.50 psi.

8" Pipe: Based on the above table, at a maximum burial depth of 24.14' and a backfill soil weight of 120 lbs/ft³, the prism load is approximately 20.12 psi.



LIVE LOAD DETERMINATIONS:

TABLE 4 LIVE LOADS ON PVC PIPE

Height of	Live L to	oad Transf Pipe, lb/in	erred 2	Height of	Live Load Transferred to Pipe, lb/in ²								
Cover (ft)	Highway H20 ¹	Railway E80 ²	Airport 3	Cover (ft)	Highway H20 ¹	Railway E80 ²	Airport 3						
1	12.50			14	*	4.17	3.06						
2	5.56	26.39	13.14	16	*	3.47	2.29						
3	4.17	23.61	12.28	18	*	2.78	1.91						
4	2.78	18.40	11.27	20	*	2.08	1.53						
5	1.74	16.67	10.09	22	*	1.91	1.14						
6	1.39	15.63	8.79	24	*	1.74	1.05						
7	1.22	12.15	7.85	26	*	1.39	*						
8	0.69	11.11	6.93	28	*	1.04	*						
10	*	7.64	6.09	30	*	0.69	*						
12	*	5.56	4.76	35	*	*	*						
2023		0.575.5765	013356750	40	*	*	*						

¹ Simulates 20 ton truck traffic + impact.

2 Simulates 80,000 lb/ft railway load + impact.

³ 180,000 lbs. dual tandem gear assembly. 26 inch spacing between tires and 66 inch center-to-center spacing between fore and aft tires under a rigid pavement 12 inches thick + impact.

* Negligible live load influence.

SOURCE: AASHTO H20 AND E80 LOADS AND AS PUBLISHED ON TABLE 4 IN DEFLECTION: THE PIPE/SOIL MECHANISM UNI-TR-1-197, UNI-BELL PVC PIPE ASSOCIATION PAGE 14.

The pipe depths of this project range from 2.50 feet to 24.14 feet. The streets in this project are not intended for heavy truck traffic.

Live Load for 2.50 feet (2.50') of cover is 4.87 psi in a highway condition. The roads within the subdivision are not designed or intended for highway conditions so this is considered a worst-case scenario for live loads.

The previous page discusses prism loads which is the dead load acting on the pipe due to the weight of the soil above the pipe. The deepest pipe in this system is approximately 24.14', thus, the prism load at that depth (20.12 psi) puts more pressure on the pipe than the live loading and prism loading combined (4.87 psi + 2.08 psi from Prism Load table on the previous page) at a minimum buried depth of 2.50'.

Since the pipes experience the most pressure at their deepest points, 24.14', it is not necessary to evaluate any other scenario.



ALLOWABLE BUCKLING PRESSURE (6" PVC):

Where:

- qa allowable buckling pressure, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 15.00' / 180.00" max
- B' Empirical coefficient of elastic support
- E_b modulus of soil reaction for the bedding material (psi)
- E modulus of elasticity for the pipe material (psi)
- I moment of inertia of the pipe wall cross section per linear inch of pipe, inch⁴/lineal inch = inch³. 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) = 0.241 in.
- D mean pipe diameter (in) = 6.034 in.

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on *Pg. 113 of Moser, A.P., Buried Pipe Design. 2nd. Ed., McGraw-Hill:*

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2} = \frac{4(180.00^2 + 6.034 + 180.00)}{1.5(2 + 180.00 + 6.034)^2} = 0.67$$
$$I = \frac{t^3}{12} = \frac{0.241^3}{12} in^3 = 0.001166 in^3$$

Using the Allowable Buckling Pressure Equation as shown in *Moser, A.P., Buried Pipe Design. 2nd. Ed., McGraw-Hill, Pg. 112*, and an initial factor of safety (FS) of 2.5, the Allowable Buckling Pressure is:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3}\right)} psi$$

where Rw = 1 - 0.33 (hw / h)

$$q_a = \frac{1}{2.5} * \sqrt{32 * 1 * 0.67 * 1000 * \left(400,000 * \frac{0.001166}{6.034^3}\right) psi} = 85.13 \, psi$$



INSTALLED CONDITION BUCKLING PRESSURE (6" PVC):

Where:

- q_p buckling pressure applied, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 15.00' / 180.00" max
- γ_s Specific weight of soil (pcf)
- γ_w Specific weight of water = 0.0361 (pci)
- W_c Vertical Soil Load on the pipe per unit length (lb/Lin)
- WL Live Load as determined from chart
- h_w Height of groundwater above pipe = 0
- D mean pipe diameter (in) = 6.034 in
- D_o outside pipe diameter (in) = 6.275 in

The Vertical Soil Load can be calculated using Equation 6.6 of *Uni-Bell's Handbook of PVC Pipe; Ch. VI* Superimposed Loads on Buried Pipe, Pg. 183.

$$Wc = h * y_s * D_o \frac{lb}{Lin}$$

where $g_s = 120 \text{ pcf}$

$$Wc = 180.00 * \frac{120}{1728} * 6.275 \frac{lb}{Lin} = 78.44 \frac{lb}{Lin}$$

Using the equation on *Pg. 114 of Moser, A.P., Buried Pipe Design. 3rd Ed., McGraw-Hill*, Pressure Applied to Pipe under installed conditions at its deepest installed depth:

$$q_p = (\gamma_w * h_w + R_w * \frac{W_c}{D} + \frac{W_L}{D})psi$$

where Rw = 1 - 0.33 (hw / h)

$$q_p = 0.0361 * 0 + 1 * \frac{78.44}{6.034} + \frac{0}{6.034} psi = 13.00 psi$$

The pressure applied to the pipe under installed conditions is less than the Allowable Buckling Pressure therefore the design is adequate for installation.



ALLOWABLE BUCKLING PRESSURE (8" PVC):

Where:

- qa allowable buckling pressure, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 24.14' / 289.68" max
- B' Empirical coefficient of elastic support
- E_b modulus of soil reaction for the bedding material (psi)
- E modulus of elasticity for the pipe material (psi)
- I moment of inertia of the pipe wall cross section per linear inch of pipe, inch⁴/lineal inch = inch³. 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) = 0.323 in.
- D mean pipe diameter (in) = 8.077 in.

Solving for the Empirical coefficient of elastic support, given by Luscher in 1966, as referenced on *Pg. 113 of Moser, A.P., Buried Pipe Design. 2nd. Ed., McGraw-Hill:*

$$B' = \frac{4(h^2 + Dh)}{1.5(2h + D)^2} = \frac{4(289.68^2 + 8.077 + 289.68)}{1.5(2 + 289.68 + 8.077)^2} = 0.67$$
$$I = \frac{t^3}{12} = \frac{0.323^3}{12} in^3 = 0.002808 in^3$$

Using the Allowable Buckling Pressure Equation as shown in *Moser, A.P., Buried Pipe Design. 2nd. Ed., McGraw-Hill, Pg. 112*, and an initial factor of safety (FS) of 2.5, the Allowable Buckling Pressure is:

$$q_a = \frac{1}{FS} * \sqrt{32 * R_w * B' * E_b * \left(E * \frac{I}{D^3}\right)} psi$$

where Rw = 1 - 0.33 (hw / h)

$$q_a = \frac{1}{2.5} * \sqrt{32 * 1 * 0.67 * 1000 * \left(400,000 * \frac{0.002808}{8.077^3}\right) psi} = 85.29 \, psi$$



INSTALLED CONDITION BUCKLING PRESSURE (8" PVC):

Where:

- q_p buckling pressure applied, pound per inch square (psi)
- h height of soil surface above top of pipe in inches (ft / in) = 24.14' / 289.68" max
- γ_s Specific weight of soil (pcf)
- γ_w Specific weight of water = 0.0361 (pci)
- W_c Vertical Soil Load on the pipe per unit length (lb/Lin)
- WL Live Load as determined from chart
- h_w Height of groundwater above pipe = 0
- D mean pipe diameter (in) = 8.077 in
- D_o outside pipe diameter (in) = 8.40 in

The Vertical Soil Load can be calculated using Equation 6.6 of *Uni-Bell's Handbook of PVC Pipe; Ch. VI* Superimposed Loads on Buried Pipe, Pg. 183.

$$Wc = h * y_s * D_o \frac{lb}{Lin}$$

where $g_s = 120 \text{ pcf}$

$$Wc = 289.68 * \frac{120}{1728} * 8.40 \frac{lb}{Lin} = 168.98 \frac{lb}{Lin}$$

Using the equation on *Pg. 114 of Moser, A.P., Buried Pipe Design. 3rd Ed., McGraw-Hill*, Pressure Applied to Pipe under installed conditions at its deepest installed depth:

$$q_p = (\gamma_w * h_w + R_w * \frac{W_c}{D} + \frac{W_L}{D})psi$$

where Rw = 1 - 0.33 (hw / h)

$$q_p = 0.0361 * 0 + 1 * \frac{168.98}{8.077} + \frac{0}{8.077} psi = 20.92 psi$$

The pressure applied to the pipe under installed conditions is less than the Allowable Buckling Pressure therefore the design is adequate for installation.



WALL CRUSHING (6" PVC):

Where:

Pc Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 (psi)

A Surface area of the pipe wall, $in^2/in = 0.241$

- γ_s Specific weight of soil (pcf) = 120 pcf
- D_o outside pipe diameter (in) = 6.275 in
- H Depth of burial (ft) from ground surface to crown of pipe

Using the Wall Crushing and Wall Thrust equations from *Plastic Pipe Design Manual published by Vylon Pipe, Pg. 14*, the wall crushing due to compressive stress can be found using the following:

 $P_c = T / A$, where T = Thrust is calculated as T = $P_y * D / 2$

Substituting T into the thrust wall crushing equation:

$$P_c = \frac{\frac{P_y * D}{2}}{A} = \frac{\frac{P_y * D}{2 * A}}{2 * A}$$

From the Marston equation determining the Prism Load (see previous section), substitute the equation for Py:

$$P_{c} = \frac{\frac{y_{s} * H}{2 * A}}{2 * A}$$

$$288 * A * P_{c} = y_{s} * H * D$$

$$H = \frac{288 * P_{c} * A}{y_{s} * D}$$

$$H = \frac{288 * 4000 * 0.241}{120 * 6.275} = 369 ft$$

The wall crushing depth of 369 feet far exceeds the maximum burial depth of 15.00 feet proposed in this project. Design is adequate for wall crushing.

Wall Crushing Depth for 6" Pipe = 369 feet



WALL CRUSHING (8" PVC):

Where:

Pc Compressive stress or hydrostatic design basis (HDB). For typical PVC pipe assume 4,000 (psi)

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

- γ_s Specific weight of soil (pcf) = 120 pcf
- D_o outside pipe diameter (in) = 8.40 in
- H Depth of burial (ft) from ground surface to crown of pipe

Using the Wall Crushing and Wall Thrust equations from *Plastic Pipe Design Manual published by Vylon Pipe, Pg. 14*, the wall crushing due to compressive stress can be found using the following:

 $P_c = T / A$, where T = Thrust is calculated as T = $P_y * D / 2$

Η

Substituting T into the thrust wall crushing equation:

$$P_c = \frac{\frac{P_y * D}{2}}{A} = \frac{\frac{P_y * D}{2 * A}}{2 * A}$$

From the Marston equation determining the Prism Load (see previous section), substitute the equation for Py:

$$P_{c} = \frac{\frac{y_{s} * H}{144 * D}}{2 * A}$$

$$288 * A * P_{c} = y_{s} * H * D$$

$$H = \frac{288 * P_{c} * A}{y_{s} * D}$$

$$= \frac{288 * 4000 * 0.323}{120 * 8.40} = 369 \, ft$$

The wall crushing depth of 369 feet far exceeds the maximum burial depth of 24.14 feet proposed in this project. Design is adequate for wall crushing.

Wall Crushing Depth for 8" Pipe = 369 feet



LEONHARDT'S ZETA FACTOR – DEFLECTION ANALYSIS:

6" PIPE

The Leonhardt's Zeta Factor Equation can be calculated using Equation 7.37 of Uni-Bell's Handbook of PVC Pipe, Ch. VII, Design of Buried PVC Pipe, Pg. 239.

Where:

- E' Modulus of soil reaction for in-situ material (psi) = 200 psi
- E_b modulus of soil reaction for the bedding material (psi) = 1000 psi
- B Trench Width, in = 67 in
- D_o outside pipe diameter (in) = 6.275 in

$$zeta = \frac{1.44}{\mathcal{F} + [1.44 - \mathcal{F}] * \frac{E_b}{E'}}$$

where $\mathcal{F} = \frac{\frac{B}{D_{o}} - 1}{\frac{1.154 + 0.4448[\frac{B}{D_{o}} - 1]}{1.154 + 0.4448[\frac{B}{D_{o}} - 1]}} = 1.773$

$$zeta = \frac{1.44}{1.773 + [1.44 - 1.773] * \frac{1000}{200}} = 13.28$$

8" PIPE

The Leonhardt's Zeta Factor Equation can be calculated using Equation 7.37 of Uni-Bell's Handbook of PVC Pipe, Ch. VII, Design of Buried PVC Pipe, Pg. 239.

Where:

- E' Modulus of soil reaction for in-situ material (psi) = 200 psi
- E_b modulus of soil reaction for the bedding material (psi) = 1000 psi
- B Trench Width, in = 67 in
- D_o outside pipe diameter (in) = 8.40 in

$$zeta = \frac{1.44}{\mathcal{F} + [1.44 - \mathcal{F}] * \frac{E_b}{E'}}$$

where
$$\mathcal{F} = \frac{\frac{B}{D_0} - 1}{1.154 + 0.4448[\frac{B}{D_0} - 1]} = 1.639$$

$$zeta = \frac{1.44}{1.639 + [1.44 - 1.639] * \frac{1000}{200}} = 2.23$$



PIPE STIFFNESS:

6" PIPE Using Equation B.1 in 30 TAC 217.53(k)(3), to calculate pipe stiffness:

Where:

PS Pipe Stiffness in Ibs per in² (psi); for SDR26, pipe stiffness = 115

C Conversion factor; 0.80

- RCS Ring Stiffness constant
- D mean pipe diameter (in) = 6.034 in.

$$PS = C * RSC * \frac{8.337}{D}$$

$$RSC = \frac{PS}{C * \frac{8.337}{D}} = \frac{115}{0.80 * \frac{8.337}{6.034}} = 104.04$$

8" PIPE Using Equation B.1 in 30 TAC 217.53(k)(3), to calculate pipe stiffness:

Where:

PS Pipe Stiffness in Ibs per in² (psi); for SDR26, pipe stiffness = 115

C Conversion factor; 0.80

RCS Ring Stiffness constant

D mean pipe diameter (in) = 8.077 in.

$$PS = C * RSC * \frac{8.337}{D}$$

$$RSC = \frac{PS}{C * \frac{8.337}{D}} = \frac{115}{0.80 * \frac{8.337}{8.077}} = 139.27$$



PREDICTED PIPE DEFLECTION

6" PIPE

Using the Modified Iowa Equation, referenced in the Uni-Bell PVC Pipe Association as Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, the predicted pipe deflection can be calculated as follows:

Where:

 $\%\Delta Y/D$ Predicted % vertical deflection under load

- P Prism load, psi = 12.50 psi
- K Bedding angle constant, assumed to = 0.096
- W' Live Load, psi = 0 at max depth (negligible per table)
- DR Dimension Ration = 26
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- E' Modulus of soil Reaction (zeta x Eb) = 13,283 psi
- DL Deflection Lag Factor = 1.5

Using the Modified Iowa Equation:

$$(\%)\frac{\Delta Y}{D} = \frac{DL * K * P + K * W') * 100}{\left[\frac{2E}{3 * (DR - 1)^3}\right] + 0.061 * E'}\%$$

$$(\%)\frac{\Delta Y}{D} = \frac{(1.5*0.096*12.50+0.096*0)*100}{\left[\frac{2*400,000}{3*(26-1)^3}\right] + 0.061*13,283}\% = 0.218\%$$

The anticipated deflection of 0.218% is less than the industry standard of 5%, therefore the pipe design is acceptable.

A deflection factor of 1.0 is typically used for new pipes. A deflection factor of 1.5 represents a conservative factor to take into account its 50-year life.



8" PIPE

Using the Modified Iowa Equation, referenced in the *Uni-Bell PVC Pipe Association as Equation 14 of Deflection: The Pipe/Soil Mechanism UNI-TR-1-97*, the predicted pipe deflection can be calculated as follows:

Where:

 $\%\Delta Y/D$ Predicted % vertical deflection under load

- P Prism load, psi = 20.12 psi
- K Bedding angle constant, assumed to = 0.096
- W' Live Load, psi = 0 at max depth (negligible per table)
- DR Dimension Ration = 26
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- E' Modulus of soil Reaction (zeta x Eb) = 2,233 psi
- DL Deflection Lag Factor = 1.5

Using the Modified Iowa Equation:

$$(\%)\frac{\Delta Y}{D} = \frac{DL * K * P + K * W') * 100}{\left[\frac{2E}{3 * (DR - 1)^3}\right] + 0.061 * E'}\%$$

$$(\%)\frac{\Delta Y}{D} = \frac{(1.5*0.096*20.12+0.096*0)*100}{\left[\frac{2*400,000}{3*(26-1)^3}\right] + 0.061*2,233}\% = 1.89\%$$

The anticipated deflection of 1.89% is less than the industry standard of 5%, therefore the pipe design is acceptable.

A deflection factor of 1.0 is typically used for new pipes. A deflection factor of 1.5 represents a conservative factor to take into account its 50-year life.



PIPE STRAIN

6" PIPE

Pipe strain is the elongation of the pipe over the original length of the pipe. Under normal loading conditions, the variable that affects the elongation or straining of the pipe stems from either the flexure or deflection of the pipe within the bedding material or hoop stress within the pipe wall. These are calculated below using Equation 15 and 16 found in *Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, referenced by Uni-Bell PVC Pipe Association:*

Where:

- ε_h Max. Pipe strain due to Hoop Stress, in/in
- ε_f Max. Pipe strain due to Ring Deflection, in/in
- ΔY Vertical decrease in diameter from previous deflection equation, 0.01365 in
- P Pressure on the pipe (Live + Prism Loads), psi = 12.50 psi
- t pipe structural wall thickness (in) = 0.241 in.
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- Do outside pipe diameter (in) = 6.275 in
- DR Dimension Ration = 26

Hoop Stress

$$\varepsilon_h = \frac{P * D}{2 * t * E} = \frac{12.50 * 6.275}{2 * 0.241 * 400,000} in/in = 4.1E^{-4} in/in$$

Ring Deflection

$$\varepsilon_{f} = \frac{t}{D} \left[\frac{3 * \Delta Y/D}{1 - 2 * \Delta Y/D} \right] in/in = \frac{1}{DR} \left[\frac{3 * \Delta Y}{D - 2 * \Delta Y} \right] in/in$$
$$\varepsilon_{f} = \frac{1}{26} \left[\frac{3 * 0.01365}{6.275 - 2 * 0.01365} \right] = 2.5E^{-4} in/in$$



8" PIPE

Pipe strain is the elongation of the pipe over the original length of the pipe. Under normal loading conditions, the variable that affects the elongation or straining of the pipe stems from either the flexure or deflection of the pipe within the bedding material or hoop stress within the pipe wall. These are calculated below using Equation 15 and 16 found in *Deflection: The Pipe/Soil Mechanism UNI-TR-1-97, referenced by Uni-Bell PVC Pipe Association:*

Where:

- ϵ_h Max. Pipe strain due to Hoop Stress, in/in
- ϵ_f Max. Pipe strain due to Ring Deflection, in/in
- ΔY Vertical decrease in diameter from previous deflection equation, 0.15877 in
- P Pressure on the pipe (Live + Prism Loads), psi = 20.12 psi
- t pipe structural wall thickness (in) = 0.323 in.
- E Modulus of tensile elasticity of the pipe material, psi = 400,000
- Do outside pipe diameter (in) = 8.40 in
- DR Dimension Ration = 26

Hoop Stress

$$\varepsilon_h = \frac{P * D}{2 * t * E} = \frac{20.12 * 8.40}{2 * 0.323 * 400,000} in/in = 6.5E^{-4} in/in$$

Ring Deflection

$$\varepsilon_{f} = \frac{t}{D} \left[\frac{3 * \Delta Y/D}{1 - 2 * \Delta Y/D} \right] in/in = \frac{1}{DR} \left[\frac{3 * \Delta Y}{D - 2 * \Delta Y} \right] in/in$$
$$\varepsilon_{f} = \frac{1}{26} \left[\frac{3 * 0.15877}{8.40 - 2 * 0.15877} \right] in/in = 2.27E^{-3} in/in$$



Parkside on the River Sections 9A & 10A Att. A - Engineering Design Report Project No.: 2303295

Should you have any questions regarding this submittal, please email me at christine.campbell@hrgreen.com or call at 512-872-6696.

Sincerely,

Christine Campbell, P.E.

