

ORGANIZED SEWAGE COLLECTION SYSTEM APPLICATION

FOR

JD KING OFFICE BUILDINGS

7509 O'CONNER DR. ROUND ROCK, TX 78681

APPLICANT: JD KING CONSTRUCTION 559 S. IH-35 FRONTAGE RD, STE. 210 ROUND ROCK, TX 78681

SUBMITTED TO: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY REGION 11 OFFICE 2800 S . IH 35, STE. #100 AUSTIN, TEXAS 78704

JANUARY 2025

22-001-.1-AR-TCEQ ORIGINAL

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 BUILDINGS	ame: JD KIN	IG OFFICE	2. Regulated Entity No.:				
3. Customer Name: J	D KING CON	ISTRUCTION	4. Customer No.:				
5. Project Type: (Please circle/check one)	New	Modification	Exter	nsion	Exception		
6. Plan Type: (Please circle/check one)	WPAP CZP	SCS UST AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures	
7. Land Use: (Please circle/check one)	Residential	Non-residential)	8. Sit	e (acres):	1.33	
9. Application Fee:	650.00	10. Permanent I	BMP(s	s):	Partial Sed/Fill Pond, JF Unit		
11. SCS (Linear Ft.):	182	12. AST/UST (No	o. Tar	ıks):			
13. County:	Williamson	14. Watershed:			Brushy Creek		

Application Distribution

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

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

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

	Austin	Region	
County:	Hays	Travis	Williamson
Original (1 req.)	_	_	X
Region (1 req.)	_	_	X
County(ies)	_	_	_
Groundwater Conservation District(s)	Edwards Aquifer Authority Barton Springs/ Edwards Aquifer Hays Trinity	Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	Plum Creek 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 Georgetown Jerrell Leander Liberty Hill Pflugerville X_Round Rock

	Sa	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.

LAKSHAY SHARMA

Print Name of Customer/Authorized Agent

LAKSHAY SHARMA

Signature of Customer/Authorized Agent

Date

FOR TCEQ INTERNAL USE ONL	X					
Date(s)Reviewed:		Date Adn	ninistratively Complete:			
Received From:		Correct N	Number of Copies:			
Received By:		Distribut	ion Date:			
EAPP File Number:		Complex:				
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):		Fee	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: Lakshay Sharma

Date: 12/16/2024

Signature of Customer/Agent:

LAKSHAY SHARMA DN CHS E-Isteray@rearty.com, D-TH40000 ENGINEEMICA SSCOTTES, NC. : OLLANSHAY SHARMA SHARMA

Project Information

- 1. Regulated Entity Name: JD King Office Buildings
- 2. County: Williamson
- 3. Stream Basin: Brushy Creek
- 4. Groundwater Conservation District (If applicable): NA
- 5. Edwards Aquifer Zone:

Recharge Zone

6. Plan Type:

WPAP	AST
scs	🗌 UST
] Modification	Exception Request

1 of 4

7. Customer (Applicant):

Contact Person: John King Entity: JD King Construction Mailing Address: 559 S. IH-35 Frontage Rd, Ste. 210 City, State: Round Rock, TX Zip: 78664 Telephone: 512.836.5464 FAX: _____ Email Address: jd@jkc78.com

8. Agent/Representative (If any):

Contact Person: <u>Lakshay Sharma</u> Entity: <u>Hagood Engineering Associates, Inc.</u> Mailing Address: <u>900 E. Main Street</u> City, State: <u>Round Rock, TX</u> Telephone: <u>512.244.1546</u> Email Address: <u>lakshays@heaeng.com</u>

Zip: <u>78664</u> FAX:

9. Project Location:

The project site is located inside the city limits of <u>Round Rock</u>.

The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of _____.

- The project site is not located within any city's limits or ETJ.
- 10. The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

O'Connor Drive & RM 620 intersection

- 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>April 20, 24</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
 Area(s) to be demolished
- 15. Existing project site conditions are noted below:
 - Existing commercial site
 Existing industrial site
 Existing residential site
 Existing paved and/or unpaved roads
 Undeveloped (Cleared)
 Undeveloped (Undisturbed/Uncleared)
 Other: _____

Prohibited Activities

- 16. I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:
 - (1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);
 - (2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;
 - (3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;
 - (4) The use of sewage holding tanks as parts of organized collection systems; and
 - (5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).
 - (6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.
- 17. I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:
 - (1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);
 - (2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

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

Administrative Information

- 18. The fee for the plan(s) is based on:
 - For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
 - For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
 - For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
 - A request for an exception to any substantive portion of the regulations related to the protection of water quality.
 - A request for an extension to a previously approved plan.
- 19. Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

🔀 TCEQ cashier

 Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
 San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

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

GENERAL INFORMATION

Attachments to form TCEQ-0587

ATTACHMENT A - Road Map

SEE ATTACHED ROAD MAP

ATTACHMENT B - USGS / Edwards Recharge Zone Map

SEE ATTACHED USGS / EDWARDS RECHARGE ZONE MAP

ATTACHMENT C - Project Description

Please refer to the attached plans for the site improvement layout. The site is located within the City of Round Rock's ETJ. This site is also located in the Edwards Aquifer Recharge Zone.

This SCS & WPAP modification is for Site Development on the 1.33 acre of Lot 86, Block D Cat Hollow Section C-Commercial 1. See Plat included in the plan set.

The JD King Office Buildings development will be on the 1.33 acres tract with 0.794 acres of impervious cover (59.71%) when fully developed. Currently, the site is developed with an existing building, asphalt pavement, sidewalk, and drives. The proposed development is for Commercial (Office) use and the site development improvements consist of two (2) 2,400 sq. ft. office use buildings, existing buildings, driveways, sidewalks, drainage, and utility infrastructure. This development will be utilizing an existing partial sedimentation and filtration pond located in the same tract. This pond was designed to treat a total of 1.33 acres with 43.6% impervious cover (0.58 acres).

There are currently improvements on site to be demolished, namely a portion of existing asphalt pavement (ref. C11 of attached construction plans).

Wastewater will be built and will tie into an existing 8" line along the O'Connor Dr. ROW at an existing manhole at the N-W point of the site.

A storm sewer system will also be constructed to collect and convey stormwater to the existing Water Quality and Detention Pond.

Analysis of the increased impervious cover (TSS Calcs) is provided for proposed conditions on sheet PDA. Required Water Quality volume, minimum Sedimentation, and Filtration Basin areas have been met for the proposed conditions.

An increase in impervious cover within Drainage Area DA C-1 on sheet PDA1 shall be treated by a Surface Inlet Jellyfish BMP for which TSS Load Removal Calculations are provided on Sheet PDA in the attached Site Development plans for the project.

And a portion of increased impervious cover within Drainage Area DA C-3 shall be treated by a second Jellyfish BMP that has been provided in accordance with the provision of TCEQ RG-348. TSS Load Removal Calculations are provided on sheet PDA. Please refer to the attached maintenance plans for all BMPs attached to this application.

SITE LOCATION MAP



Edwards Aquifer Viewer Custom Print





Austin Community College, City of Austin, County of Williamson, Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA | TCEQ |



SCI ENGINEERING, INC.

EARTH • SCIENCE • SOLUTIONS

GEOTECHNICAL ENVIRONMENTAL NATURAL RESOURCES CULTURAL RESOURCES CONSTRUCTION SERVICES

October 25, 2022

Patrick Johnson President & CEO Frontier Bank of Texas 1213 Highway 290 Elgin, Texas 78621

RE: Letter of Review - Geologic Assessment Frontier Bank Office Site Round Rock, Texas SCI No. 2022-0909.30

Dear Patrick Johnson:

SCI Engineering, Inc. (SCI) conducted a geological assessment for the above referenced project. Our findings and recommendations were summarized in our *Geologic Assessment*, dated August 31, 2022. Following receipt of comments from Texas Commission of Environmental Quality (TCEQ), SCI conducted additional site investigations and historic document review related to the previously identified SC-1. As a result, we have prepared this letter to provide a revised consideration of the feature in relation to the property's stormwater drainage system. This letter serves as a Letter of Review and includes a Revised Geologic Assessment.

Feature Considerations

Following the initial survey, SCI personnel conducted additional investigations during the week of October 10, 2022 to further evaluate what is now being identified as an engineering failure (EF-1) within the backfill associated with the existing stormwater infrastructure proximal to the failure. Upon inspection, the proximal stormwater drainage system, which consists of an 18-inch reinforced concrete pipe (RCP) connecting a drainage inlet to the adjacent detention pond, had demonstrated signs of structural failure.

The engineering failure is the result of washout and soil collapse caused by sheet flow draining through to the engineered stormwater drainage system. This conclusion is based on the feature/drainage system proximity, the presence of an additional washout feature near the drainage inlet, and the presence of loose aggregate and concrete debris found within the 18-inch RCP. SCI also performed a review of the property's historic site plan prepared by Baker-Aicklen & Associates, Inc. and its associated Water Pollution Abatement Plan (WPAP), received by TCEQ on May 29, 1996, which states that "No potential recharge features were discovered on the project site during the field investigation".

SCI's revised conclusion is that no potential recharge features were discovered on the project site during the field investigation. Although one feature (SC-1) was initially designated as a sensitive feature, data from a subsequent investigation and previously published WPAP indicate that this is actually an engineered failure. However, it is possible that other features within the property may be covered by soil, organic debris, or vegetation. If such karst features are found during construction or excavation, further investigation may be required to determine the extent of these features and their influence on groundwater aquifers.

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

Respectfully,

SCI ENGINEERING, INC. Texas Engineering Firm F-7870

Tonya S. Sonsteng, P.E. Senior Engineer/Regional Manager

Brian C. Ratajczyk, P.G. Professional Geoscientist

JDM/RJG/TSS/BCR/nmn

Enclosure Revised Geologic Assessment

C: Lakshay Sharma, Hagood Engineering Associates, Inc. - Civil Engineer

\\sciengineering.local\shared\Projects\2022\2022-0909 Frontier Bank Office Building\30\Revised Geologic Assessment\Frontier Bank Letter.docx



SCI ENGINEERING, INC.

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GEOTECHNICAL ENVIRONMENTAL NATURAL RESOURCES CULTURAL RESOURCES CONSTRUCTION SERVICES

October 25, 2022

Patrick Johnson President & CEO Frontier Bank of Texas 1213 Highway 290 Elgin, Texas 78621

RE: Revised Geologic Assessment Frontier Bank Office Site Round Rock, Texas SCI No. 2022-0909.30

Dear Patrick Johnson:

At your request, as a representative of Frontier Bank of Texas, SCI Engineering, Inc. (SCI) conducted a Geologic Assessment (GA) of an approximately 1.33-acre site located at 7509 O'Connor Drive in Round Rock, Texas (subject site). Our services were provided in general accordance with our proposal, dated July 13, 2022. The Geologic Assessment was completed in compliance with the Texas Commission on Environmental Quality (TCEQ) requirements for regulated developments located within the Edwards Aquifer Recharge Zone (EARZ). As the site is also within the EARZ, the Geological Assessment must be completed and signed by a Professional Geoscientist licensed in the State of Texas. This letter addresses those requirements and describes the surficial geologic units and identifies the location and extent of geologic features which may represent aquifer recharge features within the development area.

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

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

PROJECT DESCRIPTION

SCI understands that the project site totals approximately 1.33 acres in size and will include the construction of a new office building measuring approximately 5,000 square feet in plan area with associated parking and drive areas. The proposed project site lies within the EARZ. As the proposed

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

SITE INVESTIGATION

The site investigation was conducted on August 6, 2022 by a SCI staff Geologist/Geoscientist in Training (GIT) under the supervision of a State of Texas Licensed Professional Geoscientist (PG). Excluding landscaped areas adjacent to the current building, vegetation consisted of short grasses throughout the property with several large oak trees in the property's southeast corner. Light gray, moderately weathered limestone outcrops were present in the eastern half of the property; outcrops belong to the Edwards Formation according to United States Geological Survey (USGS) data. Although no flow was observed, it appears that a drainage path has formed from the southeast corner to the stormwater detention pond on the property's east side. Commercial properties border the project site on all sides: a grocery store to the north, a dental office to the east, a gym to the south, and a school to the west. The investigation was performed in 50-foot transects to evaluate the property for potential sensitive/recharge features. During the survey, one feature, was documented and evaluated for recharge potential. This feature (SC-1) was preliminarily considered sensitive in accordance with TCEQ-0585 Instructions to Geologists.

Following the initial survey, SCI personnel conducted additional investigations the week of October 10, 2022 to further evaluate what is now being identified as an engineering failure (EF-1) within the backfill associated with the existing stormwater infrastructure proximal to the failure. Upon inspection, the proximal stormwater drainage system, which consists of an 18-inch reinforced concrete pipe (RCP) connecting a drainage inlet to the adjacent detention pond, had demonstrated signs of structural failure.

The engineering failure is the result of washout and soil collapse caused by sheet flow draining through to the engineered stormwater drainage system. This conclusion is based on the feature/drainage system proximity, the presence of an additional washout feature near the drainage inlet, and the presence of loose aggregate and concrete debris found within the 18-inch RCP. SCI also performed a review of the property's historic site plan prepared by Baker-Aicklen & Associates, Inc. and its associated Water Pollution Abatement Plan (WPAP), received by TCEQ on May 29, 1996, which states that "No potential recharge features were discovered on the project site during the field investigation".

SUMMARY

SCI's revised conclusion is that no potential recharge features were discovered on the project site during the field investigation. Although one feature (SC-1) was initially designated as a sensitive feature, data from a subsequent investigation and previously published WPAP indicate that this is actually an engineered failure. However, it is possible that other features within the property may be covered by soil, organic debris, or vegetation. If such karst features are found during construction or excavation, further investigation may be required to determine the extent of these features and their influence on groundwater aquifers.

LIMITATIONS

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

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

Respectfully,

SCI ENGINEERING, INC. *Texas Engineering Firm F-7870*

Tonya S. Sonsteng, P.E./ Senior Engineer/Regional Manager

Brian C. Ratajczyk, P.G. Professional Geoscientist

JDM/RJG/TSS/BCR/nmn

Enclosures

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

N:\Projects\2022\2022-0909 Frontier Bank, TX - Revised Geologic Assessment\2022-0909 Frontier Bank, TX - Revised Geologic Assessment.docx



Attachment A

Geologic Assessment

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Geologist: Brian Ratajczyk

Telephone: 512-996-9199

Date: <u>10/25/2022</u>

Fax: <u>844-462-0439</u>

Representing: <u>SCI Engineering, Inc. - TBPG 13035</u> (Name of Company and TBPG or TBPE registration number)

Signature of Geologist:

Regulated Entity Name: Frontier Bank of Texas

Project Information

- 1. Date(s) Geologic Assessment was performed: <u>08-06-2022 and 10-13-2022</u>
- 2. Type of Project:

\times	WPAP
	SCS

3. Location of Project:

\boxtimes	Rec	har	ge	Zone

_____ Transition Zone

Contributing Zone within the Transition Zone



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

Table 1 - Soil Units, InfiltrationCharacteristics and Thickness

Soil Name	Group*	Thickness(feet)
(GsB)		
Georgetown		
stony clay		
loam, 1 to 3		
percent slopes	D	< 3

Soil Name	Group*	Thickness(feet)

- * Soil Group Definitions (Abbreviated)
 - A. Soils having a high infiltration rate when thoroughly wetted.
 - B. Soils having a moderate infiltration rate when thoroughly wetted.
 - C. Soils having a slow infiltration rate when thoroughly wetted.
 - D. Soils having a very slow infiltration rate when thoroughly wetted.
- 6. Attachment B Stratigraphic Column. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.
- 7. X 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" = <u>20</u>' Site Geologic Map Scale: 1" = <u>20</u>' Site Soils Map Scale (if more than 1 soil type): 1" = <u>'</u>

9. Method of collecting positional data:

Global Positioning System (GPS) technology.

- _ Other method(s). Please describe method of data collection: _____
- 10. The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

- 11. Surface geologic units are shown and labeled on the Site Geologic Map.
- 12. Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.
 - Geologic or manmade features were not discovered on the project site during the field investigation.
- 13. The Recharge Zone boundary is shown and labeled, if appropriate.
- 14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.
 - There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
 - The wells are not in use and have been properly abandoned.
 -] The wells are not in use and will be properly abandoned.
 - The wells are in use and comply with 16 TAC Chapter 76.
 - There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

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

Attachment B

Attachment B – Stratigraphic Column

Generalized Stratigraphy of the Edwards and Trinity Aquifers, underlaying the proposed project.

Source: The stratigraphic column *Barton Springs Edwards Aquifer Conservation District* (2022) defines the generalized stratigraphy and aquifers around the project site.

https://bseacd.org/aquifer-science/about-the-aquifers/



Attachment C

Attachment C – Site Geology and Soils Description

SITE GEOLOGY NARRATIVE

Geologic Setting

In Williamson County, Texas, the project site is located on the easternmost edge of the Edwards Plateau and lies within the Central Hill Country region. It is also situated equidistant from Brushy Creek and Lake Creek to its north and south, respectively. With the region's semi-arid climate, precipitation is approximately 36 inches per year. Lower Cretaceous limestones belonging to the Edwards Formation outcrop in the project site's eastern half and are overlain by thin, rocky soils throughout the majority of the property. The Balcones fault zone, a series of northeast-trending normal faults that have influenced the region's topography, transects the general area in which the project site is located.

Stratigraphy: Housh (2007)

According to water well data, the approximate thickness of the Edwards Formation ranges between 138 and 160 feet in Round Rock, TX. Carbonates were deposited in shallow marine environments, and variation in strata indicate that changes in the depositional environment occurred over time. For example, evaporates and intertidal strata were deposited during periods of regression. Although the Edwards Formation primarily consists of carbonate grainstone and rudist bioherms/biostromes, dolomites and nodular chert are locally significant. Exposed outcrops are generally susceptible to chemical weathering, and secondary porosity may vary from microscopic to megascopic in scale.

The massive limestones of the Edwards Formation are conformably underlain by the nodular, marly limestones of the Comanche Peak Formation, as seen along Brushy Creek. Near the project site, the Comanche Peak Formation is only partially visible in Brushy Creek, but an approximate thickness of 64 feet has been recorded in the South Fork of the San Gabriel River. The formation is more specifically characterized as a white, irregularly bedded limestone with chert nodules and interbedded marl; large gastropods and pelecypods are also common.

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

Structure: Housh (2007)

The Balcones fault zone ultimately controls the structural geology of the region, displacing eastward dipping strata of the Early and Late Cretaceous as much as 1,000 feet down to the east through north to northeast-trending normal faults. It is thought that this displacement occurred primarily during the late Oligocene or early Miocene; others have argued instead that movement during the Late Cretaceous and Pliocene is plausible. Fault systems proximal to the project site include the Onion-Three Mile and Chandler faults to the northwest and east, respectively. Strata dip between 10 to 20 feet per mile west of the Balcones fault zone, whereas strata east of the Balcones fault zone dip up to 200 feet per mile.

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

SOILS DESCRIPTION

Information regarding soil descriptions is derived from the soil survey of Williamson County published by the Soil Conservation Service via the Web Soil Survey application. The project area is entirely underlain by Georgetown stony clay loam, 1 to 3 percent slopes (GsB). As a Hydrologic Group D soil, the GsB unit exhibits very slow infiltration and transmission rates, but it does have high runoff potential. Its natural drainage class is well-drained. Parent material consists of clayey residuum weathered from limestone; its soil profile ranges from stony clay loam to cobbly clay to limestone.

Map Symbol and Map Unit Name	Component/ Local Phase	Component Percent	Landform	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group
GsB: Georgetown stony clay loam, 1 to 3 percent slopes	Georgetown	90	Ridges	20" - 40"	> 80"	D
	Tarpley	5	Ridges			
Minor Components	Eckrant	3	Ridges			
	Fairlie	2	Ridges			

Table 1 –	Soil	Description
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Attachment D









Attachment E



Photo 1. Overview of project area at the southwest corner, facing north



Photo 2. Overview of project area at the southwest corner, facing east



Photo 3. Overview of project area at the southeast corner, facing north



Photo 4. Detention pond near the southeast corner, facing north



Photo 5. Limestone outcrop near the southeast corner, facing east



Photo 6. Stake at EF-1, facing north, detention pond to the right, existing pavement to the left


Photo 7. EF-1 in relation to stormwater drainage system, facing east



Photo 8. EF-1 in relation to stormwater system, red arrow indicates pin at northern edge of EF-1



Photo 9. Secondary washout discovered near stormwater inlet



Photo 10. Extending approximately 6 feet into 18" RCP

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: JD King Office Buildings

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

Customer Information

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

Contact Person: John King Entity: JD King Construction Mailing Address: 559 S. IH-35 Frontage Rd., Ste. 210 City, State: Round Rock, TX Zip: 78664 Telephone: 512.836.5464 Fax: _____ Email Address: jd@jkc78.com The appropriate regional office must be informed of any changes in this information within 30 days of the change.

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

Contact Person: <u>Terry R. Hagood, P.E.</u> Texas Licensed Professional Engineer's Number: <u>52960</u> Entity: <u>Hagood Engineering Associates, Inc.</u> Mailing Address: <u>900 E. Main Street</u> City, State:<u>Round Rock, TX</u> Zip: <u>78664</u> Telephone:<u>512.244.1546</u> Fax:____ Email Address:terryh@heaeng.com

Project Information

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

	Residential: Number of single-family lots:
	Multi-family: Number of residential units:
\square	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>600</u> gallons/day
% Industrial	gallons/day
% Commingled	gallons/day
Total gallons/day: <u>600</u>	

- Existing and anticipated infiltration/inflow is <u>331</u> gallons/day. This will be addressed by: <u>COATING, SEALING AND VACUUM TESTING FOR MANHOLES AND PRESSURE TESTING FOR</u> <u>SEWER LINES</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 <u>Dec. 22, 2023</u>. A copy of the approval letter is attached.

The WPAP application for this development was submitted to the TCEQ on _____, 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)
		Class 150 Pressure	
6	151	Pipe	ASTM D3034
6	31	SDR 26 PVC	ASTM D3034

Total Linear Feet: 182

(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 <u>Brushy Creek Wastewater</u> (name) Treatment Plant. The treatment facility is:



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

The City of <u>Round Rock</u> standard specifications. Other. Specifications are attached.

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

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

Alignment

- 12. There are no deviations from uniform grade in this sewage collection system without manholes and with open cut construction.
- 13. There are no deviations from straight alignment in this sewage collection system without manholes.
 - Attachment B Justification and Calculations for Deviation in Straight Alignment without Manholes. A justification for deviations from straight alignment in this sewage collection system without manholes with documentation from pipe manufacturer allowing pipe curvature is attached.

