WESTINGHOUSE FLEX – NORTH

Water Pollution Abatement Plan Modification and Sewage Collection System Application

July 2024

PAPE-DAWSON ENGINEERS

Transportation | Water Resources | Land Development | Surveying | Environmental

PAPE-DAWSON ENGINEERS

July 1, 2024

Ms. Lillian Butler
Texas Commission on Environmental Quality (TCEQ)
Region 11
12100 Park 35 Circle, Bldg A, Rm 179
Austin, TX 78753

Re: Westinghouse Flex North
Water Pollution Abatement Plan Modification & Sewage Collection System

Dear Ms. Butler:

Please find included herein the Westinghouse Flex North Water Pollution Abatement Plan Modification & Sewage Collection System. This Water Pollution Abatement Plan Modification has been prepared in accordance with the regulations of the Texas Administrative Code (30 TAC 213) and current policies for development over the Edwards Aquifer Recharge Zone. This Sewage Collection System Application has been prepared to be consistent with the regulations of the Texas Administrative Code (30 TAC 213, 217, and 290) and current policies for development over the Edwards Aquifer Recharge Zone.

This Water Pollution Abatement Plan Modification applies to an approximate 9.021-acre site as identified by the project limits. This Sewage Collection System Application applies to the 423.68-linear feet of sewer main proposed as part of this project. Please review the plan information for the items it is intended to address. If acceptable, please provide a written approval of the plan in order that construction may begin at the earliest opportunity.

Appropriate review fees ($5,000 and $650) and fee application are included. If you have questions or require additional information, please do not hesitate to contact me at your earliest convenience.

Sincerely,
Pape-Dawson Consulting Engineers, LLC

Shelly Mitchell, P.E.
Vice President

07/08/2024

Attachments

H:\Projects\513\70\00\301 Construction Documents\WPAP MOD North\Word\240621a1.docx

WESTINGHOUSE FLEX – NORTH

Water Pollution Abatement Plan Modification and Sewage Collection System Application

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PAPE-DAWSON ENGINEERS

EDWARDS AQUIFER APPLICATION COVER PAGE (TCEQ-20705)

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

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

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains "possibly sensitive" features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

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

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

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

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

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

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

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

1. Regulated Entity Name: Westinghouse Flex North						**2. Regulated Entity No.:** 110424017			
3. Customer Name: Mays Westinghouse Crossing, LLC						**4. Customer No.:** 606180263			
5. Project Type: **(Please circle/check one)**	New		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**			9.021
9. Application Fee:	$5,000 & $650		**10. Permanent BMP(s):**			Batch Detention Basin, VFS			
11. SCS (Linear Ft.):	423.68		**12. AST/UST (No. Tanks):**						
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.)	☐	☐	✔
Region (1 req.)	☐	☐	✔
County(ies)	☐	☐	✔
Groundwater Conservation District(s)	☐ Edwards Aquifer Authority ☐ Barton Springs/ Edwards Aquifer ☐ Hays Trinity ☐ Plum Creek	☐ Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	☐ Austin ☐ Buda ☐ Dripping Springs ☐ Kyle ☐ Mountain City ☐ San Marcos ☐ Wimberley ☐ Woodcreek	☐ Austin ☐ Bee Cave ☐ Pflugerville ☐ Rollingwood ☐ Round Rock ☐ Sunset Valley ☐ West Lake Hills	☐ Austin ☐ Cedar Park ☐ Florence ✔ Georgetown ☐ Jerrell ☐ Leander ☐ Liberty Hill ☐ Pflugerville ☐ Round Rock

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

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Shelly Mitchell, P.E.
Print Name of Customer/Authorized Agent Shelly Mitchell 07/08/2024
Signature of Customer/Authorized Agent Date

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

GENERAL INFORMATION FORM (TCEQ-0587)

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: Shelly Mitchell, P.E.