Christine Campbell, P.E. HR Green Development TX, LLC TBPE FIRM #16384



Line	Shown on Sheet	Station	Manhole or Clean-out?
A11	67 OF 84	14+69.12	MH
A12	68 OF 84	16+62.96	МН
A13	68 OF 84	20+10.42	МН
A14	68 OF 84	22+10.27	МН
A15	69 OF 84	25+35.06	МН
A16	69 OF 84	28+30.59	MH
A17	69 OF 84	30+13.09	MH
B1	70 OF 84	2+76.45	МН
B2	70 OF 84	4+04.58	МН
B3	70 OF 84	5+32.71	MH
B4	70 OF 84	6+60.84	МН
B5	70 OF 84	7+37.02	MH
B6	71 OF 84	9+16.84	МН
B7	71 OF 84	10+09.22	МН
B8	71 OF 84	11+01.60	МН
B9	71 OF 84	12+20.68	МН
C1	72 OF 84	1+81.48	МН
D1	73 OF 84	2+48.46	МН
E1	74 OF 84	2+76.72	МН
F1	75 OF 84	2+28.52	МН

TABLE 2 – MANHOLES AND CLEANOUTS (CONTINUED)

*continued from table on scs application

Parkside on the River Sections 9A & 10A - Wastewater Line - Flow Calculation & Pipe Sizing																																			
			WASTEWATER FLOWS					Des	ign Parame	eters																									
Project Name: Parksi	de on the River	Sections 9A &	. 10A				SF I	esidents p	er Unit	2.5	per																								
Project Number: 2303	3295						Cons	mption Pe	r Capita	70	gpd																								
Date Prepared: 11/2	7/2023						Dry	Veather Inf	iltration	30	gpcd																								
							Wet	Weather Ini	iltration	1000	gpd/acre																								
							Ma	nning Coef	ficient	0.	013																								
				L	UE's				Are	a					Dry Weather Flo	ow				Wet Weat	ner Flow			Design Flo	w	P	ipe	Full C	apacity		P	eak Wastewc	ater Flow Condif	ion (WWF)	
Line	Mar	nhole	Comments	NMO	TRIBUTARY	Cumulative LUE's	Population	Cumulative Population	NMO	TRIBUTARY	Cumulative Area (ac)	Averag	e Dry Weath (AvgDWF)	ner Flow	Dry Weather Factor	Peak	Dry Weath (DWF)	ier Flow	Rainfall dependent Infiltration & Inflow (RDII)	Peak	Wet Weatt (WWF)	her Flow	MAX WW	TRIBUTARY	TOTAL	Pipe Size	Pipe Slope	Full Pipe Velocity	Full Pipe Flow	q/Q	v/V	y/D	Depth	Velocity	Efficiency
					-							gpd	gpm	cfs		gpd	gpm	cfs	gpd	gpd	gpm	cfs	cfs	cfs	cfs	in	%	fps	cfs			<u> </u>	in	fps	%
	A17	A16	7 LOTS OF SECTIONS 9A & 10A	7		7	18	18	1.59		1.59	1,750	1.2	0.00	4.46	7,798	5.4	0.01	1,590	9,388	6.5	0.01	0.01		0.01	8	4.00	6.94	2.42	0.01	0.32	0.07	0.6	2.23	7%
	A16	A15	8 LOTS OF SECTIONS 9A & 10A	8		15	20	38	1.63		3.22	3,800	2.6	0.01	4.21	15,999	11.1	0.02	3,220	19,219	13.3	0.03	0.03		0.03	8	4.00	6.94	2.42	0.02	0.40	0.10	0.8	2.75	10%
	A15	A14	4 LOTS OF SECTIONS 9A & 10A & WWL E	4	7	26	10	65	1.28	1.41	5.91	6,500	4.5	0.01	4.05	26,313	18.3	0.04	5,910	32,223	22.4	0.05	0.05		0.05	8	4.83	7.63	2.66	0.02	0.40	0.10	0.8	3.02	10%
	A14	A13	4 LOTS OF SECTIONS 9A & 10A & WWL D	4	9	39	10	98	0.95	2.33	9.19	9,800	6.8	0.01	3.93	38,497	26.7	0.06	9,190	47,687	33.1	0.07	0.07		0.07	8	2.20	5.15	1.80	0.05	0.52	0.15	1.2	2.68	15%
	A13	A12	14 LOTS OF SECTIONS 9A & 10A	14		53	35	133	2.53		11.72	13,300	9.2	0.02	3.84	51,091	35.5	0.08	11,720	62,811	43.6	0.10	0.10		0.10	8	2.75	5.76	2.01	0.05	0.52	0.15	1.2	3.00	15%
	A12	A11	2 LOTS OF SECTIONS 9A & 10A	2		55	5	138	0.50		12.22	13,800	9.6	0.02	3.83	52,869	36.7	0.08	12,220	65,089	45.2	0.10	0.10		0.10	8	2.64	5.64	1.97	0.06	0.55	0.17	1.3	3.10	17%
	A11	A10	4 LOTS OF SECTIONS 9A & 10A & WWL C	4	6	65	10	163	0.77	1.64	14.63	16,300	11.3	0.02	3.78	61,690	42.8	0.09	14,630	76,320	53.0	0.12	0.12		0.12	8	2.84	5.85	2.04	0.06	0.55	0.17	1.3	3.22	17%
	A10	A9	2 LOTS OF SECTIONS 9A & 10A	2		67	5	168	0.60		15.23	16,800	11.7	0.03	3.78	63,442	44.1	0.10	15,230	78,672	54.6	0.12	0.12		0.12	8	0.50	2.45	0.86	0.14	0.70	0.25	2.0	1.73	25%
A	A9	A8	3 LOTS OF SECTIONS 9A & 10A & WWL B	3	28	98	8	245	0.83	9.03	25.09	24,500	17.0	0.04	3.67	89,999	62.5	0.14	25,090	115,089	79.9	0.18	0.18		0.18	8	3.69	6.67	2.33	0.08	0.60	0.19	1.5	3.99	19%
	A8	A/		2		100	5	250	0.61		25.70	25,000	17.4	0.04	3.6/	91,700	63./	0.14	25,700	117,400	81.5	0.18	0.18		0.18	8	5.98	8.49	2.96	0.07	0.58	0.18	1.4	4.88	18%
	A/	A6		2		102	5	255	0.74		26.44	25,500	17./	0.04	3.66	93,398	64.9	0.14	26,440	101.00/	83.2	0.18	0.18		0.18	8	8.00	9.82	3.43	0.06	0.55	0.17	1.3	5.40	17%
	A5	AJ		0		103	0	258	0.11		20.01	25,800	17.9	0.04	3.66	94,410	65.6	0.14	26,010	121,220	84.3	0.18	0.18		0.18	8	2.00	7.02	1.71	0.00	0.55	0.22	1.5	3.23	22%
	A4	A3		0		103	0	258	0.11		27.03	25,800	17.9	0.04	3.66	94.416	65.6	0.14	27,030	121,000	84.3	0.18	0.18		0.18	8	0.75	3.01	1.71	0.18	0.76	0.22	2.3	2.28	22%
	A3	A2		0		103	0	258	0.12		27.15	25,800	17.9	0.04	3.66	94.416	65.6	0.14	27,150	121,566	84.4	0.18	0.18		0.18	8	0.75	3.01	1.05	0.18	0.76	0.29	2.3	2.28	29%
	A2	Al	0 LOTS OF SECTIONS 9A & 10A	0		103	0	258	0.11		27.26	25.800	17.9	0.04	3.66	94,416	65.6	0.14	27,260	121,676	84.5	0.19	0.19		0.19	8	3.85	6.81	2.38	0.08	0.60	0.19	1.5	4.08	19%
	Al	EX-1	0 LOTS OF SECTIONS 9A & 10A	0		103	0	258	0.07		27.33	25,800	17.9	0.04	3.66	94,416	65.6	0.14	27,330	121,746	84.5	0.19	0.19		0.19	8	8.07	9.86	3.44	0.06	0.55	0.17	1.3	5.42	17%
	1				1			-							r	1					1		1		1		1			1	1	<u> </u>			
	B9	B8	4 LOTS OF SECTIONS 9A & 10A	4		4	10	10	1.37		1.37	1,000	0.7	0.00	4.64	4,643	3.2	0.01	1,370	6,013	4.2	0.01	0.01		0.01	8	2.88	5.89	2.06	0.01	0.32	0.07	0.6	1.89	7%
	B8	B7	2 LOTS OF SECTIONS 9A & 10A	2		6	5	15	0.78		2.15	1,500	1.0	0.00	4.51	6,760	4.7	0.01	2,150	8,910	6.2	0.01	0.01		0.01	8	3.74	6.71	2.34	0.01	0.32	0.07	0.6	2.15	7%
	B7	B6	4 LOTS OF SECTIONS 9A & 10A	4		10	10	25	1.34		3.49	2,500	1.7	0.00	4.34	10,853	7.5	0.02	3,490	14,343	10.0	0.02	0.02		0.02	8	3.84	6.80	2.37	0.01	0.32	0.07	0.6	2.18	7%
	B6	B5	3 LOTS OF SECTIONS 9A & 10A	3		13	8	33	0.96		4.45	3,300	2.3	0.01	4.25	14,038	9.7	0.02	4,450	18,488	12.8	0.03	0.03		0.03	8	3.93	6.88	2.40	0.02	0.40	0.10	0.8	2.72	10%
В	B5	B4	I LOT OF SECTIONS 9A & 10A & WWL F	1	0	14	3	35	0.36	0.17	4.98	3,500	2.4	0.01	4.24	14,825	10.3	0.02	4,980	19,805	13.8	0.03	0.03		0.03	8	3.93	6.88	2.40	0.02	0.40	0.10	0.8	2.72	10%
	84	B3		4	-	18	10	45	1.13		6.11	4,500	3.1	0.01	4.16	18,/14	13.0	0.03	6,110	24,824	17.2	0.04	0.04		0.04	8	3.99	6.93	2.42	0.02	0.40	0.10	0.8	2./4	10%
	B3	B2		4		22	10	55	1.11		7.22	5,500	3.8	0.01	4.10	22,539	15./	0.03	7,220	29,/59	20.7	0.05	0.05		0.05	8	3.53	6.52	2.28	0.02	0.40	0.10	0.8	2.58	10%
	B2	B1		2		24	3	70	0.63		7.85	6,000	4.2	0.01	4.07	24,431	17.0	0.04	7,850	32,281	22.4	0.05	0.05		0.05	8	1.3/	4.06	1.42	0.04	0.49	0.14	1.1	1.78	14%
	DI	A7	4 LOTS OF SECTIONS 7A & TOA	4		20	10	70	1.10		7.03	7,000	4.7	0.01	4.03	20,103	17.0	0.04	7,030	37,213	23.0	0.08	0.06		0.08	0	0.64	2.70	0.77	0.08	0.55	0.17	1.5	1.35	17/0
с	C1	A11	6 LOTS OF SECTIONS 9A & 10A	6		6	15	15	1.64		1.64	1,500	1.0	0.00	4.51	6,760	4.7	0.01	1,640	8,400	5.8	0.01	0.01		0.01	8	4.46	7.33	2.56	0.01	0.32	0.07	0.6	2.35	7%
D	D1	A14	9 LOTS OF SECTIONS 9A & 10A	9		9	23	23	2.33		2.33	2,250	1.6	0.00	4.38	9,844	6.8	0.01	2,330	12,174	8.5	0.02	0.02		0.02	8	5.29	7.98	2.79	0.01	0.32	0.07	0.6	2.56	7%
-				-	1		10	10			1 1 43	1 750	1.0	0.00		7 700	<i>с</i> .	0.01	1.000	0.000			0.01		0.01	~	2.10				0.00	<u> </u>	<u> </u>	<u> </u>	
EE	EI	A15	7 LOIS OF SECTIONS 9A & TOA	/		7	18	18	1.41		1.41	1,750	1.2	0.00	4.46	7,798	5.4	0.01	1,410	9,208	6.4	0.01	0.01		0.01	8	3.10	6.11	2.13	0.01	0.32	0.07	0.6	1.96	/%
F	F1	B5	0 LOTS OF SECTIONS 9A & 10A	0		0	0	0	0.17		0.17	0	0.0	0.00	0.00	0	0.0	0.00	170	170	0.1	0.00	0.00		0.00	8	1.00	3.47	1.21	0.01	0.32	0.07	0.6	1.11	7%

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: Christine Campbell, P.E.

Date: <u>12/19/2023</u>

Signature of Customer/Agent:

Chuth Cmphill

Regulated Entity Name: Parkside on the River Sections 9A & 10A

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: _____

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: <u>San Gabriel River</u>

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 used in combination with other erosion and sediment controls within each 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 at one time.

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

The following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite.
 Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the Owner and to the appropriate State or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring 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.
- The site superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel 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 responsible spill personnel will be posted in the material storage area and in the office trailer onsite.
- Any reportable quantity hydrocarbon or hazardous material spill should be reported to the TCEQ at the following 24-hour toll free number 1-800-832-8224.

For a spill of Reportable Quantity:

- Initial notification. Upon the determination that a reportable discharge or spill has occurred, the responsible person shall notify the agency as soon as possible but not later than 24 hours after the discovery of the spill or discharge.
- Method of notification. The responsible person shall notify the agency in any reasonable manner including by telephone, in person, or by any other method approved by the agency. In all cases, the initial notification shall provide, to the extent known, the information listed in subsection (d) of Title 30, Part I, Chapter 327, Rule §327.3. Notice provided under this section satisfies the federal requirement to notify the State Emergency Response Commission in the State of Texas.
- Notification of local government authorities. If the discharge or spill creates an imminent health threat, the responsible person shall immediately notify and cooperate with local emergency authorities. The responsible party will cooperate with the local emergency authority in providing support to implement appropriate notification and response actions. The local emergency authority, as necessary, will implement its emergency management plan, which may include notifying and evacuating affected persons. In the absence of a local emergency authority, the responsible person shall take reasonable measures to notify potentially affected persons of the imminent health threat.
- As soon as possible, but no later than two (2) weeks after discovery of the spill or discharge, the Contractor shall reasonably attempt to notify the Owner (if identifiable) or Occupant of the property upon which the discharge or spill occurred as well as the occupants of any property that the Contractor believes is adversely affected.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tceq.texas.gov /response/



Vehicle and Equipment Maintenance:

- 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.
- Regularly inspect onsite vehicles and equipment for leaks and repair immediately.
- 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 onsite.
- Always use secondary containment, such as drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.
 - Place drip pans or absorbent materials under paving equipment when not in use.
 - Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the
 absorbent materials promptly and dispose of properly.
 - Promptly transfer used fluids to the proper waste or recycling drums. Do not leave full drip pans or other containers lying around.
 - Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over the waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.
 - Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all of 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.

ATTACHMENT B – POTENTIAL SOURCES OF CONTAMINATION

Once grading activities begin, erosion of bare soil during rainfall events is the most common source of contamination. Silt fences will be installed at the beginning of the grading operation to minimize the potential for transport of the soil offsite.

Asphalt products will be used on this project. After placement of asphalt, emulsion, or coatings, the applicant will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt curing time, the applicant should maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur.

During construction activities, potential sources of contamination would include petroleum products leaking from construction equipment. The contractor will be advised to keep the equipment in working order and report any spills per the spill response plan.

Other potential sources of contamination include hydraulic fluid and diesel fuel from mechanical equipment and vehicles, as well as paints and chemicals used on site. Any spills shall be handled according to the Spill Response Actions in Attachment A.

ATTACHMENT C – SEQUENCE OF MAJOR ACTIVITIES

The first activity of construction will be to install the erosion control measures, consisting of silt fences, tree protection, storm drains, inlet protection, rock berm, and a stabilized construction entrance. Temporary erosion control measures will remain in place throughout the duration of construction and will be required to be maintained by the contractor to ensure proper functionality, especially after storm events. All disturbed areas to remain pervious will be vegetated using the procedures detailed in the construction plans and all temporary erosion control measures will be removed upon revegetation. Construction activities associated with this application is expected to disturb 33.14 acres of the site.

Major Construction Activities and Sequencing:

The major construction activities for this project will include and be sequenced as follows:

1. Established Best Management Practices shall consist of the following: silt fencing, temporary spoils areas, concrete truck washout pits, and a temporary construction entrance (Estimated area to be disturbed = 0.58 Acres). These items are to remain and be maintained throughout all construction activities.



- Initial site mass grading operation including right-of-way and first grading. (Estimated area to be disturbed = 11.10 Acres)
- 3. Installation of utilities including storm, water, and wastewater (Estimated area to be disturbed = 0.91 Acres)
- Construction of street/driveway pavement including backfill behind curbs (estimated area to be disturbed = 5.72 Acres)
- 5. Total Construction (estimated area to be disturbed = 33.14 Acres)
- 6. Final soil stabilization for the site and removal of temporary BMPs once the soil has been stabilized.

The contractor is responsible for implementing and maintaining the storm water pollution prevention plan which includes maintaining all the necessary erosion controls throughout construction.

ATTACHMENT D – TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

As shown on the Construction Erosion Control Plans, temporary BMP practices and measures will include installing silt fences, inlet protection, rock berm, a stabilized construction entrance, a concrete truck washout, and a temporary spoils area prior to beginning grading operations on the site. Temporary measures are intended to provide a method of slowing the upgradient flow, onsite flow or runoff from the construction site in order to allow sediment and suspended solids to settle out of the water. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features. As a temporary BMP, a silt fence will be installed to reduce pollutants. BMP measures utilized in this plan are intended to allow storm water to continue downstream after passing through for treatment.

Site Preparation:

The methodology for pollution prevention of all on-site stormwater will include a) the erection of silt fences along the downgradient boundary of the construction activities, b) installation of inlet protection at all inlets, c) installation of a stabilized construction entrance to reduce the dispersion of sediment from the site, and d) installation of a construction staging area.

Construction:

All installed erosion control measure will be inspected, and if necessary, repaired before any additional construction begins, as well as periodically throughout the construction process. The contractor will be responsible for all maintenance of erosion control measures, as well as the installation of all remaining on-site control measures, including the concrete truck washout, as necessary.

ATTACHMENT E – REQUEST TO TEMPORARILY SEAL A FEATURE

There is one sensitive feature on-site within Parkside on the River Sections 9A & 10A as shown in the geologic assessment and construction plans. Sensitive feature F-2 is located on site and has a buffer extending 50' in all directions. There will be no sealing of sensitive features on the site.

ATTACHMENT F – STRUCTURAL PRACTICES

Most of the site flows and upgradient run off will encounter the Section 8 batch detention pond. There is roughly 2.13 acres of impervious cover in Parkside on the River Sections 9A & 10A that will bypass treatment. The BMPs are overtreating to account for the bypass impervious cover.

ATTACHMENT G – DRAINAGE AREA MAPS

Refer to the construction plans attached.

ATTACHMENT H – TEMPORARY SEDIMENT POND(S) PLANS AND CALCULATIONS

The batch detention pond will act as a temporary and permanent sedimentation pond. The Section 8 pond (BDP-01) provides 137,853 CF of water quality volume.

The calculated temporary sedimentation pond volume required is calculated below.



Calculation: Required Volume = (Rainfall Depth*Runoff Coefficient*Drainage Area*120%) = 1.60 in. * 0.33 * 57.62 acres * 120% = 132.524 CF

ATTACHMENT I – INSPECTION AND MAINTENANCE FOR BMPS

See construction plans included with this application submittal.

Temporary Best Management Practices (BMPs) and measures will be used during construction to prevent pollution of groundwater, surface water and naturally occurring environmental features. Silt fence, inlet protection, stabilized construction entrance, tree protection, concrete washout area, and a temporary spoils area will be installed prior to beginning construction and prior to commencement of any of the activities defined in the sequence of construction as Attachment C. Inspection and maintenance of the on-site controls shall be performed during the site clearing and rough grading process. Weekly inspections will be documented in an inspection report. The inspection reports will document maintenance activities, sediment removal, and any modifications to the erosion and sedimentation controls. The perimeter fence shall be regularly monitored to ensure that the buffers remain no-construction zones until the site work has been completed and authorization has been granted by the engineer. Refer to the construction plans attached for specific controls and details.

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 run-off from the site, and through the use of silt fences placed immediately downstream of disturbed areas and inlet protection at all inlets. To minimize destruction to any portion of the Recharge Zone, on-site perimeter silt fence will also be implemented for pertinent areas throughout the entirety of construction. The Contractor is expected to inspect the controls weekly and after significant rainfalls to ensure proper function. When silt accumulates six (6) inches in depth the Contractor shall promptly remove the silt from the controls.

BMPs and measures will prevent pollutants from entering surface streams or the aquifer by intercepting stormwater potentially carrying sediment and other pollutants. BMPs and measures will implement a stabilized construction entrance, a construction stockpiling/staging area, and a concrete washout area to help minimize pollutant run-off and erosion generated during construction. Paved streets and driveways adjacent to these sites will be cleaned regularly to remove excess mud, dirt or rock tracked from the site. Sedimentation will be concentrated only in these areas for efficient maintenance. Water trucks will be on-site as necessary to aid be cleaned regularly to remove excess mud, dirt or rock tracked from the site. Sedimentation will be concentrated only in these areas for efficient maintenance. Water trucks will be on-site as necessary to aid in controlling dust. BMPs will be implemented to limit/prevent contaminated inflow from entering surface streams or the aguifer. These practices are to include the following measures; the use of silt fence and inlet protection. The fabricated silt fence barricade will provide help to reduce the likelihood of contaminated runoff from entering the aquifer. If any sensitive features are identified by TCEQ inspections, or during excavation or construction, measures appropriate to the sensitivity of the discovered feature will be enacted. No blasting is proposed.

Temporary Erosion and Sedimentation Notes:

- 1. The Contractor shall maintain, install erosion/sedimentation controls and tree/natural protective fencing prior to any site preparation work (clearing, grubbing or excavation).
- 2. The placement of erosion/sedimentation controls and tree/natural area protective fencing shall be in accordance with the TCEQ Technical Guidance Manual and the approved Erosion and Sedimentation Control Plan. No erosion controls shall be placed beyond the property lines of the site unless written permission has been obtained from adjacent property owners.
- 3. A pre-construction conference shall be held on-site with the Contractor, design engineer/permit applicant and Environmental Inspector after installation of the erosion/sedimentation and tree/natural area protection measures and prior to beginning any site preparation work. The Contractor shall notify the Environmental Inspector at least three (3) days prior to the meeting date.



Parkside on the River Sections 9A & 10A Sewage Collection System (SCS) Project No.: 2303295

- 4. Any major variation in materials or locations of controls or fences from those shown on the approved plans will require a revision and must be approved by the reviewing engineer, environmental specialist or city arborist as appropriate. Minor changes to be made as field revisions to the Erosion and Sedimentation Control Plan may be required by the Environmental Inspector during the course of construction to correct control inadequacies.
- 5. The Contractor is required to inspect the controls at weekly intervals and after significant rainfall events to ensure that they are functioning properly. The person(s) responsible for maintenance of controls shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six (6) inches.
- 6. Prior to final acceptance by the City, haul roads and waterway crossing constructed for temporary Contractor access must be removed, accumulated sediment removed from the waterway and the area restored to the original grade and revegetated. All land clearing debris shall be disposed of in approved soil disposal sites.
- 7. All work must stop if a void in the rock substrate is discovered, which is one (1) square foot in total area, blows air from within the substrate, and/or consistently received water during any rain event. At this time it is the responsibility of the project manager to immediately contact an Environmental Inspector for further investigation.
- 8. All slopes shall be sodded or seeded with approved grass, grass mixtures or ground cover suitable to the area and season in which they are applied.
- 9. Silt fences, rock berms, sedimentation basins and similarly recognized techniques and materials shall be employed during construction to prevent point source sedimentation loading of downstream facilities. Such installation shall be regularly inspected for effectiveness. Additional measures may be required if, in the opinion of the City Engineer, they are warranted.
- 10. All temporary erosion control measures shall not be removed until final inspection and approval of the project by the engineer. It shall be the responsibility of the Contractor to maintain all temporary erosion control structures and to remove each structure as approved by the engineer.
- 11. Any dirt, mud, rocks, debris, etc., that is spilled, tracked, or otherwise deposited on any existing paved street shall be cleaned up immediately.

Dewatering Operations

- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP area under way, inspect weekly to verify continued BMP implementation.
- 2. Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- 3. Unit-specific maintenance requirements are included with the description of each technology.
- 4. Sediment removed during the maintenance of a dewatering device may be either spread onsite and stabilized, or disposed of at a disposal site.
- 5. Sediment that is commingled with other pollutants must be disposed of in accordance with all applicable laws and regulations.

ATTACHMENT J – SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

Contractors will ensure that existing vegetation is preserved where attainable and that disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to temporary seeding, permanent seeding, mulching, geotextiles, sodding, tree protection, preservation of natural vegetation and other appropriate measures. All slopes shall be sodded or seeded with approved grass, grass mixtures or ground cover suitable to the area and season in which they are applied. Except as noted below, stabilization shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the activity has temporarily or permanently ceased. Refer to the construction plans attached for the TCEQ Notes, the Existing Conditions & Tree Survey, and the Erosion & Sedimentation Control Plan.

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

I	Blake Magee Print Name
	President Title - Owner/President/Other
of	HM Parkside, LP
have authorized	Corporation/Partnership/Entity Name Christine Campbell, P.E.
	Print Name of Agent/Engineer
01	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:

Blake Magee Applicant's Signature

11-13-23 Date

THE STATE OF Texas §

County of _ Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Blake Magee 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 <u>13th</u>day of November , 2023.