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

Manholes and Cleanouts

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

Line	Shown on Sheet	Station	Manhole or Clean- out?
WWL A	17 Of 21	0+00	EX. MH
WWL A	17 Of 21	1+50.66	MH
WWL A	17 Of 21	1+81.78	MH
	Of		
	Of		
	Of		

Table 2 - Manholes and Cleanouts

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

- 15. Manholes are installed at all Points of Curvature and Points of Termination of a 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'.

```
Site Plan Scale: 1" = <u>20</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:

 \bigotimes 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. \square Legal boundaries of the site are shown.

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

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

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

There will be no water line crossings.

] There will be no water lines within 9 feet of proposed sewer lines.

Table 5 - Water Line Crossings

Line	Station or Closest Point	Crossing or Parallel	Horizontal Separation Distance	Vertical Separation Distance
WWLA	1+80.53	CROSSING	N/A	4'-2"
WWLA	0+11.18-1+25.24	PARALLEL	4"-6"	

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

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]	N/A of N/A
Manhole, showing inverts comply with 30 TAC §217.55(I)(2) [Required]	18 of 21
Alternate method of joining lateral to existing SCS line for potential future connections [Required]	N/A of N/A
Typical trench cross-sections [Required]	21 of 21
Bolted manholes [Required]	21 of 21
Sewer Service lateral standard details [Required]	19 of 21
Clean-out at end of line [Required, if used]	19 of 21
Baffles or concrete encasement for shock/erosion protection [Required, if flow velocity of any section of pipe >10 fps]	N/A of N/A
Detail showing Wastewater Line/Water Line Crossing [Required, if crossings are proposed]	18 of 21
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) [Required, if Flexible Pipe is used]	21 of 21

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]	N/A of N/A

- 36. All organized sewage collection system general construction notes (TCEQ-0596) are included on the construction plans for this sewage collection system.
- 37. All proposed sewer lines will be sufficiently surveyed/staked to allow an assessment prior to TCEQ executive director approval. If the alignments of the proposed sewer lines are not walkable on that date, the application will be deemed incomplete and returned.

Survey staking was completed on this date: _____

- 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: <u>Terry R. Hagood, P.E.</u>

Date: <u>12-16</u>-2024

Place engineer's seal here:



Signature of Licensed Professional Engineer:

my Ritgort

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.



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)

Sewage Collection System Engineering Design Report

JD KING OFFICE BUILDING - 7509 O'CONNOR DR

Submitted to:

Texas Commission on Environmental Quality

Region 11 Office

12100 Park 35 Circle

Building A

Room 179

Austin, TX 78753

(512) 339-2929

DECEMBER 16, 2024

This engineering design report is intended to fulfil the requirements set forth in 30 TAC Chapter 217, including Chapter 217.10 of Subchapter A (Administrative Requirements) and §§217.51-217.70 of Subchapter C (Conventional Collection Systems). Subchapter D (Alternative Collection Systems) is not applicable for this report.

Site Location

The 1.33-acre site is located at 7509 O'CONNOR DR in Williamson County, within the City of Round Rock ETJ. The project site and service area is indicated on the construction plans accompanying the SCS submittal information and is shown in general form in the Appendix of this report.

The wastewater system has been designed to convey the flow from the proposed development. The proposed development will consist of 1 Commercial (Office) building with associated earthwork, paving and parking lot, sidewalks, site utilities, stormwater management system and landscaping/vegetation.

The topography of the site is a general slope in North-East direction from a highpoint in the South-West portion. The site is contained on FEMA FIRM Map: Map 48491C0630F dated December 20, 2019. No portion of the lot is within the designated 1% annual chance floodplain as delineated in the FEMA FIRM map. The entire site is located within the Edwards Aquifer Recharge Zone. There are no sensitive geologic features and an exception to provide a geologic assessment is provided.

Design Flow Determination

The wastewater flows from this site will be domestic in nature. The wastewater loading is based upon Commercial: Office (number of LUEs) where 1 LUE is considered at 280 GPD (Gallons per day). The design flow determination is shown in the attached table. The Infiltration and inflow is based upon 750 gallons per day over 1.33 acres of developed area.

Parcel	Existing Land Use	Lot Area	GFA	Loading	Unit	Quantity	Daily Volume	time period	ADWF	Peaking Factor	PDWF	I&I ¹	PWWF	Notes
	Category	acres	sf	gal/day			gallons	hours	gpm		gpm	gpm	gpm	
WWLA														
JD King Office Buildings	Office	1.33	4,800.00	20	person	30.00	600	8	1.25	4.37	5.47	0.69	6.16	Occupancy - 30 employees
					person		0	0	0.00	4.50	0.00	0.00	0.00	
	Total	1.33				30.00	600.00		1.25		5.47	0.69	6.16	

The aforementioned flows are expected in the pipes immediately following construction completion and are not expected to increase at the end of its 50-year life. Additionally, odor control measures are not anticipated in this system.

The capacity of the existing system will be reviewed and approved by the Brushy Creek MUD. The proposed system will gravity flow into the existing public wastewater infrastructure in O'Connor Dr. and will not require the use of a lift station and force main. The Brushy Creek MUD public wastewater will convey flow to the Brushy Creek Regional Wastewater Treatment Plant (BCWWTP). The proposed system is new construction and existing and therefore, no existing inflow and infiltration has been accounted for.

Pipe Design

The wastewater collection system has been designed to transport the peak wet weather flow from the service area, plus the inflow and infiltration as discussed above. These were designed to ensure that the peak dry weather flow shall not exceed 65% of the capacity of the pipe flowing full and also the peak wet weather flow shall not exceed 85% of the capacity of the pipe flowing full. The collection system piping consists of 181 LF of 6" SDR 26 PVC at a min. slope of 2%. The pipe can be seen in plan and profile in the construction drawings accompanying this report and the TCEQ Form 0582 (Organized Sewage Collection System Application).

The gravity wastewater pipe specified is a PVC SDR-26 pipe conforming to ASTM D3034 with a pipe stiffness of 115 psi. The 6" diameter pipe has an outside diameter of 6.275 inches, inside diameter of 5.793 inches, wall thickness of 0.241 inches. The permissible slopes within the Edwards Aquifer Recharge Zone, according to Appendix A of the SCS application are 0.33% to 8.40%. The velocity at the minimum and maximum slopes with the pipe flowing full is greater than 2 fps and less than 10 fps, respectively.

The detailed design of the pipe has taken the following into account: the characteristic of the wastewater conveyed, the possibility of septic conditions, the possibility of external forces, and the possibility of groundwater, internal pressure and the abrasion and corrosion resistance of the pipe material.

The separation distance for all points where a wastewater or force main line crosses a public water supply or service are:

- Vertical separation must be at least 18" in accordance with the City of Round Rock Utility Criteria Manual
- Wastewater pipe has a minimum pressure rating of at least 150 PSI.
- One segment of wastewater pipe with minimum pressure rating of 150 psi is to be centered on water line crossing.

For wastewater or force main lines that parallel public water services:

- Vertical separation must be at least two feet from outside diameter of pipe
- Horizontal separation must be 4 feet from outside diameters of pipe
- Wastewater or force main lines must be below water lines.

This system will not be within 50 feet of an active fault.

The manholes are in compliance with §217.55 of the TAC. Manholes are located at all points of change in alignment, grade and/or size and at all intersections of pipes. There are double clean-outs associated with this system. The maximum spacing of the manholes is less than the 500 feet allowed in 30 TAC §217.55(g) Table C.2. There will be no tunnels associated with this project. The manhole specifications and construction drawings are located in the plan sheets. The method of sealing the joints is depicted on drawing no. WW-10, as detail 12 on sheet C72 and for gasketed manholes the Owner must follow the national reference standard for the gasket type.

Structural Analysis

The SDR-26 PVC Pipe is a flexible conduit that takes advantage of the support capacity of the surrounding earth by transferring a major portion of the load directly to it. Deflection of the pipe varies with stiffness, class and density of the soil, degree of compaction, burial depth and live load.

The sewer pipe will be placed in an excavated trench and subsequently backfilled. The details of the trench can be found on the accompanying construction plans on the detail sheet. Watertight, size on size resilient connectors conforming to ASTM C-923 will be used for connecting to a manhole as shown in detail WW-10 (see accompanying construction plans). The bedding method will be compacted granular fill or densely compacted backfill and therefore will be Class C as shown in NAVFAC Design Manual DM-7.1, May 1982, Figure 18, Pg. 7.1-186. Bedding is required to establish line and grade and to provide firm pipe support. The Bedding materials will be Class IA (open-graded, clean manufactured aggregates, ASTM D 2321) with 6 in. minimum between the excavation lines ("foundation") to equalize load distributions along the invert of the pipe.

Live Load Calculation

The live loads that can be included in buried pipe are truck load, car load, train load and any other type of non-concentrated, surcharge, load (ex. equipment, piles of stored materials, debris). Vehicular loads are typically based on The American Association of State Highway and Transportation Officials (AASHTO) standard truck loadings. For calculating the soil pressure on flexible pipe, the loading is normally assumed to be an H20 (HS20) truck. A standard H20 truck has a total weight of 40,000 lbs. (20 tons). The weight is distributed with 8,000 lbs. on the front axle and 32,000 lbs. on the rear axle. The HS20 truck is a tractor and trailer unit having the same axle loadings as the H20 truck but with two rear axles. For these trucks, the maximum wheel load is found at the rear axle(s) and equals 40 percent of the total weight of the truck. The maximum wheel load may be used to represent the static load applied by either a single axle or tandem axles. The heaviest tandem axle loads normally encountered on highways are around 40,000 lbs. (20,000 lbs per wheel).



The Boussinesq Equation gives the pressure at any point in a soil mass under a concentrated surface load. The Boussinesq Equation may be used to find the pressure transmitted from a wheel load to a point that is not along the line of action of the load. Pavement effects are neglected.

$$\mathbf{P}_{L}^{\prime} = \frac{3I_{f}W_{w}H^{3}}{2\pi r^{5}}$$

 P_{L} = vertical soil pressure due to live load (psf) W_{w} = wheel load, (20,000 lb) H = vertical depth to pipe crown, (min. 3.5 ft) If = impact factor (1.0) r = distance from the point of load application to pipe crown, ft



For the proposed project, H = 5.3 ft. $\mathbf{r} = (16^2 + 5.3^2)^{0.5} = 16.85 \text{ ft.}$ $P_L = (3*1.0*20,000*5.3^3) / (2*\pi*7^5) = 33.63 \text{ psf.} = 14.05 \text{ psi}$

Buckling Analysis

Predicted and allowable buckling pressures must be calculated for each size of pipe and type of flexible pipe material.

$$q_a = 0.4* \sqrt[2]{32*R_w^*B \oplus E_b^*(E^*I/D^3)} = 7,162.44 \text{ psi for a 6" diameter pipe}$$

 $B' = \frac{1}{1 + 4 * e^{-0.065H}}$

 q_{α} = Allowable buckling pressure, pounds per square inch (psi)

- $R_w = 1$; Water buoyancy factor. If (height of water surface above the top of the pipe) $h_w = 0$.
- H = Depth of burial in feet (ft) from ground surface to crown of pipe. (3.5 feet min for the proposed project)
- B'= Empirical coefficient of elastic support
- $E_b =$ Modulus of soil reaction for the bedding material (1,000 psi)
- E = Modulus of elasticity of the pipe material (400,000 psi min for PVC)
- I = moment of inertia of the pipe wall cross section per linear inch of pipe, inch⁴/lineal inch
- D = mean pipe diameter (6 in)

Hollow Cylindrical Cross Section: $I = \pi (d_o^4 - d_i^4) / 64 = 20.81$ in⁴ for a 6" diameter pipe Where $d_o =$ cylinder outside diameter; $d_i =$ cylinder inside diameter

	E for Degree of Compaction of Pipe Zone Backfill, psi					
Soil type-pipe bedding material (Unified Classification System ⁸) (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 avi competent Otherw	ailable; consult soils engineer ise use E' = 0	1		
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 Linle 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 Deflectiond	±2	#2	±1	±0.5		
⁸ ASTM Designation D 2487, USBR Designation E-3. ^b LL = Liquid limit. ^C Or any borderline soil beginning with ose of these sy d ^{For} ±1% accuracy and predicted deflection of 3%, accu Note: Values applicable only for fills less than 50 ft (predicting initial deflections only, appropriate Deflection bedring fails on the borderline between two compaction Percentage Proctor based on laboratory maximum dry (598,000 J/m ³) (ASTM D 698, AASHTO 7-9, USBRI 5008 CE ⁻ 3501. Breaction, for Barcied Elsyble.	mbols (i.e. al deflectio (15 m). Tab n Lag Fact categories, density fre Designatio Plan **	, GM-GC, G n would be b le does not i or must be a select lower m test stand n E-11). 1 ps	C-SC). etween 2% and 4 nclude any safety pplied for long-t E' value or aven ards using about i = 6.9 kN/m ² .	6. r factor. For us one deflection age the two vali 12,500 ft-lb/c		

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

Prism Load Calculations

The prism load calculations are equal to the assumed weight of soil over the pipe. The approximate dry density of the soil in the backfill as shown is 120 pcf. The total prism load is calculated by:

P = Density x Height of the soil = 120 pcf * 16.85 ft. = 2022.6 psf = 14.04 psi

The Modified Iowa Equation is used for predicting deflection in buried flexible pipe:

%Deflection = $\frac{\%\Delta Y}{D} = \frac{(D_LKP+KW)(100)}{[2E/(3(DR-1)^3)]+0.061E^3}$

Where:

DL = Deflection Lag Factor = 1.0 (Typical)

K = Bedding Constant=0.1 (Typical)

P = Prism Load=Weight of soil over pipe (14.04 psi, above)

W' = Live Load (0.23 psi)

E = Modulus of Elasticity=400,000 psi minimum for PVC

DR = Dimension Ratio (OD/t) (6.275/0.18=26.01)

E' = Modulus of Soil Reaction (1,000 psi)

Δ= 1.83%

The maximum deflection allowed is 5%. This pipe meets this specification.

 Q_p = Pressure applied to the pipe under installed conditions (psi) = Live load + Prism load

 $q_p = 0.23 \text{ psi} + 14.05 \text{ psi} = 14.28 \text{ psi}$

 $q_{\alpha} \ge q_{p}$ for the specified pipe and is acceptable for the proposed installation.

Wall Crushing

The project does not propose any trenchless installation and no vertical curvature between manholes is anticipated. Additionally, the project does not include any horizontally curved gravity sanitary sewer piping. Should any horizontal curves be required as an immediate field change, it shall be a minimum of 300*6.275 in= 1882.5 inches= 156.875 feet.

The curves will be provided by pipe flexure and in no case will any joint flexure be allowed. All joints will be installed fully seated per the manufacturer's recommendation.

There will be no concrete encased flexible pipe with the proposed project. If encased flexible pipe is needed in the future, it shall be installed in a rigid encasement and installed at a maximum depth of:

$$H = (24*P_{C}*A)/(\pounds*D_{O})$$

Where

 P_C =compressive stress (4,000 psi for PVC pipe)

A=surface area of the pipe wall (in 2 /ft)

 \pounds =specific weight of the soil (pcf)

 D_{\odot} =outside pipe diameter (in)

The flexible pipe will be installed under favorable ambient temperature conditions and no provisions will be needed to ensure adequate installation.

The conditions of this installation are such that strain related failure is not anticipated within the 50-year life.

Pressure loss in fittings

Calculations:

$$zeta = \frac{1.44}{f + (1.44 - f)^* (E_b / E_n)}$$

$$f = \frac{\frac{b}{d_a - 1}}{1.154 + 0.444^* (\frac{b}{d_a - 1})}$$
f = Pipe/trench width coefficient
b = Trench width (OD + 12" = 6.275 + 12" = 18.275")
d_a = Pipe diameter (6.275 in)
E_b = Modulus of soil reaction for the bedding material (1,000 psi)
E_n = Modulus of soil reaction for the in-situ soil (1.67 psi)

Pressure loss factor = Zeta = 0.0148 for 6" pipes.

Pipe Stiffness

Pipe stiffness (P_s) in psi can be determined either by parallel plate test at 5% deflection, based on manufacturer's data or national reference standards; or, calculated using the following equation. The minimum pipe stiffness for PVC pipe less than 15 inches in diameter meeting ASTM D 3034 is 115 psi for SDR 26.

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

- E = modulus of elasticity of the pipe material (400 ksi)
- I = moment of inertia of the pipe wall cross section per linear inch of pipe, inch⁴/lineal inch = inch³. (20.8 in⁴/12 in=1.73)
- D = mean pipe diameter and (6 in)
- r = mean radius (3 in)

 $P_{S} = (400^{*}1.73) / (0.149^{*}3^{3}) = 172.01 \text{ psi}$

In order to ensure that the stiffness being provided to the installation has a reasonable contribution from pipe stiffness, and does not rely solely on the stiffness provided by the soil stiffness factor (SSF), the ratio of P_s /SSF must be calculated. This process must be repeated until P_s /SSF ≥ 0.15 exists for all proposed

pipe sizes and for all types of flexible pipe materials.

 $\frac{P_s}{SSF} = \frac{P_s}{0.061*zeta*E_b} \ge 0.15$ $P_s = Pipe \text{ stiffness (172.01 psi)}$ $E_b = modulus \text{ of soil reaction for the bedding material (1,000 psi)}$ zeta = 1.0, or a value calculated above, for 6" size pipe $SSF = soil \text{ stiffness factor (0.061*zeta*E_b)}$ SSF = 0.061(1)(1000) = 61 Ps/SSF=172.01/2.81 = 2.82

Based upon the above calculations, the 6" SDR-26 Pipes are adequate for the proposed installation as noted on the accompanying plan sheets.



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: Lakshay Sharma

Date: 12/16/2024

Signature of Customer/Agent:



Regulated Entity Name: JD King Office Buildings

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. \square 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>N/A</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.	\square	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.