Date: 07/08/2024

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Westinghouse Flex North
2. County: Williamson
3. Stream Basin: Brushy Creek
4. Groundwater Conservation District (If applicable): N/A
5. Edwards Aquifer Zone:

   ☒ Recharge Zone
   ☒ Transition Zone

6. Plan Type:

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

7. Customer (Applicant):

   Contact Person: Edward A. St. John
   Entity: Mays Westinghouse Crossing, LLC
   Mailing Address: 3800 N Lamar Blvd, Ste 200
   City, State: Georgetown, TX Zip: 78756
   Telephone: (410) 788-0100 FAX: _____
   Email Address: mvannewkirk@sjpi.com

8. Agent/Representative (If any):

   Contact Person: Shelly Mitchell, P.E.
   Entity: Pape-Dawson Consulting Engineers, LLC
   Mailing Address: 10801 N MoPac Expy, Bldy 3 - Ste 200
   City, State: Austin, TX Zip: 78759
   Telephone: (512) 454-8711 FAX: _____
   Email Address: smitchell@pape-dawson.com

9. Project Location:

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

    From TCEQ's Regional Office, turn left on Park 35 Cir toward I-35. travel approximately 11 miles north on I-35 before taking exit 257 toward Westinghouse Rd. Travel 0.4 mi on I-35 Frontage Rd and turn right onto Bass Pro Dr. In approximately 0.7 miles, turn left onto N Mays St. The project is located approximately 0.4 miles south of the N Mays St and Westinghouse Rd 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: when advised by TCEQ

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

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

15. Existing project site conditions are noted below:

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

Prohibited Activities

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

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

(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

(4) The use of sewage holding tanks as parts of organized collection systems; and

(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

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

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

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

Administrative Information

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

☒ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
☒ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
☐ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

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

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

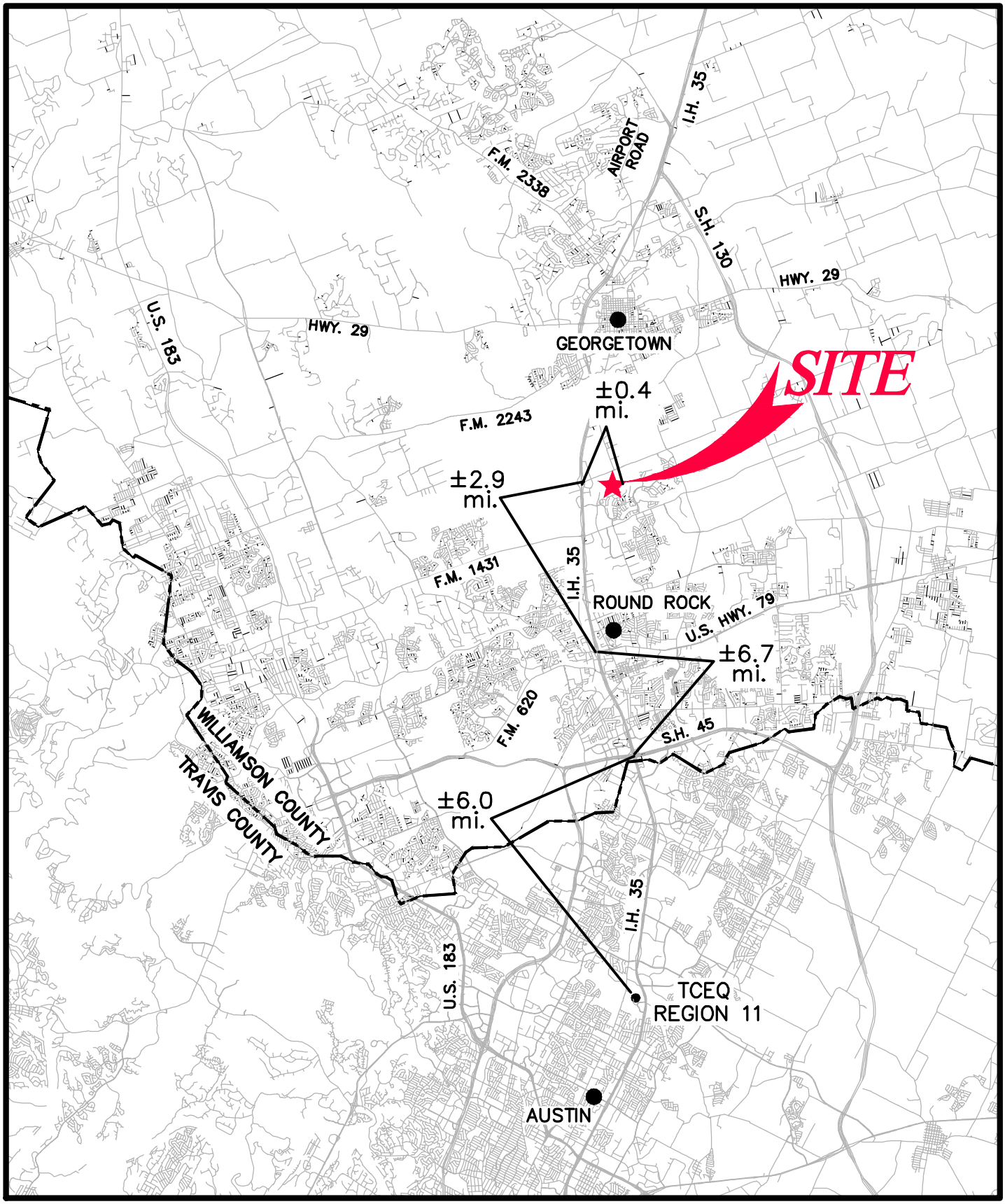
21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