NOTARY PUBL

AMY LYNN PAYNE Notary ID #124190357 My Commission Expires August 18, 2027

Amy Lynn Payne Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 11-13-23

Application Fee Form

Texas Commission on Environmenta	al Quality				
Name of Proposed Regulated Entity: Parkside on the River Sections 9A & 10A					
Regulated Entity Location: Located east of Parkside Parkway. East of Parkside on the River					
Phase 3 Sections 4, 7A & 7B. Prop	perty ID R574025, R3	<u>12360, R574027, R500</u>	<u>990, R500991,</u>		
<u>R500992, R501370</u>					
Name of Customer: HM Parkside, LP					
Contact Person: <u>Blake Magee</u>	Phone	e: <u>512-481-0303</u>			
Customer Reference Number (if issu	ed):CN <u>605721653</u>				
Regulated Entity Reference Number	(if issued):RN				
Austin Regional Office (3373)					
Hays	Travis	🖂 Wil	liamson		
San Antonio Regional Office (3362)					
Bevar	Medina		مالم		
			liuc		
Application fees must be paid by che	CK, CERTIFIED CHECK, O	r money order, payable	e to the lexas		
Commission on Environmental Qua	lity. Your canceled cr	ieck will serve as your	receipt. Inis		
	ee payment . This pa	lyment is being submit			
🔀 Austin Regional Office	Sa	in Antonio Regional Of	fice		
Mailed to: TCEQ - Cashier	0 Ov	vernight Delivery to: T	CEQ - Cashier		
Revenues Section	12	2100 Park 35 Circle			
Mail Code 214	Bu	uilding A, 3rd Floor			
P.O. Box 13088	Au	ustin, TX 78753			
Austin, TX 78711-3088	(5	12)239-0357			
Site Location (Check All That Apply)	:				
Recharge Zone	Contributing Zone	Transit	ion Zone		
Type of Plan		Size	Fee Due		
Water Pollution Abatement Plan, C	ontributing Zone				
Plan: One Single Family Residential	Dwelling	Acres	\$		
Water Pollution Abatement Plan, C	ontributing Zone				
Plan: Multiple Single Family Resider	ntial and Parks	Acres	\$		
Water Pollution Abatement Plan, C					
Plan: Non-residential	Acres	\$			
Sewage Collection System	5,931 L.F.	\$ 2,965.50			
Lift Stations without sewer lines	Acres	\$			
Underground or Aboveground Stor	Tanks	\$			
Piping System(s)(only)	Each	\$			
Exception		Each	\$		
Extension of Time	Each	\$			

Signature: Chuth Cmphill Date: 12/19/2023

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	\$1,500
	5 < 10	\$3,000
	10 < 40	\$4,000
	40 < 100	\$6,500
	100 < 500	\$8,000
	≥ 500	\$10,000
Non-residential (Commercial, industrial,	< 1	\$3,000
institutional, multi-family residential, schools, and	1 < 5	\$4,000
other sites where regulated activities will occur)	5 < 10	\$5,000
	10 < 40	\$6,500
	40 < 100	\$8,000
	≥ 100	\$10,000

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	Fee			
Exception Request	\$500			

Extension of Time Requests

Project	Fee
Extension of Time Request	\$150



TCEQ Core Data Form

For detailed instructions 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 (<i>if issued</i>) Follow this link to search 3. Regulated Entity Reference Number (<i>if issued</i>)					
CN 605721653 for CN or RN numbers in Central Registry** RN					
SECTION II: Customer Information					
4. General Customer Information 5. Effective Date for Customer Information Updates (mm/dd/yyyy)					
New Customer Update to Customer Information Change in Regulated Entity Ownership					
The Customer Name submitted here may be updated automatically based on what is current and active with the	he				
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:					
HM Parkside, LP					
7. TX SOS/CPA Filing Number 8. TX State Tax ID (11 digits) 9. Federal Tax ID (9 digits) 10. DUNS Number (if applied)	able)				
0803154683 32068805335					
11. Type of Customer: Corporation Individual Partnership: General 🛛 Limited					
Government: City County Federal State Other Sole Proprietorship Other:					
12. Number of Employees 13. Independently Owned and Operated?					
⊠ 0-20 ⊠ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher ⊠ 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:					
1011 North Lamar Boulevard					
15. Mailing					
Address: City Austin State TX ZIP 78703 ZIP + 4					
16. Country Mailing Information (if outside USA) 17. E-Mail Address (if applicable)					
Blake@blakemageeco.com					
18. Telephone Number 19. Extension or Code 20. Fax Number (if applicable)					
(512) 481-0303 () -					

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

 ○ 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.)

Parkside on the River Sections 9A & 10A

23. Street Address of the Regulated Entity:	Located & 7B.	east of Par	ksid	e Parkway.	Eas	st of	Parkside	e on th	e River I	Phase 3 Sec	ctions 4, 7A
(NO PO BOXES)	City	Georgeto	wn	State	T	X	ZIP	780	528	ZIP + 4	
24. County	William	son County	7							•	
	En	ter Physical Lo	ocatio	on Description	n if no	o stre	et address	is prov	ided.		
25. Description to Physical Location:	Located & 7B. P R50137	east of Parl roperty ID	kside R574	e Parkway. 4025, R312	Eas 2360	t of]), R5	Parkside 74027, I	e on the R5009	e River F 90, R500	Phase 3 Sec 9991, R500	tions 4, 7A 992,
26. Nearest City								State	•	Nea	arest ZIP Code
Georgetown								ΤX		78	628
27. Latitude (N) In Decir	nal:	30.609739)			28. I	Longitude	(W) li	n Decimal:	-97.7661	78
Degrees	Minutes		Seco	nds		Degre	ees		Minutes		Seconds
30	-	36		35.06N			97			45	58.24W
29. Primary SIC Code (4 digits) 30. Secondary SIC Code (4 digits)			31. (5 or	Prima 6 digits	ary NAICS	Code	32. S (5 or 6	Secondary NA	ICS Code		
1521					23	6115	i				
33. What is the Primary B	usiness of t	this entity?	(Do not	repeat the SIC or	NAICS	S descri	iption.)				
Land Development -	Single F	amily Resid	lenti	al							
				10)11 N	lorth I	Lamar Bou	ulevard			
34. Mailing											
Address:	City	Austin		State		ТΧ	ZIP		78703	ZIP + 4	
35. E-Mail Address:					bla	ke@b	lakemage	eco.con	n		
36. Telepho	ne Number			37. Extensio	n or	Code		3	8. Fax Nur	nber <i>(if applic</i>	able)
(512) 4	81-0303								() -	
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 Aquife		ier Emissions Inventory Air		ory Air	Industrial Hazardous Waste					
Municipal Solid Waste	New Source Review Air OSSF			Petroleum Storage Tank		e Tank	PWS				
Sludge	Storm W	ater		Title V Air		Tires			Used Oil		
Voluntary Cleanup	U Waste W	/ater		Wastewater Agr	icultu	re	Water R	ights		Other:	

SECTION IV: Preparer Information

40. Name:	Christine Ca	ampbell		41. Title:	Project Engineer
42. Telephone	e Number	43. Ext./Code	44. Fax Number	45. E-Mail /	Address
(512)872	-6696		() -	christine	.campbell@hrgreen.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:	HR Green Development TX, LLC	Job Title:	Project Engineer		
Name(In Print) :	rint) : Christine Campbell				(512) 872-6696
Signature:	ire: Chat Canfull			Date:	12/19/2023

OWNER/DEVELOPER:

HM PARKSIDE, LP 1011 NORTH LAMAR BLVD. AUSTIN, TX 78703 (512) 481-0303

ENGINEER/SURVEYOR: HR GREEN DEVELOPMENT TX, LLC

5508 HIGHWAY 290 WEST, SUITE 150 AUSTIN, TEXAS 78735 512.872.6696

WATERSHED STATUS:

THIS SITE IS LOCATED IN THE SOUTH FORK OF THE SAN GABRIEL WATERSHED. THIS SITE IS LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE AND CONTRIBUTING ZONE.

FLOODPLAIN INFORMATION:

NO PORTIONS OF THIS SUBDIVISION ARE WITHIN SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100 YEAR FLOOD AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NUMBER 48491C0460F, EFFECTIVE DATE DECEMBER 20, 2019.

LEGAL DESCRIPTION:

34.42 ACRES OF LAND IN THE JOSEPH THOMPSON SURVEY, ABSTRACT NO. 608 AND THE W.E. PATE SURVEY, ABSTRACT NO. 836, WILLIAMSON COUNTY, TEXAS BEING A PORTION OF A CERTAIN CALLED 1,143.511 ACRE TRACT OF LAND, DESIGNATED AS TRACT 1, AND DESCRIBED IN THE SPECIAL WARRANTY DEED TO HM PARKSIDE, LP OF RECORD IN DOCUMENT NO. 2018114043, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, AND ALSO BEING A PORTION OF A CERTAIN CALLED 314.00 ACRE TRACT OF LAND DESIGNATED AS TRACT 1 AND DESCRIBED IN THE SPECIAL WARRANTY DEED TO HM GPII, LP OF RECORD IN DOCUMENT NO. 2021027159, OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS

BENCHMARK NOTE:

NAVD 88 (GEOID 12A)

BM(1380)-221:

COTTON GIN SPINDLE FOUND IN THE SOUTH EDGE OF A CONCRETE SIDEWALK ELEVATION = 962.21 FEET.

BM(1380)-700100:

MAGNAIL WITH WASHER STAMPED HR GREEN SET IN CONCRETE RIM OF WATER MANHOLE ELEVATION = 940.16 FEET

BM(1380)-700200: MAGNAIL WITH WASHER STAMPED HR GREENSET IN CONCRETE BASE OF BOLLARD ELEVATION = 890.30 FEET.

UTILITY PROVIDERS:

WATER & WASTEWATER:	GEORGETOWN UTILITY SYSTEMS 300-1 INDUSTRIAL AVENUE, GEORGETOWN TX 78626 (512) 930-3555 GUS@GEORGETOWN.ORG
ELECTRIC:	PEDERNALES ELECTRIC COOPERATIVE

(877) 372-0391

NO LIABILITY NOTE:

LIMITATION OF LIABILITY - HR GREEN DEVELOPMENT TX, LLC ASSUMES NO LIABILITY FOR ANY DESIGN OR DRAWINGS IN THESE PLANS, THAT ARE NOT SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED WITH THE TEXAS BOARD OF PROFESSIONAL ENGINEERS AS A MEMBER OF THIS FIRM (#F-16384). OTHER CONSULTANTS WORK SHOWN IN THESE PLANS IS THE RESPONSIBILITY OF THE CONSULTANT WHO PREPARED SUCH WORK, AND IS INCLUDED IN THIS PLAN SET FOR REVIEW REQUIREMENTS ONLY.

SITE PLAN COMPONENTS – ALL BUILDING AND STRUCTURAL IMPROVEMENTS SHOWN HEREON ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. HR GREEN DEVELOPMENT TX, LLC IS NOT RESPONSIBLE OR LIABLE FOR THE DESIGN OF BUILDING OR STRUCTURAL IMPROVEMENTS BY OTHERS.

STRUCTURAL COMPONENTS - ALL STRUCTURAL DESIGN IS THE RESPONSIBILITY OF THE OWNER S STRUCTURAL ENGINEER. STRUCTURAL DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER S STRUCTURAL ENGINEER.

PAVEMENT DESIGN – PAVEMENT DESIGN SHOWN HEREON IS THE DESIGN OF THE OWNER S GEOTECHNICAL CONSULTANT. HR GREEN DEVELOPMENT TX, LLC MAKES NO WARRANTY OR GUARANTEE AS TO ITS SUITABILITY, AND ASSUMES NO LIABILITY THEREFOR.

NOTES:

- 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.
- THIS PROJECT IS SUBJECT TO ALL CITY STANDARD SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF SUBMITTAL OF THE PROJECT TO THE CITY
- THE PROPERTY SUBJECT TO THIS APPLICATION IS SUBJECT TO THE 3.
- WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN 4. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED ON OCTOBER 18, 2023). ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE
- GEOLOGIC ASSESSMENT ARE SHOWN HEREIN. THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF PARKSIDE ON THE 5. RIVER DEVELOPMENT AGREEMENT (ORDINANCE NO. 2019-69).

CIVIL CONSTRUCTION PLANS PARKSIDE ON THE RIVER MUNICIPAL UTILITY DISTRIC PARKSIDE ON THE RIVE SECTIONS 9A & 10A

REVISIONS					
Number	Date	Description			

GEORGETOWN, WILLIAMSON COUNTY, TEXAS 2023-xx-CON

INITIAL SUBMITTAL DATE: 11/15/2023



REVIEWED FOR COMPLIANCE WITH

PARKSIDE ON THE RIVER M.U.D. NO. 2

st nd. IR	2			BY DATE
	Sheet Number 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59	Sheet Tile COVER SHEET GENERAL NOTES TOEQ NOTES PRELIMINARY PLAT (1 OF 2) PRELIMINARY PLAT (2 OF 2) EXISTING CONDITIONS PLAN PROPOSED PARKWAY INDOUND PLAN & PROFILE 1+00 - 8+02 PARKSIDE PARKWAY INDOUND PLAN & PROFILE 1+00 - 8+02 PARKSIDE PARKWAY INDOUND PLAN & PROFILE 1+00 - 8+02 PARKSIDE PARKWAY OUTBOUND PLAN & PROFILE 1+00 - 8+02 PARKSIDE PARKSINE PARKSIDE PARKSINE PARK	5508 HIGHWAY 290 WEST SUITE 150 AUSTIN TY 78735	DEVELOPMENT TX BER NOT TX 1014101 TBRE NOT TX 1014101 TBRE NOT TX 1014101 TBRE NOT 1014101 TBRE NO
DATE	60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84	STORM C-1 & D-1 PLAN & PROFILE DRAINAGE DETAILS OVERALL WASTEWATER PLAN A OVERALL WASTEWATER PLAN D WWL A PLAN & PROFILE 1+00 - 8+50 WWL A PLAN & PROFILE 1+00 - 8+50 WWL A PLAN & PROFILE 16+00 - 24+00 WWL A PLAN & PROFILE 16+00 - 24+00 WWL B PLAN & PROFILE 16+00 - END WWL B PLAN & PROFILE 1+00 - 8ND WWL D PLAN & PROFILE 1+00 - END WWL C PLAN & PROFILE 1+00 - END WWL C PLAN & PROFILE 1+00 - END WWL F PLAN & PROFILE 1+00 - END WASTEWATER DETAILS SHT 1 OF 2 WASTEWATER DETAILS SHT 2 OF 2 OVERALL WATER PLAN A OVERALL WATER PLAN B OVERALL WATER PLAN B OVERALL WATER PLAN B OVERALL WATER PLAN C WL F PLAN & PROFILE 1+00 - END WATER DETAILS SHT 1 OF 2 WATER DETAILS SHT 1 OF 2 WATER DETAILS SHT 2 OF 2	DESIGN	PARKSIDE SECTION 9A &10A CONSTRUCTION PLANS GEORGETOWN, WILLIAMSON, TEXAS
			CHECK	ED BY: <u>SN</u> VED BY: 1_ of 84 _

2023-XX-CON

GENERAL CONSTRUCTION NOTES

- 1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN REVIEWING THESE PLANS, THE CITY OF GEORGETOWN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.
- 2. CONTRACTOR SHALL NOTIFY GEORGETOWN UTILITIES AT 512-930-3555 AT LEAST 24 HOURS PRIOR TO THE INSTALLATION OF ANY DRAINAGE FACILITY WITHIN A DRAINAGE EASEMENT OR STREET R.O.W. THE METHOD OF PLACEMENT AND COMPACTION OF BACKFILL IN THE CITY'S R.O.W. MUST BE APPROVED PRIOR TO THE START OF BACKFILL OPERATIONS.
- 3. FOR SLOPES OR TRENCHES GREATER THAN FIVE (5) FEET IN DEPTH, A NOTE MUST BE ADDED STATING THAT CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION. COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 E. 6TH STREET, AUSTIN, TEXAS.
- 4. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS. 5. <u>CONTRACTOR INFORMATION</u>
 - CONTRACTOR: UNKNOWN AT TIME OF SUBMITTAL

CONTRACTOR ADDRESS: <u>N/A</u>PHONE <u># N/A</u> DEVELOPER'S REPRESENTATIVE RESPONSIBLE FOR PLAN ALTERATIONS:

HR GREEN DEVELOPMENT TX, LLC. PERSON OR FIRM RESPONSIBLE FOR EROSION/SEDMENTATION CONTROL MAINTENANCE: HM PARKSIDE DEVELOPMENT INC. PHONE# 512-481-0303 PERSON OF FIRM RESPONSIBLE FOR TREE/NATURAL AREA PROTECTION MAINTENANCE:

HM PARKSIDE DEVELOPMENT INC. PHONE# 512-481-0303

- 6. TOPOGRAPHIC DATA SHOWN HEREON BASED ON GROUND TOPO SURVEY BY HR GREEN ON OCTOBER 2023.
- 7. IF CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS, HE/SHE SHOULD CONTACT THE ENGINEER/SURVEYOR IMMEDIATELY.
- 8. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED AND GRADED TO DRAIN.
- 9. ANY TEMPORARY SPOILS STOCKPILE MUST BE LOCATED OUTSIDE OF ANY TREE DRIPLINES AND IN THE TEMPORARY SPOILS AREA DESIGNATED ON THE APPROVED PLANS. ALL SURPLUS MATERIAL WILL BE DISPOSED OF OFFSITE
- 10. ALL DEBRIS AND EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE IN A MANNER NOT TO DAMAGE THE OWNER'S PROPERTY PRIOR TO ACCEPTANCE OF THE PROJECT.
- 11. IF CONTRACTOR ENCOUNTERS A VOID ON THE PROJECT, CONTRACTOR IS TO CONTACT ENGINEER AT (512) 872-6696 OR CRAIG CRAWFORD AT CAMBRIAN ENVIRONMENTAL AT (512) 705-5541 FOR EVALUATION OF THE FEATURE. ONCE CAMBRIAN ENVIRONMENTAL HAS VERIFIED THAT THE FEATURE IS NOT AN ENDANGERED SPECIES HABITAT, CONTRACTOR MAY PROCEED AS DIRECTED BY THE DETAILS ON THESE PLANS.

12. ALL WATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATION (MOST CURRENT EDITION).

TRENCH SAFETY NOTES:

- 1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED. TRENCH SAFETY SYSTEMS TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDED
- BY THE CONTRACTOR 2. IN ACCORDANCE WITH THE U. S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS,
- MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL. 3. CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.

SEQUENCE OF CONSTRUCTION

- INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES. INSTALL EROSION CONTROLS AND OFF-SITE EROSION CONTROLS AS INDICATED ON APPROVED PLANS.
- 3. CONTACT CITY OF GEORGETOWN AND WILLIAMSON COUNTY TO SCHEDULE PRE-CONSTRUCTION COORDINATION MFFTIN(4. EVALUATE TEMPORARY EROSION CONTROL INSTALLATION. REVIEW CONSTRUCTION SCHEDULE WITH THE EROSION
- CONTROL PLAN. 5. BEGIN SITE CLEARING AND GRADING. INSPECT AND MAINTAIN ALL CONTROLS AS PER GENERAL NOTES.
- 3. CONSTRUCT UTILITY LINES I.E. WATER, WASTEWATER, STORM DRAINAGE & PONDS. CONSTRUCT SIDEWALK RAMPS.
- 8. CONSTRUCT PAVING/STREETS. 9. REVEGETATE DISTURBED AREAS OR COMPLETE A DEVELOPERS CONTRACT FOR THE REVEGETATION ALONG WITH
- THE ENGINEERS CONCURRENCE LETTER. 10. PROJECT ENGINEER INSPECTS JOB AND WRITES CONCURRENCE LETTER TO THE CITY. FINAL INSPECTION IS
- SCHEDULED UPON RECEIPT OF LETTER. 11. REMOVE TEMPORARY EROSION/SEDIMENTATION CONTROLS AT GRASS GROWTH.

CITY OF GEORGETOWN NOTES:

- 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
- ND 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 FOR ALL OTHERS.
- 12. PUBLIC WATER SYSTEM MAINS SHALL BE 150 PSI C900 PVC AND TESTED BY THE CONTRACTOR AT 150 PSI FOR 4 HOURS.
- 13. ALL BEND 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 ASPHALT 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 HTE PUBLIC IMPROVEMENTS. THIS BOND SHALL BE ESTABLISHED FOR 2 YEAR IN THE AMOUNT OF 10% OF THE COST OF THE PUBLIC IMPROVEMENTS AND SHALL FOLLOW THE CITY FORMAT.
- 21. RECORD DRAWINGS OF THE PUBLIC IMPROVEMENTS SHALL BE SUBMITTED TO THE CITY BY THE DESIGN ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT. THESE DRAWINGS SHALL BE SUBMITTED AS A PDF ON A FLASH DRIVE OR BY CLOUD SOURCE.