		IX There will be no temporary sealing of naturally-occurring sensitive features on the site.
9.		Attachment F - Structural Practices. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.
10.		Attachment G - Drainage Area Map. A drainage area map supporting the following requirements is attached:
		For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.
		For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.
		For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.
		There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

- 11. Attachment H Temporary Sediment Pond(s) Plans and Calculations. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.
 - 🗌 N/A
- 12. Attachment I Inspection and Maintenance for BMPs. A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.
- 13. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.
- 14. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).
- 15. Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.
- 16. 🖂 Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

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

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

Administrative Information

- 20. \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.

TEMPORARY STORWATER SECTION

Attachments to form TCEQ-0602

ATTACHMENT A

There are several factors that could affect surface and ground water quality. During construction, fuels and hazardous substances could spill. These spills shall be contained on-site and immediately cleaned up and properly discarded. Any spills or discharges of oil, petroleum products and used oil onto land having a volume greater than 25 gallons, and spills or discharges directly into waters of the state having a quantity sufficient enough to create a sheen, shall be reported immediately to TCEQ at (512) 339-2929 or the State Emergency Response Center at 1-800-832-8224. There are no significant factors proposed which could affect surface and ground water quality relating to the permanent use of the facility. For any spills onsite please visit the below link:

https://www.tceq.texas.gov/response/spills

ATTACHMENT B

Potential Sources of Contamination:

- 1. Soil disturbance during construction.
- 2. Hydrocarbon-based fluids from Construction Equipment.
- 3. Landscaping Fertilizer and Pesticides.

ATTACHMENT C

Sequence of major activities for each phase is as follows:

- 1. The installation of Erosion/Sedimentation Controls 0.65 Ac. Disturbed
- 2. Clearing, grubbing, and removal of topsoil from entire site 0.35 Ac. Disturbed
- 3. Rough grading and building pad excavation 0.35 Ac. Disturbed
- 4. Excavating for utilities 0.081 Ac. Disturbed
- 5. Finish grading and landscaping 0.27 Ac. Disturbed

ATTACHMENT D

The Temporary Best Management Practices (TBMP) for this project will consist of:

- 1. A stabilized construction entrance.
- 2. Silt fencing and rock berms around down gradient boundary of site.

All TBMP's will be in place prior to any regulated activities commencing. The stabilized construction entrance will remove excess spoils from construction vehicles leaving the site. The silt fencing will collect silt runoff and debris during construction activities. These controls will be maintained during construction and will remain until after all construction activities are complete and permanent re-vegetation is established.

ATTACHMENT F

Due to the limited area of the site, the silt fence and filter dikes will provide control to retain any runoff from the exposed site.

TEMPORARY STORWATER SECTION

Attachments to form TCEQ-0602

ATTACHMENT G

Refer to the drawings, sheet PDA 1.

ATTACHMENT H

The total site area is 1.33 acres and will not require a temporary sediment pond.

ATTACHMENT I

The contractor is required to inspect all of the erosion and sediment controls and fences at weekly intervals and after significant rainfall events to insure that they are functioning properly. The person(s) responsible for maintenance of controls and fences shall immediately make any necessary repairs to damaged areas. Silt accumulation at controls must be removed when the depth reaches six (6) inches. Records described in the SWPPP must be retained on site for 5 years beyond the date of the cover letter notifying the facility of coverage under a storm water permit, and shall be made available to the state or federal compliance inspection officer upon request. Additionally, employee training records and waste and recycling receipts or vouchers shall also be maintained.

ATTACHMENT J

Schedule of Interim Soil Stabilization Practices:

- 1. Erosion and sediment control measures including perimeter sediment controls must be in place before vegetation is disturbed and must remain in place and be maintained and repaired.
- 2. Temporary stabilization or covering of soil stockpiles and protection of stockpile located away from construction activity must be maintained
- 3. Should construction activities cease for fifteen (15) days or more on any significant portion of the construction site, temporary stabilization is required for that portion of the site to prevent soil and wind erosion until work resumes on that portion of the site.
- 4. Should all construction activities cease for thirty days or more, the entire site must be temporarily stabilized using vegetation or a heavy mulch layer, temporary seeding or other method.
- 5. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

Schedule of Permanent Soil Stabilization Practices:

- 1. Stabilized any unpaved area that is final grade or remain unpaved for the next two weeks. Permanent stabilization may consist of sodding, seeding, or mulching that must be maintained to prevent erosion from the site until re-vegetation has achieved 70% coverage
- 2. Once construction is complete, remove all the pollution prevention measures that were temporary.

TEMPORARY STORWATER SECTION

Attachments to form TCEQ-0602

3. Bare soils should be seeded or otherwise stabilized within 14 calendar days after final grading or where construction activity has temporarily ceased for more than 21 days.

SUGGESTED MAINTENANCE PLAN AND SCHEDULE FOR SEDIMENTATION AND FILTRATION BASINS

PROJECT NAME:	7509 O'CONNOR DR, BLDG 2 - OFFICE DEVELOPMENT						
ADDRESS:	7509 O'Conner Drive, Bldg 2						
CITY, STATE ZIP:	Round Rock, TX 78681						
SEDIMENTATION I	BASINS						
Monthly:	The vegetative growth in the basin shall be checked. The growth shall not exceed 18 inches in height.						
Quarterly:	The level of accumulated silt shall be checked. If depth of silt exceeds 6 inches, it shall be removed and disposed of "properly".						
	The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.						
Annually:	The basin shall be inspected for structural integrity and repaired if necessary.						
After Rainfall:	The basin shall be checked after each rainfall occurrence to ensure that it drains within 48 hours after the storm is over. If it does not drain within this time, corrective maintenance will be accomplished.						
FILTRATION BASI	NS						
Monthly:	The vegetative growth shall be checked. Vegetation in the basin shall not exceed 18 inches in height.						
Quarterly:	The level of accumulated silt shall be checked. If depth of silt/pollutants exceeds ½ inch, it shall be removed and disposed of "properly".						
	The accumulation of pollutants/oils shall be checked. If the pollutants have significantly reduced the designed capacity of the sand filter, the pollutants shall be removed.						
	The basin shall be checked for accumulation of debris and trash. The debris and trash shall be removed if excessive. All debris and trash shall be removed at least every six months.						
Annually:	The basin shall be inspected for structural integrity and repaired if necessary.						
After Rainfall:	The basin shall be checked after each rainfall occurrence to ensure that it drains within 48 hours after the sedimentation basin has been emptied. If it does not drain within this time, corrective maintenance will be accomplished.						
Following any requ to its designed cor	lired maintenance, the surface of the filtration basin shall be raked and leveled to restore the system Idition.						

"Proper" disposal of accumulated silt shall be accomplished following Texas Natural Resource Conservation Commission and City of Austin guidelines and specifications.

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

Responsible Party:	JD KING	
Mailing Address:	110 N Interstate 35, Suite 315-748	
City, State:	ROUND ROCK, TX	Zip: 78681
Telephone:	512.968.9905	Fax: 512-833-0133

J.D. King

Digitally signed by J.D. King Date: 2024,12.09 16:34:01 -06'00'

Signature of Responsible Party

Date

JELLYFISH SYSTEM MAINTENANCE PLAN RESTRICITIVE COVENANT

OWNER: John King Construction, Ltd

PROPERTY (legal description): LOT 86, CAT HOLLOW SECTION C-COMMERCIAL I PROPERTY ADDRESS: 7509 O'CONNOR DRIVE ROUND ROCK, TX 78681 PROJECT NAME: 7509 O'CONNOR DR, BLDG 2 - OFFICE DEVELOPMENT

WHEREAS, the Owner of the Property and the City of Round Rock, Texas have agreed that the Property should be impressed with certain covenants and restrictions;

NOW, THEREFORE, Owner hereby declares that the Property shall be subject to the following covenants and restrictions herby imposed upon the Property by this Pond Maintenance Plan Restrictive Covenant (the "Restrictive Covenant"). This Restrictive Covenant shall run with the land, and shall be binding on the Owner of the Property, its heirs, successors and assigns.

Detention Pond Maintenance:

The Owner shall be responsible for the inspection, maintenance, and repair of the detention ponds located on the Property shown on Exhibit "A" attached hereto (the "Jellyfish System") and shall keep the Jellyfish System in good condition and repair.

Owner shall perform, or cause to be performed, the following with respects to the Jellyfish System.

- <u>Structural Repairs and Replacement</u>. With each inspection, any damage to structural elements of the Jellyfish System (pipes, concrete drainage structures, retaining walls, etc.) shall be identified and repaired. Owner shall maintain a written record of inspection results and corrective measures taken.
- <u>Discharge Pipe</u>. The Jellyfish discharge pipes shall be inspected for accumulation of silt, debris or other obstructions which could block flow. Soil accumulations, vegetative overgrowth and other blockages should be cleared from the pipe discharge point as necessary. Owner shall maintain a written record of inspection findings and corrective actions performed.
- 3. <u>Guardrails</u>. Any handrails shall be inspected for damage and structural integrity. Damage to guard shall be promptly repaired. Owner shall maintain a written record of inspection findings and corrective actions performed.
- 4. <u>Recordkeeping Procedures for Inspections, Maintenance and Repairs</u>. Written records of inspection findings and corrective actions required above shall be retained by Owner for no less than five (5) years.

The Best Management Practice for water quality control is a Contech Jellyfish System. The system includes a concrete splitter box for peak flow diversion of 100 year storm flows. The jellyfish system is a proprietary system. The maintenance of the Jellyfish system is to be in strict accordance with the attached "Jellyfish Filter Maintenance Guide" (the "Guide"). The "Guide" shall be permanent attached as a part of this Maintenance Plan and any updates or modifications to the "Guide" shall be fully incorporate into this Plan.

GENERAL MAINTENANCE FOR SUPPORTING STRUCTURES AND SURROUNDING AREAS:

- Monthly: The vegetative growth around the structures shall be checked. The growth shall not exceed 18 inches in height. Remove debris and litter and any obstructions along trails which would prohibit the flow of storm water onto the adjacent grass. Remove all debris and accumulated sediment within the splitter when the depth reaches 6".
- Quarterly: Inspect for erosion or damage to structures. The ground surface shall have uniform grass cover, no debris, litter, or obstructions. Bare spots and areas of erosion shall be reseeded and restored to complete coverage and density.
- After Rainfall: Fill and level eroded areas with topsoil and reseed and restore. Remove any debris, obstructions or litter from splitter boxes or manholes.

[See next page for signatures]

Executed effective the 10th day of DECEMBER, 2024.

OWNER: John King Construction, Ltd By

TITLE President

ADDRESS 110 N Interstate 35, Suite 315-748 ROUND ROCK, TX 78681

STATE OF TEXAS § COUNTY OF WILLIAMAN §

Before me, the undersigned notary, on this day personally appeared <u>both king</u> the <u>President</u> and _____, respectively, of <u>JOHN KING CONSTRUCTION</u> limited partnership, known to me through valid identification to be the persons whose names are subscribed to the preceding instrument and acknowledged to me that the person executed the instrument in the persons' official capacities for the purposes and consideration expressed in the instrument.

Given under	my hand	and seal of office on _	12/10/2024
		Maar Swood	
		Notary Public	c, State of <u>TRXAS</u>
			_
		MACY SEWARD Notary ID #135098579 My Commission Expires September 19, 2028	



JellyFish[®] Filter Maintenance Guide







JELLYFISH® FILTER MANHOLE CONFIGURATIONS INSPECTION & MAINTENANCE GUIDE

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1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW)

Maintenance activities typically include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; or per the approved project stormwater quality documents (if applicable), whichever is more frequent.

- 1. Post-construction inspection is required prior to putting the Jellyfish Filter into service. All construction debris or construction-related sediment within the device must be removed, and any damage to system components repaired, before installing the filter cartridges.
- 2. A minimum of two inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
- 3. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
- 4. Inspection is recommended after each major storm event.
- 5. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

- 1. Provide traffic control measures as necessary.
- 2. Inspect the MAW for floatable pollutants such as trash, debris, and oil sheen.
- 3. Measure oil and sediment depth in several locations, by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
- 4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
- 5. Inspect the MAW, cartridge deck, and backwash pool weir, for cracks or broken components. If damaged, repair is required.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates that the filter cartridges need to be rinsed.



Inspection Utilitzing Sediment Probe

- Standing water outside the backwash pool may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges are occluded with sediment and need to be rinsed

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

- 1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
- 2. Floatable trash, debris, and oil removal.
- 3. Deck cleaned and free from sediment.
- 4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
- 5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
- 6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
- The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill.
 Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

- 1. Provide traffic control measures as necessary.
- 2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
- 3. Caution: Dropping objects onto the cartridge deck may cause damage.

- 4. Perform Inspection Procedure prior to maintenance activity.
- 5. To access the cartridge deck for filter cartridge service, descend the ladder and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
- 6. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

- 1. Remove a cartridge lid.
- 2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.
- 3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

- 1. Remove all 11 tentacles from the cartridge head plate. Take care not to damage or break the plastic threaded nut or connector.
- 2. Position tentacles in a container (or over the MAW), with the



threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.

3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.

- 4. Collected rinse water is typically removed by vacuum hose.
- 5. Reattach tentacles to cartridge head plate. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Cleaning Procedure

- 1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening, being careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck. The separator skirt surrounds the filter cartridge zone, and could be torn if contacted by the wand. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
- Vacuum floatable trash, debris, and oil, from the MAW opening. Alternatively, floatable solids may be removed by a net or skimmer.



Tentacle Rinse Using Jellyfish Rinse Tool

- 3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
- 4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW.
- 5. Remove the sediment from the bottom of the unit through the MAW opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and vaults without an MAW opening, complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

- 7. After the unit is clean, re-fill the lower chamber with water if required by the local jurisdiction, and re-install filter cartridges.
- 8. Dispose of sediment, floatable trash and debris, oil, spent tentacles, and water according to local regulatory requirements.

5.4 Filter Cartridge Replacement

- Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
- 2. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.
- 3. Lower filter cartridge to the cartridge deck. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. Caution: Should a snag occur when lowering the cartridge into the receptacle, do not force the cartridge downward; damage may occur.
- 4. Replace the cartridge lid and check fit before completing rotation to a firm hand-tight attachment.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

6.0 Related Maintenance Activities

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

7.0 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge



Jellyfish Filter Inspection and Maintenance Log

Owner:			_	Jellyfish Model No:		
Location:				GPS Coordinates:		
Lande Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:			
Inspector:			
Maintenance Contractor:			
Visible Oil Present: (Y/N)			
Oil Quantity Removed:			
Floatable Debris Present: (Y/N)			
Floatable Debris Removed: (Y/N)			
Water Depth in Backwash Pool			
Draindown Cartridges externally rinsed and recommissioned: (Y/N)			
New tentacles put on Cartridges: (Y/N)			
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)			
New tentacles put on Hi-Flo Cartridges: (Y/N)			
Sediment Depth Measured: (Y/N)			
Sediment Depth (inches or mm):			
Sediment Removed: (Y/N)			
Cartridge Lids intact: (Y/N)			
Observed Damage:			
Comments:			







800.338.1122 www.ContechES.com