ATTACHMENT A

WESTINGHOUSE FLEX

Water Pollution Abatement Plan Modification

NOT TO SCALE



Pape-Dawson Engineers, Inc.

Date: Aug 10, 2023, 10:48am User ID: mgregory
File: H:\Projects\513\70\00\301 Construction Documents\WPAP\Sections\Design\RM 5137000.dwg

ATTACHMENT A
Road Map

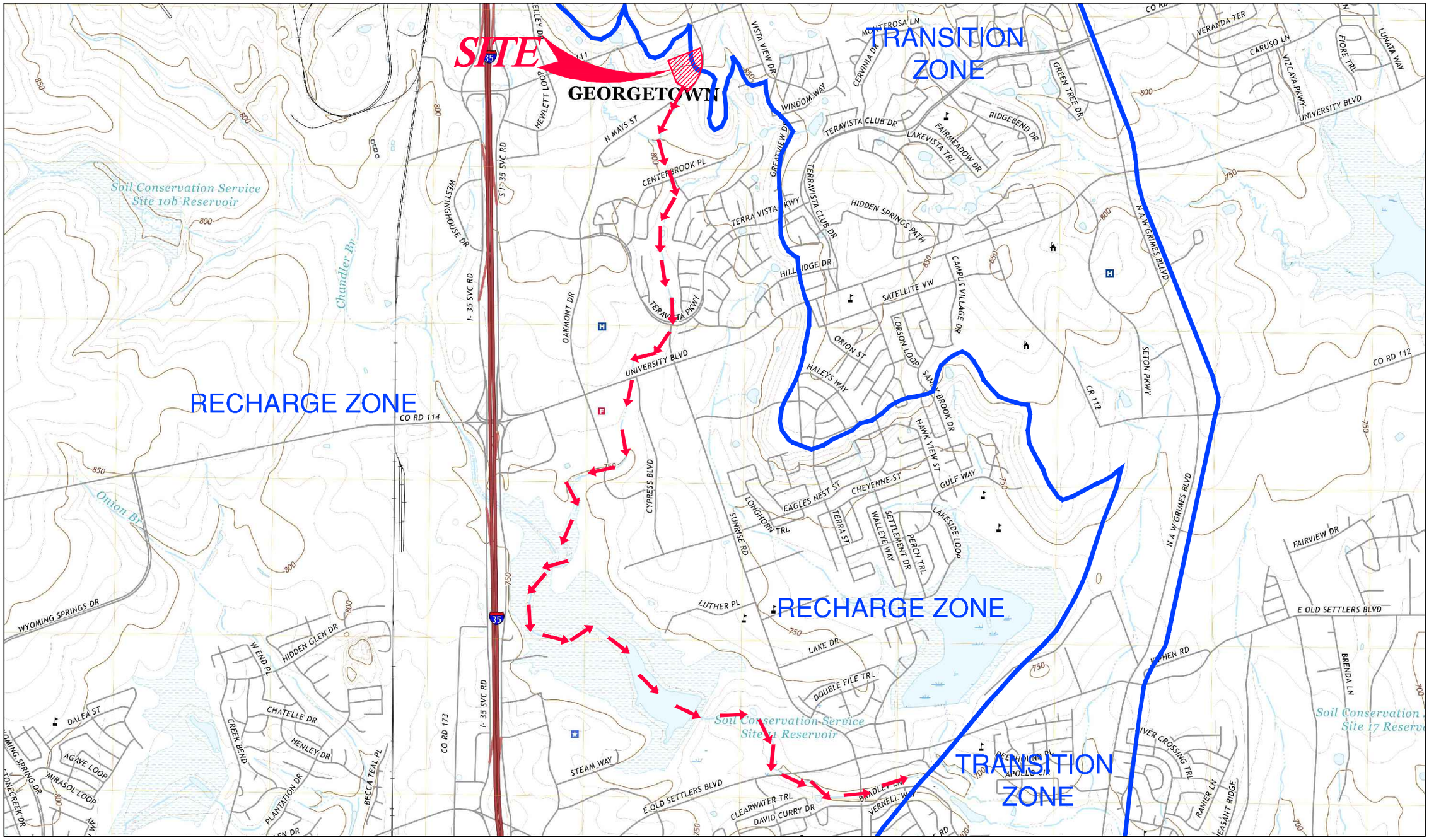
ATTACHMENT B

WESTINGHOUSE FLEX

Water Pollution Abatement Plan Modification

N

SCALE: 1" = 2000'



Date: Jun 27, 2024, 2:46pm User ID: mgregory
File: H:\Projects\513\70\00\301 Construction Documents\WPAP\Sections\Design\QD 5137000.dwg

GENERAL LOCATION MAP - ROUND ROCK, TX QUAD;
WEIR, TX QUAD
DRAINAGE FLOW → →

USGS/EDWARDS RECHARGE ZONE MAP

ATTACHMENT B

ATTACHMENT C

WESTINGHOUSE FLEX – NORTH
Water Pollution Abatement Plan Modification

Attachment C – Project Description

The Westinghouse Flex – North Water Pollution Abatement Plan Modification (WPAP MOD) is a modification of the previously approved Westinghouse Flex WPAP (ID 11003708), approved on October 27, 2023. The previous plan approved an industrial development on approximately 33.33 acres, including a north and south site, with 17.45 acres of total impervious cover. This WPAP modification is for the north site only. The site is located approximately 0.4 miles south of the N Mays St and Westinghouse Rd intersection. The site is cleared and undeveloped, lies within the Brushy Creek watershed in both the Edwards Aquifer Recharge and Transition Zones, and does not contain the 100-year floodplain. The Geologic Assessment identified zero naturally occurring sensitive geological features.

This WPAP MOD proposes additional clearing and grading for the construction of two (2) deceleration lanes for the north site. The Permanent Best Management Practices (PBMPs) for this north site are the previously approved batch detention basin "A" (ID 11003708) and the proposed 15' engineered VFS, which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) form the site as required by TCEQ and 85% removal per the City of Georgetown guidelines. Approximately 4.871 total acres of impervious cover, or 54% of the 9.021-acre site, are proposed for this site. There are approximately 0.1304 acres of existing impervious cover within the project limits to remain, for a total of 4.974 acres of impervious cover overall. Part of the previously uncaptured driveway will now be captured by the proposed fifteen-foot (15') engineered vegetative filter strip (VFS). No modifications are proposed to the previously approved basin. Overtreatment for the approximately 0.275 acres of uncaptured impervious cover has been accounted for via the approved detention basin. Please see the Treatment Summary Table attached with this application for a full breakdown of the impervious cover.