_____PHONE<u># (512) 872–6696</u>____

WATER AND WASTEWATER NOTES:

- 1. PIPE MATERIAL FOR WATER MAINS SHALL BE PVC (AWWA C-900, MIN. CLASS 200), OR DUCTILE IRON (C-115, MIN. CLASS 200) UNLESS SPECIFIED OTHERWISE.
- 2. PIPE MATERIAL FOR GRAVITY WASTEWATER MAINS SHALL BE PVC (ASTM D3034, SDR-26) UNLESS SPECIFIED OTHERWISE.
- 3. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE UTILITY TIE-INS AND NOTIFY HIM AT
- LEAST 48 HOURS PRIOR TO CONNECTING TO EXISTING LINES. 4. ALL MANHOLES SHALL HAVE ECCENTRIC CONES AND SHALL BE CONCRETE WITH CAST IRON RING AND COVER. ALL MANHOLES LOCATED OUTSIDE OF THE PAVEMENT SHALL HAVE BOLTED COVERS. TAPPING OF FIBERGLASS MANHOLES SHALL NOT BE ALLOWED.
- 5. THE CONTRACTOR MUST OBTAIN A BULK WATER PERMIT OR PURCHASE AND INSTALL A WATER METER FOR ALL WATER USED DURING CONSTRUCTION. A COPY OF THIS PERMIT MUST BE CARRIED AT ALL TIMES BY ALL WHO USE WATER. CONTRACTOR TO INSTALL ABOVE GROUND WATER TANK WITH SUPPLY LINE AS INDICATD ON PLANS.
- 6. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE CITY INSPECTOR.
- 7. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING PUMPS AND GAUGES), SUPPLIES AND LABOR NECESSARY TO PERFORM THE TESTS. QUALITY AND PRESSURE TESTING SHALL BE MONITORED BY CITY OF GEORGETOWN PERSONNEL.
- 8. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF INSPECTOR AND PROVIDE NO LESS THAN 24 HOURS NOTICE PRIOR TO PERFORMING STERILIZATION, QUALITY TESTING OR PRESSURE TESTING.
- 9. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE CITY OF GEORGETOWN. 10. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.
- 11. TOOLS FOR MARKING THE CURB SHALL BE PROVIDED BY THE CONTRACTOR. OTHER APPROPRIATE MEANS OF MARKING SERVICE AND VALVE LOCATIONS SHALL BE PROVIDED IN AREAS WITHOUT CURBS. SUCH MEANS OF
- MARKING SHALL BE AS SPECIFIED BY THE ENGINEER AND ACCEPTED BY THE CITY OF GEORGETOWN.
- 12. CONTACT CITY OF GEORGETOWN INSPECTION DEPARTMENT FOR ASSISTANCE IN OBTAINING EXISTING WATER AND WASTEWATER LOCATIONS. 13. SAND, AS DESCRIBED IN SPECIFICATION ITEM 510 PIPE, SHALL NOT BE USED AS BEDDING FOR WATER AND
- WASTEWATER LINES. ACCEPTABLE BEDDING MATERIALS ARE PIPE BEDDING STONE, PEA GRAVEL AND IN LIEU OF SAND, A NATURALLY OCCURRING OR MANUFACTURED STONE MATERIAL CONFORMING TO ASTM C33 FOR STONE QUALITY AND MEETING THE FOLLOWING GRADATION SPECIFICATION:

<u>SIEVE SIZE</u>	PERCENT RETAINED BY WEIGH
1/2"	0
3/8"	0-2
#4	40-85
# 10	95–100

- 15. THE CONTRACTOR IS HEREBY NOTIFIED THAT CONNECTING TO, SHUTTING DOWN, OR TERMINATING EXISTING UTILITY LINES MAY HAVE TO OCCUR AT OFF-PEAK HOURS. SUCH HOURS ARE USUALLY OUTSIDE NORMAL WORKING HOURS AND POSSIBLY BETWEEN 12 A.M. AND 6 A.M.
- 16. ALL WASTEWATER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGULATIONS, 30 TAC CHAPTER 313 AND 317, AS APPLICABLE. WHENEVER TCEQ AND CITY OF GEORGETOWN SPECIFICATIONS CONFLICT, THE MORE STRINGENT SHALL APPLY.
- 17. THE CONTRACTOR SHALL CONTACT THE "DIG TESS" SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED, OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF GEORGETOWN WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.
- 18. ALL MANHOLES IN UNPAVED AREAS PROVIDING DIRECT ACCESS TO A WASTEWATER LINE SHALL BE WATERTIGHT AND BEAR THE WORDING AND INSIGNIA FOR THE CITY OF GEORGETOWN.
- 19. THE OWNER IS RESPONSIBLE FOR ALL COST OF RELOCATION OR DAMAGE TO UTILITIES.
- 20. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS/HER FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- 21. THE ENGINEER, IN PREPARING THESE PLANS HAS ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE AREAS OF EXPANSION OR NEW CONSTRUCTION. HOWEVER, THERE MAY BE UTILITIES THAT COULD NOT BE OR WERE NOT LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL CALL APPROPRIATE UTILITY COMPANIES FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE CONSTRUCTION MANAGER/SUPERVISOR SHALL BE NOTIFIED IMMEDIATELY.
- 22. CONTRACTOR TO COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON PLANS.
- 23. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND ASSOCIATED VALVING AND SEWER LINES AND ASSOCIATED MANHOLES, IS NINE (9) FEET OUTSIDE DIAMETER TO OUTSIDE DIAMETER. THE MINIMUM VERTICAL SEPARATION BETWEEN WATER AND SEWER LINES IS EIGHTEEN (18) INCHES.
- 24. THE TOP ELEVATION OF MANHOLES IN PAVED AREAS SHALL MATCH FINISH GRADE. THE TOP ELEVATION OF MANHOLES IN UNPAVED AREAS SHALL BE 3" (MIN.) ABOVE FINISH GRADE, UNLESS OTHERWISE NOTED ON PLANS.
- 25. CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
- 26. ALL WATER AND WASTEWATER LINES IN CITY R.O.W. AND EASEMENTS WILL MEET THE CITY OF GEORGETOWN WATER AND WASTEWATER DEPARTMENT DESIGN CRITERIA, AT A MINIMUM.
- 27. CITY MAINTENANCE OF UTILITIES ENDS AT THE PROPERTY LINE UNLESS IN AN EASEMENT.
- 28. EXTEND ALL EXISTING UTILITY MANHOLES, BOXES, COVERS, ETC. TO PROPOSED FINISH GRADE, UNLESS APPROVED OTHERWISE.
- 29. ALL UNDERGROUND UTILITY CONSTRUCTION WITHIN CITY R.O.W. OR PUBLIC EASEMENTS MUST BE ACCOMPLISHED IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD SPECIFICATIONS. 30. AN 80 MIL COAT OF RAVEN LINING SYSTEMS, RAVEN 405 ULTRA HIGH BUILD EPOXY COATING, OR APPROVED
- EQUAL, TO BE APPLIED TO ENTIRE INTERIOR OF EACH WASTEWATER MANHOLE AND UNDERSIDE OF FLAT TOPS. 31. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

"W" ON TOP OF CURB WATER SERVICE WASTEWATER SERVICE "S" ON TOP OF CURB "V" ON FACE OF CURB VALVE DRY UTILITIES "DU" ON FACE OF CURB

32. CENTER ONE 20-FOOT 150 PSI PRESSURE RATED WASTEWATER PIPE SECTION AT ALL WATERLINE CROSSINGS. 33. 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 CHAPTER 217 (DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS) OR 30 TAC CHAPTER 290 (PUBLIC DRINKING WATER).

- EROSION AND SEDIMENTATION CONTROL NOTES
- 1. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING OR EXCAVATION).
- 2. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
- 3. THE PLACEMENT OF TREE/NATURAL AREA PROTECTIVE FENCING SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN STANDARD NOTES FOR TREE AND NATURAL AREA PROTECTION AND THE APPROVED GRADING/TREE AND NATURAL AREA PLAN.
- 4. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND CITY INSPECTOR AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTION MEASURES AND PRIOR TO BEGINNING ANY SITE PRÉPARATION WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF GEORGETOWN, AT LEAST THREE DAYS PRIOR TO THE MEETING DATE.
- 5. THE CONTRACTOR IS REQUIRED TO INSPECT THE CONTROLS AND FENCES AT WEEKLY INTERVALS AND AFTER SIGNIFICANT RAINFALL EVENTS TO INSURE THAT THEY ARE FUNCTIONING PROPERLY. THE PERSON(S) RESPONSIBLE FOR MAINTENANCE F CONTROLS AND FENCES SHALL IMMEDIATELY MÁKE ANY NECESSARY REPAIRS [DAMAGED AREAS. SILT ACCUMULATION AT CONTROLS MUST BE REMOVED WHEN THE DEPTH REACHES SIX (6) INCHES.
- 6. PRIOR TO FINAL ACCEPTANCE BY THE CITY, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING DEBRIS SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.

<u>GENE</u>

- 1. AL 2. AN 3. TH 4. TH 7. W
- 9. A\

8. PF

10. SI 11. CC 12. CO

13. THE

14. W 15. ALI 16. WH 17. ALI 18. E/ 20. CO

21. DE

			DATE
<u>RAL NOTES:</u> . construction shall be in accordance with the city of georgetown standard construction specifications as adopted			Н
D AMENDED UNLESS OTHERWISE SPECIFIED. Y EXISTING UTILITIES, PAVEMENT, CURBS, SIDEWALKS, STRUCTURES, TREES, ETC., THAT ARE DAMAGED OR REMOVED SHALL BE REPAIRED			
E CONTRACTOR SHALL VERIFY ALL DEPTHS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES H THE CONSTRUCTION PLANS FOUND IN THE FIELD SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER.			
AREAS DISTURBED OR EXPOSED DURING CONSTRUCTION SHALL BE REVEGETATED IN ACCORDANCE WITH THE PLANS AND CITY OF DRGETOWN STANDARD SPECIFICATIONS. REVEGETATION OF ALL DISTURBED OR EXPOSED AREAS SHALL CONSIST OF SODDING OR SEEDING, THE CONTRACTOR'S OPTION. HOWEVER, THE TYPE OF REVEGETATION MUST EQUAL OR EXCEED THE TYPE OF VEGETATION PRESENT FORE CONSTRUCTION UNLESS OTHERWISE REQUESTED BY THE OWNER.			
OR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONVENE A PRECONSTRUCTION CONFERENCE BETWEEN THE CITY OF GEORGETOWN, ISELF, THE ENGINEER, THE OWNER, THE ENVIRONMENTAL ENGINEER, GEOTECHNICAL ENGINEER, UTILITY COMPANIES, ANY AFFECTED RITES AND ANY OTHER ENTITY THE COUNTY OR ENGINEER MAY REQUIRE			
EN CONSTRUCTION IS BEING CARRIED OUT WITHIN EASEMENTS, THE CONTRACTOR SHALL CONFINE HIS WORK TO WITHIN THE PERMANENT D ANY TEMPORARY EASEMENTS. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH D DEBRIS WITHIN THE PERMANENT AND TEMPORARY EASEMENTS. CLEANUP SHALL BE TO THE SATISFACTION OF THE ENGINEER. OR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL APPLY FOR AND SECURE ALL PROPER PERMITS FROM THE APPROPRIATE			REVI
THORTHES. AILABLE BENCHMARK(S) THAT MAY BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT ARE DESCRIBED AS FOLLOWS:			
(1380)-221: ITON GIN SPINDLE FOUND IN THE SOUTH EDGE OF A CONCRETE SIDEWALK VATION = 962.21 FEFT			
(1380)-700100: GNAIL WITH WASHER STAMPED HR GREEN SET IN CONCRETE RIM OF WATER MANHOLE VATION = 940.16 FEFT			
(1380)-700200: SNAIL WITH WASHER STAMPED HR GREENSET IN CONCRETE BASE OF BOLLARD VATION = 890.30 FEET			Z
EWALK RAMPS AND SIDEWALKS LOCATED IN FRONT OF COMMON AREAS TO BE INSTALLED WITH INFRASTRUCTURE CONSTRUCTION	G	\mathbf{m}	
NTRACTOR IS RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITY OR IMPROVEMENTS. NTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT TITLED "GEOTECHNICAL INVESTIGATION PAVEMENT THICKNESS COMMENDATIONS – PARKSIDE ON THE RIVER SECTIONS 8, 9, & 10 GEORGETOWN, TEXAS", DATED OCTOBER 2023 BY MLA DTECHNICAL, ENGINEER'S JOB# 23101123.001 FOR PAVEMENT DESIGN RECOMMENDATIONS. ANY CONFLICT BETWEEN THESE CONSTRUCTION ANS AND THE GEOTECHNICAL REPORT SHALL BE RESOLVED IN FAVOR OF THE GEOTECHNICAL REPORT.			
DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512-989-2200) SHALL BE CONTACTED 48 HOURS PRIOR THE FOLLOWING:	Know wha	at's below. before you (dig.
1) PRE-CONSTRUCTION MEETINGS 2) BEGINNING EACH PHASE OF CONSTRUCTION 3) TESTING OF WATER AND/OR WASTEWATER LINES 4) FINAL WALK-THROUGH OF FACILITIES	SI		
EN REQUIRED, CONTRACTOR SHALL REMOVE PAVEMENT IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF HIGHWAY AND PUBLIC ANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.	′ 290 WE) 884 1194101	
. PAVEMENT REMOVED SHALL BE DONE SUCH THAT THE REMAINING PAVEMENT IS LEFT WITH A CLEAN STRAIGHT EDGE. EN REQUIRED, CONTRACTOR SHALL REMOVE EXISTING PAVEMENT STRIPING BY SAND BLASTING FROM EXISTING PAVEMENT IN	HIGHWAY E 150 I.N. TX 7	372. 6696 EEN. COM NO: 163 NO: 163	
CORDANCE WITH ITEM 678 OF THE TXDOT LATEST EDITION. . WORK IN STATE R.O.W. AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE TXDOT LATEST EDITION.	5508 SULTI AUST	512. 8 HRGRI TBPE TBPE	
RTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND ECIFICATIONS AND THE GEOTECHNICAL STUDY.		e	× L
THE CONTRACTOR FINDS A DISCREPANCY WITH THE TOPOGRAPHIC INFORMATION ON THESE PLANS HE/SHE SHOULD CONTACT THE GINEER OR OWNER IMMEDIATELY.			N
SIGN OF MAJOR DRAINAGE WAYS THROUGH A SUBDIVISION AND MAJOR STRUCTURES SUCH AS BOX CULVERTS OR BRIDGES ACROSS A JOR DRAINAGE CHANNEL SHALL BE COORDINATED WITH THE REQUIREMENTS OF THE WILLIAMSON COUNTY HEALTH DISTRICT WHEN ANY RTION OF THE SUBDIVISION LIES OUTSIDE THE CITY LIMITS, AND WHEN APPLICABLE, A LETTER REQUESTING A LOCAL FLOOD PLAIN MAP ENDMENT FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) SHALL BE PROVIDED PRIOR TO FINAL CONSTRUCTION PLAN PROVAL.		HRGre	DEVELOPME
RAFFIC MARKING NOTE			
ANY METHODS, STREET MARKINGS AND SIGNAGE NECESSARY FOR WARNING MOTORISTS, RNING PEDESTRIANS OR DIVERTING TRAFFIC DURING CONSTRUCTION SHALL CONFORM TO TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, TEST EDITION.	51.A.	E OF TETAS	
ALL PAVEMENT MARKINGS, MARKERS, PAINT, TRAFFIC BUTTONS, TRAFFIC CONTROLS AND NS SHALL BE INSTALLED IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF INSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DGES AND, <u>THE TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND</u> HWAYS, LATEST EDITION.	SHER PROSS	VIN NOOSHIN 96807 CENSE ONAL ENG	
DDITIONAL NOTES	Sher		2023
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOWING AND THE REMOVAL OF ALL LITTER THIN THE PROJECT LIMITS SO AS TO KEEP THE SITE OF THE WORK IN A NEAT AND ESENTABLE CONDITION AT ALL TIMES. THIS WORK WILL BE CONSIDERED SUBSIDIARY TO THE RIOUS BID ITEMS.		۲ (n K
THE CONTRACTOR SHALL PROTECT ALL AREAS WHICH ARE NOT INCLUDED IN THE ACTUAL IITS OF THE PROPOSED CONSTRUCTION AREAS FROM DESTRUCTION. CARE SHALL BE ERCISED TO PREVENT DAMAGE TO TREES, VEGETATION, FENCES, POWER POLES, AND OTHER TURAL SURROUNDINGS. THE AREAS NOT TO BE DISTURBED INCLUDE ALL GOLF COURSE EAS, UNLESS SPECIFIED OTHERWISE. THE CONTRACTOR SHALL, AT HIS EXPENSE, RESTORE Y AREA DISTURBED AS A RESULT OF HIS OPERATIONS TO A CONDITION AS GOOD AS, OR TTER THAN, THAT PRESENT PRIOR TO CONSTRUCTION.	۵ ۵	A & 10 LANS	- N, - FX
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING EVERY 100 FOOT ROAD STATION, D SHALL MAINTAIN THE MARKINGS FOR THE DURATION OF THE PROJECT. THIS WORK SHALL CONSIDERED SUBSIDIARY TO THE ITEMIZED CONSTRUCTION CONTRACT.			ן צו
THE SUPERINTENDENT SHALL BE AVAILABLE ON THE PROJECT AT ALL TIMES WHEN WORK IS ING PERFORMED.			
NO BLASTING IS ALLOWED ON THIS PROJECT. NO STORAGE OF HYDROCARBON OR HAZARDOUS MATERIAL IS ALLOWED ON SITE.	4AL		
ARKSIDE ON THE RIVER M.U.D. No. 2 NOTES THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512-989-2200) SHALL BE CONTACTED 48 HOURS PRIOR TO: i) PRE-CONSTRUCTION MEETINGS; ii) BEGINNING EACH PHASE OF CONSTRUCTION iii) TESTING OF WATER AND/OR WASTEWATER LINES; AND, iv) FINAL WALK-THROUGH OF FACILITIES REVIEW OF THE PLANS BY THE DISTRICT IS LIMITED TO WATER, WASTEWATER, AND DRAINAGE, AND DOES NOT INDICATE A REVIEW OF THE ADEQUACY OF THE DESIGN FOR THE FACILITIES. IN APPROVING THESE PLANS, THE DISTRICT MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.	GENER	ARKSIDE S CONSTRL	
EORGETOWN FIRE DEPARTMENT NOTES		ני נו	۔ ا ک
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 THE HYDRANTS SHALL BE PAINTED AND COLOR CODED. CAUTION : IF PRESSURE REDUCING VALVES WERE INSTALLED IN THIS PHASING THEY MUST BE SET PRIOP TO FIRE	DESIGN DRAWN	ed by: <u> </u>	
HYDRANT FLOW TESTING. PER CITY ORDINANCE SEC. 13.15.120. HYDRANT FLOW CODING STANDARDS PUBLIC HYDRANTS WILL HAVE THE	CHECKE	D BY: <u>S</u>	<u>N</u>
BARRELS PAINTED SILVER, THE HYDRANTS WILL BE FLOW TESTED, AND THE BONNET PAINTED USING THE HYDRANT FLOW STANDARD IN PARAGRAPH C. FLOW COLOR: GREATER THAN 1500 GPM BLUE	APPROV	(ED BY:	

•500 - 999 GPM ORANGE •LASS THAN 500 GPM RED •NOT WORKING BLACK OR BAGGED SHEET 2 OF 84 2023-XX-CON

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY ORGANIZED SEWAGE COLLECTION SYSTEM (SCS) GENERAL CONSTRUCTION NOTES

- 1. THIS ORGANIZED SEWAGE COLLECTION SYSTEM MUST BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY'S (TCEQ) EDWARDS AQUIFER RULES 30 TEXAS ADMINISTRATIVE CODE (TAC) §§213.5(C) AND 217.51 - 217.70 AND 30 TAC CHAPTER 217, SUBCHAPTER D, AND THE CITY OF ROUND ROCK STANDARD SPECIFICATIONS.
- 2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROPOSED REGULATED PROJECT MUST BE PROVIDED WITH COPIES OF THE SEWAGE COLLECTION SYSTEM 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. NO LATER THAN 48 HOURS PRIOR TO COMMENCING ANY REGULATED ACTIVITY, THE APPLICANT OR HIS AGENT MUST NOTIFY THE TCEQ AUSTIN REGIONAL OFFICE, IN WRITING, OF THE DATE ON WHICH THE REGULATED ACTIVITY WILL BEGIN.
- 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. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION, MUST BE MAINTAINED DURING CONSTRUCTION, AND MUST BE REMOVED WHEN SUFFICIENT VEGETATION IS ESTABLISHED TO CONTROL THE EROSION AND SEDIMENTATION AND THE CONSTRUCTION AREA IS STABILIZED.
- 6. THE SEWER LINE TRENCH DETAILS SHOWING THE CROSS SECTION WITH THE DIMENSIONS, PIPE PLACEMENT, AND BACKFILL INSTRUCTIONS ARE INCLUDED ON PLAN SHEET 80 OF 124 OF THESE PLANS. ALL SEWER PIPES JOINTS MUST MEET THE REQUIREMENTS IN 30 TAC §§217.53(C) AN 217.65.
- GRAVITY LINES MUST HAVE A SDR 35 OR LESS. PRESSURIZED SEWER SYSTEMS MUST HAVE PIPE WITH A MINIMUM WORKING PRESSURE RATING OF 150 PSI.

THE ASTM, ANSI, OR AWWA SPECIFICATION NUMBERS FOR THE PIPE(S) AND JOINTS ARE ASTM-D3034. THE PIPE MATERIAL, THE PRESSURE CLASSES, AND THE SDR AND/OR DR DESIGNATIONS ARE SDR-26.

- 7. 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 TEXAS COMMISSION ON ENVIRONMENTAL QUALITY 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 WITHIN TWO WORKING DAYS. 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
- 8. 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 SIX (6)
- 9. 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.
- 10. 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 75 & 77 OF 124.

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.

11. 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).

12. 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: N/A.

IF PIPE FLEXURE IS PROPOSED, THE FOLLOWING METHOD OF PREVENTING DEFLECTION OF THE JOINT MUST BE USED: N/A.

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.

- 13. 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.
- 14. 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.
- 15. 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).
- 16. 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) OR A COLLECTION SYSTEM PIPE THAT WILL TRANSPORT WASTEWATER BY GRAVITY FLOW, THE DESIGN MÚST 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:

0.085 x D x K EQUATION C.3 T = 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
) AN OWNER MAY FIRST 25% OF TH) IF ANY PRESSURE TESTING PERIOD AS OUTLINED AB	STOP A TEST IF E CALCULATED TE LOSS OR LEAKAG THEN THE TEST OVE OR UNTIL FAI	NO PRESSURE LOSS HAS ESTING TIME. EE HAS OCCURRED DURING MUST CONTINUE FOR THE E LURE.	OCCURRED DURING THE THE FIRST 25% OF A NTIRE TEST DURATION

(E)

PROCEDURE OUTLINED IN THIS SECTION. MUST BE APPROVED BY THE EXECUTIVE DIRECTOR.

(2) INFILTRATION/EXFILTRATION TEST.

- MANHOLE. PIPES ARE INSTALLED BELOW THE GROUNDWATER LEVEL.
- WHICHEVER IS GREATER
- THIS PARAGRAPH (E) IF THE QUANTITY OF INFILTRATION OR EXFILTRATION EXCEEDS THE MAXIMUM QUANTITY

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

CONTROLLED PIPE.

(B) MANDREL DESIGN. THAT CAN WITHSTAND 200 PSI WITHOUT BEING DEFORMED.

(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. 17. ALL MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

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.

SUPPLEMENTAL TCEQ NOTES:

- FOR CONNECTING PIPE TO MANHOLES.
- GEOLOGICAL OR GEOTECHNICAL PROFESSIONAL.
- 3. TRENCH WALLS MUST BE VERTICAL TO AT LEAST ONE FOOT ABOVE THE PIPE. TRENCH BACKFILL UNSTABLE MATERIAL.
- ALLOWABLE TENSILE.

(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 (G) A TESTING PROCEDURE FOR PIPE WITH AN INSIDE DIAMETER GREATER THAN 33 INCHES

(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

(B) AN OWNER SHALL USE AN INFILTRATION TEST IN LIEU OF AN EXFILTRATION TEST WHEN (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,

(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 SUBPARGRAPH (C) OF

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. (F) 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

> (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

(III) ALL DIMENSIONS MUST MEET THE APPROPRIATE STANDARD.

(I) A RIGID MANDREL MUST BE CONSTRUCTED OF A METAL OR A RIGID PLASTIC MATERIAL (II) A MANDREL MUST HAVE NINE OR MORE ODD NUMBER OF RUNNERS OR LEGS.

1. WATERTIGHT, SIZE ON SIZE RESILIENT CONNECTORS CONFORMING TO ASTM C-923 ARE REQUIRED

2. IF FAULTS, CAVERNS, OR SUBSIDENCE ARE DISCOVERED DURING CONSTRUCTION, CONSTRUCTION SHOULD BE HALTED TO ALLOW THE FEATURES TO BE INSPECTED BY THE DESIGN ENGINEER OR

MUST BE FREE OF STONES GREATER THAN 6-INCHES AND FREE OF ORGANIC OR ANY OTHER

4. ALL WASTEWATER PIPE MATERIAL PVC SDR26-ASTM-3034 USED MUST HAVE A MINIMUM

TCEQ WATER DISTRIBUTION SYSTEM CENERAL CONCERNATION NOTES

	GENERAL CONSTRUCTION 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)].
5.	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.
	 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;
	$Q = \frac{LD\sqrt{P}}{148,000}$
	 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 (nsi)
	 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;
	$L = \frac{SD\sqrt{P}}{148,000}$
	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 $\S290.44(e)(1)-(4)$.
13.	The separation distance from a potable waterline to a wastewater main or lateral manhole or cleanout shall be a minimum of nine feet. Where the nine–foot separation distance cannot be achieved, the potable waterline shall be encased in a joint of at least 150 psi pressure class pipe at least 18 feet long and two nominal sizes larger than the new conveyance. 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.

12

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 Aguifer 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

3.

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5.

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- 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.

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 Aguifer from potentially adverse impacts to water quality.

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.

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.

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,

Sediment must be removed from the sediment traps or sedimentation basins not later than when it occupies 50% of the basin's design capacity.

Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

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.

If portions of the site will have a temporary or permanent cease in construction activity lastin 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.

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:

- 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;
- В. 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.