Support

- Drawings and specifications are available at ContechES.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.

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Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, wastewater treatment and earth stabilization products. For information on other Contech segment offerings, visit ContechES.com or call 800.338.1122

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Jellyfish Maintenance DRAFT 2/17

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

1	JOHN KING	
	Print Name	,
	PRESIDENT	
	Title - Owner/President/Other	,
of	JD KING CONSTRUCTION	,
	Corporation/Partnership/Entity Name	
have authorized	LAKSHAY SHARMA / TERRY R. HAGOOD	
	Print Name of Agent/Engineer	
of	HAGOOD ENGINEERING ASSOCIATES, INC.	
	Print Name of Firm	

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

I also understand that:

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

SIGNATURE PAGE:

Applicant's Signature

12-16-24 Date

THE STATE OF TRXUS \$ County of William SON \$

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

1

GIVEN under my hand and seal of office on this 10th day of December, 2014



PUBLIC YEINQ1

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 9/19/2028



Owner Authorization Form

Edwards Aquifer Protection Program

Instructions

Complete the following form by adding the requested information in the fields below. The form must be notarized for it to be considered complete. Attach it to other programmatic submittals required by 30 Texas Administrative Code (30 TAC), Chapter 213, and provide it to TCEQ's Edwards Aquifer Protection Program (EAPP) as part of your application.

If you have questions on how to fill out this form or about EAPP, please contact us by phone at 512-339-2929 or by e-mail at <u>eapp@tceq.texas.gov</u>.

Landowner Authorization

I, PATRICK JOHNSON of FRONTIER BANK

am the owner of the property located at:

LOT 86, BLOCK D, CAT HOLLOW SECTION C - COMMERCIAL 1

and am duly authorized in accordance with 30 TAC 213.4(c)(2) and 213.4(d)(1), or 30 TAC 213.23(c)(2) and 213.23(d), relating to the right to submit an application, signatory authority, and proof of authorized signatory.

I do hereby authorize JD KING CONSTRUCTION To conduct SCS AND/OR WPAP MODIFICATION APPLICATION At 7501 O'CONNER ROUND ROCK, TX

Landowner Acknowledgement

I understand that PATRICK JOHNSON, PRESIDENT OF FRONTIER BANK

Is ultimately responsible for the compliance with the approved or conditionally approved Edwards Aquifer protection plan and any special conditions of the approved plan through all phases of plan implementation even if the responsibility for compliance and the right to possess and control the property referenced in the application has been contractually assumed by another legal entity. I further understand that any failure to comply with any condition of the executive director's approval is a violation and subject to administrative rule or orders and penalties as provided under 30 TAC 213.10, relating to enforcement. Such violations may also be subject to civil penalties.

Landowner Signature

Landowner Signature 01/23/2025 Date

THE STATE § OF TEXAS

County § of TRAVIS

BEFORE ME, the undersigned authority, on this day personally appeared

PATRICK JOHNSON

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 23 day of January, 2025.

ID# 129889003

NOTARY PUBLIC

Brent Heath Reynolds MY COMMISSION EXPIRES: 1/28/2027

Optional Attachments

Select All that apply:

- □ Lease Agreement
- □ Signed Contract
- □ Deed Restricted Easement
- □ Other legally binding documents



Application Fee Form

Texas Commission on Environmental Quality						
Name of Proposed Regulated Entity: <u>JD King Office Buildings</u>						
Regulated Entity Location: JD King	<u>g Office Buildings</u>					
Name of Customer: JD King Const	ruction					
Contact Person: <u>John King</u>	Phor	ne: <u>512.836.5464</u>				
Customer Reference Number (if is	ssued):CN					
Regulated Entity Reference Numb	per (if issued):RN					
Austin Regional Office (3373)						
🗌 Hays 🔹 Travis 🔀 Williamson						
San Antonio Regional Office (336	52)					
Bexar	Medina	U\	valde			
Comal	Kinney					
Application fees must be paid by check, certified check, or money order, payable to the Texas						
Commission on Environmental Q	uality. Your canceled o	check will serve as you	r receipt. This			
form must be submitted with yo	ur fee payment . This p	ayment is being submi	itted to:			
🔀 Austin Regional Office	S	an Antonio Regional C	office			
Mailed to: TCEQ - Cashier	Overnight Delivery to: TCEQ - Cashier					
Revenues Section	1	12100 Park 35 Circle				
Mail Code 214	В	Building A, 3rd Floor				
P.O. Box 13088	Д	ustin, TX 78753				
Austin, TX 78711-3088	()	512)239-0357				
Site Location (Check All That App	ly):					
🔀 Recharge Zone	Contributing Zone	Transi	tion Zone			
Type of Pla	n	Size	Fee Due			
Water Pollution Abatement Plan,	Contributing Zone					
Plan: One Single Family Residenti	al Dwelling	Acres	\$			
Water Pollution Abatement Plan,	Contributing Zone					
Plan: Multiple Single Family Resid	ential and Parks	Acres	\$			
Water Pollution Abatement Plan,	Contributing Zone					
Plan: Non-residential	Acres	\$				
Sewage Collection System	181 L.F.	\$ 650.00				
Lift Stations without sewer lines	Acres	\$				
Underground or Aboveground Sto	Tanks	\$				
Piping System(s)(only)		Each	\$			
Exception		Each	\$			
Extension of Time		Each	\$			

LAKSHAY SHARMA

Date: <u>12/16/2024</u>

Application Fee Schedule

Texas Commission on Environmental Quality

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

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	Fee
Exception Request	\$500

Extension of Time Requests

Project	Fee
Extension of Time Request	\$150



TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for 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 th	e renewal form)	Other					
2. Customer Reference Number (if issued)	Follow this link to search	3. Regulated Entity Reference Number (<i>if issued</i>)					
	for CN or DN much one in						
	TOP CIN OF RIN NUMBERS IN						
CN	Central Registry**	RN					

SECTION II: Customer Information

4. General Cu	neral Customer Information 5. Effective Date for Customer Information Updates (mm/dd/yyyy)												
New Custor	mer		<u> </u>	pdate to Cus	tomer Informa	tion		Char	nge in R	egulated En	tity Own	ership	•
Change in Le	egal Name	(Verifiable	with the Te	xas Secretarv	of State or Te	xas Con	nptro	oller of Publi	- c Accou	ints)			
The Custome	The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State												
(SOS) or Texas Comptroller of Public Accounts (CPA).													
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John) <u>If new Customer, enter previous Customer below:</u>													
JD King Constru	uction												
7. TX SOS/CP	A Filing N	lumber		8. TX Stat	e Tax ID (11 d	ligits)			9. Fe	deral Tax I	D	10. DUNS	Number (if
												applicable)	
800216185									(9 dig	its)			
										55000			
11. Type of Customer: Corporation						🗌 Individ	Individual Partnership: 🗌 General 🛛			eral 🔀 Limited			
Government:	City 🗌 🤇	County 🗌	Federal 🗌	Local 🗌 Sta	te 🗌 Other			🗌 Sole Pi	Proprietorship 🗌 Other:				
12. Number o	of Employ	/ees							13. l	ndepender	tly Ow	ned and Ope	erated?
0-20 🛛 2	21-100 [101-250) 🗌 251-	500 🗌 50	1 and higher			🖾 Yes 🗌 No					
14. Customer	Role (Pro	posed or A	Actual) – <i>as i</i>	t relates to th	ne Regulated E	ntity list	ted o	n this form.	Please	check one oj	f the follo	owing	
Owner		Oper-	ator		Owner & Opera	ator							
Occupation	al Licensee	Res	ponsible Pa	rty 🗌	VCP/BSA App	olicant				U Other:			
	559 S. IH	-35, Fronta	age Rd., Ste.	210									
15. Mailing		,	<i>.</i> ,										
Address:	Address:				Ту		710	7000	1		710 4		
City Round Rock State 1X					'^		2115	/ 808	L		216 + 4		
16. Country Mailing Information (if outside USA)				•	17. E-Mail Address (if applicable)								
18. Telephone Number 19. Extension or Comparison				ode			20. Fax N	umber	(if applicable)				

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity" is selected, a new permit application is also required.)								
New Regulated Entity 🔲 Update to Regulated Entity Name 🗌 Update to Regulated Entity Information								
The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).								
22. Regulated Entity Nan	22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)							
JD King Office Building								
23. Street Address of	7509 O'Conn	er Dr.						
the Regulated Entity:								
[NO PO Boxes]	City	Round Rock	State	тх	ZIP	78681	ZIP + 4	
24. County	Williamson							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	300 feet NW of the intersection of O'Conner & FM 620								
26. Nearest City						State		Nea	rest ZIP Code
Round Rock	Round Rock TX 78681								
Latitude/Longitude are r used to supply coordinat	equired and es where no	l may be added/ one have been p	updated to meet ا rovided or to gain	CEQ Core D accuracy).	ata Standa	rds. (Geoco	ding of th	e Physical	Address may be
27. Latitude (N) In Decim	al:	30.4994		28. Lo	ongitude (W	/) In Decima	al:	-97.7231	
Degrees	Minutes		Seconds	Degre	es	Min	utes		Seconds
29. Primary SIC Code	30.	Secondary SIC (Code	31. Primar	y NAICS Co	de	32. Secor	ndary NAI	CS Code
(4 digits)	(4 c	ligits)		(5 or 6 digit	:s)		(5 or 6 dig	its)	
6029				52110					
33. What is the Primary E	Business of t	this entity? (Do	o not repeat the SIC o	r NAICS descr	iption.)	•			
OFFICE BUILDINGS									
	7509 O'Co	nner Dr							
34. Mailing									
Address:	City	Round Rock	State	тх	ZIP	78681		ZIP + 4	
25 5 Mail Address									
35. E-IVIAII Address:									
36. Telephone Number			37. Extension or	Code	38. Fa	ax Number	(if applicab	le)	
(512)217-9229 () -									

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

Dam Safety	Districts	🔀 Edwards Aquifer	Emissions Inventory Air	Industrial Hazardous Waste
		1003758		
Municipal Solid Waste	New Source Review Air	□ OSSF	Petroleum Storage Tank	D PWS
Sludge	Storm Water	Title V Air	Tires	Used Oil
Voluntary Cleanup	U Wastewater	Wastewater Agriculture	Water Rights	Other:

SECTION IV: Preparer Information

40. Name:	Raquel Saenz			41. Title:	Project Assistante
42. Telephone	Number	43. Ext./Code	44. Fax Number	45. E-Mail	Address
(512) 244-1546	j		() -	raquelr@hea	aeng.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:	Hagood Engineering Associates, Inc.	Job Title:	Project M	anager	
Name (In Print):	Lakshay Sharma				(512) 244- 1546
Signature:	LAKSHAY SHARMA			Date:	12/16/2024





BENCHMARKS

TBM #1 - JPH BENCHMARK (SEE SP1) ELEV = 810.79 TBM #2 - JPH BENCHMARK (SEE SP1) ELEV = 813.34

LEGAL DESCRIPTION

LOT 86 CAT HOLLOW SECTION C-COMMERCIAL I (1.33 AC.), CABINET M, SLIDE 372-374, W.C.P.R.

	PLAN SUBMITTALS					
NO.	DATE	COMMENTS				
1	12/12/2024	SUBMITTAL TO TCEQ - SCS, WILLIAMSON COUNTY, BC MUD & SAM BASS FIRE DEPT.				
2						
3						
4						
5						
6						
7						
8						
9						
10						

NOTES:

- 1. NO PORTION OF THE ABOVE LEGALLY DESCRIBED PROPERTY IS WITHIN THE DESIGNATED 1% ANNUAL CHANCE FLOODPLAIN AREA AS DESIGNATED BY F.E.M.A. FLOOD INSURANCE RATE MAP (FIRM) ON COMMUNITY PANEL NO. 48491C0630F, DATED DECEMBER 20, 2019 FOR THE CITY OF ROUND ROCK, WILLIAMSON COUNTY, TEXAS.
- 2. THIS PROPERTY IS WITHIN THE EDWARDS AQUIFER RECHARGE ZONE.

3. SEE SHEET COO FOR GENERAL NOTES.

SITE DEVELOPMENT PLANS SUBMITTED FOR JD KING OFFICE BUILDING 2 & 3 7511 O'CONNOR DR. ROUND ROCK, TEXAS 78681

	Sh	eet List Table
SHEET NUMBER	SHEET TITLE	SHEET DESCRIPTION
01	PSP	PRELIMINARY SITE PLAN
01	CVR	COVER
02	SP	SITE PLAN
03	PLAT 1	PLAT
04	PLAT 2	PLAT
05	SRV	SURVEY
06	EDA 1	PRE-EXISTING CONDITIONS DRAINAGE AREA MAP
07	PDA 1	PROPOSED DRAINAGE AREA
08	PDA 2	PROPOSED DRAINAGE AREA CALCULATIONS
09	C00	GENERAL NOTES
10	C10	EROSION AND SEDIMENTATION CONTROL PLAN
11	C11	DEMOLITION PLAN
12	C20	DIMENSION CONTROL PLAN
13	C30	PAVING AND STRIPING PLAN
14	C40	GRADING PLAN
15	C50	DRAINAGE PLAN
16	C51	WQ POND DETAILS
17	C60	UTILITY PLAN
18	C61	UTILITY PROFILE
19	C70	CONSTRUCTION DETAILS
20	C71	EROSION DETAILS
21	C72	UTILITY DETAILS

OWNER FRONTIER BANK 1213 HIGHWAY 290 ELGINI TEXAS 78621

ELGIN, TEXAS 78621 PATRICK JOHNSON (512) 281-1500

SURVEYOR JPH LAND SURVEYING, INC.

1516 E PALM VALLEY BLVD. ROUND ROCK, TX 78664 COLE STREVEY, RPLS (512) 686-1474

ARCHITECT TGS ARCHITECTS

825 WATTERS CREEK BLVD ALLEN, TEXAS 75013 SEAN NEAL (972) 788-1942

ENGINEER HAGOOD ENGINEERING ASSOCIATES, INC.

900 E. MAIN STREET ROUND ROCK, TEXAS 78664 TERRY R. HAGOOD, P.E. (512) 244-1546

ALL RESPONSIBILITY FOR THE AD ENGINEER WHO PREPARED THEA OF WILLIAMSON, TEXAS MUST R THE DESIGN ENGINEER.	DEQUACY OF TH M. IN REVIEWIN ELY UPON THE	HESE PLANS REMAINS N IG THESE PLANS, THE C ADEQUACY OF THE W	WITH THE COUNTY ORK OF
STATE OF TEXAS			
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* * * * M	istort		12/12/2024
TERRY R. HAGOOD			
ACCEPTED FOR CONSTRUCTION BY	ſ:		
Brushy Creek Municipal Utility Di	strict	Date	
SITE PLAN PERMIT NO.			
RECORDED FINAL PLAT DOC. NO.			
METER SERIAL NO.			
UTILITY BILLING ACCOUNT NO.			
WPAP APPROVAL CASE #	11003758	APPROVAL DATE	12/22/2023
		ED	
PUBLIC SIDEWALK STREET CLIRE AND	GLITTER		

IMPERVIOUS CO	VER
PUBLIC SIDEWALK, STREET, CURB AND GUTTER	0 SF
BUILDING FOOTPRINT	6,665.55 SF
PARKING, PRIVATE SIDEWALK	27,928.88 SF
TOTAL	34,594.43 SF
TOTAL AREA OF DISTURBANCE (LOC)	41,480.8 SF

WATER AND WASTEWATER PROVIDER: BRUSHY CREEK MUNICIPAL UTILITY DISTRICT 16318 GREAT OAKS, ROUND ROCK, TX 78681 512-255-7871



		REVISIONS		
NO.	DATE	DESCRIPTION		APPROVED BY
1				
2				
3				
4				
5			_	
		900 E. Main Street Round Rock, TX 78664	JOB NO:	22-001
		Phone (512) 244-1546 Fax (512) 244-1010	DRAWN BY:	AMR
		www.hea.eng.pro TBPE Registration No. F-12709	CHECKED BY:	TRH
		JOB NO. 22-001 © 2023 HEA, Inc.	P.I.C.:	TRH
	HAG	OOD Associates	FILE NO:	22-001 CVR
			DATE:	12/12/2024
			SHEET:	01 OF 21





HAGOOD

900 E. Main Street Round Rock, TX 78664

Phone (512) 244-1546 Fax (512) 244-1010

www.heaeng.com TBPE Registration No. F-12709

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CALCULATIONS EXISTING BUILDING AREA	0 SF									
NEW BUILDING AREA	5,000 SF				s	HEET NO.				
LOT ACREAGE	1.330 AC.						SP			

02



CLAUDE F. HINKLE, JR. REGISTERED PROFESSIONAL LAND SURVEYOR NO. 4629

1-19-96

DATE

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THE STATE OF TEXAS KNOW ALL MEN BY THESE PRESENTS THE COUNTY OF TRAVIS THAT CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP, A TEXAS LIMITED PARTNERSHIP, HAVING ITS HOME OFFICE IN AUSTIN, TEXAS, ACTING HEREIN BY AND THROUGH ITS GENERAL PARTNER, E.W. DEVELOPMENT COMPANY, A TEXAS CORPORATION ADD'L ROW ACTING HEREIN BY AND THROUGH ITS DULY AUTHORIZED PRESIDENT, ED WENDLER. JR Doc# 9619313 .002 AC. BEING THE SOLE OWNER OF 1.232 ACRES OF LAND OUT OF AND A PART OF THE JOHN # Pages: 3 Date : 04-17-1996 Time : 08:36:18 A.M. MCQUEEN SURVEY, ABSTRACT NO. 425, SITUATED IN WILLIAMSON COUNTY, TEXAS Time : 08:36:12 A.M Filed & Recorded in BEING A PORTION OF THAT CERTAIN 184.345 ACRE PARCEL "A" AS CONVEYED BY SPECIAL WARRANTY DEED RECORDED IN VOLUME 2376, PAGE 702 OF THE DEED RECORDS Official Records of WILLIAMSON County, TX. ELAINE BIZZELL OF WILLIAMSON COUNTY, TEXAS, AND EUGENE O. BECK, AN INDIVIDUAL, BEING TH SOLE OWNER OF 3.075 ACRES OF LAND OUT OF AND A PART OF THE JOHN MCQUEEN COUNTY CLERK Rec. \$ 106.00 SURVEY, ABSTRACT NO. 425, SITUATED IN WILLIAMSON COUNTY, TEXAS, BEING A PORTION OF THAT CERTAIN 152.01 ACRE TRACT OF LAND AS CONVEYED BY DEED RECORDED IN VOLUME 558, PAGE 30 OF THE DEED RECORDS OF WILLIAMSON COUNTY TEXAS, DO HEREBY SUBDIVIDE SAID 4.307 ACRES OF LAND PURSUANT TO TITLE 13 OF THE AUSTIN CITY CODE AND CHAPTER 212, TEXAS LOCAL GOVERNMENT CODE, AND IN ACCORDANCE WITH THE ATTACHED MAP OR PLAT, TO BE KNOWN AS CAT HOLLOW SECTION C-COMMERCIAL I AND DO HEREBY JOIN, APPROVE, AND CONSENT TO ALL DEDICATIONS AND PLAT NOTE REQUIREMENTS SHOWN HEREON, AND DO HEREBY APPROVE THE RECORDATION OF THIS SUBDIVISION PLAT AND DEDICATE TO THE PUBLIC USE FOREVER ANY AND ALL EASEMENTS, STREETS AND ROADS THAT ARE SHOWN HEREON, SUBJECT TO ANY EASEMENTS AND/OR RESTRICTIONS HERETOFORE GRANTED AND NOT RELEASED. WE HEREBY ACKNOWLEDGE THAT CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP AND EUGENE O. BECK ARE THE SOLE OWNERS OF THIS PROPERTY AND DO HEREBY STATE THAT THERE ARE NO LIENHOLDERS OR ANY UNPAID DEBT FOR WHICH THIS PROPERTY REPRESENTS COLLATERAL ON ANY LOAN. WITNESS MY HAND THIS THE 12th DAY OF February, 1996 A.D. CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP A TEXAS LIMITED PARTNERSHIP C/O PARKLANE DEVELOPMENT CO. 9171 CAPITOL OF TEXAS HIGHWAY NORTH SUBJECT HOUSTON BUILDING, SUITE 100 TRACT AUSTIN, TEXAS 78759 BY: E. W. DEVELOPMENT COMPANY A TEXAS CORPORATION, GENERAL PARTNER LOCATION MAP ED WENDLER, JR., PRESIDENT NOT TO SCALE WITNESS MY HAND THIS THE _28 DAY OF _ February_, 19.76 A.D. LEGEND IRON PIN FOUND EUGENE O. BECK 15611 RANCH ROAD 620 N. IRON PIN SET 0 AUSTIN, TEXAS 78717 CONCRETE MONUMENT SET BUILDING SETBACK LINE BL. PUBLIC UTILITY EASEMENT PUE BLOCK NUMBER ---- SIDEWALK EUGENE O. BECK, INDIVIDUAL THE STATE OF TEXAS THE COUNTY OF TRAVIS BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED ED WENDLER, JR., PRESIDENT OF E. W. DEVELOPMENT COMPANY, GENERAL PARTNER OF CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND HE ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED. WITNESS MY HAND AND SEAL THIS THE I'R DAY OF February, 19-96, A.D. the Tippile KINBFRLY TAPITT NOTARY PUBLIC IN AND'FOR Notary Public, State of Texas THE STATE OF TEXAS CAT HOLLOW SECTION C-COMMERCIAL Win Wy Commission Expires 02 25-00 CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP OWNERS: MY COMMISSION EXPIRES ON 02/25/00 C/O PARKLANE DEVELOPMENT CO. himberlyTippift HOUSTON BUILDING, SUITE 100 PRINTED NAME OF NOTARY AUSTIN, TEXAS 78759 EUGENE O. BECK 15611 RANCH ROAD 620 N. AUSTIN, TEXAS 78717 THE STATE OF TEXAS ACREAGE: 4.307 ACRES JOHN MCQUEEN SURVEY, A-425 SURVEY: THE COUNTY OF TRAVIS 1 BLOCKS 4 LOTS NO NEW STREETS BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED EUGENE O. BECK, AND INDIVIDUAL, KNOWN TO ME TO BE THE PERSON WHOSE NAME IS OCTOBER, 1995 DATE ALISTIN SURVEYORS P. O. BOX 180243 SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND HE ACKNOWLEDGED TO ME THAT HE AUSTIN, TEXAS 78757 EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED AND GRAY ENGINEERING, INC. ENGINEER: IN THE CAPACITY THEREIN STATED. 8217 SHOAL CREEK BLVD., SUITE 100 AUSTIN, TEXAS 78757-7592 WITNESS MY HAND AND SEAL THIS THE 28 DAY OF February 19 76, A.D. Maron & Longer THE STATE OF TEXAS CAT HOLLOW MY COMMISSION EXPIRES ON 12-12-99 L/Lopez Tharon SECTION C-COMMERCIAL I PRINTED NAME OF NOTARY SHEET 1 OF 3 CT NO: 1210-7405-14 DESIGNED BY: MEW 7405PLT1.DWG DRAWN BY: MEW OCTOBER, 1995 CHECKED BY: DWG 1" = 100' REVISED BY: GRAY ENGINEERING, INC. Consulting Engineers 8217 Shoal Creek Blvd., Suite 100 Austin, Texas 76757-7592 C8-94-0233.1A (512)452-0371 FAX(512)454-9933

CAT HOLLOW SECTION C-COMMERCIAL I

GENERAL NOTES:







- 1. ALL STREETS, DRAINAGE, SIDEWALKS, EROSION CONTROL, AND WATER AND WASTEWATER LINES SHALL BE CONSTRUCTED AND INSTALLED TO CITY OF AUSTIN STANDARDS. NO LOT IN THIS SUBDIVISION SHALL BE OCCUPIED UNTIL CONNECTION IS MADE TO THE BRUSHY CREEK MUNICIPAL UTILITY DISTRICT WATER AND WASTEWATER SYSTEM.
- AN EROSION/SEDIMENTATION CONTROL PLAN PURSUANT TO LDC SECTION 13-7-14 IS REQUIRED FOR ALL CONSTRUCTION, INCLUDING SINGLE FAMILY HOMES IN THIS SUBDIVISION. 4. PRIOR TO CONSTRUCTION, EXCEPT DETACHED SINGLE FAMILY ON ANY LOT IN THIS
- SUBDIVISION, A SITE DEVELOPMENT PERMIT MUST BE OBTAINED FROM THE CITY OF AUSTIN.
- WATER AND WASTEWATER SYSTEMS SERVING THIS SUBDIVISION SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CITY OF AUSTIN AND STATE HEALTH DEPARTMENT PLANS AND SPECIFICATIONS. PLANS AND SPECIFICATIONS SHALL BE SUBMITTED TO THE CITY OF AUSTIN, WATER AND WASTEWATER DEPARTMENT, FOR REVIEW AND APPROVAL .
- 6. THE OWNER OF THIS SUBDIVISION, AND HIS OR HER SUCCESSORS AND ASSIGNS ASSUMES RESPONSIBILITY FOR PLANS FOR CONSTRUCTION OF SUBDIVISION IMPROVEMENTS WHICH COMPLY WITH APPLICABLE CODES AND REQUIREMENTS OF THE CITY OF AUSTIN. THE OWNER UNDERSTANDS AND ACKNOWLEDGES THAT PLAT VACATION OR REPLATTING MAY BE REQUIRED, AT THE OWNER'S SOLE EXPENSE, IF PLANS TO CONSTRUCT THIS SUBDIVISION DO NOT COMPLY WITH SUCH CODES AND REQUIREMENTS THIS SUBDIVISION PLAT WAS APPROVED AND RECORDED BEFORE THE CONSTRUCTION AND ACCEPTANCE OF STREETS AND OTHER SUBDIVISION IMPROVEMENTS. PURSUANT TO THE TERMS OF A SUBDIVISION IMPROVEMENTS AGREEMENT BETWEEN THE SUBDIVIDER AND THE CITY OF AUSTIN, DATED RESPONSIBLE FOR THE CONSTRUCTION OF ALL IMPROVEMENTS NEEDED TO SERVE THE LOTS WITHIN THE SUBDIVISION. THIS RESPONSIBILITY MAY BE ASSIGNED IN ACCORDANCE WITH THE TERMS OF THAT AGREEMENT. FOR THE SUBDIVISION IMPROVEMENTS AGREEMENT PERTAINING TO THIS SUBDIVISION, SEE SEPARATE INSTRUMENT RECORDED IN DOCUMENT NO. 9619313 IN THE DEED RECORDS OF
- WILL/IAMSON COUNTY, TEXAS. WATER AND WASTEWATER SERVICE FOR THIS SUBDIVISION WILL BE PROVIDED BY BRUSHY CREEK MUNICIPAL UTILITY DISTRICT.
- PUBLIC SIDEWALKS, BUILT TO CITY OF AUSTIN STANDARDS, ARE REQUIRED ALONG THE SUBDIVISION SIDE OF O'CONNOR DRIVE, AND AS SHOWN BY A DOTTED LINE ON THE FACE OF THE PLAT. THESE SIDEWALKS SHALL BE IN PLACE PRIOR TO THE LOT BEING OCCUPIED. FAILURE TO CONSTRUCT THE REQUIRED SIDEWALKS MAY RESULT IN THE WITHHOLD NG OF CERTIFICATE OF OCCUPANCY, BUILDING PERMITS, OR UTILITY CONNECTIONS BY THE GOVERNING BODY OR UTILITY COMPANY. 10. ALL DWELLINGS, TRAILERS, OR MOBILE HOMES PLACED ON SUBDIVISION LOTS OF
- RANCHETTES MUST BE CONNECTED TO SEPTIC TANKS OR DISPOSAL FACILITIES MEETING THE SPECIFICATIONS AND CONDITIONS OF THE STATE DEPARTMENT OF HEALTH AND THE PRIVATE SEWAGE FACILITY REGULATIONS APPLICABLE TO WILLIAMSON COUNTY AS OF THE DATE OF INSTALLATION.
- THIS SUBDIVISION IS LOCATED WITHIN THE BOUNDARIES OF THE BRUSHY CREEK MUNICIPAL UTILITY DISTRICT. WATER AND WASTEWATER SERVICE TO THIS SUBDIVISION WILL BE PROVIDED BY THE DISTRICT IN ACCORDANCE WITH ITS RATE ORDER, AS AMENDED. ALL CONSTRUCTION PLANS FOR WATER, WASTEWATER, AND STORM DRAINAGE IMPROVEMENTS MUST BE PRESENTED TO THE DISTRICT AND APPROVED BY THE DISTRICT'S ENGINEER PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES. ALL WATER, WASTEWATER, AND STORM DRAINAGE IMPROVEMENTS MAY BE INSPECTED BY THE DISTRICT
- 12. THIS SUBDIVISION IS SUBJECT TO THE AGREEMENT CONCERNING CREATION AND OPERATION OF THE BRUSHY CREEK MUNICIPAL UTILITY DISTRICT (MUD CONSENT AGREEMENT) AND SHALL BE DEVELOPED AND MAINTAINED IN ACCORDANCE WITH SAID AGREEMENT. IN ACCORDANCE WITH THE MUD CONSENT AGREEMENT, RESTRICTIVE COVENANTS FOR THIS SUBDIVISION ARE RECORDED IN DOCUMENT NO. OF THE DEED RECORDS OF WILLIAMSON COUNTY.
- 13. THIS SUBDIVISION IS LOCATED WITHIN THE LAKE CREEK WATERSHED, WHICH IS CLASSIFIED AS A WATER SUPPLY SUBURBAN CLASS III WATERSHED AND HAS BEEN REVIEWED AND APPROVED AS A PROJECT EXEMPT UNDER LDC SECTION 13-2-502-(B)(2) DUE TO APPROVAL OF BRUSHY CREEK M.U.D. (FORMERLY WILLIAMSON COUNTY M.U.D. NO. 2) LAND PLAN PRIOR TO 5/18/86 AND SUBJECT TO THE TERMS AND CONDITIONS OF SAID LAND PLAN.
- 14. IT IS THE RESPONSIBILITY OF THE DEVELOPER-OWNER, NOT THE COUNTY, TO ASSURE COMPLIANCE WITH THE PROVISIONS OF ALL APPLICABLE STATE, FEDERAL AND LOCAL LAWS AND REGULATIONS RELATING TO THE ENVIRONMENT, INCLUDING (BUT NOT LIMITED TO) THE ENDANGERED SPECIES ACT, STATE AQUIFER REGULATIONS, AND MUNICIPAL WATERSHED REGULATIONS.
- 15. ALL PUBLIC ROADWAYS AND EASEMENTS AS SHOWN ON THIS PLAT ARE FREE OF LIENS. 16. OFF-STREET LOADING AND UNLOADING FACILITIES SHALL BE PROVIDED ON ALL COMMERCIAL AND INDUSTRIAL LOTS.

CAT HOLLOW SECTION C-COMMERCIAL SHEET 2 OF 3

OCTOBER, 1995 CHECKED BY: DWG



REVISED BY: GRAY ENGINEERING, INC. Consulting Engineers 8217 Shoal Creek Blvd., Suite 100 Austin, Texas 78757-7592 (512)452-0371 FAX(512)454-9933

C8-94-0233.1A

SECTION CAT HOLLOW

DETENTION NOTE:

PRIOR TO CONSTRUCTION ON LOTS IN THIS SUBDIVISION, DRAINAGE PLANS WILL BE SUBMITTED TO THE CITY OF AUSTIN FOR REVIEW. RAINFALL RUN-OFF SHALL BE HELD TO THE EXISTING 10, 25 AND 100 YEAR FLOW RATE AT UNDEVELOPED STATUS BY PONDING OR OTHER APPROVED METHODS.

THIS IS TO CERTIFY THAT I AM AUTHORIZED TO PRACTICE THE PROFESSION OF ENGINEERING IN THE STATE OF TEXAS; THAT I PREPARED THE PLAT SUBMITTED HEREWITH; THAT ALL INFORMATION SHOWN THEREON IS ACCURATE AND CORRECT TO THE BEST OF MY KNOWLEDGE AS RELATED TO THE ENGINEERING PORTIONS THEREOF; AND THAT SAID PLAT COMPLIES WITH TITLE 13 OF THE AUSTIN CITY CODE OF 1981, AS AMENDED, AND ALL OTHER APPLICABLE CODES AND ORDINANCES.

ALL ENGINEERING WORK FOR THE ROADS AND DRAINAGE (INCLUDING DRIVEWAY DRAIN PIPES) WITHIN THIS SUBDIVISION WILL BE COMPLETED IN COMPLIANCE WITH THE WILLIAMSON COUNTY SUBDIVISION REGULATIONS (INCLUDING THE ENGINEERING GUIDELINES INCORPORATED AS APPENDIX B) AND WITH ALL GENERALLY ACCEPTED ENGINEERING STANDARDS.

I DAVID W. GRAY, A REGISTERED PROFESSIONAL ENGINEER DO HEREBY ATTEST TO THE FOLLOWING:

- 1. THE 100 YEAR FLOOD PLAIN IS CONTAINED WITHIN THE DRAINAGE EASEMENTS SHOWN HEREON. NO PORTION OF THIS TRACT IS WITHIN THE BOUNDARIES OF THE 100 YEAR FLOOD PLAIN OF ANY WATERWAY THAT IS WITHIN THE LIMITS OF STUDY OF THE FEDERAL FLOOD INSURANCE ADMINISTRATION FIRM COMMUNITY PANEL NUMBER 48491C 0330 C, DATED SEPTEMBER 27, 1991, FOR WILLIAMSON COUNTY, TEXAS.
- 2. NO BUILDINGS, FENCES, LANDSCAPING OR OTHER STRUCTURES ARE PERMITTED IN DRAINAGE EASEMENTS EXCEPT AS APPROVED BY THE CITY OF AUSTIN/WILLIAMSON COUNTY.
- 3. ALL DRAINAGE EASEMENTS ON PRIVATE PROPERTY SHALL BE MAINTAINED BY THE PROPERTY OWNER OR HIS ASSIGNS. 4. PROPERTY OWNER SHALL PROVIDE FOR ACCESS TO DRAINAGE EASEMENTS AS MAY
- BE NECESSARY AND SHALL NOT PROHIBIT ACCESS BY GOVERNMENTAL AUTHORITIES FOR INSPECTION OF SAID EASEMENT. 5. NO STRUCTURE OR LAND ON THIS PLAT SHALL HEREAFTER BE LOCATED OR
- ALTERED WITHOUT FIRST SUBMITTING A CERTIFICATE OF COMPLIANCE DEVELOPMENT PERMIT (CCDP) APPLICATION FORM TO THE WILLIAMSON COUNTY FLOOD PLAIN ADMINISTRATOR.
- 6. THIS SUBDIVISION IS LOCATED WITHIN THE EDWARD'S AQUIFER RECHARGE ZONE. NO CONSTRUCTION IN THE SUBDIVISION MAY BEGIN UNTIL THE TEXAS WATER COMMISSION HAS APPROVED, IN WRITING, THE POLLUTION ABATEMENT PLAN. 7. THIS SUBDIVISION HAS 0-15% SLOPES. NO SLOPES IN THIS SUBDIVISION
- EXCEED 15% GRADIENT. 8. NO LOT WITHIN THIS SUBDIVISION IS ENCROACHED BY ANY SPECIAL FLOOD
- HAZARD AREAS INUNDATED BY 100 YEAR FLOOD AS IDENTIFIED BY THE U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY BOUNDARY MAP, (FLOOD INSURANCE RATE MAP), COMMUNITY PANEL NUMBER 48491C 0330 C, EFFECTIVE DATE, SEPTEMBER 27, 1991, FOR WILLIAMSON COUNTY, TEXAS.

WITNESS MY HAND THIS	DAY OF, 19_96 A.D.
STATE OF TET 70	GRAY ENGINEERING, INC. 8217 SHOAL CREEK BLVD., SUITE 100 AUSTIN TEXAS 78758
DA 10 14 45754	DAVID W. GRAY, REGISTERED PROFESSIONAL ENGINEER NO. 49754

WILLIAMSON COUNTY AND CITIES HEALTH DISTRICT APPROVAL

BASED UPON THE REPRESENTATIONS OF THE ENGINEER OR SURVEYOR WHOSE SEAL IS AFFIXED HERETO, AND AFTER A REVIEW OF THE PLAT AS REPRESENTED BY THE SAID ENGINEER OR SURVEYOR, I FIND THAT THIS PLAT COMPLIES WITH THE REQUIREMENTS OF EDWARD'S AQUIFER REGULATIONS FOR WILL AMSON COUNTY, THE WILLIAMSON COUNTY FLOOD PLAIN REGULATIONS, AND WILLIAMSON COUNTY ON-SITE SEWERAGE FACILITY REGULATIONS, THIS CERTIFICATION IS MADE SOLELY UPON SUCH REPRESENTATIONS AND SHOULD NOT BE RELIED UPON FOR VERIFICATIONS OF THE FACTS ALLEGED. THE WILLIAMSON COUNTY AND CLTIES HEALTH DISTRICT AND WILLIAMSON COUNTY DISCLAIMS ANY RESPONSIBILITY TO ANY MEMBER OF THE PUBLIC FOR INDEPENDENT VERIFICATION OF THE REPRESENTATIONS, FACTUAL OR OTHERWISE, CONTAINED IN THIS PLAT AND THE DOCUMENTS ASSOCIATED WITH IT.

Janlo Julo RS 1/19/96 DATE PAULO PINTO NOTE:

CAT HOLLOW DEVELOPMENT LIMITED PARTNERSHIP HAS REQUESTED THE RELACE OF CAT HOLLOW SECTION C - COMMERCIAL I SUBDIVISION PLAT. PURSUANT TO THE PROVIDIONS OF SENATE SILL ISTS WHICH ENTABLISHED SUBCHAPTER B, CHAPTER 64, WATER CODE, OF THE TEXAS LOCAL GOVERNMENT CODE, THE GTY OF AUSTIN NO LONGTER HAS ANY RECULATORY OR OVERSIGNET JURISDICTION OF ANY LAND USE OR SITE PLANS, RESPECTIVE COVENANTS, THE PROVISION OF PRAINVARE AND SOLID WASTE DISPOSAL SERVICE, THE RECULATION OF SELVICION OF PRAINVARE CONTRAL AND ARATEMENT OF WATER FOLLUTION. THE PROHIBITION OF PRAINVAL CONTROL AND ADATEMBAT OF WATER FOLLUTION, THE PROHIBITION OF POLLUTION AND POLLUTION AND POLLUTION AND POLLUNG OF WATER SUPPLY OR THE PROTOCTION AND POLLUNG OF WATER SUPPLY OR THE PROTOCTION AND POLLUNG OF WATER SUPPLY OR THE PROTOCTION AND POLLUNG OF

THE CITY OF AUSTIN NO CONCIER HAG ANY AUTHORITY TO ENFORCE THE PLAT NOTES ON THE CAT HOLLOW SECTION C - COMMERCIAL I PLAT. BY RELEASING THIS PLAT THE CITY of Aubring 14 Making no representations regarding the enforceably ty of THE PLAT NOTES CONTAINED IN CAT HOLLOW SECTION C - COMMERCIAL I .

	_
C-COMMERCIAL I	
APPROVED FOR ACCEPTANCE	
3/19/96 AUGE GLASCO, Juny For DATE DATE DEPARTMENT OF REANNING AND DEVELOPMENT	
ACCEPTED AND AUTHORIZED FOR RECORD BY THE PLANNING COMMISSION OF THE CITY OF AUSTIN ON THE 23 rd DAY OF annual And 19 96 A.D.	
MICHAEL A. RIVERA, CHAIRPERSON J.C. "Puth" McCrie CATHY VASQUEZ-REVILLA, SECRETARY	
WILLIAMSON COUNTY COMMISSIONERS COURT RESOLUTION AND APPROVAL PRIOR TO GRADING, ANY TYPE OF EARTH MOVING, CONSTRUCTION OF, ON OR UNDER	
THE LAND IN THIS SUBDIVISION, A DRAINAGE PLAN DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER SHALL BE SUBMITTED FOR THE PROPOSED DEVELOPMENT, AND MODIFICATION THEREOF TO THE CITY OF AUSTIN AND COMMISSIONER'S COURT OF WILLIAMSON COUNTY FOR REVIEW AND APPROVAL. IT IS FURTHER UNDERSTOOD	
THAT THE ENFORCEMENT OF THE PLAT RESPRICTIONS IS THE RESPONSIBILITY OF THE DEVELOPER-OWNER: HOWEVER, THE CITY OF AUSTIN AND THE COMMISSIONER'S COURT OF WILLIAMSON COUNTY SHALL HAVE THE RIGHT AND AUTHORITY TO ENFORCE THE PLAT RESTRICTIONS THROUGH APPROPRIATE LEGAL PROCEDURE TO PROHIBIT	
OR UNTIL THE REQUIREMENTS OF THE PLAT RESTRICTIONS HAVE BEEN ACHIEVED.	$\left(\right)$
ED WENDLER, JR., PRESIDENT E. W. DEVELOPMENT CO., GENERAL PARTNER CAT HOLLOW ASSOCIATES LIMITED PARTNERSHIP	
BY: <u>Eugene O Beck</u> EUGENE O. BECK, INDIVIDUAL	1 0 e
IN APPROVING THIS PLAT BY THE COMMISSIONERS COURT OF WILLIAMSON COUNTY, TEXAS, IT IS UNDERSTOOD THAT THE BUILDING OF ALL STREETS, ROADS AND OTHER RUBLIC THOROUGHFARES AND ANY BRIDGES OR CULVERTS NECESSARY TO BE	H
CONSTRUCTED OR PLACED IS THE RESPONSIBILITY OF THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT IN ACCORDANCE WITH PLANS AND SPECIFICATIONS PRESCRIBED BY THE COMMISSIONERS' COURT OF WILLIAMSON COUNTY, TEXAS. SAID COMMISSIONERS' COURT ASSUMES NO OBLIGATION TO BUILD OR MAINTAIN ANY OF	3
THE STREETS, ROADS OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT OR OF CONSTRUCTING ANY OF THE BRIDGES OR CULVERTS IN CONNECTION THEREWITH. IT IS FURTHER UNDERSTOOD THAT UPON COMPLETION OF THE AFORESAID OBLIGATIONS OF THE DEVELOPER AND EITHER 60% OCCUPANCY OF THE LOTS ALONG OBLIGATIONS OF THE DEVELOPER AND EITHER 60% OCCUPANCY OF THE LOTS ALONG	
THE ROADWAYS AND STREETS IN THE SUBDIVISION HAS BEEN ACHTEVED OR THE EXPIRATION OF 2 YEARS FROM THE DATE OF COMPLETION, AND ALL DRIVEWAY DRAINPIPES HAVE BEEN INSTALLED, ON WRITTEN PERMISSION FROM THE COUNTY COMMISSIONERS' COURT, THE COUNTY WILL ASSUME FULL RESPONSIBILITY FOR	
MAINTENANCE OF SATD STREETS AND ROADS. THE COUNTY WILL ASSUME NO RESPONSIBILITY FOR DRAINAGE WAYS OR EASEMENTS IN THE SUBDIVISION, OTHER THAN THOSE DRAINING OR PROTECTING THE ROAD SYSTEM AND STREETS.	
THE COUNTY ASSUMES NO RESPONSIBILITY FOR THE ACCORACT OF REPRESENTATIONS BY OTHER PARTIES IN THIS PLAT. FLOOD PLAIN DATA, IN PARTICULAR, MAY CHANGE DEPENDING ON SUBSEQUENT DEVELOPMENT.	
THIS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF EARD COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE STREETS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE COUNTY.	
THE STATE OF TEXAS THE COUNTY OF WILLIAMSON	00
I, JOHN C. DOERFLER, COUNTY JUDGE OF WILLIAMSON COUNTY, TEXAS, DO HEREBY CERTIFY THAT THIS MAP OR PLAT, WITH WRITTEN FIELD NOTES SHOWN HEREON, AND THE SURVEYOR'S CERTIFICATE APPEARING HEREON, KNOWN AS "CAT HOLLOW SECTION C-COMMERCIAL I", HAVING BEEN DULY PRESENTED TO THE COMMISSIONERS	w
COURT OF WILLIAMSON COUNTY, TEXAS, AND BY SAID COURT WAS DULY CONSIDERED, WAS ON THIS DAY APPROVED, AND SAID PLAT IS AUTHORIZED TO BE REGISTERED AND RECORDED IN THE PROPER RECORDS OF THE COUNTY CLERK OF WILLIAMSON COUNTY, TEXAS.	
4.2.96 DATE JOHN C. DOERFLEF, COUNTY JUDGE,	
THE STATE OF TEXAS THE COUNTY OF WILLIAMSON	
I, ELAINE BIZZELL, CLERK OF THE COUNTY COURT, WITHIN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT OF WRITING, WITH ITS CERTIFICATE OF AUTHENTICATION, WAS FILED FOR RECORD IN NAME OF A DAY OF 19 THE ADD AVE	
AT O'CLOCK M., AND WAS DULY RECORDED ON THIS THE DAY OF, 1946_ A.D., AT O'CLOCK M., IN THE PLAT RECORDS OF SAID COUNTY IN CABINET, SLIDES 373, 373 + 374.	
WITNESS MY HAND AND SEAL OF THE COUNTY COURT OF SAID COUNTY, AT MY OFFICE IN. OFFICETOWN, TEXAS, THE LAST DATE WRITTEN ABOVE.	
BY: BY: BY: BY: BY: BY: BY: BY:	
CAT HOLLOW SECTION C-COMMERCIAL I	
SHEET 3 OF 3 PROJECT NO: 1210-7405-14 DESIGNED BY: MEW FILE NO: 7405PLT3.DWG DRAWN BY: MEW DATE: OCTOBER 1995 CHECKED BY: DWG	
SCALE: REVISED BY: GRAY ENGINEERING, INC. Consulting Engineers	1
C8-94-0233.1A	





Lot 86, Block D, CAT HOLLOW SECTION C-COMMERCIAL I, an addition to the City of Round Rock, Williamson County, Texas, according to the plat recorded in Cabinet M, Slide 372, Plat Records of Williamson County, Texas.

SURVEYOR'S NOTES:

1. The first site benchmark (TBM #1) is a mag nail with metal washer stamped "JPH BENCHMARK" set in a concrete curb on the subject property, and located approximately 410 feet westerly from the intersection of O'Connor Drive and F.M. 620, and approximately 156 feet southwesterly from the southwest right-of-way line of O'Connor Drive. Benchmark Elevation = 810.79' (NAVD'88). See vicinity map for general location.

The second site benchmark (TBM #2) is a mag nail with metal washer stamped "JPH BENCHMARK" set in a concrete curb running along the southwest line of the subject property, and located approximately 580 feet southwesterly from the intersection of O'Connor Drive and F.M. 620, and approximately 272 feet southwesterly from the southwest right-of-way line of O'Connor Drive. Benchmark Elevation = 814.34' (NAVD'88). See vicinity map for general location.

- 2. Subject property's record description's error of closure: 0.00'
- 3. The site surface is natural ground/dirt, unless noted otherwise.
- 4. Improvements and topographic data was only collected over a portion of the subject property, as directed by client.
- 5. This survey was performed without the benefit of a title commitment. Complete copies of the record description of the property, any record easements benefiting the property, the record easements or servitudes and covenants affecting the property ("Record Documents"), documents of record referred to in the Record Documents, and any other documents containing desired appropriate information affecting the property being surveyed and to which the survey shall make reference were not provided to this surveyor for notation on the survey. Therefore, easements, agreements, or other documents, either recorded, or unrecorded may exist that affect the subject property that are not shown on this survey.

Chris Henderson **Registered Professional** Land Surveyor No. 6831 Chris@jphls.com March 24, 2022





HEA PROJECT NO.22-001 ISSUED DATE: 12/12/2024

SURVEY





HYDI	ROLC	OGIC SUMM	ARY for	DA ONSITE (P	RE-EXIS	STING	WITH ,	ATLAS Î	4 RAINI	FALL D	DATA)	
		TR-55 SCS Lag T	ime (hours)					Flow Sum	mary			
Segment #1		Segment #2		Segment #3		Area	Tc	Cn	Q2	Q10	Q25	Q100
Sheet Flow		Shallow Concent		Channelized		acres	hours	-	cfs	cfs	cfs	cfs
Mannings "n"	0.15	Unpaved	YES	Mannings "n"	0	0.58	0.214	69	2.65	5.09	6.72	9.43
Length (ft)	100	Length (ft)	578	Length (ft)	0							
Slope (%)	2	Slope (%)	2	Slope (%)	0	Imperv	rious Cov	er % =	32.92%			
2-yr, 24 hr rainfall	3.96			Velocity (fps)	0							
segment total	0.144	segment total	0.07	segment total	0							
USER DEFINED				time of conc.(hrs)	0.214	SCS Lag	Time (.	6 x Tc)=	0.1284	7.704	minutes	

SHALLOW

Time of Concentration .214

1. THIS SHEET IS INCLUDED FROM RECORD PLAN SET FOR PRE-EXISTING CONDITIONS ANALYSIS.

MAP

EDA '

SHEET NO.

2. NO SURVEY DATA IS AVAILABLE FOR THE SITE PRIOR TO EXISTING IMPROVEMENTS BEING CONSTRUCTED.



- 1. THIS DEVELOPMENT IS PART OF FIRST TEXAS BANK O'CONNOR BRANCH
- DATED MAY 1996.
 PLEASE REF, SHEET 08 DDA 2 FOR DRAINAGE AREA SUMMARY TABLES.
 HEC-HMS V4.9 WAS UTILIZED FOR THE HYDROLOGIC ANALYSIS AND
- MODEL WAS PROVIDED TO WILLIAMSON COUNTY FOR THIS DEVELOPMENT.
 4. NOAA ATLAS 14 RAINFALL DATA PER WILLIAMSON COUNTY SUBDIVISION REGULATIONS (VERSION - DEC 7, 2021) EXHIBIT-2 WAS UTILIZED FOR HYDROLOGIC ANALYSES. CURVE NUMBER OF 79 AND 69 FOR SOIL CROLINE DAY/OF ASSUMED DETAY/FEN EX/051000 DETA/OFD
- GROUP B WAS ASSUMED BETWEEN EXISTING AND DEVELOPED CONDITIONS.
 EXISTING DETENTION POND ONSITE IS UTILIZED WITH MODIFIED OUTLET STOLICTURE (SEE DETAIL OF (CED) TO UNIT STORIUMATED RELEASE TO
- STRUCTURE (SEE DETAIL 02/C50) TO LIMIT STORMWATER RELEASE TO EXISTING CONDITIONS.
 NO OFFSITE RUN-OFF IS ROUTED THROUGH EXISTING DETENTION POND.

DEVELOPED CONDITIONS DRAINAGE SUMMARY							
Area No.	Area (SF)	Acres	%IC	Tc (Minutes)	Rema		
DA A	9,305.50	0.21	87.21%	6			
DA B	9,612.82	0.22	82.54%	6			
DA C-1	3,391.61	0.08	100.00%	6			
DA C-2	9,557.37	0.22	67.37%	6			
DA C-3	6,925.15	0.16	24.79%	6			
DA C-4	6021.080	0.140	93.52%	6			
Total	44,813.53	1.03					

emarks

Texas Cor	mmission on Environmental Quality								
TSS Remov	al Calculations 04-20-2009			Project Name: Date Prepared:	FRONTIEI 6/30/2022	R BANI		LEASE	BUILDI
Additional i	nformation is provided for cells with a red triand	le in the un	per right o	orner Place the	CUISOF OVE	r the c	ماا		
Text shown i	n blue indicate location of instructions in the Technica	al Guidance I	Vanual - R	G-348.	cursorove	er une c			
Characters	shown in black (Bold) are calculated fields. Cha	anges to the	ese fields	will remove the e	quations u	sed in f	the sprea	dsheet.	
1. The Require	ed Load Reduction for the total project:	Calculations fr	om RG-348		Pages 3-27 t	o 3-30			