The previously approved Westinghouse Flex overall site also approved the construction of sanitary sewer main. This Westinghouse Flex – North SCS proposes the modification of the north sewer main alignment, resulting in a change in the linear footage. The proposed alignment consists of approximately 57.27 LF of 6-inch (6") polyvinyl chloride (PVC), SDR 26 gravity main and approximately 366.41 LF of 8-inch (8") PVC SDR 26 gravity main. Regulated activities proposed include excavation, construction of sewer mains, manholes, and compaction. Approximately 0.97 acres may be disturbed as identified by the limits of the fifty-foot (50') SCS/GA envelope shown on the plans; however, additional regulated activities will disturb 9.021 acres for the overall north site development, in accordance with the concurrent WPAP.

The proposed development will generate approximately 5,844 gallons per day (average flow) of domestic wastewater based on 55,434 SF of industrial building space (55,434 SF * 1 LUE/1,660 SF * 175 GPD/LUE). Wastewater will be disposed of by the Dove Springs Wastewater Treatment Plant. Potable water service is to be provided by the City of Georgetown.

GEOLOGIC ASSESSMENT FORM (TCEQ-0585)

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

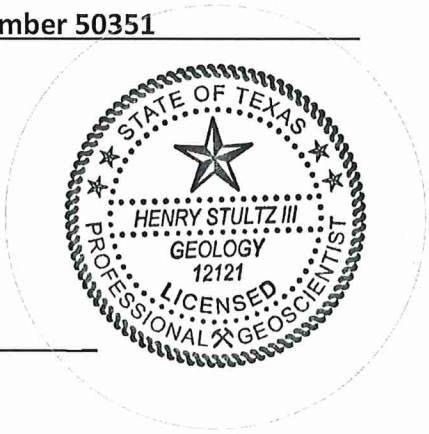
To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Print Name of Geologist: **Henry E. Stultz III, P.G.** Telephone: **210-375-9000**

Date: July 5, 2023 Fax: **210-375-9090**

Representing: **Pape-Dawson Engineers, Inc., TBPG registration number 50351**

Signature of Geologist:



Regulated Entity Name: **WESTINGHOUSE FLEX**

Project Information

1. Date(s) Geologic Assessment was performed: **March 22, 2023**
2. Type of Project:
   - ☒ WPAP
   - ☒ SCS
   - ☐ AST
   - ☐ UST
3. Location of Project:
   - ☒ Recharge Zone
   - ☐ Transition Zone
   - ☐ Contributing Zone within the Transition Zone

4. ☒ **Attachment A - Geologic Assessment Table**. Completed Geologic Assessment Table (Form TCEQ-0585-Table) is attached.

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

Table 1 - Soil Units, Infiltration Characteristics and Thickness

Soil Name	Group*	Thickness (feet)
Doss silty clay, moist, 1 to 5 percent slopes (DoC)	D	1-2
Ferris-Heiden complex, 5 to 15 percent slopes, moderately eroded (FhF2)	D	3-4
Heiden clay, 5 to 8 percent slopes, eroded (HeiD3)	D	3-4
Heiden extremely stony clay, 3 to 12 percent slopes (HesE)	D	1-2
Houston Black clay, 1 to 3 percent slopes (HoB)	D	5-6
Houston Black clay, 3 to 5 percent slopes, moderately eroded (HoC2)	D	5-6

** Soil Group Definitions (Abbreviated)*

A. Soils having a high infiltration rate when thoroughly wetted.

B. Soils having a moderate infiltration rate when thoroughly wetted.

C. Soils having a slow infiltration rate when thoroughly wetted.

D. Soils having a very slow infiltration rate when thoroughly wetted.

6. ☒ **Attachment B – Stratigraphic Column**. A stratigraphic column showing formations, members, and thicknesses is attached. The outcropping unit, if present, should be at the top of the stratigraphic column. Otherwise, the uppermost unit should be at the top of the stratigraphic column.

7. ☒ **Attachment C – Site Geology**. A narrative description of the site specific geology including any features identified in the Geologic Assessment Table, a discussion of the potential for fluid movement to the Edwards Aquifer, stratigraphy, structure(s), and karst characteristics is attached.