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

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

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EXISTING PARKSIDE SECTION 8

2023-XX-CON

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VIEW





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VIEW

<u></u>			
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
	EAO FEFT		0 1097
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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. . THE CONTRACTOR TO INSTALL AND MAINTAIN REOSION/SEDURENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR GRADING, OR CANATION). CONTRACTOR TO REMOVE ERSON/SEDURENTATION 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. DEVATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE. MUST DE SUDMITTED TU AND APPRUVED BY THE UMNER'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 SPECIFICAL THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 10016/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MININUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROVENTE FUNCTIONE 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 PLANED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WHILE 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 CERMINATION AND ESTABLISHMENT OF THE GRASS. RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTFONE 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 IO. 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. 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. IS INCED TO BE FRANCE IN A MANUAL WINNER WHICH TO BE FRUED FUSH WITH THE SOLL 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. 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 STADE 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 DISPOSAL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL ERGION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERINEABLE PAVING OF LATE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'-4') BEHIND JUGSTION.
 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 assume responsibility for appropriate use of this standard. REVASION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

EROSION AND SEDIMENTATION AND

TREE PROTECTION NOTES

EC01A







MAGE AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR. - TRASH AND OTHER DEBRIS SHOULD BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF OF THE DESIGN DEPTH OF THE TRAP. - SEDIMENT REMOVED FROM THE TRAP SHOULD BE DEPOSITED IN AN APPROVED SPOILS AREA AND IN SUCH A MANNER THAT IT WILL NOT CAUSE ADDITIONAL SILTATION.

The Architect/Engineer assumes responsibility for appropriate

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~ 4" DEPTH (MIN.) TYPE I - AS REQUIRED FOR SINGLE FAMILY, DUPLEXES AND TOWNHOUSES, TRIPLEXES AND QUADRAPLEXES. TYPE I - AS REQUIRED FOR MULTI-FAMILY, OTHER NON-RESIDENTIAL USES AND PARKING LOTS/STRUCTURES. ALL THOROUGHFARES (COLLECTOR AND ABOVE) REQUIRE TYPE II. VARIES 6'-0" TYPE Ⅱ 4" DEPTH (MIN.) CLASS "A" 1/2" PREMOLDED — EXPANSION JOINT 3,000 PSI CONCRETE SLOPE 1/8"/FT. USUAL - CURB AND GUTTER (1/4"/FT. MAX.) - ROADWA 2" SAND BEDDING POLYPROPYLENE FIBRILLATED FIBERS OR 6" x 6" x #6 WELDED WIRE FABRIC (MUST BE SUPPORTED WITH REBAR CHAIRS OR NOTES: OTHER APPROVED METHODS.) STANDARD LOCATION OF SIDEWALK SHALL BE IN CONFORMANCE WITH THE UDC. SIDEWALK SHALL CONFORM TO CURRENT TDLR/TAS STANDARDS. ALL SIDEWALKS SHALL BE SUBMITTED AND APPROVED BY THE REGISTERED ACCESSIBILITY SPECIALIST (RAS) AND ENGINEER OF RECORD. ANY VARIANCE IN TEXTURE GRADE OR ALIGNMENT SHALL BE APPROVED BY THE REGISTERE ACCESSIBILITY SPECIALIST (RAS) AND BY THE CITY ENGINEER. SLIP DOWEL SHALL BE INSTALLED AT EVERY LONGITUDINAL EXPANSION JOINT (UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER DURING ENGINEERING PLAN REVIEW PRIOR TO FINAL DESIGN).

The Architect/Engineer assumes esponsibility for appropriate use of this standard. REVISION NOTE: ADOPTED 6/21/2006 TRB CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS SD14 GEORGETOWN SIDEWALK SECTION AND JOINT DETAIL NTS 1/2003

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APPROVED BY: ___

<u>50' RIGHT-OF-WAY WIDTH</u>

Parkside on the River Phase 3 Sections 8, 9, & 10 Engineer's Job No. 23101123.001 **RECOMMENDATIONS - PAVEMENT THICKNESS SECTIONS** Street **Subgrade Material** Classification Subgrade PI greater than 20 – Option 1 14 2.0 18** Subgrade PI greater than 20 – Option 2 2.0 8 Local Streets Subgrade PI greater than 20 – Option 3 2.0 8 8 Subgrade PI less than 20 2.0 8 Subgrade PI greater than 20 – Option 1 2.015 -18** Residential Subgrade PI greater than 20 – Option 2 2.0 10 Subgrade PI greater than 20 – Option 3 Collectors 2.0 10 Subgrade PI less than 20 Subgrade PI greater than 20 – Option 1 2.0Subgrade PI greater than 20 – Option 2 18** Neighborhood 2.011 Collector Subgrade PI greater than 20 – Option 3 2.0 8 11 Subgrade PI less than 20 2.0 11 Subgrade PI greater than 20 – Option 1 4.0 18** Minor 4.0 Subgrade PI greater than 20 – Option 2 14 Subgrade PI greater than 20 – Option 3 4.0 8 Arterial 14 Subgrade PI less than 20 4.0 14 Subgrade PI greater than 20 – Option 1 5.5 18** Major Subgrade PI greater than 20 – Option 2

Notes:

Arterial

1. ****** - Or the remaining thickness of surface clay. Natural weathered or intact limestone should not be removed to place low plasticity subbase. The low plasticity subbase should consist of on-site soils only

5.5

5.5

16

Subgrade PI greater than 20 – Option 3

Subgrade PI less than 20

2. Any expansive fill (PI > 20) placed in the subgrade after boring completion shall be considered expansive subgrade.

3. Delineation between these different pavement thickness sections should be completed in the field by observation of open utility trenches and the pavement subgrade by the Geotechnical Engineer or his designate. Given the known variability of surface soils at this site, the Geotechnical Engineer must verify the subgrade before installation of the pavement system can proceed. Multiple site visits may be required depending upon the construction schedule. Finalized distinction between pavement thickness section options can be provided as addendum to this report as these observations are completed. Please contact the Geotechnical Engineer when the utility trenches are open.

4. The subgrade improvement (be it a 50% increase in base course or low plasticity sub-base) should be extended 18 inches beyond the back of the curb line for subgrade PI greater than 20 options.

5. These pavement thickness designs are intended to transfer the load from the anticipated traffic conditions.

6. The responsibility of assigning street classification to the streets in this project is left to the civil

engineer.7. If pavement designs other than those listed above are desired, please contact MLA Geotechnical.

MLA Geotechnical Dallas/Fort Worth Austin San Antonio Houston Bryan/College Station Killeen "put us to the test"

NOTE:
1. CONTRACTOR SHALL REFERENCE "GEOTECHNICAL INVESTIGATION PAVEMENT THICKNESS RECOMMENDATIONS FOR PARKSIDE ON THE RIVER SECTION 8, 9, & 10" CREATED OCTOBER 2023 BY MLA GEOTECHNICAL, ENGINEER'S JOB # 23101123.001 CONTRACTOR IS RESPONSIBLE FOR VERIFYING WITH MLA GEOTECHNICAL.
2. CONTRACTOR TO USE "VIRGIN MIX" TXDOT HMAC WEARING SURFACE 340 TYPE D, WITHOUT RAP OR RAZ. IN THE EVENT THAT THE CITY SPECIFICATIONS OR GEOTECH REPORT CONFLICT WITH THIS THEN THIS NOTE SHALL CONTROL.
3. THE BASE OVERBUILD SHOULD BE EXTENDED A MINIMUM OF 18" BEYOND THE BACK OF CURP. IF LIME TREATMENT IS DEINCHORD. THE DAGE OVERDUM D CHOIL D DEC.

OF CURB. IF LIME TREATMENT IS BEING USED, THE BASE OVERBUILD SHOULD BE EXTENDED 3 FEET BEYOND THE BACK OF THE CURB.
4. AVOID INSTALLATION OF IRRIGATION, PLANTINGS, SILT FENCE, ETC. IN THE BASE OVERBUILD

OVERBUILD. 5. ALL MATERIAL IMPORTED AND USED FOR ROADWAY FILL AND SUBGRADE SHALL BE LOW P.I MATERIAL UNLESS CONTRACTOR OBTAINS APPROVAL FROM DEVELOPER. IF CONTRACTOR CHOOSES TO BRING IN HIGH PI MATERIAL FOR SUBGRADE, CONTRACTOR IS RESPONSIBLE FOR ALTERNATE PAVEMENT DESIGN PER THE GEOTECH REPORT AND ASSOCIATED COSTS.

8

			Existing Drainage Conditions								Time of Concentration Calculations											
ι	User Inputs			Auto-Ca	alculation	TOC Calcs		Routing Analys	sis Inputs		Contributing		Shee	t Flow		Shallow Cor	centrated Flo	w (Unpaved) Shallow Concentrated Fl	ow (Paved)	Pip	e/Channel Flow 1
ea (sf)	CN (Pervious)	CN (Impervious)	Impervious Cover (sf)	Area (ac)	Impervious Cover (%)	TOC (min)	Area (sq. mi.)	Composite Curve Number	Lag Time	Reach Lag (if required)	Area	Length	Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	T _{unpaved}	Length (ft) Slope (ft/ft)	T _{paved}	Length (ft)	Velocity (ft) T _{cha}
33,952	77	98	0	11.11	0.0%	10.16	0.01736	77.0	6.10		E-01	100	0.046	0.150	6.77	733	0.050	3.39		0.00		
9,658	77	98	0	1.14	0.0%	7.92	0.00178	77.0	4.75		E-02	100	0.044	0.150	6.89	280	0.079	1.03		0.00		
89,009	77	98	61,768	41.07	3.5%	14.37	0.06417	77.7	8.62		E-03	100	0.034	0.150	7.64	601	0.062	2.49		0.00	1523	6
02,306	77	98	0	6.94	0.0%	7.71	0.01084	77.0	4.63		E-04	100	0.068	0.150	5.79	496	0.071	1.92		0.00		
72,080	77	98	0	36.09	0.0%	18.77	0.05639	77.0	11.26		E-05	100	0.013	0.150	11.23	1728	0.056	7.54		0.00		
)9,524	77	98	7,967	4.81	3.8%	8.10	0.00752	77.8	4.86		E-06	100	0.037	0.150	7.39	151	0.048	0.71		0.00		
e a 33 9,0 72 99	a (sf) 952 658 9,009 306 2,080 524	User Inputs (sf) CN (Pervious) 952 77 658 77 9,009 77 306 77 2,080 77 524 77	User Inputs (sf) CN (Pervious) CN (Impervious) 952 77 98 658 77 98 6,009 77 98 306 77 98 2,080 77 98 524 77 98	User Inputs CN (Pervious) CN (Impervious) Impervious Cover (sf) 952 77 98 0 658 77 98 0 658 77 98 0 9,009 77 98 61,768 306 77 98 0 2,080 77 98 0 524 77 98 7,967	User Inputs Auto-Ca (sf) CN (Pervious) CN (Impervious) Impervious Cover (sf) Area (ac) 952 77 98 0 11.11 658 77 98 0 1.14 659 77 98 61,768 41.07 306 77 98 0 6.94 2,080 77 98 0 36.09 524 77 98 7,967 4.81	User Inputs Auto-Caluation (sf) CN (Pervious) CN (Impervious) Impervious Cover (sf) Area (ac) Impervious Cover (%) 952 77 98 0 11.11 0.0% 658 77 98 0 1.14 0.0% 9,009 77 98 61,768 41.07 3.5% 306 77 98 0 6.94 0.0% 2,080 77 98 0 36.09 0.0% 2,080 77 98 0 36.09 0.0% 524 77 98 7,967 4.81 3.8%	Number Viser InputsAuto-CalculationTOC Calcs α (sf) CN (Pervious) CN (Impervious)Impervious Cover (sf)Area (ac)Impervious Cover (%)TOC (min) 952 7798011.110.0%10.16 558 779801.140.0%7.92 $6,009$ 779861,76841.073.5%14.37 306 779806.940.0%7.71 $2,080$ 7798036.090.0%18.77 524 77987,9674.813.8%8.10	User InputsAuto-CalculationTOC Calcs $a(sf)$ CN (Pervious) CN (Impervious) $Mpervious$ Cover (sf) $Mrea (ac)$ $Mpervious$ Cover (%) $TOC (min)$ $Area (sq. mi.)$ 952 77 98 0 11.11 0.0% 10.16 0.01736 658 77 98 0 1.14 0.0% 7.92 0.00178 $60,09$ 77 98 $61,768$ 41.07 3.5% 14.37 0.06417 306 77 98 0 6.94 0.0% 7.71 0.01084 $2,080$ 77 98 0 36.09 0.0% 18.77 0.05639 524 77 98 $7,967$ 4.81 3.8% 8.10 0.00752	User Inputs TOC Calcs Routing Analysis α (sf) CN (mpervious) CN (mpervious) Impervious cover (sf) $Pervious$ (cover (sf) TOC (min) $Area (sq. mi)$ $Compositecurve Number 952 77 98 0 11.11 0.0\% 10.16 0.01736 77.0 558 77 98 0 1.14 0.0\% 7.92 0.00178 77.0 0.009 777 98 61.768 41.07 3.5\% 14.37 0.06417 77.0 306 777 98 0 6.94 0.0\% 7.71 0.01084 77.0 2,080 777 98 0 36.09 0.0\% 18.77 0.05639 77.0 524 777 98 7,967 4.81 3.8\% 8.10 0.00752 77.8 $	User InputsAuto-C Cover (s)TOC CalcsRouting AnalysisInpervisea (sf)CN (mpervious)Mpervious Cover (s)Area (ac)Impervious Cover (s)TOC (min)Area (sq. mi)Composite Curve NumberLag Time9527798011.110.0%10.160.0173677.06.103587779801.140.0%7.920.0017877.04.7590097779861.76841.073.5%14.370.0641777.78.623067779806.940.0%7.710.0108477.04.63208077798036.090.0%18.770.0563977.011.26524777987,9674.813.8%8.100.0075277.84.86	User InputsAuto-CalletionTOC CalcsRouting Analysis Inputsa (af) CN (Impervious) CON (Impervious) $Nea (ac)$ $Impervious$ Cover (b) $VOC (min)$ $Area (sq. mi)$ $Composite$ ($urve Number$) $Lag Time$ $Reach Lag$ ($required)9527798011.110.0%10.160.0173677.06.109587779801.140.0%7.920.0017877.04.7596097779861,76841.073.5%14.370.0641777.78.6297800779806.940.0%7.710.0108477.04.639791988036.090.0%18.770.0563977.011.269792977987.9674.813.8%8.100.0075277.84.86$	User InputsAuto-CultationTOC CalcsFouring Analysis InputsDepending InperviseArea (ac)Impervise Cover (s)TOC CalcsFouring Analysis InputsLag TimeReach Lag (frequine)Analysis9527798011.110.0%10.160.0173677.06.101.0E-013687779801.140.0%7.920.0017877.04.75E-02E-023097779861.76841.073.5%14.370.0641777.78.62IE-033097779806.940.0%7.710.0108477.04.63IE-043097779806.940.0%18.770.0563977.011.26IE-05304777987.9674.813.8%8.100.0075277.84.86IE-06	User InputsAuto-CalculationTOC Calcs \mathbb{FOC} Calculation \mathbb{FOC} Ca	User InputsAddo-2-LitionTOC CalcsRouting Analysis InputsOnter Input seriesOnter Input series967988011.110.0%7.920.001787.704.63Input seriesInput ser	User Input Mate- PC Calc Reating Ansatz Reatin Ansatz	Vertex VertexCARCC-ToC CalcRecting AnalysisRecting Analy	Vser Input Vser Input Auto- ToC case Rearry (and control or co	Image: state sta	Image: style	Image: style Image: style	Image: style Image: style	Image: style Image: style

0 2	00' 400'					
SCALE:	1" = 200'					
L	EGEND					
834	EXISTING MINOR CONTOUR					
835	EXISTING MAJOR CONTOUR					
834	PROPOSED MINOR CONTOUR					
835	PROPOSED MAJOR CONTOUR					
	BOUNDARY					
	EASEMENT					
100YR	100 YR PROPOSED CONDITION FLOODPLAIN					
	100 YR FEMA ZONE A FLOODPLAIN					
	CREEK CENTERLINE					
SD	PROPOSED STORM LINE					
-¢-	FIRE HYDRANT					
0	WATER VALVE					
SD	STORM SEWER MAHNOLE					
ww	WASTEWATER MANHOLE					
	CURB INLET					_
	TREES TO REMAIN HERITAGE					
	TREES TO REMAIN NON HERITAGE	Kne	ow C	wh al	at's be	be befor

Tc — TIME OF CONCENTRATION

		Existing	Condition	s - Flows &	Volumes	- Atlas 14		
		Peak Flo	ows (cfs)	Volume	es (ac-ft)			
	1D 2-yr		25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
E-01	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
E-02	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
E-03	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63
E-04	12.66	26.89	37.87	57.96	1.02	2.16	3.07	4.78
E-05	52.41	112.38	158.56	243.22	5.31	11.26	15.97	24.88
E-06	9.03	18.89	26.46	40.31	0.73	1.53	2.17	3.36
POI-1	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
POI-2	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
POI-3	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63
POI-4	12.66	26.89	37.87	57.96	1.02	2.16	3.07	4.78
POI-5	52.41	112.38	158.56	243.22	5.31	11.26	15.97	24.88
POI-6	9.03	18.89	26.46	40.31	0.73	1.53	2.17	3.36

	Pr	oposed (In	terim) Con	ditions - Fle	ows & Volu	mes - Atlas	5 14	
		Peak Flo	ows (cfs)			Volume	es (ac-ft)	
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
P-03	134.53	246.79	329.26	477.52	12.14	22.75	30.81	45.66
P-04	11.78	24.34	33.92	51.37	0.95	1.96	2.76	4.26
P-05	47.66	100.75	141.40	215.73	4.82	10.10	14.27	22.12
P-06	1.96	3.40	4.45	6.34	0.16	0.28	0.37	0.54
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
POI-3	129.40	239.35	321.01	467.96	12.14	22.75	30.81	45.66
POI-4	11.78	24.34	33.92	51.37	0.95	1.96	2.76	4.26
POI-5	47.66	100.75	141.40	215.73	4.82	10.10	14.27	22.12
POI-6	1.96	3.40	4.45	6.34	0.16	0.28	0.37	0.54

	F	low & Volu	me Compa	rison (Inter	rim - Existir	ng) - Atlas 1	4	
П		Peak Flo	ows (cfs)			Volume	s (ac-ft)	
U	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16
POI-3	62.12	97.41	121.72	163.82	5.92	9.70	12.35	17.03
POI-4	-0.88	-2.55	-3.95	-6.59	-0.07	-0.20	-0.31	-0.52
POI-5	-4.75	-11.63	-17.16	-27.49	-0.49	-1.16	-1.70	-2.76
POI-6	-7.07	-15.49	-22.01	-33.97	-0.57	-1.25	-1.80	-2.82

				REVISION
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Know what Call	at's b befo	elo pre y	® W. rou d	ig.
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EXISTING DRAINAGE				
SHER MAC BESIGN DRAWN CHECKE APPROV				

NOTES:

1. PLEASE REFER TO THE DETENTION WAIVER ANALYSIS ADDENDUM 1, SEALED JULY 28, 2023, SUBMITTED WITH THE 2023-22-PP.

	Proposed (Interim) Drainage Conditions											Time of Concentration Calculations													
	User Inputs Auto-Calculation TOC Calcs Routing Analysis Inputs							Contributing		Shee	t Flow		Shallow Con	centrated Flov	/ (Unpaved) Shallow Co	oncentrated Flo	ow (Paved)	Pipe	Pipe/Channel Flow 1					
Contributing Area	Area (sf)	CN (Pervious)	CN (Impervious)	Impervious Cover (sf)	Area (ac)	Impervious Cover (%)	TOC (min)	Area (sq. mi.)	Composite Curve Number	Lag Time	Reach Lag (if required)	Area	Length	Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft)	T _{unpaved}	Length (ft)	Slope (ft/ft)	T _{paved}	Length (ft)	Velocity (ft)	T _{channel} (min)
P-01	174,240	77	98	83,600	4.00	48.0%	6.64	0.00625	87.1	3.99		P-01	35	0.020	0.240	5.94	96	0.020	0.70			0.00			0.00
P-02	50,965	77	98	27,399	1.17	53.8%	6.66	0.00183	88.3	4.00		P-02	35	0.020	0.240	5.94	98	0.020	0.72			0.00			0.00
P-03	2,509,927	77	98	1,127,550	57.62	44.9%	13.20	0.09003	86.4	7.92		P-03	35	0.020	0.240	5.94	124	0.020	0.91			0.00	2287	6	6.35
P-04	262,667	77	98	20,420	6.03	7.8%	7.71	0.00942	78.6	4.63		P-04	100	0.068	0.150	5.79	496	0.071	1.92			0.00			0.00
P-05	1,379,981	77	98	54,600	31.68	4.0%	18.77	0.04950	77.8	11.26		P-05	100	0.013	0.150	11.23	1728	0.056	7.54			0.00			0.00
P-06	28,314	77	98	17,784	0.65	62.8%	6.00	0.00102	90.2	3.60		P-06				0.00			0.00			0.00			0.00

400

SCALE: 1" = 200'

LEGEND

— — 834 - — —	EXISTING MINOR CONTOUR
— - 835 - — —	EXISTING MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
	BOUNDARY
	EASEMENT
100YR	100 YR PROPOSED CONDITION FLOODPLAIN
	100 YR FEMA ZONE A FLOODPLAIN
	CREEK CENTERLINE
SD	PROPOSED STORM LINE
-ф-	FIRE HYDRANT
Ø	WATER VALVE
SD	STORM SEWER MAHNOLE
ŴŴ	WASTEWATER MANHOLE
0	CURB INLET
	TREES TO REMAIN HERITAGE
	TREES TO REMAIN NON HERITAGE

DRAINAGE AREA Tc TIME OF CONCENTRATION

		Existing	Condition	s - Flows &	Volumes -	- Atlas 14		
		Peak Flo	ows (cfs)			Volume	es (ac-ft)	
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
E-01	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
E-02	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
E-03	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63
E-04	12.66	26.89	37.87	57.96	1.02	2.16	3.07	4.78
E-05	52.41	112.38	158.56	243.22	5.31	11.26	15.97	24.88
E-06	9.03	18.89	26.46	40.31	0.73	1.53	2.17	3.36
POI-1	19.29	41.09	57.82	88.44	1.63	3.46	4.92	7.66
POI-2	2.07	4.40	6.19	9.48	0.17	0.36	0.50	0.79
POI-3	67.28	141.94	199.29	304.14	6.22	13.05	18.46	28.63
POI-4	12.66	26.89	37.87	57.96	1.02	2.16	3.07	4.78
POI-5	52.41	112.38	158.56	243.22	5.31	11.26	15.97	24.88
POI-6	9.03	18.89	26.46	40.31	0.73	1.53	2.17	3.36

	Pr	oposed (In	terim) Con	ditions - Fle	ows & Volu	mes - Atlas	5 14	
ID ID		Peak Flo	ows (cfs)			Volume	es (ac-ft)	
	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
P-01	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
P-02	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
P-03	134.53	246.79	329.26	477.52	12.14	22.75	30.81	45.66
P-04	11.78	24.34	33.92	51.37	0.95	1.96	2.76	4.26
P-05	47.66	100.75	141.40	215.73	4.82	10.10	14.27	22.12
P-06	1.96	3.40	4.45	6.34	0.16	0.28	0.37	0.54
POI-1	10.85	19.65	26.11	37.70	0.86	1.61	2.17	3.20
POI-2	3.29	5.87	7.75	11.13	0.26	0.48	0.65	0.95
POI-3	129.40	239.35	321.01	467.96	12.14	22.75	30.81	45.66
POI-4	11.78	24.34	33.92	51.37	0.95	1.96	2.76	4.26
POI-5	47.66	100.75	141.40	215.73	4.82	10.10	14.27	22.12
POI-6	1.96	3.40	4.45	6.34	0.16	0.28	0.37	0.54