	Page 3-29 Equation 3.3: L _M =	27.2(A _N x P)							
where:		Required TSS	removal resu	liting from the propose	d developmen	t = 80%	of increased	load	
where.	LM TOTAL PROJECT -	Net increase in	n impervious	area for the project	a developmen	L - 00% (ormoreased	load	
	P =	Average annua	al precipitatio	on, inches					
Site Data:	Determine Required Load Removal Based on the Entire Projection County =	ct Williamson	•						
F	Total project area included in plan * = Predevelopment impervious area within the limits of the plan * =	1.33 0.00	acres acres						
Total po	ost-development impervious area within the limits of the plan* = Total post-development impervious cover fraction * =	0.78 0.59	acres						
	P =	32	inches						
* The values	LM TOTAL PROJECT =	682	lbs.						
The values									
Nu	mber of drainage basins / outfalls areas leaving the plan area =	3							
2 Drainage B	asin Parameters (This information should be provided for	each basin) [.]							
z. Dramage D									
	Total drainage Basin/Outrali Area No. =	A,B, C-2							
Prede	evelopment impervious area within drainage basin/outfall area =	0.65	acres						
Post-de Post-deve	evelopment impervious area within drainage basin/outfail area = lopment impervious fraction within drainage basin/outfail area =	0.54	acres						
	Lm this basin =	470	lbs.						
3. Indicate the	proposed BMP Code for this basin.								
	Proposed BMP = Removal efficiency =	Sand Filter 89	percent						
					Aqualogic Ca Bioretention	ntridge Fi	ilter		
					Contech Stor Constructed	mFilter Wetland			
					Extended De Grassy Swal	tention e			
					Retention / Ir Sand Filter	rigation			
					Stormceptor	ter Strins	2		
					Vortechs Wet Basin				
4. Coloulate M	avimum TSS Load Removed //) for this Drainage Basin	by the coloct			Wet Vault				
4. Calculate IV		by the select		<u>e.</u>					
	RG-348 Page 3-33 Equation 3.7: $L_R =$	(BMP efficienc	⊳y) x P x (A _l	x 34.6 + A _P x 0.54)					
where:	A _C = A ₁ =	Total On-Site	drainage area a proposed i	a in the BMP catchme n the BMP catchment	nt area area				
	A _P =	Pervious area	remaining in	the BMP catchment a	rea				
	L_R =	ISS Load rem	loved from th	is catchment area by t	he proposed I	змр			
	A _C = A ₁ =	0.65	acres acres						
	A _P =	0.11	acres						
	L _R –	534	BS						
5. Calculate F	raction of Annual Runoff to Treat the drainage basin / ou	ttall area							
	Desired L _{M THIS BASIN} =	472	lbs.						
	F =	0.88							
6. Calculate C	apture Volume required by the BMP Type for this drainag	ge basin / outf	all area.	Calculations from RG	-348	Pages 3	3-34 to 3-36		
	Rainfall Depth =	1.50	inches						
	Post Development Runoff Coefficient =	0.67	cubic feet						
		Calculations fr	rom RG-348	Pages 3-36 to 3-37					
	Off-site area draining to BMP =		acres						
	Impervious fraction of off-site area =	0							
	Off-site Water Quality Volume =	0	cubic feet						
	Storage for Sediment =	473							
Total Ca The following	apture Volume (required water quality volume(s) x 1.20) = sections are used to calculate the required water quality	2839 volume(s) for	cubic feet	d BMP.					
The values for 7. Retention/In	r BMP Types not selected in cell C45 will show NA rrigation System	Designed as F	Required in R	G-348	Pages 3-42 t	o 3-46			
	Required Water Quality Volume for retention basin =	NA	cubic feet						
	Irrigation Area Calculations:								
	Soil infiltration/permeability rate =	0.1	in/hr	Enter determined p	ermeability	rate or a	ssumed va	lue of 0.1	
	Irrigation area =	NA NA	square feet acres						
8. Extended D	etention Basin System	Designed as F	Required in R	G-348	Pages 3-46 t	o 3-51			
	Required Water Quality Volume for extended detention basin =	NA	cubic feet						
9. Filter area 1	for Sand Filters	Designed as F	Required in R	G-348	Pages 3-58 t	o 3-63			
	9A. Full Sedimentation and Filtration System								
	Water Quality Volume for sedimentation basin =	2839	cubic feet						
	Minimum filter beein area =	131							
	Maximum colimontation basin area =	101	Square feet	For minimum wet	r depth of 0.4	Det			
	Minimum sedimentation basin area = Minimum sedimentation basin area =	296	square reet	For maximum wate	r depth of 21	feet			
	OB Dartial Sodimontation and Filter the Sol								
		0000	ou bie t						
	vvater quality volume for combined basins =	2839	cubic feet						
	Minimum filter basin area =	237	square feet						
	Maximum sedimentation basin area = Minimum sedimentation basin area =	946 59	square feet	For minimum wate For maximum wate	r depth of 2 f er depth of 8	eet feet			

Elevation (ft.)	De pth (ft.)	Accumul.	Volume (acft.)	Accumul.	Outflow (cfs)	Remarks
		De pth (ft.))	Volume		
804.55	0	0	0.00	0.00	0.00	
805	0.45	0.45	0.00	0.00	0.25	
806.73	1.73	2.18	0.04	0.04	2.66	2 yr
806.97	0.24	2.42	0.05	0.09	3.12	
807.37	0.4	2.82	0.08	0.17	3.93	10 yr
807.57	0.2	3.02	0.09	0.26	4.34	
807.78	0.21	3.23	0.10	0.27	4.80	25 yr
807.9	0.12	3.35	0.11	0.37	5.08	
808.17	0.27	3.62	0.13	0.40	8.59	100 yr

Splitter Box	
W/S elev	

bottom Q=cA(2gh)^ Q25(req)

Q(total) Splitter Box

Q (single)

Allowable he Length =

Q=c(L-.2h)h/ Q100(req) Q(calc)

L SHARMA							
		Wil	liamson Coun	ty, Texas	3		
Sub-Area Time of Concentration Details							
Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
DA A SHEET SHALLOW	100 105	0.0244 0.0110	0.011 0.025				0.016 0.014
				Ti	me of Concer	ntration =	0.100
DAB							
SHEET SHALLOW	100 86	0.0204 0.0175	0.011 0.025				0.018 0.009
				Ti	me of Concer.	ntration =	0.100
DA C-1							
SHEET	42	0.0126	0.011				0.011
				Ti	me of Concer	ntration =	0.100
DA C-2 SHEET	100	0.0307	0.011				0.015
SHALLOW	38	0.0113	0.025				0.005
				Ti	me of Concer.	ntration =	0.100
DA C-3							
SHEET SHALLOW	100 130	0.0205 0.0073	0.011 0.025				0.018 0.021
				Ti	me of Concer	ntration _	0.100
						=	
SHEET SHALLOW	100 118	0.0187 0.0162	0.011 0.025				0.018 0.013
				Ti	me of Concer.	ntration =	0.100
DA D SHEET	24	0.0200	0.150				0.046
				Ti	me of Concer	ntration _	0.100
						=	

Orifices t	o Water Qu	ality				
809.70		C =	0.60		Elevation	
806.50		g =	32.20		Elevation	_
		H =	3.45		806.5	
<u>`.5</u>		AREA	0.50		807	
2.46	cfs	length =	1.00		808	
4.47	cfs	height =	0.50		809	
17.89	cfs	quantity =	4.00		809.7	
Weir to D	etention					
ead =	0 25		c =	3 60	Elevation	
	20.00		- Wier Elev	809.70	806.3	
					807	
n^1.5	Sharp Cres	sted with er	nd contracti	ons	808	
5.00	cfs				809	
8.98	cfs				809.7	
5.00 8.98	cfs cfs	stea with er			808 809 809.7	-

	Sedimer	ntation Pond	Stage-Storage	
	Ar	ea	Avg. End Area	Accumulated
evation	S.F.	AC.	Method	Volume
806.5	545.05	0.01	-	-
807	580.33	0.01	281.35	281.35
808	629.56	0.01	604.95	886.29
809	679.74	0.02	654.65	1,540.94
809.7	717.29	0.02	488.96	2,029.90
	et la sec		<u></u>	
	Flitra	tion Pond St	age-Storage	
	Flitra	tion Pond St ea	age-Storage Avg. End Area	Accumulated
evation	Arc S.F.	ea AC.	age-Storage Avg. End Area Method	Accumulated Volume
evation 806.3	S.F. 258.83	ea AC. 0.01	age-Storage Avg. End Area Method -	Accumulated Volume -
evation 806.3 807	Arc S.F. 258.83 291.62	tion Pond St ea <u>AC.</u> 0.01 0.01	Avg. End Area Method - 192.66	Accumulated Volume - 192.66
evation 806.3 807 808	Filtration Are S.F. 258.83 291.62 343.94	tion Pond St ea AC. 0.01 0.01 0.01	Avg. End Area Method 	Accumulated Volume - 192.66 510.44
evation 806.3 807 808 809	Arc S.F. 258.83 291.62 343.94 394.98	tion Pond St ea AC. 0.01 0.01 0.01 0.01	Avg. End Area Method - 192.66 317.78 369.46	Accumulated Volume - 192.66 510.44 879.90
evation 806.3 807 808 808 809.7	Filtration Are S.F. 258.83 291.62 343.94 394.98 439.84	tion Pond St ea AC. 0.01 0.01 0.01 0.01 0.01	Avg. End Area Method 	Accumulated Volume - 192.66 510.44 879.90 1,172.08

TOTAL CAPTURE VOL. PROVIDED = 3,201.99 CF

			H	YDROLOGIC SU	IMMAR	Y for D						
		TR-55 SCS Log T	ime (hours)					Elow Sum	mary			
Segment #1		Segment #2		Segment #3		Area	Tc	Cn		Q10	Q25	Q100
Sheet Flow		Shallow Concent		Channelized		acres	hours	-	cfs	cfs	cfs	cfs
Manninas "n"	0.0244		No	Mappings "p"	0	0.21	0.1	79	0.83	1 23	1.5	1.95
length (ft)	100	Length (ft)	105	l enoth (ft)	0	0.21	0.1	, ,	0.00	1.20	1.0	1.75
Slope (%)	2 44	Slope (%)	103	Slope (%)	0	Imperi	vious Cove	ar % -	87 21%			
2 vr 3 br rainfall	2.44		1.1	Volocity (fps)	0	Inperv	TOUS COVE	<i>H 70 —</i>	07.2170			
segment total	0.016	segment total	0.014	segment total	0							
	0.010	segmennolu	0.014	time of conc (brs)	01	SCS Laa	Time (6 x Tel=	0.06	hours		
ODER DET INCED					0.1	UCU LUG	, inite -		0.00	110013		
			H	YDROLOGIC SU	IMMAR	Y for D	A B					
								Elaur Sum				
C + // 1		TR-55 SCS Ldg T	ime (nours)					Flow Sum		010	005	0100
Segment # I		Segment #2		Segment #3		Area	IC	Cn	Q2	QIO	Q25	Q100
Sheet Flow		Shallow Concent		Channelized		acres	hours	-	cfs	cfs	cfs	cfs
Mappings "p"	0.011	Uppayod	No	Mappings "p"		0.22	0.1	79	0.85	1.28	1.57	2.04
I a marther (fit)	100		04	Mannings n	0	0.22						
Lengin (ff)	2.04		1 75		0	1	iinun Com	0/	07 5 10/			
	2.04		1.75		0	Imperv	100s Cove	ər % =	62.34%			
2-yr, 3 hr rainfall	0.010		0.000		0							
segment total	0.018	segment total	0.009	segment total	0	a a a 1	- . ,	· - ·				
USER DEFINED				time of conc.(hrs\)	0.1	SCS Lag	Time (.	6 x Tc)=	0.06	hours		
			HY	DROLOGIC SUN	ΛΜΑRΥ	for DA	C-1					
		тк-ээ SCS Lag T	ime (hours)	• ··-		<u> </u>		Flow Sum	nmary			
Segment #1		Segment #2		Segment #3		Area	Tc	Cn Cn	Q2	Q10	Q25	Q100
Sheet Flow		Shallow Concent	N/A	Channelized		acres	hours	-	<u>cfs</u>	cfs	cfs	cfs
Mannings "n"	0.011	Unpaved		Mannings "n"	0	0.08	0.1	79	0.33	0.48	0.58	0.75
Length (ft)	42	Length (ft)		Length (ft)	0							
Slope (%)	1.26	Slope (%)		Slope (%)	0	Imperv	vious Cove	ər % =	100.00%			
2-yr, 3 hr rainfall		,		Velocity (fps)	0							
segment total	0.011	seament total		segment total	0							
USER DEFINED		Ŭ		time of conc.(hrs\)	0.1	SCS Lag	Time (.	6 x Tc]=	0.06	hours		
				······································				,				
							<u> </u>					
			<u> </u>	DROLOGIC SUN	ΝΜΑΚΥ	tor DA	<u>C-2</u>					
		TR-55 SCS Lag T	ime (hours)					Flow Sum	nmary			
Segment #1		Segment #2		Segment #3		Area	Τc	Cn	, (0)	Q10	Q25	Q100
Sheet Flow		Shallow Concent		Channelized		acres	hours	-	ds	cfs	cfs	cfs
	0.011		N			0.00	0.021	70		1.25	1.54	2 02
Mannings n	100		INO 54	Mannings n	0	0.22	0.021	17	0.0	1.20	1.54	2.02
Lengin (ff)	100		54		0	,		0/	(7.070)			
CL (0()	0 4 4					1000000	lous Cove	<i>∋r % =</i>	07.37%			
Slope (%)	2.44		2.15		0	mperv						
Slope (%) 2-yr, 3 hr rainfall	2.44		2.13	Velocity (fps)	0	Inperv						
Slope (%) 2-yr, 3 hr rainfall segment total	0.016	segment total	0.005	Velocity (fps) segment total	0		T : (0.010/	1		
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	0.016	segment total	0.005	Velocity (fps) segment total time of conc.(hrs\)	0 0 0.021	SCS Lag	Time (.	6 x Tc]=	0.0126	hours		
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	0.016	segment total	0.005	Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0 0.021	SCS Lag	Time (.	6 x TcJ=	0.0126	hours		
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	0.016	segment total	0.005	Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0 0.021	scs Lag	Time (.	6 x TcJ=	0.0126	hours		
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	0.016	segment total	0.005 HY	Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0.021	SCS Lag	Тіте (. С-З	6 x Tc)=	0.0126	hours		
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	0.016	TR-55 SCS Lag T	0.005 0.005 HY	Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0 0.021	SCS Lag	Time (.	6 x TcJ=	0.0126	hours	005	0100
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1	0.016	TR-55 SCS Lag T	0.005 <i>HY</i> ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3	0 0 0.021 1 1 MARY	SCS Lag	<i>Time (.</i>	<i>6 x TcJ=</i> Flow Sum Cn	0.0126	hours Q10	Q25	Q100
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow	2.44	TR-55 SCS Lag T Segment #2 Shallow Concent	0.005 HY	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized	0 0 0.021	SCS Lag	Time (. C-3 Tc hours	6 x TcJ= Flow Sum Cn	0.0126	hours Q10 cfs	Q25 cfs	Q100 cfs
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n"	0.016	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved	0.005 HY ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n"	0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag	<i>Time (.</i> <i>C-3</i> Tc hours 0.026	<i>6 x TcJ=</i> Flow Sum Cn - 79	0.0126 mary Q2 cfs 0.46	hours Q10 cfs 0.8	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft)	2.44 0.016 0.06 12	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft)	0.005 <i>HY</i> ime (hours) No 138	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft)	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag for DA Area acres 0.16	<i>Time (.</i> <i>C-3</i> Tc hours 0.026	6 x TcJ= Flow Sum Cn - 79	0.0126 nmary Q2 cfs 0.46	hours Q10 cfs 0.8	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%)	2.44 0.016 0.06 12 11.5	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	0.005 <i>HY</i> ime (hours) No 138 1.46	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%)	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag for DA Area acres 0.16	Time (. C-3 Tc hours 0.026	6 x TcJ= Flow Sum Cn - 79 er % =	0.0126 nmary Q2 cfs 0.46 24.83%	hours Q10 cfs 0.8	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall	2.44 0.016 0.06 12 11.5	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	0.005 <i>HY</i> ime (hours) 138 1.46	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN DROLOGIC SUN Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps)	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag for DA Area acres 0.16	Time (. C-3 Tc hours 0.026	6 x TcJ= Flow Sum Cn - 79	0.0126 mary Q2 cfs 0.46 24.83%	hours Q10 cfs 0.8	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag for DA Area acres 0.16	Time (. C-3 Tc hours 0.026	<i>6 x TcJ</i> = Flow Sum Cn - 79 ₽r % =	0.0126	hours Q10 cfs 0.8	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 138 1.46 0.02	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i>	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove	6 x TcJ= Flow Sum Cn - 79 er % = 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i>	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag Area acres 0.16 Imperv	Time (. C-3 Tc hours 0.026 vious Cove	6 x TcJ= Flow Sum Cn - 79 pr % = 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 138 1.46 0.02	Velocity (fps) segment total time of conc. (hrs.) DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total time of conc. (hrs)	0 0 0.021 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0	SCS Lag Area acres 0.16 Imperv SCS Lag	Time (.	6 x TcJ= Flow Sum Cn - 79 pr % = 6 x TcJ=	0.0126 mary Q2 cfs 0.46 24.83% 0.0156	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 1.46 0.02 <i>HY</i>	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i>	0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (.	6 x TcJ= Flow Sum Cn - 79 er % = 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i>	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove	6 x TcJ= Flow Sum Cn - 79 er % = 6 x TcJ= Flow Sum	0.0126	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3	0 0 0.021 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove	6 x TcJ= Flow Sum Cn - 79 er % = 6 x TcJ= Flow Sum Cn	0.0126	hours Q10 cfs 0.8 hours	Q25 cfs 1.02	Q100 cfs 1.39
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent	0.005 <i>HY</i> ime (hours) 138 1.46 0.02 <i>HY</i> ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>rious Cove</i> <i>trime (.</i> <i>C-4</i> Tc hours	6 x TcJ= Flow Sum Cn - 79 er % = 6 x TcJ= Flow Sum Cn -	0.0126	hours Q10 cfs 0.8 hours Q10 cfs	Q25 cfs 1.02 Q25 cfs	Q100 cfs 1.39 Q100 cfs
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n"	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved	0.005 <i>HY</i> ime (hours) 138 1.46 0.02 <i>HY</i> ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n"	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>rious Cove</i> <i>Time (.</i> <i>C-4</i> Tc hours 0.1	6 x TcJ= Flow Sum Cn - 79 <i>r</i> % = 6 x TcJ= Flow Sum Cn - 79	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft)	2.44 0.016 0.06 12 11.5 0.006	TR-55 SCS Lag T Segment total Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft)	0.005 <i>HY</i> ime (hours) 1.46 0.02 <i>HY</i> ime (hours) No 1.18	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft)	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove vious Cove vious Cove 1 Time (. 1 C-4 Tc hours 0.1	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= 6 x TcJ= Flow Sum Cn - 79	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%)	2.44 0.016 0.06 12 11.5 0.006 0.006	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	0.005 <i>HY</i> ime (hours) 1.46 0.02 <i>HY</i> ime (hours) No 118 1.40	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%)	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>vious Cove</i> <i>Time (.</i> <i>C-4</i> <i>C-4</i> Tc hours 0.1	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= 6 x TcJ= Flow Sum Cn - 79 79	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2 yr 3 hr rainfall	2.44 0.016 0.06 12 11.5 0.006 0.006 0.011 100 1.87	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps)	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>vious Cove</i> <i>Time (.</i> <i>C-4</i> <i>C-4</i> Tc hours 0.1	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= Flow Sum Cn - 79 79 79 79	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total	2.44 0.016 0.06 12 11.5 0.006 0.006 0.011 100 1.87	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) sogment total	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14 Imperv	Time (. C-3 Tc hours 0.026 vious Cove Time (. C-4 Tc hours 0.1 vious Cove	6 x TcJ= Flow Sum Cn - 79 <i>cr</i> % = 6 x TcJ= Flow Sum Cn - 79 <i>cr</i> % =	0.0126 mary Q2 cfs 0.46 24.83% 0.0156 mary Q2 cfs 0.57 93.52%	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006	TR-55 SCS Lag T Segment total Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62 0.013	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>vious Cove</i> <i>Time (.</i> <i>C-4</i> Tc hours 0.1 <i>vious Cove</i>	6 x TcJ= Flow Sum Cn - 79 <i>x</i> TcJ= Flow Sum Cn - 79 <i>x</i> TcJ= <i>x</i>	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.0010 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62 0.013	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN DROLOGIC SUN Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag	Time (. Tc hours 0.026 vious Cove Time (. C-4 Tc hours 0.1 vious Cove Time (.	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= Flow Sum Cn - 79 9r % = 6 x TcJ= 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 12 11.5 0.006 0.0018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) 0.02 <i>HY</i> ime (hours) <i>HY</i> ime (hours) 118 1.62 0.013	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i>	0 0 0.021 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. A C-4 Tc hours 0.1 vious Cove	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= Flow Sum Cn - 79 79 79 79 6 x TcJ= 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours 0.84 hours	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.011 100 1.87 0.018	TR-55 SCS Lag T Segment total Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62 0.013 <i>H</i>	Velocity (fps) segment total time of conc.