8. ☒ **Attachment D – Site Geologic Map(s)**. The Site Geologic Map must be the same scale as the applicant's Site Plan. The minimum scale is 1": 400'

Applicant's Site Plan Scale: 1" = **100'**
Site Geologic Map Scale: 1" = **100'**
Site Soils Map Scale (if more than 1 soil type): 1" = **400'**

9. Method of collecting positional data:

   ☒ Global Positioning System (GPS) technology.
   ☐ Other method(s). Please describe method of data collection:_____

10. ☒ The project site and boundaries are clearly shown and labeled on the Site Geologic Map.

11. ☒ Surface geologic units are shown and labeled on the Site Geologic Map.

12. ☒ Geologic or manmade features were discovered on the project site during the field investigation. They are shown and labeled on the Site Geologic Map and are described in the attached Geologic Assessment Table.

    ☐ Geologic or manmade features were not discovered on the project site during the field investigation.

13. ☒ The Recharge Zone boundary is shown and labeled, if appropriate.

14. All known wells (test holes, water, oil, unplugged, capped and/or abandoned, etc.): If applicable, the information must agree with Item No. 20 of the WPAP Application Section.

    ☐ There are ____(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply.)
    ☐ The wells are not in use and have been properly abandoned.
    ☐ The wells are not in use and will be properly abandoned.
    ☐ The wells are in use and comply with 16 TAC Chapter 76.
    ☒ There are no wells or test holes of any kind known to exist on the project site.

Administrative Information

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

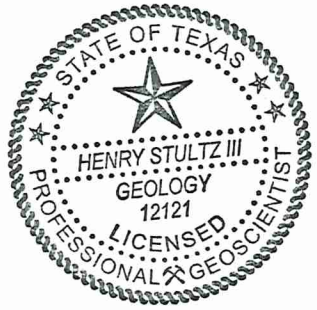
ATTACHMENT A
Geologic Assessment Table

GEOLOGIC ASSESSMENT TABLE

PROJECT NAME: WESTINGHOUSE FLEX

LOCATION			FEATURE CHARACTERISTICS											EVALUATION			PHYSICAL SETTING		
1A	1B *	1C*	2A	2B	3	4			5	5A	6	7	8A	8B	9	10		11	12
FEATURE ID	LATITUDE	LONGITUDE	FEATURE TYPE	POINTS	FORMATION	DIMENSIONS (FEET)			TREND (DEGREES)	DOM	DENSITY (NO/FT)	APERTURE (FEET)	INFILL	RELATIVE INFILTRATION RATE	TOTAL	SENSITIVITY		CATCHMENT AREA (ACRES)		TOPOGRAPHY
						X	Y	Z		10						<40	>40	<1.6	>1.6	
S-1	30.57527	-97.68125	F	20	Kdr, Kbu, Kgt				N20E	10			F	5	35	35		X		Hillside
S-2	30.57329	-97.68071	MB	30	Kdr								F	5	35	35			X	Hillside
S-3	30.57810	-97.68913	MB	30	Kdr, Kbu, Kgt								F,C	20	50		50	X		Hillside
S-4	30.57693	-97.67974	MB	30	Kdr, Kgt								F,C	20	50		50		X	Hillside
S-5	30.57777	-97.67943	MB	30	Kdr, Kbu, Kgt								F,C	20	50		50		X	Hillside
S-6	30.57918	-97.68061	MB	30	Kdr, Kbu								F,C	20	50		50		X	Hillside
S-7	30.57434	-97.68005	MB	30	Kdr								F,C	20	50		50		X	Hillside
S-8	30.57625	-97.67824	MB	30	Kbu								F,C	20	50		50		X	Hillside