	F	low & Volu	me Compa	rison (Inte	im - Existir	ng) - Atlas 1	4	
'n		Peak Flo	ows (cfs)			Volume	s (ac-ft)	
D	2-yr	10-yr	25-yr	100-yr	2-yr	10-yr	25-yr	100-yr
POI-1	-8.44	-21.44	-31.71	-50.74	-0.77	-1.85	-2.75	-4.46
POI-2	1.22	1.47	1.56	1.65	0.09	0.12	0.15	0.16
POI-3	62.12	97.41	121.72	163.82	5.92	9.70	12.35	17.03
POI-4	-0.88	-2.55	-3.95	-6.59	-0.07	-0.20	-0.31	-0.52
POI-5	-4.75	-11.63	-17.16	-27.49	-0.49	-1.16	-1.70	-2.76
POI-6	-7.07	-15.49	-22.01	-33.97	-0.57	-1.25	-1.80	-2.82

NOTES:

1. PLEASE REFER TO THE DETENTION WAIVER ANALYSIS ADDENDUM 1, SEALED JULY 28, 2023, SUBMITTED WITH THE 2023-22-PP.

0	100' 200'
SCA	ALE: 1" = 100'
I	LEGEND
— — 834 - — —	EXISTING MINOR CONTOUR
— - 835 - — —	EXISTING MAJOR CONTOUR
834	PROPOSED MINOR CONTOUR
835	PROPOSED MAJOR CONTOUR
	BOUNDARY
	EASEMENT
100YR	100 YR PROPOSED CONDITION FLOODPLAIN
	100 YR FEMA ZONE A FLOODPLAIN
	CREEK CENTERLINE
SD	PROPOSED STORM LINE
-ф-	FIRE HYDRANT
	WATER VALVE
SD	STORM SEWER MAHNOLE
ŴŴ	WASTEWATER MANHOLE
0	CURB INLET
	TREES TO REMAIN
	HERITAGE
	TREES TO REMAIN
	NON HERITAGE
	DRAINAGE AREA
Tc	TIME OF CONCENTRATION

		C	OG C-Values		
	2		10	25	100
Impervious	0.95		0.95	0.95	0.95
Pervious	0.24		0.28	0.31	0.36
			COG IDF Curv	ve Values	
	Year		а	b	с
	2		106.29	16.81	0.9076
	10		96.84	15.88	0.7952
	25		111.07	17.23	0.7815
	100		129.03	17.83	0.7625

						RATION	PARKSIDE NAL METHO	ON THE RIV	ER SECTIO CULATION	NS 9A & 1 S FOR STO	DA RM INLE	ETS													I	PARKSIDE ON TIME OF CON	THE RIVER	SECTIONS 9	}A & 10A .ATIONS				
BASIN	INLET	INLET	AREA	AREA	IMPERVIOUS (LOTS)	IMPERVIOUS (ROADS)	IMPERVIOUS	PERVIOUS	тс		2-YR			10-YR			25-YR			100-YR				She	et Flow		Shall	ow Concentra	ated Flow (Un	paved)		Gutter Flow	
LABEL	LABEL	TYPE*	(SQ FT)	(AC)	(SF)	(SF)	%	%	(MIN)	с	1	Q	с	I	Q	С	I	Q	с	I	Q	- Contributir Area	g Length (ft)	Slope (ft/ft)	Roughness Coefficient	T _{sheet}	Length (ft)	Slope (ft/ft) Roughness Coefficient	Tunpaved	Length (ft)	Velocity (ft/s)	Tpaved
101	D5	CSAG	9,614	0.22	0	7,281	76%	24%	5.0	0.78	6.48	1.11	0.79	8.64	1.50	0.79	9.84	1.73	0.81	11.88	2.12	101				0.00		1		0.00			0.00
102	D6	CSAG	14,019	0.32	0	10,777	77%	23%	5.0	0.79	6.48	1.64	0.80	8.64	2.21	0.80	9.84	2.54	0.81	11.88	3.11	102				0.00				0.00			0.00
103	A28	CGRD	13,314	0.31	0	9,866	74%	26%	5.0	0.77	6.48	1.52	0.78	8.64	2.05	0.78	9.84	2.36	0.80	11.88	2.89	103				0.00				0.00			0.00
104	A31	CGRD	14,294	0.33	0	10,665	75%	25%	5.0	0.77	6.48	1.64	0.78	8.64	2.21	0.79	9.84	2.54	0.80	11.88	3.12	104				0.00				0.00			0.00
105	A24	CGRD	37,429	0.86	10,800	3,447	38%	62%	5.8	0.51	6.27	2.75	0.54	8.38	3.85	0.55	9.57	4.55	0.58	11.57	5.81	105	35	0.02	0.24	1.41	143	0.02	0.24	4.04	129	6	0.36
106	A33	CGRD	37,475	0.86	14,400	3,554	48%	52%	5.3	0.58	6.40	3.19	0.60	8.54	4.42	0.62	9.74	5.16	0.64	11.76	6.50	106	35	0.02	0.24	1.41	124	0.02	0.24	3.51	137	6	0.38
107	A32	CGRD	35,715	0.82	12,400	3,962	46%	54%	5.8	0.57	6.28	2.91	0.59	8.40	4.04	0.60	9.58	4.74	0.63	11.59	5.99	107	35	0.02	0.24	1.41	138	0.02	0.24	3.90	161	6	0.45
108	A55	CGRD	17,722	0.41	7,400	2,585	56%	44%	5.0	0.64	6.48	1.69	0.66	8.64	2.31	0.67	9.84	2.68	0.69	11.88	3.35	108	35	0.02	0.24	1.41	106	0.02	0.24	3.00	117	6	0.33
109	A30	CGRD	28,216	0.65	9,200	8,085	61%	39%	7.9	0.67	5.78	2.52	0.69	7.78	3.48	0.70	8.93	4.06	0.72	10.83	5.06	109	35	0.02	0.24	1.41	231	0.02	0.24	6.53	0	6	0.00
110	A46	CGRD	46,131	1.06	16,000	4,303	44%	56%	7.9	0.55	5.78	3.38	0.57	7.78	4.74	0.59	8.93	5.60	0.62	10.83	7.11	110	35	0.02	0.24	1.41	227	0.02	0.24	6.42	37	6	0.10
111	A47	CGRD	34,993	0.80	10,800	5,647	47%	53%	5.0	0.57	6.48	2.99	0.59	8.64	4.13	0.61	9.84	4.83	0.64	11.88	6.08	111	35	0.02	0.24	1.41	101	0.02	0.24	2.86	172	6	0.48
112	A29	CGRD	38,624	0.89	10,800	8,298	49%	51%	5.0	0.59	6.48	3.40	0.61	8.64	4.68	0.63	9.84	5.47	0.65	11.88	6.87	112	35	0.02	0.24	1.41	119	0.02	0.24	3.37	0	6	0.00
113	A27	CGRD	25,916	0.59	9,200	1,862	43%	57%	5.4	0.54	6.38	2.06	0.57	8.52	2.87	0.58	9.71	3.37	0.61	11.73	4.27	113	35	0.02	0.24	1.41	136	0.02	0.24	3.85	43	6	0.12
114	A26	CGRD	36,011	0.83	15,200	2,775	50%	50%	5.5	0.59	6.34	3.12	0.61	8.47	4.30	0.63	9.66	5.03	0.65	11.68	6.32	114	35	0.02	0.24	1.41	136	0.02	0.24	3.85	93	6	0.26
115	A25	CGRD	50,257	1.15	19,600	2,775	45%	55%	5.9	0.56	6.26	4.01	0.58	8.37	5.58	0.59	9.55	6.56	0.62	11.55	8.30	115	35	0.02	0.24	1.41	148	0.02	0.24	4.19	93	6	0.26
116	A41	CGRD	39,970	0.92	14,200	590	37%	63%	5.6	0.50	6.32	2.91	0.53	8.45	4.09	0.55	9.63	4.83	0.58	11.64	6.18	116	35	0.02	0.24	1.41	145	0.02	0.24	4.10	35	6	0.10
117	A42	CGRD	31,777	0.73	12,000	2,572	46%	54%	7.9	0.57	5.79	2.39	0.59	7.80	3.34	0.60	8.95	3.94	0.63	10.86	4.99	117	35	0.02	0.24	1.41	225	0.02	0.24	6.36	30	6	0.08
118	B31	CGRD	32,720	0.75	10,400	3,879	44%	56%	5.5	0.55	6.34	2.62	0.57	8.47	3.64	0.59	9.66	4.28	0.62	11.68	5.42	118	35	0.02	0.24	1.41	136	0.02	0.24	3.85	95	6	0.26
119	A39	CSAG	57,752	1.33	11,600	20,014	55%	45%	5.2	0.63	6.44	5.37	0.65	8.59	7.37	0.66	9.79	8.57	0.68	11.82	10.70	119	35	0.02	0.24	1.41	102	0.02	0.24	2.88	309	6	0.86
120	A38	CSAG	21,094	0.48	0	15,743	75%	25%	5.0	0.77	6.48	2.42	0.78	8.64	3.26	0.79	9.84	3.75	0.80	11.88	4.60	120				0.00				0.00			0.00
121	B30	CGRD	7,272	0.17	0	5,654	78%	22%	5.0	0.79	6.48	0.86	0.80	8.64	1.16	0.81	9.84	1.33	0.82	11.88	1.62	121				0.00				0.00			0.00
122	B29	CGRD	19,669	0.45	0	14,785	75%	25%	5.0	0.77	6.48	2.26	0.78	8.64	3.06	0.79	9.84	3.51	0.80	11.88	4.31	122				0.00				0.00			0.00
123	B32	CGRD	26,891	0.62	4,800	12,099	63%	37%	5.0	0.69	6.48	2.74	0.70	8.64	3.74	0.71	9.84	4.33	0.73	11.88	5.36	123				0.00				0.00			0.00
124	B33	CGRD	36,204	0.83	11,200	7,131	51%	49%	5.2	0.60	6.43	3.20	0.62	8.58	4.41	0.63	9.77	5.15	0.66	11.80	6.46	124	35	0.02	0.24	1.41	128	0.02	0.24	3.62	59	6	0.16
125	B41	CGRD	8,824	0.20	0	6,517	74%	26%	5.0	0.76	6.48	1.00	0.77	8.64	1.36	0.78	9.84	1.56	0.80	11.88	1.92	125				0.00				0.00			0.00
126	B42	CGRD	30,002	0.69	7,600	8,922	55%	45%	5.0	0.63	6.48	2.82	0.65	8.64	3.86	0.66	9.84	4.49	0.68	11.88	5.60	126				0.00				0.00			0.00
127	B34	CGRD	40,275	0.92	8,800	9,934	47%	53%	5.6	0.57	6.32	3.33	0.59	8.44	4.62	0.61	9.63	5.41	0.63	11.64	6.83	127	35	0.02	0.24	1.41	136	0.02	0.24	3.85	128	6	0.36
128	B35	CGRD	49,565	1.14	13,200	6,390	40%	60%	5.9	0.52	6.23	3.69	0.54	8.34	5.17	0.56	9.52	6.10	0.59	11.52	7.77	128	35	0.02	0.24	1.41	140	0.02	0.24	3.96	207	6	0.58
129	B26	ASAG	35,273	0.81	0	21,441	61%	39%	5.0	0.67	6.48	3.52	0.69	8.64	4.81	0.70	9.84	5.57	0.72	11.88	6.91	129				0.00		4	<u> </u>	0.00	 		0.00
130	B27	ASAG	44,282	1.02	0	20,430	46%	54%	5.0	0.57	6.48	3.74	0.59	8.64	5.18	0.61	9.84	6.05	0.63	11.88	7.64	130				0.00			+	0.00		+	0.00
131	A54	ASAG	53,289	1.22	0	28,584	54%	46%	5.0	0.62	6.48	4.92	0.64	8.64	6.76	0.65	9.84	7.86	0.68	11.88	9.83	131				0.00			<u> </u>	0.00	 		0.00
132	A53	ASAG	41,852	0.96	1,800	20,688	54%	46%	5.0	0.62	6.48	3.87	0.64	8.64	5.31	0.65	9.84	6.18	0.68	11.88	7.73	132				0.00				0.00			0.00

				Area In
Drainage Area No.	Inlet No.	Q ₂₅ (cfs)	Qpass (cfs)	Qtot (cfs
129	B26	5.57	0.00	5.57
130	B27	6.05	0.00	6.05
131	A54	7.86	0.00	7.86
132	A53	6.18	0.00	6.18
				rea Inl
Drainage Area No.	Inlet No.	Q ₁₀₀ (cfs)	Qpass (cfs)	Qtot (cfs
129	B26	6.91	0.00	6.9
130	B27	7.64	0.00	7.64
131	A54	9.83	0.00	9.83
132	A53	7.73	0.00	7.73

Curb Inlets On Grade Calculation Summary: 25 year

										Curb	mets On	Grade Cald	culation	Summary	: zo year										
Drainage Area No.	Inlet No.	Q ₂₅ (cfs)	Q _{pass} (cfs)	Q _{total} (cfs)	Slope (%)	n	Ku	Street Width (ft)	Crown Height (ft)	Inlet Depression, a (ft)	ко	K1	К2	yO (ft)	а	b	Flow Spread, T (ft)	H1 (ft)	H2 (ft)	Qa/La (cfs/ft)	Length (ft)	Qa	Q _{pass} (cfs)	% Captured	Bypass to Inlet
103	A28	2.36	0.00	2.36	3.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.27	0.0714	0.0026	4.42	0.68	0.42	0.72	10.00	7.18		100%	102
104	A31	2.54	0.00	2.54	4.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.27	0.0714	0.0026	4.41	0.68	0.42	0.72	10.00	7.18		100%	103
105	A24	4.55	0.00	4.55	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0714	0.0026	5.67	0.74	0.42	0.78	10.00	7.77		100%	106
106	A33	5.16	0.00	5.16	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.00	0.75	0.42	0.79	10.00	7.91		100%	107
107	A32	4.74	0.00	4.74	4.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.74	0.74	0.42	0.78	10.00	7.80		100%	109
108	A55	2.68	0.00	2.68	3.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.63	0.69	0.42	0.73	10.00	7.29		100%	109
109	A30	4.06	0.00	4.06	6.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.29	0.0714	0.0026	4.92	0.71	0.42	0.74	10.00	7.42		100%	112
110	A46	5.60	0.00	5.60	6.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0714	0.0026	5.55	0.73	0.42	0.77	10.00	7.71		100%	112
111	A47	4.83	0.00	4.83	6.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.22	0.72	0.42	0.76	10.00	7.57		100%	112
112	A29	5.47	0.00	5.47	3.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.40	0.77	0.42	0.81	10.00	8.08		100%	113
113	A27	3.37	0.00	3.37	3.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.16	0.72	0.42	0.75	10.00	7.54		100%	114
114	A26	5.03	0.00	5.03	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.29	0.77	0.42	0.80	10.00	8.04		100%	115
115	A25	6.56	0.00	6.56	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.41	0.0714	0.0026	7.95	0.82	0.42	0.87	10.00	8.66		100%	119
116	A41	4.83	0.00	4.83	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.18	0.76	0.42	0.80	10.00	7.99		100%	117
117	A42	3.94	0.00	3.94	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0714	0.0026	5.64	0.74	0.42	0.78	10.00	7.75		100%	119
118	B31	4.28	0.00	4.28	0.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.44	0.0714	0.0026	9.32	0.86	0.42	0.91	10.00	9.07		100%	119
121	B30	1.33	0.00	1.33	8.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.19	0.0714	0.0026	2.93	0.60	0.42	0.64	10.00	6.41		100%	OS
122	B29	3.51	0.00	3.51	10.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.25	0.0714	0.0026	4.17	0.67	0.42	0.71	10.00	7.06		100%	OS
123	B32	4.33	0.00	4.33	3.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.32	0.0714	0.0026	5.71	0.74	0.42	0.78	10.00	7.79		100%	118
124	B33	5.15	0.00	5.15	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	5.99	0.75	0.42	0.79	10.00	7.91		100%	122
125	B41	1.56	0.00	1.56	1.60%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.26	0.0714	0.0026	4.36	0.68	0.42	0.72	10.00	7.15		100%	124
126	B42	4.49	0.00	4.49	0.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.45	0.0714	0.0026	9.63	0.87	0.42	0.91	10.00	9.15		100%	124
127	B34	5.41	0.00	5.41	4.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.06	0.76	0.42	0.79	10.00	7.94		100%	124
128	B35	6.10	0.00	6.10	3.80%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.36	0.0714	0.0026	6.52	0.77	0.42	0.81	10.00	8.13		100%	123

										Curb	Inlets On	Grade Calc	ulation S	Summary	: 100 year	-									
Drainage Area No.	Inlet No.	Q ₁₀₀ (cfs)	Q _{pass} (cfs)	Q _{total} (cfs)	Slope (%)	n	Ku	Street Width (ft)	Crown Height (ft)	Inlet Depression, a (ft)	КО	K1	К2	yO (ft)	а	b	Flow Spread, T (ft)	H1 (ft)	H2 (ft)	Qa/La (cfs/ft)	Length (ft)	Qa	Q _{pass} (cfs)	% Captured	Bypass to Inlet
103	A28	2.89	0.00	2.89	3.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.81	0.70	0.42	0.74	10.00	7.37		100%	102.00
104	A31	3.12	0.00	3.12	4.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.80	0.70	0.42	0.74	10.00	7.37		100%	103.00
105	A24	5.81	0.00	5.81	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.33	0.77	0.42	0.81	10.00	8.05		100%	106.00
106	A33	6.50	0.00	6.50	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.36	0.0714	0.0026	6.68	0.78	0.42	0.82	10.00	8.19		100%	107.00
107	A32	5.99	0.00	5.99	4.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.38	0.77	0.42	0.81	10.00	8.07		100%	109.00
108	A55	3.35	0.00	3.35	3.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.30	0.0714	0.0026	5.08	0.71	0.42	0.75	10.00	7.50		100%	109.00
109	A30	5.06	0.00	5.06	6.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.31	0.0714	0.0026	5.40	0.73	0.42	0.76	10.00	7.65		100%	112.00
110	A46	7.11	0.00	7.11	6.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.34	0.0714	0.0026	6.18	0.76	0.42	0.80	10.00	7.99		100%	112.00
111	A47	6.08	0.00	6.08	6.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.78	0.74	0.42	0.78	10.00	7.82		100%	112.00
112	A29	6.87	0.00	6.87	3.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.38	0.0714	0.0026	7.15	0.80	0.42	0.84	10.00	8.37		100%	113.00
113	A27	4.27	0.00	4.27	3.30%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.33	0.0714	0.0026	5.72	0.74	0.42	0.78	10.00	7.79		100%	114.00
114	A26	6.32	0.00	6.32	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.38	0.0714	0.0026	7.02	0.79	0.42	0.83	10.00	8.33		100%	115.00
115	A25	8.30	0.00	8.30	2.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.44	0.0714	0.0026	9.13	0.86	0.42	0.90	10.00	9.02		100%	119.00
116	A41	6.18	0.00	6.18	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.37	0.0714	0.0026	6.94	0.79	0.42	0.83	10.00	8.30		100%	117.00
117	A42	4.99	0.00	4.99	3.00%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.27	0.76	0.42	0.80	10.00	8.03		100%	119.00
118	B31	5.42	0.00	5.42	0.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.48	0.0714	0.0026	11.20	0.90	0.42	0.95	10.00	9.47		100%	119.00
121	B30	1.62	0.00	1.62	8.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.20	0.0714	0.0026	3.17	0.62	0.42	0.65	10.00	6.54		100%	OS
122	B29	4.31	0.00	4.31	10.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.27	0.0714	0.0026	4.53	0.69	0.42	0.72	10.00	7.24		100%	OS
123	B32	5.36	0.00	5.36	3.40%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.35	0.0714	0.0026	6.30	0.77	0.42	0.80	10.00	8.04		100%	118.00
124	B33	6.46	0.00	6.46	3.90%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.36	0.0714	0.0026	6.66	0.78	0.42	0.82	10.00	8.18		100%	122.00
125	B41	1.92	0.00	1.92	1.60%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.28	0.0714	0.0026	4.74	0.70	0.42	0.73	10.00	7.34		100%	124.00
126	B42	5.60	0.00	5.60	0.50%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.49	0.0714	0.0026	11.61	0.90	0.42	0.95	10.00	9.53		100%	124.00
127	B34	6.83	0.00	6.83	4.10%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.37	0.0714	0.0026	6.76	0.78	0.42	0.82	10.00	8.22		100%	124.00
128	B35	7.77	0.00	7.77	3.80%	0.015	0.560	28.00	0.500	0.42	2.85	0.50	3.03	0.39	0.0714	0.0026	7.34	0.80	0.42	0.84	10.00	8.45		100%	123.00

let i	n Sag Calculati	ion Summa	ary: 25 yeai	r			
al)	Throat Height, h	Inlet Length, L	Yard Cross Slope, Sx	Weir Depth above FL	Orifice Depth above FL	Ponded Depth, d	Ponding Spread, T
	(in)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)
7	5.00	16.00	1.67%	0.24	0.23	0.24	14.14
5	5.00	16.00	1.67%	0.25	0.24	0.25	14.96
6	5.00	16.00	1.67%	0.30	0.26	0.30	17.82
8	5.00	16.00	1.67%	0.25	0.24	0.25	15.17

Inlet i	n Sag Calculati	on Summa	ry: 100 yea	r			
otal cfs)	Throat Height, h	Inlet Length, L	Yard Cross Slope, Sx	Weir Depth above FL	Orifice Depth above FL	Ponded Depth, d	Ponding Spread, T
	(in)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)
.91	5.00	16.00	1.67%	0.27	0.25	0.27	16.35
.64	5.00	16.00	1.67%	0.29	0.25	0.29	17.47
.83	5.00	16.00	1.67%	0.35	0.28	0.35	20.70
.73	5.00	16.00	1.67%	0.29	0.25	0.29	17.61

			·				Curb In	lets in Sump C	Calculation Sum	nmary: 25 y	ear						
Drainage Area No.	Inlet No.	Q ₂₅ (cfs)	Qpass (cfs)	Qtotal (cfs)	W (ft)	Inlet Depression, a (ft)	Curb opening height, h (ft)	Street Width (ft)	Crown Height (%)	Clogging Factor (%)	Inlet Length (ft)	d _{weir} Above S _x (ft)	d _{orifice} above S _x (ft)	а	b	Depth of Ponding over S _x , y0 (ft)	Ponded Width (ft)
101	D5	1.73	0.00	1.73	1.50	0.42	0.52	28.00	0.50	100%	10.00	0.15	0.00	0.07	0.00	0.15	2.32
102	D6	2.54	0.00	2.54	1.50	0.42	0.52	28.00	0.50	100%	10.00	0.20	0.00	0.07	0.00	0.20	3.09
119	A39	8.57	0.00	8.57	1.50	0.42	0.52	28.00	0.50	100%	10.00	0.44	0.00	0.07	0.00	0.31	5.35
120	A38	3.75	0.00	3.75	1.50	0.42	0.52	28.00	0.50	100%	10.00	0.25	0.00	0.07	0.00	0.25	4.19

							Curb In	ets in S
Drainage Area No.	Inlet No.	Q ₁₀₀ (cfs)	Qpass (cfs)	Qtotal (cfs)	W	Inlet Depression, a	Curb opening height, h	Street
		(013)	()	()	(ft)	(ft)	(ft)	(f
101	D5	2.12	0.00	2.12	1.50	0.42	0.52	28
102	D6	3.11	0.00	3.11	1.50	0.42	0.52	28
119	A39	10.70	0.00	10.70	1.50	0.42	0.52	28
120	A38	4.60	0.00	4.60	1.50	0.42	0.52	28