(hrs\) DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total time of conc.(hrs) DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total time of conc.(hrs\)	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14 Imperv SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. A C-4 Tc hours 0.1 vious Cove Trime (. A D	6 x TcJ= Flow Sum Cn - 79 6 x TcJ= Flow Sum Cn - 79 79 79 6 x TcJ= 6 x TcJ=	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84 hours	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.011 100 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	0.005 <i>HY</i> ime (hours) No 138 1.46 0.02 <i>HY</i> ime (hours) No 118 1.62 0.013 <i>H</i>	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14 Imperv SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. A C-4 Tc hours 0.1 vious Cove Time (.	$6 \times Tc J =$ Flow Sum Cn 79 79 $6 \times Tc J =$ Flow Sum Cn 79 79 79 79 $6 \times Tc J =$ $6 \times Tc J =$	0.0126	hours Q10 cfs 0.8 hours locale locale locale hours hours locale locale hours locale locale locale hours locale loc	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.001 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment total Slope (%) segment total	0.005 HY ime (hours) No 1.46 0.02 HY ime (hours) ime (hours) 0.02 HY ime (hours) 0.013 H ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. C-4 Tc hours 0.1 vious Cove Trime (. A D	6 x TcJ= Flow Sum Cn - 79 x % = 6 x TcJ= Flow Sum Cn - 79 x % = 6 x TcJ= Flow Sum	0.0126	hours Q10 cfs 0.8 hours hours hours hours	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.001 0.011 100 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment total Slope (%) segment total	2.13 0.005 HY ime (hours) 1.46 0.02 HY ime (hours) ime (hours) Interview 0.02 HY ime (hours) Interview 0.013 H ime (hours) Interview Interview	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. C-4 Tc hours 0.1 vious Cove Trime (. A D	<i>6 x TcJ</i> = Flow Sum Cn - 79 <i>7</i> % = <i>6 x TcJ</i> = Flow Sum Cn - 79 <i>7</i> % = <i>6 x TcJ</i> = <i>6 x TcJ</i> = <i>6 x TcJ</i> =	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84 0.84	Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment # 1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Sope (%) 2-yr, 3 hr rainfall segment total USER DEFINED	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.0011 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	2.13 0.005 HY ime (hours) 1.46 0.02 HY ime (hours) ime (hours) 0.02 HY ime (hours) 0.02 HY ime (hours) 0.013 H ime (hours) Ime (hours)	Velocity (fps) segment total time of conc.(hrs\) DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total time of conc.(hrs) DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total time of conc.(hrs\) Velocity (fps) segment total time of conc.(hrs\)	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>tious Cove</i> <i>tious Cove</i> <i>Time (.</i> <i>C-4</i> <i>C-4</i> <i>Tc</i> hours 0.1 <i>tious Cove</i> <i>Time (.</i> <i>A D</i> Tc hours	6 x TcJ= Flow Sum Cn - 79 <i>Flow Sum</i> Cn - 79 <i>Flow Sum</i> <i>Cn</i> <i>-</i> <i>79</i> <i>6 x TcJ</i> = <i>6 x TcJ</i> = <i>6 x TcJ</i> = <i>6 x TcJ</i> =	0.0126	hours Q10 cfs 0.8 hours Q10 cfs 0.84 hours	Q25 cfs 1.02 Q25 cfs 1.02 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31 Q100 cfs Q100 cfs
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment total USER DEFINED Segment #1 Sheet Flow Mannings "n"	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.0011 100 1.87 0.018 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment total	2.13 0.005 HY ime (hours) 1.38 1.46 0.02 HY ime (hours) ime (hours) Ine (hours) 0.013 H ime (hours) No 118 1.62 0.013 H ime (hours) No	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU Segment #3 Channelized Mannings "n"	0 0 0.021 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0	SCS Lag	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>tious Cove</i> <i>Time (.</i> <i>C-4</i> <i>C-4</i> <i>Tc</i> hours 0.1 <i>tious Cove</i> <i>Time (.</i> <i>A D</i> <i>Tc</i> hours 0.1	$6 \times Tc J =$ Flow Sum Cn 79 7 $6 \times Tc J =$ 7 Flow Sum Cn $-$ 7 7 7 7 7 7 7 7 7 7	0.0126 0.0126 0.46 24.83% 0.0156 0.0156 0.0156 0.0156 0.057 93.52% 0.06 0.06	hours Q10 cfs 0.8 hours du du cfs 0.84 0.84 0.84 0.84 0.84	Q25 cfs 1.02 Q25 cfs 1.02 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Q100 cfs 1.39 Q100 cfs 1.31 Q100 cfs 1.31
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft)	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.001 0.0018 0.011 100 1.87 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft)	2.13 0.005 HY ime (hours) 0.02 HY ime (hours) ime (hours) No 118 1.62 0.013 H ime (hours) No 118 1.62 0.013 H ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14 Imperv SCS Lag Y for D, SCS Lag Y for D, Area acres	<i>Time (.</i> <i>C-3</i> Tc hours 0.026 <i>tious Cove</i> <i>Time (.</i> <i>C-4</i> <i>C-4</i> <i>C-4</i> <i>Tc</i> hours 0.1 <i>tious Cove</i> <i>Time (.</i> <i>A D</i> <i>Tc</i> hours 0.1 <i>tious Cove</i> <i>Tc</i> hours	$6 \times Tc J =$ Flow Sum Cn 79 $6 \times Tc J =$ 79 Flow Sum Cn $-$ 79 79 79 79 79 79 79 79	0.0126 mary Q2 cfs 0.46 24.83% 0.0156 0.0156 0.0156 0.0157 93.52% 0.06 0.06 0.06	hours Q10 cfs 0.8 Automatic field of the second of the se	Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31 Q100 cfs 1.52
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%)	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.001 1.87 0.011 100 1.87 0.018	TR-55 SCS Lag T Segment total Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%)	2.13 0.005 HY ime (hours) 0.02 HY ime (hours) ime (hours) No 118 1.62 0.013 H ime (hours) No 118 1.62 0.013 H ime (hours)	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUM Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU Segment #3 Channelized Mannings "n" Length (ft) Slope (%)	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA Area acres 0.14 Imperv SCS Lag Y for D SCS Lag Y for D Area acres	Time (. C-3 Tc hours 0.026 vious Cove Time (. A C-4 Tc hours 0.1 vious Cove Time (. A D Tc hours 0.1 vious Cove Dutflow ($6 \times Tc J =$ Flow Sum Cn - 79 $6 \times Tc J =$ 79 79 79 79 79 79 79 79	0.0126	hours Q10 Cfs 0.8 A A A A A A A A A A A A A A A A A A A	Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02	Q100 cfs 1.39 Q100 cfs 1.31 Q100 cfs 1.31 Q100 cfs 1.52 8,59
Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 24 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment total USER DEFINED Segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall segment #1 Sheet Flow Mannings "n" Length (ft) Slope (%) 2-yr, 3 hr rainfall	2.44 0.016 0.06 12 11.5 0.006 0.006 0.006 0.011 100 1.87 0.018 0.018 0.018	TR-55 SCS Lag T Segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total TR-55 SCS Lag T Segment #2 Shallow Concent Unpaved Length (ft) Slope (%) segment total	2.13 0.005 HY ime (hours) No 1.46 0.02 HY ime (hours) No 118 1.62 0.013 H ime (hours) No 138 No No No No No	Velocity (fps) segment total <i>time of conc.(hrs\)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs)</i> DROLOGIC SUN Segment #3 Channelized Mannings "n" Length (ft) Slope (%) Velocity (fps) segment total <i>time of conc.(hrs\)</i> YDROLOGIC SU Segment #3 Channelized Mannings "n" Length (ft) Slope (%) YEROLOGIC SU	0 0 0.021 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0	SCS Lag for DA Area acres 0.16 Imperv SCS Lag for DA SCS Lag for DA Area acres 0.14 Imperv SCS Lag Y for D, SCS Lag Y for D, Area acres 0.14 Imperv SCS Lag SCS Lag	Time (. C-3 Tc hours 0.026 vious Cove Time (. C-4 Tc hours 0.1 vious Cove Time (. A D Tc hours 0.1 vious Cove Dutflow (orage (cove Cove	$6 \times Tc J =$ Flow Sum Cn - 79 $6 \times Tc J =$ $6 \times Tc J =$ $6 \times Tc J =$ 79 79 79 79 79 79 79 79	0.0126 0.0126 0.46 24.83% 0.0156 0.0166 0.0166 0.0166 0.0166 0.0166 0.0166 0.0166 0.0166 0.006 0.0166 0.006 0.0166 0.006 0.0166 0.0166 0.006 0.0166 0.006 0.0166 0.006 0.0166 0.006 0.006 0.0166 0.006 0.0166 0.006 0.006 0.0166 0.006 0.0166 0.006 0.006 0.0166 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.006 0.007 0.006	hours Q10 cfs 0.8 hours hours 0.84 0.84 0.84 0.84 0.84 0.84 0.83 0.83 0.83	Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.02 Q25 cfs 1.09 4.8 0 1	Q100 cfs 1.39 Q100 cfs 1.31 Q100 cfs 1.31 Q100 cfs 1.52 8.59 Q 1.3
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ENERAL M.U.D. WATER AND WASTEWATER NOTES

(SOURCE: BRUSHY CREEK MUD STAFF, MARCH 2002)

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF ROUND ROCK OR CITY OF AUSTIN SPECIFICATIONS AS ADAPTED AND AMENDED BY THE CITY OF ROUND ROCK OR CITY OF AUSTIN AND AS MODIFIED BY THE BRUSHY CREEK MUNICIPAL UTILITY DISTRICT.

PRIOR TO BEGINNING CONSTRUCTION, THE OWNER OR HIS/HER AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CONSULTING ENGINEER, CONTRACTOR(S), COUNTY ENGINEER, (IF APPROPRIATE), BRUSHY CREEK M.U.D., AND ANY OTHER AFFECTED PARTIES. NOTIFY ALL SUCH PARTIES AT LEAST 48 HOURS PRIOR TO THE TIME OF THE CONFERENCE AND 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

THE CONTRACTOR SHALL GIVE THE M.U.D. A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION INCLUDING CONNECTION TO EXISTING VASTEWATER LINES AND ANY TESTING PHASE. TELEPHONE 255-7871 X 212.

NO BLASTING IS ALLOWED.

MANHOLE FRAMES, COVERS, AND WATER VALVES WILL BE RAISED TO FINISHED PAVEMENT GRADE BY THE UTILITY CONTRACTOR. ALL UTILITY ADJUSTMENTS SHALL BE COMPLETED RIOR TO FINAL PAVING CONSTRUCTION.

CONTRACTOR SHALL VERIFY EXACT DEPTH AND LOCATION OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO OR REMOVAL OF EXISTING UTILITIES, DRIVEWAYS, PAVEMENT, CURB AND GUTTER, SIDEWALKS, ETC. SHALL BE REPAIRED BY THE CONTRACTOR, OR THE UTILITY, AT UTILITIES OPTION, AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE BEFORE ACCEPTANCE OF THE PROJECT OR C.O. IS ISSUED.

ALL FILL AREAS NOT UNDER PROPOSED ROAD AND OVER ALL UTILITIES, SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY IN ACCORDANCE WITH TEX. 113-E METHOD.

CRUSHED STONE MEETING THE CITY OF ROUND ROCK OR CITY OF AUSTIN STANDARD SPECIFICATIONS IS TO BE USED AS BEDDING MATERIAL FOR ALL WATER AND/OR WASTEWATER MAINS.

WATER AND WASTEWATER ALIGNMENTS SHOWN ON THE PLANS SHOULD BE ACHIEVED BY DEFLECTION WITHIN THE MANUFACTURER'S SPECIFICATIONS, EXCEPT WHERE SPECIFIC ITTINGS ARE CALLED FOR ON THE PLANS. NOTE: NO PIPE DEFLECTIONS ARE PROPOSED ON THIS PROJECT.

. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING UTILITIES SUCH AS GAS LINES, WATERLINES, VALVE BOXES, FIRE HYDRANTS, STRUCTURES, AND DTHER APPURTENANCES THAT LIE WITHIN THE RIGHT-OF-WAY OR EASEMENTS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR ALL UTILITIES, DRIVEWAYS, AVEMENT, CURB AND GUTTER, SIDEWALKS, FENCES, AND ANY OTHER ITEMS DAMAGED DURING CONSTRUCTION REGARDLESS OF WHETHER ALL ITEMS ARE SHOWN ON THE PLANS AT HIS SOLE EXPENSE. THE LOCATIONS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES IS APPROXIMATE. IN ADDITION TO NORMAL PRECAUTIONS WHEN EXCAVATING, TAKE EXTRA CAUTION WHEN EXCAVATING WITHIN 25 FT. OF ANY UTILITIES SHOWN ON THE PLANS.

WHENEVER EXISTING UTILITIES, NOT INDICATED ON THE PLANS, PRESENT OBSTRUCTIONS TO GRADE AND ALIGNMENT OF PIPE, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. WHERE NECESSARY TO MOVE SERVICES, POLES, GUY WIRES, PIPELINES, ETC., AS DETERMINED BY THE ENGINEERS, THE CONTRACTOR WILL MAKE ARRANGEMENTS WITH THE OWNER OF THE UTILITY TO BE MOVED AND HAVE IT MOVED.

2. THE CONTRACTOR SHALL INCLUDE ADDITIONAL FLUSHING VALVES AND TEST CONNECTIONS NECESSARY TO PERFORM TEST AND STERILIZATION OPERATION.

. ALL CONSTRUCTION ACTIVITIES, INCLUDING ACCESS, EGRESS, TRAVEL, STOCKPILING, ETC. ARE TO BE CONFINED TO AREAS IDENTIFIED BY THE ENGINEER.

. REFER TO THE PLANS FOR DETAILS ON "PIPE BEDDING AND BACKFILL", "CONCRETE ENCASEMENT", "CONCRETE THRUST BLOCKING", AND "HORIZONTAL AND VERTICAL BENDS" "FIRE HYDRANT ASSEMBLY", AND OTHER DETAILS.

TREE DAMAGES AND CLEARING OUTSIDE THE RIGHT-OF-WAY OR EASEMENTS ARE EXPRESSLY PROHIBITED.

. PIPE, FITTINGS AND JOINTS: WATER - PVC (AWWA C-900, MIN. CLASS 200), WITH BOLTLESS GASKETED JOINTS AND D.I., M.J. OR FLANGE FITTINGS UNLESS OTHERWISE SHOWN ON THE PLANS. GRAVITY SEWER - (ASTM D2241 OR D3034, MAX. DR-35), DUCTILE IRON (AWWA C-100, MIN. CLASS 50) OR CONCRETE (ASTM C-76) WITH O-RING JOINT DESIGN wITH BOLTLESS DUCTILE IRON, CLASS 50, MECHANICAL JOINTS AND CI (DI ENDS) FITTINGS, UNLESS OTHERWISE SHOWN ON THE PLANS.

'. ALL GATE VALVES SHALL HAVE RESILIENT VALVE SEATS.

8. AT ALL LOCATIONS WHERE A WATERLINE CROSSES A WASTEWATER LINE, THE CONSTRUCTION SHALL STRICTLY COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF THE SITE OF THE WORK IN A NEAT AND PRESENTABLE CONDITION AT ALL TIMES, AS DIRECTED BY THE COUNTY. THIS WORK WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).

. THE CONTRACTOR SHALL FURNISH THE ENGINEER ONE SET OF "AS-BUILT" PLANS REFLECTING ALL CHANGES MADE IN THE FIELD, AND TWO MEASUREMENTS TO ALL VALVES AND MANHOLES INSTALLED FROM PERMANENT OBJECTS.

0. ALL MANHOLES MUST BE VACUUM TESTED AND WATER-TIGHT AND COATED TO CITY OF AUSTIN SPECIFICATIONS.

1. ALL NEW WATER LINES SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH AWWA C600-87 AND DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.

DTHERWISE DIRECTED BY THE ENGINEER, DEPTH OF COVER FOR ALL LINES OUT OF THE PAVEMENT SHALL BE 42" MIN., AND DEPTH OF COVER FOR ALL LINES UNDER PAVEMENT SHALL BE A MIN. OF 30" BELOW SUB-GRADE.

3. ALL FIRE HYDRANT LEADS SHALL BE DUCTILE IRON PIPE (AWWA C-100, MIN. CLASS 200).

24. ALL IRON PIPE AND FITTINGS SHALL BE WRAPPED WITH MINIMUM 8-MIL. POLYETHYLENE AND SEALED WITH DUCT TAPE.

5. ALL MANHOLES 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.

26. THE CONTRACTOR MUST OBTAIN A CONSTRUCTION WATER METER FROM THE M.U.D.

7. LINE FLUSHING OR ANY ACTIVITY USING A LARGE QUANTITY OF WATER MUST BE SCHEDULED WITH THE WATER AND WASTEWATER SUPERINTENDENT. TELEPHONE 255-7871.

. THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM STERILIZATION OF ALL POTABLE WATER LINES CONSTRUCTED AND SHALL PROVIDE ALL EQUIPMENT (INCLUDING TEST GAUGES), SUPPLIES (INCLUDING CONCENTRATED CHLORINE DISINFECTING MATERIAL), AND NECESSARY LABOR REQUIRED FOR THE STERILIZATION PROCEDURE. THE STERILIZATION OF THE HOLE, SO AS NOT TO ALLOW WATER OR CONTAMINANTS TO ENTER THE SUBSURFACE ENVIRONMENT. PROCEDURE SHALL BE MONITORED BY BRUSHY CREEK M.U.D. WATER SAMPLES WILL BE COLLECTED BY THE BRUSHY CREEK M.U.D. TO VERIFY EACH TREATED LINE ATTAINED AN INITIAL CHLORINE CONCENTRATION OF 50 PPM. WHERE MEANS OF FLUSHING IS NECESSARY, THE CONTRACTOR, AT HIS EXPENSE, SHALL PROVIDE FLUSHING DEVICES AND REMOVE SAID DEVICES PRIOR TO FINAL ACCEPTANCE BY THE M.U.D.

THE CONTRACTOR, AT HIS EXPENSE, SHALL PERFORM QUALITY TESTING FOR ALL WASTEWATER PIPE INSTALLED AND PRESSURE PIPE HYDROSTATIC TESTING OF ALL WATER LINES CONSTRUCTED 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 BRUSHY CREEK M.U.D.

10. CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES UNLESS AUTHORIZED BY THE BRUSHY CREEK M.U.D.

. ALL VALVE BOXES AND COVERS SHALL BE CAST IRON.

2. ALL WATER SERVICE, WASTEWATER SERVICE AND VALVE LOCATIONS SHALL BE APPROPRIATELY MARKED AS FOLLOWS:

	W ON IOP OF COM
VASTEWATER SERVICE	"S" ON TOP OF CURE
/ALVE	"V" FACE OF CURB

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 BRUSHY CREEK M.U.D.

GENERAL NOTES

ALL WORK PERFORMED AND ALL PRODUCTS FURNISHED UNDER THE PROVISION OF THE CONTRACT SHALL COMPLY WITH REQUIREMENTS WHICH PERTAIN TO THE /ARIOUS ITEMS OF WORK INCLUDED AS STANDARD SPECIFICATION FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES OF THE TEXAS DEPARTMENT OF TRANSPORTATION, ADOPTED JUNE 1, 2004, AND AS AMENDED AND/OR UPDATED.

ALL CONSTRUCTION EQUIPMENT INVOLVED IN ROADWAY WORK SHALL BE EQUIPPED, UNLESS APPROVED OTHERWISE BY THE CONSTRUCTION OBSERVER, WITH A PERMANENTLY MOUNTED 360 DEGREE REVOLVING OR STROBE WARNING LIGHT WITH AMBER LENS. THIS LIGHT SHALL HAVE A MINIMUM LENS HEIGHT OF 5" AND A DIAMETER OF 5". THE LIGHT SHALL HAVE A MOUNTING HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE ROADWAY SURFACE AND SHALL BE VISIBLE FROM ALL SIDES. THIS EQUIPMENT SHALL ALSO HAVE ATTACHED AT EACH SIDE OF THE REAR END OF THE VEHICLE AN APPROVED ORANGE WARNING FLAG MOUNTED NOT LESS THAN 6 FEET ABOVE THE ROADWAY SURFACE.

ENTRY INTO AND PROTECTION OF ADJACENT PROPERTIES DESIGN OF THIS PROJECT DID NOT CONTEMPLATE A NEED TO ENTER ADJACENT PROPERTIES EXCEPT WHERE EITHER PERMANENT OR TEMPORARY WORKING EASEMENTS ARE SHOWN ON THE PLANS. SHOULD IT BE NECESSARY DURING CONSTRUCTION OF THE WORK TO ENTER ON ADJACENT PROPERTIES, THE COUNTY SHALL BE NOTIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ARRANGEMENTS TO ENTER AND SHALL BE LIABLE FOR REPAIR OF FENCES AND RESTORATION OF ANY PROPERTY DAMAGE OUTSIDE OF THE RIGHT OF WAY AND EASEMENTS SHOWN IN THE PLANS.

LOCATION AND PROTECTION OF UTILITIES NOTWITHSTANDING ANY OTHER PROVISION OF THIS CONTRACT, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ANY AND ALL PUBLIC AND/OR PRIVATE UTILITY LINES AND UTILITY CUSTOMER SERVICE LINES IN THE WORK AREA. THE CONTRACTOR SHALL EXERCISE DUE CARE TO LOCATE AND TO MARK, UNCOVER OR OTHERWISE PROTECT ALL SUCH LINES IN THE CONSTRUCTION ZONE AND ANY OF THE CONTRACTOR'S WORK OR STORAGE AREAS. UPON REQUEST, THE COUNTY MAY PROVIDE SUCH INFORMATION THAT IT HAS ABOUT THE LOCATION AND GRADE OF WATER, GAS, TELEPHONE, CABLE TV AND ELECTRIC LINES AND OTHER UTILITIES IN THE WORK AREA, BUT SUCH INFORMATION SHALL NOT RELIEVE OR BE DEEMED TO BE IN SATISFACTION OF THE CONTRACTOR'S OBLIGATION HEREUNDER, WHICH SHALL BE PRIMARY AND NONDELEGABLE. ANY SUCH LINES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR OR HE

SHALL CAUSE SUCH DAMAGE TO BE REPAIRED AT HIS EXPENSE. CONTRACTOR SHALL CONTACT DIG-TESS AT 1-800-344-8377, FOR UTILITY VERIFICATION, PRIOR TO BEGINNING CONSTRUCTION.

SURPLUS MATERIAL EXCAVATED OR SURPLUS NATURAL SOIL AND ROCK MATERIAL, UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS, SHALL BE KNOWN AS "SPOIL" AND PROPERLY DISPOSED OF BY THE CONTRACTOR OFF-SITE AT HIS SOLE EXPENSE. ANY PERMITS NECESSARY FOR THE DISPOSAL OF SUCH MATERIAL SHALL BE ACQUIRED BY THE CONTRACTOR AT HIS EXPENSE.

ANY SURPLUS MATERIAL DEFINED AS "SOLID WASTE" UNDER THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY MUNICIPAL SOLID WASTE REGULATIONS SHALL BE DISPOSED OF IN COMPLIANCE WITH ALL APPLICABLE SOLID WASTE MANAGEMENT REGULATIONS.

RESTORATION/REVEGETATION ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY, EASEMENTS, AND LIMITS OF CONSTRUCTION SHALL BE RESTORED. RESTORATION SHALL INCLUDE ALL TOPSOIL, SEEDING, WATERING, FERTILIZER, LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. RESTORATION SHALL BE INSTALLED AND VEGETATION ESTABLISHED PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, OR AS APPROVED BY THE COUNTY.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR REVEGETATION OF ALL AREAS DAMAGED OR DESTROYED BY CONSTRUCTION. CONTRACTOR WILL BE HELD LIABLE AND RESPONSIBLE FOR SUCH AREAS UNTIL GROWTH IS REESTABLISHED TO THE SATISFACTION OF THE COUNTY.