Sump Calculation Summary: 100 year Clogging Inlet $\mathsf{d}_{\mathsf{oriflce}}$ $\mathsf{d}_{\mathsf{weir}}$ Depth of Ponding Ponded Width Crown Height Factor Length above S_x b Above S_x а over S_x, y0 (ft) Width (ft) (ft) (ft) (ft) (%) (%) 0.50 100% 10.00 0.17 0.00 0.07 0.00 0.17 2.69 3.00 28.00 0.50 100% 10.00 0.22 0.00 0.07 0.00 28.00 0.50 100% 10.00 0.51 0.00 0.07 0.00 28.00 0.50 100% 10.00 0.51 0.00 0.07 0.00 28.00 0.50 100% 10.00 0.29 0.00 0.07 0.00 0.22 3.61 0.31 5.35 0.29 4.97

			BY DATE
			REVISION
			Z
Know wha	The set of		
5508 HIGHWAY 290 WEST SUITE 150 AUSTIN, TX 78735	HIGREEN. COM HIGREEN. COM	TBPE NO: 16384	DEVELOPMENT TX
SHER	E OF TE VIN NOO 96807 CENSES	SHIN 22	
Nen	- 1.90	11/15/	2023
INLET DRAINAGE CALCULATIONS	PARKSIDE SECTION 94 & 104		GEORGETOWN, WILLIAMSON, TEXAS
INLET DRAINAGE CALCULATIONS DESIGN DRAWN CHECKE ADDROV			

											LEGEN SCALE: 1" = 1 LEGEN LEGEN EXISTING PROPOSE BOUNDAF BOUNDAF CREEK CE PROPOSE FIRE HYD WATER V. STORM SI WASTEW, CURB INL TREES TO TREES TO NON HER DRAINAGE	300 150' MINOR CONTOUR MAJOR CONTOUR D MAJOR CONTOUR D MAJOR CONTOUR 20 MAJOR	I FLOODPLAIN LAIN	TY DRAINAGE 5608 HIGHWAY 200 WEST 5508 HIGHWAY 200 WEST		
DRAINAGE		MAX TSS	BASIN AREA	PRE- DEVELOPMENT	PROPOS	SED I.C.	POST-DEVELOP	MENT I.C.	TCEQ REQUIRED	CITY OF GEORGETOWN REQUIRED 85%	PROVIDED TSS				П В С С С С С С С С С С С С С С С С С С	
AREA	BMP TYPE	REMOVAL EFFICIENCY	AC	I.C. AC	SECTION 8 AC	SECTION 9A 10A	AC	%	REMOVAL LB	POND TSS LOAD LB		CF	CF	₽ 4 ₽ 4		
BDP-01	BATCH DETENTION POND	91%	57.62	1.60	10.02	14.26	25.88	45%	21,133	22,454	23,750	132,879	137,853	ATE ARE	КК: СС ПС ПС ПС	
VFS-01	VEGETATIVE FILTER STRIP	85%	4.00	0.00	1.92		1.92	48%	1,671		1,838				PA EO	
BP-01	BY-PASS	0%	1.17	0.00	0.63		0.63	54%	548							
BP-02	BY-PASS	0%	2.90	0.00		1.48	1.48	51%	1,288					DESIGN	ер вү: <u>сс</u> вү: <u>ММ/МКМ</u>	- 1
BP-03	BY-PASS	0%	1.33	0.00		0.65	0.65	49%	566					CHECKE	D BY: <u>SN</u>	-
	TOTAL:	I	67.02	1.60	12.57	16.39	30.56	46%	25,207		25,588				/ED BY:	-
						I								1	40 04	1

1 - FOR THE GEORGETOWN TSS REMOVAL REQUIREMENT, WE CONSIDER 85% OF TSS REMOVAL FOR THE DRAINAGE AREA THAT DRAINS TOWARD THE BATCH DETENTION PONDS.

SHEET 42 OF 84 2023-XX-CON

BATCH DETENTION POND - BDP-01 (PROPOSED)

TSS Remov	al Calculations 04-20-2009
Additional in Text shown in Characters	formation is provided for cells with a red tri blue indicate location of instructions in the Tech shown in red are data entry fields.
1. The Require	shown in black (Bold) are calculated fields.
	Page 3-29 Equation 3.3:
where:	L _M total proje
Site Data:	Determine Required Load Removal Based on the Entire F Cour Total project area included in pla
P Total pos	redevelopment impervious area within the limits of the pla st-development impervious area within the limits of the pla Total post-development impervious cover fractio
* The values e	L _{M TOTAL} PROJE entered in these fields should be for the total project
Nur	nber of drainage basins / outfalls areas leaving the plan ar
2. Drainage Ba	asin Parameters (This information should be provide
	Drainage Basin/Outfall Area N
Drada	Total drainage basin/outfall ar
Prede Post-de	velopment impervious area within drainage basin/outhail an velopment impervious area within drainage basin/outfall ar
Post-devel	opment impervious fraction within drainage basin/outfall ar
3. Indicate the	proposed BMP Code for this basin.
4. Calculate M	Proposed BM Removal efficien aximum TSS Load Removed (L _R) for this Drainage B
	RG-348 Page 3-33 Equation 3.7:
where:	
5. Calculate Fi	action of Annual Runoff to Treat the drainage basin
	Desired L _{M THIS BA}
6. Calculate C	apture Volume required by the BMP Type for this dra
	Rainfall Dey Post Development Runoff Coefficie On-site Water Quality Volui
	Off-site area draining to BM Off-site Impervious cover draining to BM Impervious fraction of off-site ar
	Off-site Runoff Coefficie Off-site Water Quality Volum

Texas Commission on Environmental Quality

Storage for Sedime Total Capture Volume (required water quality volume(s) x 1.2

1/2 V

e madeelbarkside sections 8. 9a & 10a/sections 9a & 10a/03 ACAD/Plans/sh2303255 pWODAM dwa. WATER QUALITY CALCULATIONS (PROPOSED). December 19. 2023. 10:15 AM.

				Parkside on the	e River	
			Project Name:	Section 9A & 10	A	
			Date Prepared:	11/7/2023		
triand	le in the upp	er right c	orner. Place the	cursor over the	cell.	
chnica	l Guidance M	Anual - RO	-348			
s Cha	inges to the	se fields v	vill remove the eq	uations used in	n the sprea	dsheet
					p	
	Calculations fro	om RG-348		Pages 3-27 to 3-30		
3: L _M =	27.2(A _N x P)					
OJECT =	Required TSS	removal resul	lting from the propose	d development = 80%	6 of increased	load
$A_N =$	Net increase in	impervious a	area for the project			
P =	Average annua	l precipitation	n, inches			
<u> </u>						
e Projec	Williamcon					
olan * =	34.42	acres				
olan * =	0.00	acres				
plan * =	16.39	acres				
tion * =	0.48	in ala				
Р=	5Z	mones				
	44000	lha				
	14200	105.				
ect are a						
i area =	5					
dad f	a a a b b 1 - 1					
ded for	each basin):					
a No. =	BDP-01					
l area =	57.62	acres				
l area =	1.60	acres				
larea =	25.88	acres				
	21133	lhs				
DASIN	21100	120.				
BMP =	Batch Detenti	on				
iency =	91 huithe ealerta	percent				
: Бамп	by the selecte	и ымг тура	<u>.</u>			
7: Lo =	(BMP efficiency	v) x P x (A, x	(34.6 + A _≏ x 0.54)			
K	(· • · · · · · · · · · · · · · · · · · ·			
A _C =	Total On-Site d	lrainage area	in the BMP catchmer	nt area		
A, =	Impervious area	a proposed ir	the BMP catchment	area		
A _P =	Pervious area r	emaining in t	the BMP catchment a	rea		
L _R =	TSS Load remo	oved from this	s catchment area by t	he proposed BMP		
A _c =	57.62	acres				
A, =	25.88	acres				
A _P =	31.74	acres				
L _R =	26575	lbs				
ain /out	fall area 🏾 🎙					
BASIN =	23750	lbs.				
F =	0.89					
drain	e hacin / -···#-	llaroo	Calculations from D.C.	248	Dages 2.24 +	2.26
uramag	ua siii/Outta	uraită.	Garculations from RG	-040	i ayes 0-04 I(/ 3-3U
Depth =	1.60	inches				
cient =	0.33	aubia f act				
nume =	110732	CUDIC 1991				
	Calculations fro	om RG-348	Pages 3-36 to 3-37			
BMP =	0.00	acres				
area =	0.00	20105				
icient =	0.00					
olume =	0	cubic feet				
iment =	22146					
1.20) =	132879	cubic feet				
MON -	00100					
••QV =	00439					

VEGETATIVE FILTER STRIP - VFS-01

exas Con	nmission on Environmental Quality					
	,				Parkside on the Ri	iver
	al Caleviations 0.4.00.0000			Basis of Manager	Casties 04.9.404	
SS Remov	al Calculations 04-20-2009			Project Name:	Section 9A & 10A	
				Date Prepared:	11/7/2023	
dditional in	formation is provided for cells with a red triang	le in the upp	oer riaht c	orner. Place the	cursor over the cel	I
extshown in	blue indicate location of instructions in the Technics	I Guidance N	Annual - RC	-348		
born etero r	shown in red are data entry fields		nanuar - rec	-040.		
naracters	snown in red are data entry helds.					
haracters s	shown in black (Bold) are calculated fields. Cha	inges to the	se fields v	vill remove the eq	uations used in th	e spreadsheet.
The Require	d Load Reduction for the total project:	Calculations fro	om RG-348		Pages 3-27 to 3-30	
	Page 3-29 Equation 3.3: L _M =	27.2(A _N x P)				
where		Required TSS	removal resu	Iting from the propose	d development = 80% of	increased load
where.	MITUTAL PROJECT -	http://www.common.com		iting from the propose		increased load
	$A_{\rm N} =$	Net increase in	impervious	area for the project		
	P =	Average annua	I precipitation	n, inches		
o:						
Site Data:	Determine Required Load Removal Based on the Entire Project					
	County =	williamson				
_	i otal project area included in plan * =	34.42	acres			
PI Tetel	receiveropment impervious area within the limits of the plan * =	0.00	acres			
rotai pos	a-development impervious area within the limits of the plan * =	10.39	acres			
	rotal post-development impervious cover maction * =	0.46	inches			
	P=	32	mones			
	L _{M TOTAL PROJECT} =	14266	lbs.			
The values e	ntered in these fields should be for the total project area	L.				
Nus	abar of draine we beging / outfalls, areas leaving the plan area -					
INUI	nber of dramage basilis / outlans areas leaving the plan area –	J				
Drainage Ba	sin Parameters (This information should be provided for	each basin):				
	Drainage Basin/Outfall Area No. =	VFS-01				
	Total drainage basin/outfall area =	4.00	acres			
Predev	velopment impervious area within drainage basin/outfall area =	0.00	acres			
Post-dev	velopment impervious area within drainage basin/outfall area =	1.92	acres			
Post-develo	opment impervious fraction within drainage basin/outfall area =	0.48				
	L _{M THIS} BASIN =	1671	lbs.			
Indicate the	proposed BMP Code for this basin.					
	Proposed BMP =	vegetated Fil	ter Strips			
Onlawlada M	Removal emciency =	85	percent			
Carculate Ma	aximum 155 Load Removed (L _R) for this Drainage Basin	by the selecte	а ыйн Тур	<u>.</u>		
		(B 1 B 1	\			
	RG-348 Page 3-33 Equation 3.7: L _R =	(BMP efficienc	y)x P x (A⊨)	(34.6 + A _P x 0.54)		
where:	A _C =	Total On-Site of	drainage area	in the BMP catchmer	nt area	
	A, =	Impervious are	a proposed ir	the BMP catchment	area	
	A _p =	Pervious area i	remaining in t	he BMP catchment a	rea	
	· -	TSS Load rom	wod from thi	- aatahmant araa buut	he proposed PMP	
		TOO LOAD TEIN		s catoninent area by t	ne proposed Divin	
	۵	4.00				
	A _C =	4.00	acres			
	A, =	1.92	acres			
	A _P =	2.08	acres			
	Lp =	1838	lbs			
Calculate Fr	action of Annual Runoff to Treat the drainage basin / out	fall area				
	Desired L _{M THIS BASIN} =	1838	lbs.			
	F =	1.00				
			1			

	DVC						
	DIF	A22 -					
exas Com	mission on Environmental Quality						
					Parkside on the	e River	
TSS Remova	al Calculations 04-20-2009			Project Name:	Section 9A & 1	0A	
				Date Prepared:	11/7/2023		
Additional in	formation is provided for cells with a red triang	le in the up	per right co	orner. Place the	cursor over the	cell.	
Fext shown in	blue indicate location of instructions in the Technica	l Guidance N	Manual - RG	-348.			
Characters s	hown in red are data entry fields.						
Characters s	hown in black (Bold) are calculated fields. Cha	inges to the	se fields w	ill remove the e	quations used i	n the spreads	sheet.
		-					
. The Required	I Load Reduction for the total project:	Calculations fr	om RG-348		Pages 3-27 to 3-30		
	Date: 2.20 Envertise: 2.20 Late	27.2(A					
	Page 3-29 Equation 3.3. $L_{\rm M} =$	27.2(A _N X P)					
where:	L _{M TOTAL PROJECT} =	Required TSS	removal result	ing from the propose	d development = 809	% of increased lo	ad
	A _N =	Net increase i	n impervious a	rea for the project			
	P =	Average annua	al precipitation	, inches			
Site Data: [Determine Required Load Removal Based on the Entire Project	٠t					
one bata. I	County =	William son `	•				
	Total project area included in plan * =	34.42	acres				
Pr	edevelopment impervious area within the limits of the plan * =	0.00	acres				
Total post	-development impervious area within the limits of the plan * =	16.39	acres				
	Total post-development impervious cover fraction * =	0.48					
	P =	32	inches				
	L _{M TOTAL PROJECT} =	14266	lbs.				
The values er	ntered in these fields should be for the total project area						
Num	ber of drainage basins / outfails areas leaving the plan area =	5					
Baria - E							
. Drainage Bas	sin marameters (This information should be provided for	each basin):					
	Drainage Basin/Outfall Area No. =	BP-01					
	Total drainage hasin/outfall area =	1.17	acres				
Predev	elopment impervious area within drainage basin/outfall area =	0.00	acres				
Post-dev	elopment impervious area within drainage basin/outfall area =	0.63	acres				
Post-develo	pment impervious fraction within drainage basin/outfall area =	0.54					
	L _{m this basin} =	548	lbs.				

BYPASS - BP-02

Texas Commission on Environmental Quality Image: Commission on Environmental Quality Image: Commission on Environmental Quality TSS Removal Calculations 04-20-2009 Image: Commission on Environmental Quality Image: Commission on Environmental Quality TSS Removal Calculations 04-20-2009 Image: Commission on Environmental Quality Image: Commission on Environmental Quality Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the commission of instructions in the Technical Guidance Manual - RG-348. Image: Commission on Environmental Quality Characters shown in red are data entry fields. Image: Commission on Environmental Quality Image: Commission on Environmental Quality	River
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the the c	River
TSS Removal Calculations 04-20-2009 Project Name: Section 9A & 10A Date Prepared: 11/7/2023 Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the corner. Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields.	÷!!.
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the corner text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348. Characters shown in red are data entry fields.) .
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the corner text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.	ell.
Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cursor o	ell.
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 red are data entry fields.	
Characters shown in red are data entry neids.	
Characters shown in black (Rold) are calculated fields. Changes to these fields will remove the equations used in t	he opresdobeet
Characters shown in black (bold) are calculated fields. Characters to these fields will remove the equations used in t	ne spreausneer
1 The Required Load Paduction for the total project: Colouistions from PC 348 Page 3.27 to 3.20	
The Required Load Reduction for the total project.	
Page 3.20 Equation 3.3: $I = 27.2(A \times P)$	
where:	fincreased load
	indicased load
Site Data: Determine Required Load Removal Based on the Entire Project	
County = William son	
Total project area included in plan * = 34.42 acres	
Predevelopment impervious area within the limits of the plan * = 0.00 acres	
Total post-development impervious area within the limits of the plan $* = 16.39$ acres	
lotal post-development impervious cover fraction $=$ 0.48 inches	
LM TOTAL PROJECT = 14200 IDS.	
* The values entered in these fields should be for the total project area.	
Number of drainage basins / outfalls areas leaving the plan area = 5	
2. Drainage Basin Parameters (This information should be provided for each basin):	
Drainage Basin/Outfall Area No. = BP-02	
Tatal drainage basin (outfull area = 2.00 same	
Predevelopment impenious area within drainage basin/outfall area = 0.00 acres	
Post-development impervious area within drainage basin/outfall area = 1.48 acres	
Post-development impervious fraction within drainage basin/outfall area = 0.51	
L _{M THIS BASIN} = 1288 lbs.	

BYPASS - BP-03

Texas Commi	ssion on Environmental Quality						
	obion on Environmontal Quality				Parkside on th	e River	
TSS Pernoval C	alculations 04-20-2009			Project Name:	Parkside on the River		
	uicuiuii0113 04-20-2003			Doto Bronoro di	44/7/2022	VA I	
				Date Frepareu:	11///2023		
Additional infor	motion is provided for collewith a red triang	lo in the un	nor right og	men. Diese the	oursor over the	aall	
Additional infor	mation is provided for cells with a red triang	le in trie up	per right co	orner. Place the	cursor over the	e cell.	
rext shown in blu	e indicate location of instructions in the Technica	li Guidance i	vianuai - RG	-340.			
Characters sho	wh in red are data entry fields.		<i>.</i>				
Characters sho	wh in black (Bold) are calculated fields. Cha	inges to the	ese fields w	ill remove the e	quations used i	n the spread	dsheet
					D 0.07 0.00		
I. The Required Lo	ad Reduction for the total project:	Calculations fr	om RG-348		Pages 3-27 to 3-30		
		07.0(A D)					
	Page 3-29 Equation 3.3: $L_{M} =$	27.2(A _N x P)					
		Description of TC C			d development – 000)/ afinanaaad	امحط
where:		Required 155	removal result	ing from the propose	a aevelopment = 80.	% of increased	load
	A _N =	Net increase i	n impervious a	rea for the project			
	P =	Average annua	a precipitation	, incries			
Site Data: Dete	mine Required Load Removal Based on the Entire Project	:t					
	County =	Williamson	•				
	Total project area included in plan * =	34.42	acres				
Predev	velopment impervious area within the limits of the plan $*$ =	0.00	acres				
Total post-dev	velopment impervious area within the limits of the plan $*$ =	16.39	acres				
	lotal post-development impervious cover fraction * =	0.48	inahaa				
	P =	32	Incres				
		4 4000					
	LM TOTAL PROJECT =	14266	lbs.				
The values enter	ed in these fields should be for the total project area	•					
Number	of drainage basins / outfalls areas leaving the plan area =	5					
2. Drainage Basin I	Parameters (This information should be provided for	each basin):					
	Drainage Basin/Ouπall Area No. =	BP-03					
	Total drainage basin/outfall area =	1,33	acres				
Predevelop	ment impervious area within drainage basin/outfall area =	0.00	acres				
Post-develop	ment impervious area within drainage basin/outfall area =	0.65	acres				
Post-developme	ent impervious fraction within drainage basin/outfall area =	0.49					
	Lm this basin =	566	lbs.				

			B				DATE
							BҮ
	0 =	40'	80'				
		SCALE: 1" =	40'				
_	— — 834 - — —		NTOUR				-
_	— <i>– 835</i> – — – ——834——	EXISTING MAJOR CO PROPOSED MINOR C	NTOUR CONTOUR				
_	835	PROPOSED MAJOR C	CONTOUR				EVI9
_		EASEMENT					
_	100 fk	100 YR FEMA ZONE A	A FLOODPLAIN	AIN			
_	SD	CREEK CENTERLINE PROPOSED STORM L	INE				
	-¢-	FIRE HYDRANT WATER VALVE					
	SD	STORM SEWER MAH	NOLE				
		WASTEWATER MANH	IOLE				Z
		TREES TO REMAIN HERITAGE				IJ	B
		TREES TO REMAIN NON HERITAGE			Know wha	at's belov before yo	N. Du dig.
NOTE:	PROPOSED S	TORM SEWER PIPI	F		5508 HIGHWAY 290 WEST SUITE 150 AUSTIN. TX 78735	512.872.6696 HRGREEN.COM TBPE NO: 16384	TBPLS NO: 10194101 X
I. ALL LINI REI NO	E PROPOSED S ES SHALL BE C NFORCED CON TED OTHERWIS	LASS III ICRETE UNLESS SE.	E		([NTT
2. Fill The REC GEC	L SHALL BE PLA E GEOTECHNIC COMMENDATIO ORGETOWN SF	ACED ACCORDING AL ENGINEERS N AND CITY OF PECIFICATIONS.	ТО		()	3Gre	OPME
3. VEC PEF SPE	GETATE ALL DI R CITY OF GEO ECIFICATIONS.	STURBED AREAS RGETOWN					DEVEI
TRENCH1.IN AANIADIFEEANIBRATREEFFMOOTOTHE2.IN A	L SAFETY NOTI ACCORDANCE A D THE U.S. OCO MINISTRATION T IN DEPTH IN D UNSTABLE SO ACED OR OTHE ENCHES LESS ECTIVELY PRO VEMENT MAY E BE UTILIZED FO E CONTRACTOR	ES: WITH THE LAWS OF CUPATIONAL SAFE REGULATIONS, AL EITHER HARD AND OIL SHALL BE SLOD RWISE SUPPORTE THAN 5 FEET IN DE DECTED WHEN HA E EXPECTED. TRE DR THIS PROJECT R.	F THE STATE OF TY AND HEALTH L TRENCHES OVI D COMPACT OR S PED, SHORED, SH ED, FURTHERMOF EPTH SHALL ALSO AZARDOUS GROU ENCH SAFETY SY WILL BE PROVID	TEXAS ER 5 GOFT HEETED, RE, ALL D BE JND STEMS E BY ETY	STAT. SHER PROFESS	E OF TELA	C** N 24 /15/2023
ANI PEF ADI MU ³ MO	D HEALTH ADM RSONS ARE IN EQUATE MEAN ST BE PROVIDE RE THAN 25 FE	INISTRATION REG TRENCHES 4-FEET S OF EXIT, SUCH A ED AND LOCATED S ET OF LATERAL TR	ULATIONS,WHEN I DEEP OR MORE AS A LADDER OR S SO AS TO REQUIF RAVEL.	, STEPS, RE NO		V U	SAS
3. COI TRE PRO SUE	NSTRUCTION S ENCH SAFETY S DFESSIONAL EI BMITTED TO TH	HALL NOT PROCE SYSTEM DETAILS, NGINEER, ARE RE IE CITY OF GEORG	ED UNTIL APPRO AS DESIGNED BY TAINED AND COP GETOWN.	PRIATE ' A IES	Σ	A & -	JN, TE
4. DEE IN E EXC SHA EXF SPE SHA REC THE	EP EXCAVATION DEPTH, TWO OF CAVATION SHAN ALL CONSULT V PERIENCED IN ECIFIC MEANS A ALL PROVIDE A GISTERED PRO E CITY OF GEO	NS: ON EXCAVATIO R MORE MEANS OF LL BE PROVIDED. VITH A REGISTERE TRENCH SAFETY S AND METHODS EM TRENCH SAFETY FESSIONAL ENGIN RGETOWN.	ONS EXCEEDING F EGRESS FROM THE CONTRACTO ED ENGINEER, SYSTEMS, REGAR IPLOYED. CONTR PLAN SEALED BY NEER AS REQUIRE	20 FEET THE PR 2DING ACTOR ACTOR A ED BY	ERALL STOR Ewer Plan A	E SECTION 5 TRUCTION PL	WN, WILLIAMSC
			VIEW C		2 3 3 3	PARKSID CONS [.]	GEORGETO
			VIEW B		DESIGN DRAWN CHECKE	ED BY: _ BY: <u>}</u> D BY: _	CC 4M/MKM SN

APPROVED BY: ___

SHEET 44 OF 84

2023-XX-CON

(SD)

VIEW

CHECKED BY: <u>SN</u>

SHEET 45 OF 84

2023-XX-CON

APPROVED BY:

		DATE
		BY
0 40' 80'		
SCALE: 1" = 40'		
LEGEND		
- $ 834$ $ -$ EXISTING MINOR CONTOUR - $ 835$ $ -$ EXISTING MAJOR CONTOUR		z
		ZEVI
100 YR PROPOSED CONDITION FLOODPLAIN 100 YR FEMA ZONE A FLOODPLAIN		
WATER VALVE		
WWW WASTEWATER MANHOLE		Z
CURB INLET		
TREES TO REMAIN HERITAGE		ß
TREES TO REMAIN NON HERITAGE	Know what Call	at's below. before you dia
NOTE: 1. ALL PROPOSED STORM SEWER PIPE	290 WES	4 101
REINFORCED CONCRETE UNLESS NOTED OTHERWISE.	HIGHWAY 2 150 N. TX 787	72. 6696 EN. COM NO: 16384 NO: 1019
2. FILL SHALL BE PLACED ACCORDING TO THE GEOTECHNICAL ENGINEERS RECOMMENDATION AND CITY OF	5508 I SUITE AUSTII	512.8 HRGREI HRGREI TBPE 1 TBPLS
3. VEGETATE ALL DISTURBED AREAS PER CITY OF GEORGETOWN		
SPECIFICATIONS.		
TRENCH SAFETY NOTES:		
 IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH 		
ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT		
AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL		D
EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND		
TO BE UTILIZED FOR THIS PROJECT WILL BE PROVIDE BY THE CONTRACTOR.	S.A.	E OF TETTS
2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY	* SHEF	RVIN NOOSHIN
AND HEALTH ADMINISTRATION REGULATIONS, WHEN PERSONS ARE IN TRENCHES 4-FEET DEEP OR MORE,	PROT	96807
ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO	A SS	ONAL ENGLASS
3 CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE	Sher	
TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES		
SUBMITTED TO THE CITY OF GEORGETOWN.		
4. DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR		X U W J
SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING		, Z &
SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A	Ση	A Z
REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.		0 1 0 0 1
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	SHEET_	<u></u> 3-XX-CON

e/parkside sections 8, 9a & 10a/sections 9a & 10a/03_ACAD/Plans/sh2303295 SDPP STORM A-1.dwg, STORM A-1 PLAN & PROFILE 1+00 - 10+25, December 19, 2023, 10:17 AM, ccampbell

LAT A-1A (A6 (A25) 914 914 EXISTING -912 912 GRADE PROPOSED-910 910 GRADE 908 908 -100-YR HGL 906 STORM A-25_ 906 -25-YR HGL ±16 LF 18" RCP @ 8.00% 8" PVC 904 904 WL 902 902 900 900 Ū. 898 898 896 896 51 wYE 901 903. 894 894 892 892 909.5 903.01

1+00

1+50

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ee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM A-1 LATS.dwg, STORM A-1 LATERALS SHEET 1, December 19, 2023, 10:19 AM, ccampbell

ee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM A-1 LATS.dwg, STORM A-1 LATERALS SHEET 2, December 19, 2023, 10:19 AM, ccampbe

2023-XX-CON

mageelparkside sections 8, 9a & 10alsections 9a & 10al03_ACAD/Plans/sh2303295 SDPP STORM A-2.dwg, STORM A-2 PLAN & PROFILE 1+00 - END, December 19, 2023, 10:20 AM, ccampbe

2023-XX-CON

mageelparkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM A-3.dwg, STORM A-3 PLAN & PROFILE 1+00 - END, December 19, 2023, 10:21 AM, ccampt

mageelparkside sections 8, 9a & 10alsections 9a & 10al03_ACADIPlansIsh2303295 SDPP STORM A-4.dwg, STORM A-4 PLAN & PROFILE 1+00 - END, December 19, 2023, 10:23 AM, ccampbell





STORM A-4









ke magee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM A-5.dwg, STORM A-5 PLAN & PROFILE 1+00 - END, December 19, 2023, 10:24 AM, ccampb







e\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM B-1.dwg, STORM B-1 PLAN & PROFILE 1+00 - 10+50, December 19, 2023, 10:25 AM, ccampbell



selparkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 SDPP STORM B-1.dwg, STORM B-1 PLAN & PROFILE 10+50 - END, December 19, 2023, 10:25 AM, ccampbell





LAT B-1B



1+50



mageelparkside sections 8, 9a & 10alsections 9a & 10a103_ACAD1Plans1sh2303295 SDPP STORM B-1 LATS.dwg, STORM B-1 LATERALS 2, December 19, 2023, 10:27 AM, ccampb















(B16)



















SHEET 60 OF 72



C3D2022.DWT partside sections 8. 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 DTLS-dwd. DRAINAGE DETAILS. December 19_2023. 10:29 AM

t Style: LandDev Global.ctb nplate: LDC_C3D2022.DWT

HEET 61 of	84
2023-XX-C	ON.



	LE	GEND				ATE	
	— — <i>- 834 - — —</i> E X	KISTING MINOR CONTOUR					
						В	
		ROPOSED MAJOR CONTOUR					
	—— — — B(DUNDARY	0 40' 80'				
	———— E/	ASEMENT	SCALE: 1" = 40'				
	100YR FP 10	10YR FEMA ZONE A FLOODPLAIN 10YR FULLY DEVELOPED FLOODPLAIN					
	PI	ROPOSED WALL					
	-= = = = = - 2-	4" SCH 40 PVC SLEEVE				7	
	PI	ROPOSED WASTEWATER LINE					
		ROPOSED STORM LINE					
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	-Ó- FI	RE HYDRANT					
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	P W	ROPOSED DOUBLE /ATER SERVICE					
				Know wh	at's belov	N.	
	H H	REES TO REMAIN ERITAGE				u uiy.	
	T N	REES TO REMAIN ON HERITAGE		5508 HIGHWAY 290 WE SUITE 150 AUSTIN TV 70725	512. 872. 6696 HRGREEN. COM TBPE NO: 16384	TBPLS NO: 10194101	
N 1. 2	IOTES: . REFER TO THE WATE SHEET(S) FOR TYPE S CONNECTIONS. . UTILITIES ON THIS SIT UTILITY ASSIGNMENT WASTEWATER DETAIL . NO PORTION OF THIS	R AND WASTEWATER DETAIL S AND TYPE D SERVICE TE TO BE BUILT PER THE APPROVED SHOWN ON THE WATER AND L SHEET. SITE LIES WITHIN THE FEMA 100-YR			HRGreen [®]	ELOPMENT	
4	. ALL PROPOSED GRA	/ITY WASTEWATER PIPES TO BE				E <	
F	SDR-26 UNLESS OTHE	RWISE SPECIFIED ON THE PLANS.					
5	. UNLESS OTHERWISE WW SERVICES ARE S WW13) FOR ALL LOTS DEPTH TO CONNECT	ET TO MAXIMUM DEPTH (PER DETAIL IN ORDER TO PROVIDE SUFFICIENT SERVICE.			E OF TEL		
6	. ALL MANHOLES TO BE SPECIFICATIONS. EXI CONNECTIONS TO BE	E COATED PER CITY OF GEORGETOWN STING MANHOLES WITH PROPOSED COATED AS NEEDED.		Si.	RVIN NOOSHI	× N	
7	IF THE HOME BUILDEF FINISHED FLOOR ELE WASTEWATER GRIND TO CONNECT TO THE	R CANNOT ACHIEVE THE MINIMUM VATIONS SPECIFIED, THEN A IER PUMP SYSTEM MAY BE NEEDED WASTEWATER MAIN.		Mer	96807 CENSE IONAL ENG IONAL ENG ING IONAL ING ING ING ING ING ING ING ING	437 437 45/2023	
RE	ENCH SAFETY NOTES:						
	IN ACCORDANCE WITH AND THE U.S. OCCUPAT ADMINISTRATION REGU FEET IN DEPTH IN EITHE AND UNSTABLE SOIL SH BRACED OR OTHERWIS TRENCHES LESS THAN EFFECTIVELY PROTECT MOVEMENT MAY BE EXH TO BE UTILIZED FOR TH THE CONTRACTOR.	THE LAWS OF THE STATE OF TEXAS TONAL SAFETY AND HEALTH LATIONS, ALL TRENCHES OVER 5 ER HARD AND COMPACT OR SOFT HALL BE SLOPED, SHORED, SHEETED, E SUPPORTED. FURTHERMORE, ALL 5 FEET IN DEPTH SHALL ALSO BE TED WHEN HAZARDOUS GROUND PECTED. TRENCH SAFETY SYSTEMS IS PROJECT WILL BE PROVIDE BY		WATER	N 9A & 10A PLANS	ISON, TEXAS	
	IN ACCORDANCE WITH AND HEALTH ADMINIST PERSONS ARE IN TREN ADEQUATE MEANS OF E MUST BE PROVIDED AN MORE THAN 25 FEET OF	THE U.S. OCCUPATIONAL SAFETY RATION REGULATIONS,WHEN CHES 4-FEET DEEP OR MORE, EXIT, SUCH AS A LADDER OR STEPS, D LOCATED SO AS TO REQUIRE NO		VASTE AN A		VILLIAM	

- CONSTRUCTION SHALL NOT PROCEED UNTIL APPROPRIATE TRENCH SAFETY SYSTEM DETAILS, AS DESIGNED BY A PROFESSIONAL ENGINEER, ARE RETAINED AND COPIES SUBMITTED TO THE CITY OF GEORGETOWN.
- DEEP EXCAVATIONS: ON EXCAVATIONS EXCEEDING 20 FEET IN DEPTH, TWO OR MORE MEANS OF EGRESS FROM THE EXCAVATION SHALL BE PROVIDED. THE CONTRACTOR SHALL CONSULT WITH A REGISTERED ENGINEER, EXPERIENCED IN TRENCH SAFETY SYSTEMS, REGARDING SPECIFIC MEANS AND METHODS EMPLOYED. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY PLAN SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS REQUIRED BY THE CITY OF GEORGETOWN.











		LEGEND			ATE
	_ — <i>– 834</i> - — — - — - 835 — — –	EXISTING MINOR CONTOUR			
	834	PROPOSED MINOR CONTOUR			
		BOUNDARY	SCALE: 1" = 40'		
		EASEMENT 100YR FEMA ZONE A FLOODPLAIN			
	100YR FP	100YR FULLY DEVELOPED FLOODPLAIN PROPOSED WALL			
	-= = = = = -	2-4" SCH 40 PVC SLEEVE			
		PROPOSED WASTEWATER LINE			
		PROPOSED STORM LINE			SEV18
	- -	PROPOSED WATER LINE			
	-\$-	FIRE HYDRANT WATER VALVE			
	(SD)	STORM SEWER MAHNOLE			
	(m)	WASTEWATER MANHOLE			
	· · · · · · · · · · · · · · · · · · ·	CURB INLET PROPOSED SINGLE WASTEWATER SERVICE			
	•				
	•	PROPOSED SINGLE			
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		WATER SERVICE		Know what	at's below.
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				0 WEST 5	101
		IREES TO REMAIN NON HERITAGE		HWAY 29) 1X 7873	5696 50M 16384 : 10194
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NC)TES:			AL SL AL	12 14 15 14 15 14 14 14 14 14 14 14 14 14 14 14 14 14
1.	SHEET(S) FOR TYPE S AND CONNECTIONS.	TYPE D SERVICE			
2.	UTILITIES ON THIS SITE TO UTILITY ASSIGNMENT SHO	BE BUILT PER THE APPROVED WN ON THE WATER AND		$(\Gamma$	
3.	WASTEWATER DETAIL SHE	ET.		\cap	
4.	FLOODPLAIN. ALL PROPOSED GRAVITY V	VASTEWATER PIPES TO BE			
5.	SDR-26 UNLESS OTHERWIS	SE SPECIFIED ON THE PLANS.			
	WW SERVICES ARE SET TO WW13) FOR ALL LOTS IN O DEPTH TO CONNECT SERV	D MAXIMUM DEPTH (PER DETAIL RDER TO PROVIDE SUFFICIENT /ICE.			
6.	ALL MANHOLES TO BE COA SPECIFICATIONS. EXISTING CONNECTIONS TO BE COA	ATED PER CITY OF GEORGETOWN 3 MANHOLES WITH PROPOSED TED AS NEEDED.		STAT	E OF 75+75
7.	IF THE HOME BUILDER CAN FINISHED FLOOR ELEVATIO WASTEWATER GRINDER PL TO CONNECT TO THE WAS	NOT ACHIEVE THE MINIMUM DNS SPECIFIED, THEN A UMP SYSTEM MAY BE NEEDED TEWATER MAIN		SHER	VIN NOOSHIN 96807
					CENSE ONAL ENG
<u>TRE</u> 1.	ENCH SAFETY NOTES: IN ACCORDANCE WITH THE AND THE U.S. OCCUPATION	LAWS OF THE STATE OF TEXAS IAL SAFETY AND HEALTH		Sher	
	ADMINISTRATION REGULAT FEET IN DEPTH IN EITHER H AND UNSTABLE SOIL SHALL	IONS, ALL TRENCHES OVER 5 IARD AND COMPACT OR SOFT BE SLOPED SHORED SHEETED			۰ (n
	BRACED OR OTHERWISE SU TRENCHES LESS THAN 5 FE	JPPORTED. FURTHERMORE, ALL EET IN DEPTH SHALL ALSO BE			
	EFFECTIVELY PROTECTED	WHEN HAZARDOUS GROUND TED. TRENCH SAFETY SYSTEMS		מ	ຼິທ 🗒 🛛
	THE CONTRACTOR.	ROJECT WILL DE PROVIDE DT		Ш ⊢	^ፍ Z '. ፈፈ Z
2.	IN ACCORDANCE WITH THE AND HEALTH ADMINISTRAT	U.S. OCCUPATIONAL SAFETY ION REGULATIONS, WHEN		۸ ۷	<u>ا</u> ق تر و
	ADEQUATE MEANS OF EXIT MUST BE PROVIDED AND LC	,S 4-FEET DEEP OR MORE, , SUCH AS A LADDER OR STEPS, DCATED SO AS TO REQUIRE NO		ы Ш	
3.	MORE THAN 25 FEET OF LA CONSTRUCTION SHALL NOT TRENCH SAFETY SYSTEM D	TERAL TRAVEL. T PROCEED UNTIL APPROPRIATE DETAILS, AS DESIGNED BY A		AST N D	
	PROFESSIONAL ENGINEER, SUBMITTED TO THE CITY OF	ARE RETAINED AND COPIES F GEORGETOWN.		<u>ر</u> <	ш □
4.	DEEP EXCAVATIONS: ON EX IN DEPTH, TWO OR MORE M	CAVATIONS EXCEEDING 20 FEET IEANS OF EGRESS FROM THE			
	EXCAVATION SHALL BE PRO SHALL CONSULT WITH A RE	DVIDED. THE CONTRACTOR GISTERED ENGINEER, SAFETY SYSTEMS, RECARDING		В	
	SPECIFIC MEANS AND METH SHALL PROVIDE A TRENCH	HODS EMPLOYED. CONTRACTOR SAFETY PLAN SEALED BY A	VIEW	Е	
	REGISTERED PROFESSION	AL ENGINEER AS REQUIRED BY N.			
			VIEW		Р× П
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				DESIGN	ED BY: <u>CC</u>
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			VIEW		
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3.

e mageelparkside sections 8, 9a & 10a/sections 9a & 10a/03_ACAD/Plans/sh2303295 WWOV.dwg, OVERALL WASTEWATER PLAN D, December 19, 2023, 10:31 AM, ccampbe













ggee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 WWPP WWL A.dwg, WWL A PLAN & PROFILE 16+00 - 24+00, December 19, 2023, 10:33 AM, ccampbell



ke mageelparkside sections 8, 9a & 10alsections 9a & 10al03_ACAD\Planslsh2303295 WWPP WWL A.dwg, WWL A PLAN & PROFILE 24+00 - END, December 19, 2023, 10:33 AM, ccampbell













STA. 14+69.12 WWL A =STA. 1+00.00 WWL C (A1 4' DIA DROP WWMH TYPE B UTILITY CROSS STA. 1+11.77 WWL C STA. 4+00.35 STORM A-1

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nagee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 WWPP WWL D.dwg, WWL D PLAN & PROFILE 1+00 - END, December 19, 2023, 10:37 AM, ccamp





WWL D





(e magee)parkside sections 8, 9a & 10a/sections 9a & 10a/03_ACAD/Plans/sh2303295 WWPP WWL E.dwg, WWL E PLAN & PROFILE 1+00 - END, December 19, 2023, 10:38 AM, ccampbell









s mageelparkside sections 8, 9a & 10a/sections 9a & 10a/03_ACAD/Plans/sh2303295 WWPP WWL F.dwg, WWL F PLAN & PROFILE 1+00 - END, December 19, 2023, 10:39 AM, ccampbe























he Architect/Engineer assu sponsibility for appropriate se of this standard.	e <u>SECTIC</u>
d	CITY OF CONSTRUCTION ST STANDARD AI
GEORGETOWN TEXAS	FOR F









ASTEWATER DETAILS WASTEWATER DETAILS SHT 2 OF 2 SHT 2 OF 3 SHEEL OL NON VILLANS CONSTRUCTION 9A & 1 OA CONSTRUCTION 9A & 1 OA CONSTRUCTION 9A & 1 OA CONSTRUCTION 9A & 1 OA CONSTRUCTION PLANS CONSTRUCTION PLANS CHECKED BAL CONSTRUCTION PLANS CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL CHECKED BAL	Know what's below. Call before you dig			
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mageelbarkside sections 8. 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 WTOV.dwg. OVERALL WATER PLAN A. December 19. 2023. 10:40 AM. cca





igee\parkside sections 8, 9a & 10a\sections 9a & 10a\03_ACAD\Plans\sh2303295 WTOV.dwg, OVERALL WATER PLAN B, December 19, 2023, 10:41 AM, ccamp







EXISTING PARKSIDE



















see note 2 🗸

CONC. BLOCK

- SEE DETAIL

1. ATTACH FIRE HYDRANT CONNECTION AT THE END OF THE BLOW OFF VALVE.

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

STANDARD BLOW-OFF

₩-08

<u>PLAN</u>

2" CORPORATION STOP

The Architect/Engineer assumes

responsibility for appropriate

use of this standard.

NOTE:

2" CORPORATION STOP (FORD B81-777-QT67)

CONC. BLOCK

ADAPTERS

1/4" X 3/4" GALVANIZED STRAPS DRILLED TO D.I. POSTS

6" D.I. PIPE FILLED WITH CONCRETE

BRASS 90°

SCALE DATES NTS 1/2003 DRHIBY 87: APPROVED 87: MRS TRB

<u>SIDE</u>

SEE DETAIL WO8

REVISION MOTE: ADOPTED 6/21/2006

W09









1 2 3	12" DI
2 3	
3	6"X4" TAPPED BLIND FLANGED
	12"X6" FLG TEE
4	12" STRAINER (CLA-VAL MODEL X-43H OR APPROVED EQUAL)
5	12" PRV (CLA-VAL MODEL 90-01 OR APPROVED EQUAL)
6	12" DRESSER DISMANTLING JOINT
7	12" D.I. FLANGED GATE VALVE
8	12" D.I.
9	4" STRAINER (CLA-VAL MODEL X-43H OR APPROVED EQUAL)
10	PIPE SUPPORT
11	4" PRV (CLA-VAL MODEL 90-48 OR APPROVED EQUAL)
12	4" DRESSER DISMANTLING JOINT
13	4" D.I. FLANGED GATE VALVE
14	4" SCH. 40 304 D.I. FLANGED
15	12" RESTRAINED TRANSITION COUPLING
16	PRESSURE GAUGE
PRESSU	RE REDUCER VALVE ASSEMBLY – MATERIAL LIST VAULT SIZE: 15 FT X 8 FT
1	8″ D.I.
2	6"X3" TAPPED BLIND FLANGED
3	8"X6" FLG TEE
4	8" STRAINER (CLA-VAL MODEL X-43H OR APPROVED EQUAL)
5	8" PRV (CLA-VAL MODEL 90-01 OR APPROVED EQUAL)
6	8" DRESSER DISMANTLING JOINT
7	8" D.I. FLANGED GATE VALVE
8	8″ D.I.
	3" STRAINER (CLA-VAL MODEL X-43H OR APPROVED EQUAL)
<u> </u>	PIPE_SUPPORT
9 10	
9 10 11	3" PRV (CLA-VAL MODEL 90-48 OR APPROVED EQUAL)
9 10 11 12	3" PRV (CLA-VAL MODEL 90-48 OR APPROVED EQUAL) 3" DRESSER DISMANTLING JOINT
g 10 11 12 13	3" PRV (CLA-VAL MODEL 90-48 OR APPROVED EQUAL) 3" DRESSER DISMANTLING JOINT 3" D.I. FLANGED GATE VALVE
g 10 11 12 13 14	3" PRV (CLA-VAL MODEL 90-48 OR APPROVED EQUAL) 3" DRESSER DISMANTLING JOINT 3" D.I. FLANGED GATE VALVE 3" SCH. 40 304 D.I. FLANGED

	WGT APPROX. LBS EACH					D	
PIPE SIZE	COMPLETE	SADDLE ONLY	A	В	С	MINIMUM	MAXIMUM
2 1/2	9.0	4.8	2 1/2	3 1/2	1 1/2	8	13
3	9.2	5.0	2 /12	3 3/4	1 1/2	8 1/4	13 1/4
3 1/2	9.4	5.2	2 1/2	4	1 1/2	8 1/2	13 1/2
4	15.0	7.6	3	4 1/4	2 1/2	9 1/4	14
5	16.7	8.3	3	4 7/8	2 1/2	10	14 3/4
6	17.7	10.3	3	5 1/2	2 1/2	10 1/2	15 1/4
8	20.2	12.8	3	6 7/8	2 1/2	11 3/4	16 1/2
10	25.2	17.8	3	8 1/2	2 1/2	13 1/2	18 1/4
12	29.0	21.6	3	9 15/16	2 1/2	15	19 3/4
14	40.2	38.0	4	10 15/16	3	16 1/4	20 3/4
16	53.2	42.0	4	12 3/8	3	17 3/4	22 1/4
18	70.8	51.0	6	13 7/8	3 1/2	19 1/2	24
20	104.8	85.0	6	15 3/8	3 1/2	21	25 1/2
24	137.0	110.0	6	17 15/16	4	23 3/4	28 1/2
30	170.0	150.0	6	21 5/16	4	27	31 1/2
32	181.0	161.1	6	22 1/2	4	28 1/8	32 3/4
36	249.0	229.0	6	24 1/4	4	30 1/4	34 3/4

12" Horizontal Bend 90 53' 12" 11.25 15' Vertical Bend 12" Vertical Bend 22.5 30' 12" 61' Vertical Bend 45 12" Reducer (12" to 8") 78' 12" Gate Valve 146' * Assumes 4' bury depth, 200 psi test pressure, trench type

22.5

45

11'

22'

DRAWN BY: MM/MKM

CHECKED BY: <u>SN</u>

APPROVED BY: ___

SHEET **84** of **84**

2023-XX-CON

12" Horizontal Bend

Horizontal Bend

12"

of 5, safety factor of 2.0, and CH granular soil