ORNAMENTAL LANDSCAPE PLANTINGS OF TREES, SHRUBS AND GRASSES THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED WITH PLANT MATERIAL OF COMPARABLE SIZE AND QUALITY APPROVED BY THE COUNTY.

REVEGETATION MEASURES WILL BEGIN AS SOON AS PRACTICAL. THE COUNTY RESERVES THE RIGHT TO REQUIRE THE IMMEDIATE INSTALLATION OF REVEGETATION MEASURES WHENEVER DEEMED NECESSARY.

THE COUNTY RESERVES THE RIGHT TO REQUIRE ADDITIONAL REVEGETATION MEASURES DEEMED NECESSARY AT ANY TIME AFTER CONSTRUCTION HAS BEGUN UNTIL THE COUNTY HAS ACCEPTED THE EROSION CONTROL MEASURES AND REVEGETATION MEASURES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING, REPAIRING OR REPLACING ALL EROSION CONTROL DEVICES AS MAY BE DIRECTED BY THE CONSTRUCTION OBSERVER. THIS WORK WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOWING AND THE REMOVAL OF ALL LITTER ON THE RIGHT OF WAY WITHIN THE PROJECT LIMITS SO AS TO KEEP THE ITEMS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT ALL LOCATIONS USED FOR STORING CONSTRUCTION EQUIPMENT, MATERIALS, AND STOCKPILES OF ANY TYPE WITHIN THE RIGHT OF WAY SHALL BE APPROVED BY THE CONSTRUCTION OBSERVER. USE OF THE RIGHT OF WAY FOR THESE PURPOSES WILL BE RESTRICTED TO THOSE LOCATIONS WHERE DRIVER SIGHT DISTANCE TO BUSINESSES AND SIDE STREET INTERSECTIONS IS NOT OBSTRUCTED AND AT OTHER LOCATIONS WHERE AN UNSIGHTLY APPEARANCE, AS DETERMINED BY THE CONSTRUCTION OBSERVER, WILL NOT EXIST.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING EVERY 100 FOOT STATION, AND SHALL MAINTAIN THE MARKINGS FOR THE DURATION OF THE PROJECT. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

AN ENGLISH-SPEAKING SUPERINTENDENT SHALL BE AVAILABLE ON THE PROJECT AT ALL TIMES WHEN WORK IS BEING PREFORMED. THE CONTRACTOR SHALL PROVIDE THE CONSTRUCTION OBSERVER WITH CONTACT INFORMATION FOR THE SUPERINTENDENT.

CONTRACT TIME CHARGES SHALL CONTINUE TO ACCRUE THROUGH SUBSTANTIAL COMPLETION OF THE PROJECT, AS DEFINED BY THE CONTRACT DOCUMENTS.

IF ANY ABANDONED WELLS EXIST ON THE SITE OR ARE FOUND DURING CONSTRUCTION OF THE PROPOSED DEVELOPMENT, THEY SHALL BE PLUGGED IN COORDINATION WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ). THE CONTRACTOR SHALL CEASE CONSTRUCTION OPERATIONS IN THIS AREA AND NOTIFY THE CONSTRUCTION OBSERVER, WHO WILL COORDINATE THE PROPER PLUGGING PROCEDURES WITH TCEQ.

IF ANY SIGNIFICANT RECHARGE FEATURES, SUCH AS SINKHOLES, CAVES, OR ANY OTHER SUBTERRANEAN OPENINGS ARE DISCOVERED DURING CONSTRUCTION OR CORE SAMPLING, ALL ACTIVITIES NEAR THE FEATURE MUST BE IMMEDIATELY SUSPENDED. THE CONSTRUCTION OBSERVER MUST BE CONTACTED FOR EVALUATION. THE DISCOVERY MAY REQUIRE TCEQ REVIEW AND APPROVAL FOR THE METHODS PROPOSED TO PROTECT THE AQUIFER FROM ANY POTENTIAL ADVERSE IMPACTS.

ANY DRILL HOLES RESULTING FROM CORE SAMPLING ON-SITE OR DOWN-GRADIENT OF THE SITE SHALL BE PLUGGED WITH CONCRETE, FROM THE BOTTOM OF THE

CONSTRUCTION VEHICLES MAY BE RESTRICTED FROM TRAVERSING OR UTILIZING EXISTING ROADWAYS, UNPROTECTED CONSTRUCTION AREAS, AND AREAS WITH VEGETATIVE COVER, AS DETERMINED BY THE CONSTRUCTION OBSERVER.

OBSERVER.

TO THE VARIOUS BID ITEMS.

ABOVE-GROUND STORAGE TANKS KEPT ON-SITE FOR CONSTRUCTION PURPOSES SHALL BE LOCATED OVER BERMED IMPERVIOUS LINERS SO AS NOT TO ALLOW ANY LEAKAGE INTO UNDERLYING SOILS. ADDITIONALLY, THE CONTAINMENT SHALL BE SIZED TO CAPTURE 150% OF THE TOTAL VOLUME OF FLUIDS STORED ON-SITE WITHIN THE STORAGE AREA. NO GAS STORAGE TANKS SHALL BE ALLOWED ON-SITE.

NO BLASTING WILL BE ALLOWED WITHIN 300 FEET OF A GEOLOGIC FEATURE OF SIGNIFICANT RECHARGE POTENTIAL. KNOWN LOCATIONS OF THESE FEATURES MAY BE OBTAINED FROM THE COUNTY OR ITS REPRESENTATIVES. ALL BLASTING ACTIVITIES MUST BE COORDINATED WITH THE CONSTRUCTION OBSERVER. BLASTING IN AREAS WHERE THE WATER TABLE IS WITHIN 24 INCHES OF THE SUBGRADE MUST BE APPROVED BY THE CONSTRUCTION OBSERVER.

ENDANGERED SPECIES AND HISTORIC PRESERVATION INFORMATION IS REFERENCED IN THE PROJECT'S ENVIRONMENTAL DOCUMENT AND/OR THE APPLICABLE SPECIAL PROVISION.

EXCAVATION AND EMBANKMENT QUANTITIES ARE MEASURED TO THE BOTTOM OF THE TOPSOIL (4" BELOW THE PROPOSED GRADE. TO THE EXTENT POSSIBLE, ALL EXISTING TOPSOIL SHALL BE SALVAGED, STOCKPILED AND REDISTRIBUTED TO THE GRADED AREAS IN ACCORDANCE WITH THE PLANS. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE OTHER BID ITEMS.

ELECTRIC POWER FOR RAILROAD CROSSING SAFETY SYSTEMS, TRAFFIC SIGNALS OR OTHER SUCH FACILITIES SHALL BE PAID FOR UNDER ITEM 628 ELECTRICAL SYSTEMS.

THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER AS SOON AS THE ROW IS STAKED AND PRIOR TO CLEARING OPERATIONS. UPON NOTIFICATION, THE OBSERVER WILL SCHEDULE A WALK-THROUGH WITH THE CONTRACTOR AND DESIGNATE ALL TREES AND OTHER FEATURES TO BE PROTECTED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT BEGIN ANY CLEARING OF THE RIGHT-OF-WAY PRIOR TO THIS WALK-THOUGH. THE DESIGNATED TREES SHALL BE PROTECTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, OR AS DIRECTED BY THE OBSERVER. NO FENCES SHALL BE REMOVED WITHOUT NOTIFICATION TO THE OBSERVER.

BURNING OF BRUSH WILL NOT BE PERMITTED, UNLESS OTHERWISE DIRECTED BY THE COUNTY.

ALL RIGHT OF WAY CLEARING OPERATIONS WILL BE COORDINATED WITH THE PROJECT'S SW3P AND AS DIRECTED OR APPROVED BY THE CONSTRUCTION OBSERVER.

THE CONTRACTOR MAY BE REQUIRED TO TRIM AND REMOVE BRUSH AND TREES IN ORDER TO CONSTRUCT THE PROJECT OR TO PROVIDE A HORIZONTAL CLEARANCE OF APPROXIMATELY 2 FEET INSIDE THE RIGHT OF WAY LINE AND A VERTICAL CLEARANCE OF AT LEAST 12 FEET. FOR THIS OPERATION, NO VERTICAL FLAILING EQUIPMENT SHALL BE USED AND THE METHOD SHALL BE APPROVED BY THE CONSTRUCTION OBSERVER.

VEHICLES SHALL NOT BE MAINTAINED ON-SITE DURING CONSTRUCTION, EXCEPT AT DESIGNATED MAINTENANCE SITES AS APPROVED BY THE CONSTRUCTION

ANY SOILS CONTAMINATED DURING CONSTRUCTION OF THE PROPOSED PROJECT SHALL BE TRANSPORTED FROM THE SITE AND PROPERLY DISPOSED OF OFF-SITE, OFF THE CONTRIBUTING ZONE, AND OFF ANY DRAINING TO THE RECHARGE ZONE OF THE EDWARDS AQUIFER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED SUBSIDIARY

DURING CONSTRUCTION, WASTEWATER GENERATED ON-SITE SHALL BE COLLECTED BY CHEMICAL TOILETS AND SHALL BE TRANSPORTED OFF THE PROJECT SITE.

REMOVAL OF ANY OBSTRUCTIONS ON THE RIGHT OF WAY THAT ARE NOT SHOWN ON THE PLANS IS INCLUDED UNDER PREPARING RIGHT OF WAY.

ALL MATERIALS NOT USED FOR CONSTRUCTION SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR AT HIS SOLE EXPENSE

PRIOR TO CONTRACT LETTING, PROSPECTIVE BIDDERS MAY OBTAIN A FREE COMPUTER DISKETTE OR A COMPUTERIZED TRANSFER OF OUTPUT FILES THAT CONTAINS THE EARTHWORK DATA INFORMATION IN A FORMAT CONVENIENT FOR PRODUCING BY THE ENGINEER. NO EXTRAORDINARY OR OTHERWISE SPECIAL EFFORT WILL BE MADE TO PROVIDE THE INFORMATION IN A DIFFERENT FORMAT.

THE CONSTRUCTION OBSERVER SHALL BE NOTIFIED TO INSPECT ALL TOPSOIL SOURCES BEFORE DIGGING BEGINS. ALL OFF-SITE TOPSOIL SHALL HAVE A MINIMUM PI OF 20. THE ACTUAL DEPTH OF THE TOPSOIL SOURCE SHALL BE AS APPROVED BY THE CONSTRUCTION OBSERVER

HYDRAULIC MULCHES USED FOR THIS PROJECT MUST BE ON THE APPROVED PRODUCT LIST FOR HYDRAULIC MULCHES LISTED ON WWW.DOT.STATE.TX.US/MNT/EROSION/CONTENTS.HTM. MULCH SHALL BE APPLIED AT 3500 LBS/ACRE. THE CONTRACTOR MUST FURNISH THE CONSTRUCTION OBSERVER WITH THE EMPTY MULCH BAGS TO ENSURE THE ABOVE RATES ARE BEING USED.

FERTILIZER SHALL BE OF THE XX-XX-XX ANALYSIS.

THE CONTRACTOR SHALL OBTAIN WATER AT A SOURCE THAT IS METERED OR SHALL FURNISH THE MANUFACTURER'S SPECIFICATIONS SHOWING TANK CAPACITY FOR EACH TRUCK USED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION OBSERVER PRIOR TO WATERING SO THAT THE CONSTRUCTION OBSERVER MAY VERIFY METER READINGS OR TRUCK COUNTS.

ANY ADJUSTMENTS OR CHANGES MADE TO A JOB MIX FORMULA MUST BE SUBMITTED AND APPROVED PRIOR TO PRODUCTION OF THE NEW JOB MIX FORMULA.

IN ALL RIPRAP SLOPES, 3 INCH DIAMETER WEEP HOLES SHALL BE PROVIDED AT 10 FOOT MAXIMUM SPACING AND BACKED WITH LOOSE GRADED GRAVEL OR CRUSHED STONE AND GALVANIZED HARDWARE CLOTH AS DIRECTED/APPROVED BY THE CONSTRUCTION OBSERVER. PAYMENT FOR THIS WORK SHALL BE SUBSIDIARY TO ITEM 432. IN AREAS WHERE GUARD FENCE POSTS ARE TO BE PLACED IN RIPRAP, THE RIPRAP SHALL HAVE BLOCKED OUT AREA (ROUND OR SQUARE) IN ACCORDANCE WITH THE DIMENSION SHOWN ON THE PLANS.

ALL ARMOR JOINTS SHALL RECEIVE PROTECTION SYSTEM I OR II.

IF PRE-CAST UNITS ARE USED, THE FILL MATERIAL BETWEEN THE BOXES SHALL CONSIST OF CONCRETE AGGREGATE WITH TWO SACKS OF PORTLAND CEMENT PER CUBIC YARD (TWO SACK CONCRETE). THE TWO SACKS OF CEMENT ARE PART OF THE BOX CULVERT WORK AND WILL NOT BE PAID FOR DIRECTLY

REMOVAL OF EXISTING HEADWALLS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

"MATERIALS ON HAND" PAYMENTS WILL NOT BE CONSIDERED IN DETERMINING PERCENTAGES USED TO COMPUTE PAYMENT FOR ITEM "MOBILIZATION".

ACCESS TO AL SIDE STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES BY THE CONTRACTOR.

A FIELD OFFICE FOR THIS PROJECT IS OPTIONAL. ALL COSTS ASSOCIATED WITH FURNISHING AND MAINTAINING A FIELD OFFICE SHALL BE INCLUDED IN THE PRICE FOR MOBILIZATION.

EACH NEW MAILBOX INSTALLATION SHALL BE SUPPLEMENTED WITH A TYPE 2 OBJECT MARKER PLACED ON THE MAILBOX SUPPORT IN A VERTICAL POSITION 6" BELOW THE BOTTOM OF THE MAILBOX. ON TUBULAR SUPPORTS, REFLECTIVE TAPE MAY BE USED TO SIMULATE A TYPE 2 MARKER. IF REFLECTIVE TAPE IS USED IT SHALL MEET THE REQUIREMENTS OF DEPARTMENTAL SPECIFICATION, D-9-8600. THE SIMULATED MARKER SHALL CONSIST OF THREE (3) 2 3/4" X 2 3/4" PIECES OF YELLOW HIGH INTENSITY TAPE SPACED 1" APART. ALL LABOR AND MATERIALS SHALL BE CONSIDERED SUBSIDIARY TO ITEM 560.

ALL PERMANENT SIGNS MOUNTED ON TRAFFIC SIGNAL WIRES, TRAFFIC SIGNAL POLES, OR TRAFFIC SIGNAL MAST ARMS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE COST OF THE SIGNS, HARDWARE, AND ERECTING THE SIGNS SHALL BE SUBSIDIARY TO ITEM 680, "INSTALLATION OF HIGHWAY TRAFFIC SIGNALS".

ALL SMALL SIGNS NOT DETAILED IN THE PLANS SHALL BE BUILT IN ACCORDANCE WITH THE LATEST EDITION OF THE STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS. WHERE A SIGN SIZE OR PARTICULAR LEGEND IS SHOWN AND SUCH SIGN SIZE OR LEGEND IS NOT SHOWN IN THE PUBLICATION, THE CONTRACTOR SHALL FURNISH THE SIGN AS DETAILED IN THE PLANS.

TCEQ WPAP NOTES

(TCEQ-0592 Rev. 07/15/15) TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER POLLUTION ABATEMENT PLAN GENERAL CONSTRUCTION NOTES

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

- THE NAME OF THE APPROVED PROJECT; - THE ACTIVITY START DATE; AND

- THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.

- ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT MUST BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED WATER POLLUTION ABATEMENT PLAN (WPAP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTORS ARE REQUIRED TO KEEP ON-SITE COPIES OF THE APPROVED PLAN AND APPROVAL LETTER.
- 3. IF ANY SENSITIVE FEATURE(S) (CAVES, SOLUTION CAVITY, SINK HOLE, ETC.) IS DISCOVERED DURING CONSTRUCTION, ALL REGULATED ACTIVITIES NEAR THE SENSITIVE FEATURE MUST BE SUSPENDED IMMEDIATELY. THE APPROPRIATE TCEQ REGIONAL OFFICE MUST BE IMMEDIATELY NOTIFIED OF ANY SENSITIVE FEATURES ENCOUNTERED DURING CONSTRUCTION. CONSTRUCTION ACTIVITIES MAY NOT BE RESUMED UNTIL THE TCEQ HAS REVIEWED AND APPROVED THE APPROPRIATE PROTECTIVE MEASURES IN ORDER TO PROTECT ANY SENSITIVE FEATURE AND THE EDWARDS AQUIFER FROM POTENTIALLY ADVERSE IMPACTS TO WATER QUALITY.
- 4. NO TEMPORARY ABOVEGROUND HYDROCARBON AND HAZARDOUS SUBSTANCE STORAGE TANK SYSTEM IS INSTALLED WITHIN 150 FEET OF A DOMESTIC, INDUSTRIAL, IRRIGATION, OR PUBLIC WATER SUPPLY WELL, OR OTHER SENSITIVE FEATURE.
- 5. PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY SELECTED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND GOOD ENGINEERING PRACTICES. CONTROLS SPECIFIED IN THE TEMPORARY STORM WATER SECTION OF THE APPROVED EDWARDS AQUIFER PROTECTION PLAN ARE REQUIRED DURING CONSTRUCTION. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THE CONTROLS MUST REMAIN IN PLACE UNTIL DISTURBED AREAS ARE REVEGETATED AND THE AREAS HAVE BECOME PERMANENTLY STABILIZED.
- 6. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
- 7. SEDIMENT MUST BE REMOVED FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS NOT LATER THAN WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
- 8. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFISTE.
- 9. ALL SPOILS (EXCAVATED MATERIAL) GENERATED FROM THE PROJECT SITE MUST BE STORED ON-SITE WITH PROPER E&S CONTROLS. FOR STORAGE OR DISPOSAL OF SPOILS AT ANOTHER SITE ON THE EDWARDS AQUIFER RECHARGE ZONE, THE OWNER OF THE SITE MUST RECEIVE APPROVAL OF A WATER POLLUTION ABATEMENT PLAN FOR THE PLACEMENT OF FILL MATERIAL OR MASS GRADING PRIOR TO THE PLACEMENT OF SPOILS AT THE OTHER SITE.
- 10. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARY OR PERMANENTLY CEASE IS PRECLUDED BY WEATHER CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 21 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE. IN AREAS EXPERIENCING DROUGHTS WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IS PRECLUDED BY SEASONAL ARID CONDITIONS, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
- 11. THE FOLLOWING RECORDS SHALL BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST: THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR; THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
- 12. THE HOLDER OF ANY APPROVED EDWARD AQUIFER PROTECTION PLAN MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
- 12.A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY WATER POLLUTION ABATEMENT STRUCTURE(S), INCLUDING BUT NOT LIMITED TO PONDS, DAMS, BERMS, SEWAGE TREATMENT PLANTS, AND DIVERSIONARY STRUCTURES;
- ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED OR A CHANGE WHICH WOULD SIGNIFICANTLY 12.B. IMPACT THE ABILITY OF THE PLAN TO PREVENT POLLUTION OF THE EDWARDS AQUIFER;
- 12.C. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE ORIGINAL WATER POLLUTION ABATEMENT PLAN.

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ENT FOUND/SET 900 E. Main Street Round Rock, TX 78664 Phone (512) 244-1546 Fax (512) 244-1010 www.heaeng.com OLE (DRAWN TO SCALE) TBPE Registration No. F-12709 WN TO SCALE) TO SCALE) TERRY R. HAGOO DLE (DRAWN TO SCALE) Mykiston THE SEAL APPEARING ON THIS DOCUMENT W AUTHORIZED BY TERRY R. HAGOOD, P.E. 52960 IS DRAWING MAY NOT BE MODIFIED WITHO SS WRITTEN CONSENT OF THE ENGINEER, A IN ONLY IN ACCORDANCE WITH THE RULES OF TEXAS ENGINEERING PRACTICE ACT JOB NO. 22-001 © 2022 HEA, Inc DATE SIGNED: 12/12/2024 ISSUED FOR: AGENCY REVIEW OL VALVE D GUTTER AS LINE ORM SEWER LINE ASTEWATER LINE ATER LINE FENCE <u>o</u> % 5 4 S DELECTRIC LINE Ω OUND ELECTRIC LINE M M M M TELEPHONE LINE DUND TELEPHONE LINE **H O H** (SIZE VARIES) 2 0 5 Z TER LINE (SIZE VARIES) N (SIZE VARIES) LINE IS O SIZE VARIES) e removed TREE (SIZE VARIES)

GENERAL NOTES

CONCRETE SIDEWALK

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HAGOOD

900 E. Main Street

Fax (512) 244-1010

www.heaeng.com TBPE Registration No. F-12709

TERRY R. HAGOOD 52960

Round Rock, TX 78664 Phone (512) 244-1546

1. CONTRACTOR TO ENSURE AT ALL TIMES, CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THROUGH A STABILIZED CONSTRUCTION entrance.

2. ALL DIRT, MUD, ROCKS, DEBRIS, ETC. SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON ANY EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

3. CONTRACTOR TO IMPLEMENT TRAFFIC CONTROL MEASURES AS REQUIRED WHEN NECESSARY.

4. EROSION CONTROLS SHALL BE IN PLACE PRIOR TO ANY DEMOLITION.

5. THE CONTRACTOR SHALL CONSTRUCT AN ALL WEATHER SURFACE ACCESS DRIVE PRIOR TO GOING VERTICAL WITH THE BUILDING STRUCTURE. DIRT WORK AND FOUNDATION WORK MAY BE DONE PRIOR TO THE CONSTRUCTION OF THIS REQUIREMENT. ALL WEATHER SURFACE IS DEFINED AS ASPHALT, CONCRETE OR CHIP SEAL OVER AN ENGINEERED COMPACTED BASE.

6. ALL DISTURBED AREAS SHALL BE REVEGETATED AND ESTABLISHED PER CITY OF ROUND ROCK AND TCEQ REQUIREMENTS PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.

7. DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE SITE INSPECTOR.

HAGOOD

900 E. Main Street Round Rock, TX 78664

Phone (512) 244-1546

Fax (512) 244-1010

- 1. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- 2. ALL EXISTING GROUND LEVEL APPURTENANCES ARE SUBJECT TO ELEVATION CHANGES AND SHALL BE ADJUSTED TO FINAL GRADE.
- 3. ALL WASTEWATER MANHOLES SHALL BE COATED AND VACUUM TESTED.
- 4. MANHOLES OUTSIDE OF PAVEMENT SHALL HAVE BOLTED COVERS. 5. ALL GRAVITY WASTEWATER LINES ARE TO BE CONSTRUCTED OF SDR-26. 6. ALL NON-CITY/NON-MUD INFRASTRUCTURE INCLUDING GAS, ELECTRIC CABLE, AND TELECOMMUNICATIONS SHALL TRAVERSE UNDERNEATH CITY/MUD INFRASTRUCTURE, INCLUDING BUT NOT LIMITED TO WATERLINES, WASTEWATER LINES, AND STORM SEWERS, WITH A MINIMUM OUTSIDE-TO-OUTSIDE CLEARANCE OF 18" WHERE NON-CITY/NON-MUD INFRASTRUCTURE WOULD HAVE TO BE PLACED AT A DEPTH OF 8' OR GREATER TO MEET THE PRECEDING REQUIREMENT, TRAVERSING ABOVE CITY/MUD INFRASTRUCTURE MAY BE ALLOWED, SUBJECT TO THE APPROVAL OF THE CITY/MUD ENGINEER, BUT ONLY IN CONFORMANCE
- WITH CROSS-SECTIONS, PROFILES, AND / OR OTHER DETAILED INFORMATION INCORPORATED IN THESE PLANS. WHERE EXISTING NON-CITY/NON MUD UTILITIES ARE ENCOUNTERED, THEY ARE TO REMAIN AND, IF NEEDED, TO BE ROUTED UNDER UTILITY
- PROVIDER OVERSIGHT AND DUE PROCESS. 8. MAINTAIN MIN. 18" OF CLEARANCE OUTSIDE-TO-OUTSIDE WITH STORM
- SEWER PIPE WHERE WATERLINE CROSSES UNDER STORM SEWER UTILITY. 9. CONTRACTOR TO STAKEOUT WATERLINE EASEMENT PRIOR TO THE
- INSTALLATION OF THE WATERLINE, FOR INSTALLATION ACCURACY. 10. FOR ALL POINTS WHERE A WASTEWATER GRAVITY OR FORCE MAIN LINE
- CROSSES UNDER A PUBLIC WATER SUPPLY OR WATER SERVICE: 10.1. VERTICAL SEPARATION MUST BE AT LEAST TWO FEET FROM OUTSIDE DIAMETERS OF PIPES;
- 10.2. WASTEWATER PIPE WITH A MINIMUM PRESSURE RATING OF 150 PSI; 10.3. ONE SEGMENT OF WATER LINE SHALL BE CENTERED ON CROSSING.
- 11. FOR ALL POINTS WHERE A WASTEWATER GRAVITY OR FORCE MAIN LINE CROSSES OVER A PUBLIC WATER SUPPLY OR WATER SERVICE: 11.1. VERTICAL SEPARATION MUST BE AT LEAST TWO FEET FROM OUTSIDE
- DIAMETERS OF PIPE; 11.2. WATER SHALL BE PLACED IN AN ENCASEMENT CENTERED ON THE CROSSING, SEALED AT BOTH ENDS WITH CEMENT GROUT OR
- MANUFACTURED SEAL, AT LEAST TWO NOMINAL SIZES LARGER, AND SUPPORTED BY SPACERS AT 5' INTERVALS;
- 11.3. ONE SEGMENT OF WATERLINE SHALL BE CENTERED ON CROSSING. 12. FOR WASTEWATER OR FORCE MAIN LINES THAT PARALLEL PUBLIC WATER OR WATER SERVICES: 12.1. SEPARATION MUST BE AT LEAST NINE FEET FROM OUTSIDE
- DIAMETERS OF PIPE IN ANY DIRECTION;
- 13. ALL WATER LINE FITTINGS SHALL BE RESTRAINED AND THRUST BLOCKED. 14. UNLESS OTHERWISE SPECIFIED, ALL WATER MAINS SHALL BE
- CONSTRUCTED OF C900 DR-14 PVC. 15. PROVIDE 3' CLEAR AREA AROUND FIRE HYDRANTS.
- 16. ALL FIRE SERVICE LEADS SHALL BE DUCTILE IRON.
- 17. VALVES SHALL BE AMERICAN DARLING BRAND.
- 18. FIRE HYDRANTS SHALL BE AMERICAN DARLING BRAND. 19. CONTRACTOR SHALL PATCH ALL PAVEMENT PER DETAIL 13/C72.

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CONCRETE PAVING

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CONCRETE SIDEWALK

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NOTES: 1. MARMAC DP AT JOINTS OF DISSIMILAR PIPES.