** DATUM: NAD 83



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

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

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

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

Date March 31, 2023

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

ATTACHMENT A

ATTACHMENT B
Stratigraphic Column

Attachment B – Stratigraphic Column

Period	Epoch	Group	Formation	Member	Maximum Thickness	Lithology	Hydrologic Unit
Cretaceous	Late Cretaceous	Washita	Buda Limestone	--	40–50	Buff to light gray, dense nodular mudstone and wackestone containing calcite-filled veins and bluish dendrites; porcelaneous limestone that weathers from a smooth gray to grayish white; nodular surface has a conchoidal fracture; commonly contains iron nodules, iron staining, and shell frags	Confining
			Del Rio Clay	--	40–50	Fossiliferous blue-green to yellow-brown clay with thin beds of packstone; contains iron nodules; *Ilymatogyra arietina*	Confining
			Georgetown		100	Reddish-brown, gray to light tan, shaley mudstone and wackestone; commonly contains black dendrites, iron nodules, and iron staining; often fossiliferous with *Plesioturrilites brazoensis* , *Waconella wacoensis* common	Edwards Aquifer
	Early Cretaceous	Fredericksburg	Edwards	1	80–90	Gray to tan, hard, dense, thick-to thin-bedded, fine-grained limestone with soft dolomitic limestone zone near middle	
				2		Gray to tan, soft, nodular-weathering marly limestone	
				3		Light gray to tan, fine-to-medium-grained, hard, thin-to thick-bedded limestone; chert nodules in lower third	
				4		Gray-brown, thin-to medium-bedded, porous dolomite, dolomitic limestone, and limestone; chert common; solution collapse zone at top	
			Comanche Peak		60-64	White, irregularly bedded nodular limestone interbedded with marl to gray fine-grained, nodular limestone, marly limestone, and marl. Large gastropods and pelecypods occur in abundance throughout the limestone.	
			Walnut	Keys Valley	70-120	Gray to tan, soft marl and nodular limestone with abundant fossils	
				Whitestone		Gray to tan, hard, fine-to medium-grained, thin-to thick-bedded fossiliferous limestone	
				Cedar Park		Gray to tan, thin-to thick-bedded, fine-to medium-grained, hard limestone	
				Bee Cave		Gray to tan, soft, nodular-weathering, fine-grained limestone, marly limestone, and marl with abundant fossil shells	
				Bull Creek		Gray to tan, hard, fine-to medium-grained, thin to thick-bedded limestone; shell fragments common	
		Trinity	Glen Rose	Upper Glen Rose	450	Alternating resistant and nonresistant beds of blue shale, nodular marl, and impure, fossiliferous limestone; gray to yellowish gray; stair-step topography; contains two distinct evaporite zones; distinct *Corbula* sp. bed marks the contact with the underlying lower member of the Glen Rose Limestone; *Orbitulina texana*	Upper Trinity

ATTACHMENT C
Site Geology

Attachment C – Site Geology

SUMMARY

The Westinghouse Flex Site is located along the north and south sides of North Mays Street, ¼ mile south of Westinghouse Road in Williamson County, Texas.

Based on the results of the field survey conducted in accordance with *Instructions for Geologists for Geologic Assessments in the Edwards Aquifer Recharge/Transition Zones (TCEQ-0585 Instructions),* no naturally occurring sensitive features were identified on site. The overall potential for fluid migration to the Edwards Aquifer for the site is low.

A stream was identified on site. The unnamed tributary of Chandler Branch Tributary 1 generally flows from north to south along the west boundary of the southwest portion of the site. The stream is located within the Turkey Creek-Brushy Creek watershed.

No springs exist on site.

SITE GEOLOGY

As observed through field evidence, the geologic formation which outcrops at the surface within the subject site is the Buda Limestone (Kbu), Del Rio Clay (Kdr), and Georgetown (Kgt) formations. A description of the formations observed onsite is provided below:

- The Kgt is characterized by reddish-brown to light tan marly limestone. Karst development within the Kgt does not occur.
- The Kdr is a blue-green to yellow-brown waxy clay. Karst development within the Kdr does not occur.
- The Kbu is characterized by buff, light gray, dense mudstone. Karst development in the Kbu is generally minor.

The predominant trend of faults in the vicinity of the site is approximately N20°E, based on faults identified during the previous mapping of the area.

FEATURE DESCRIPTIONS:

A description of the features observed onsite is provided below:

Feature S-1

Feature S-1 is an intraformational fault within the Kdr. At places within the site, it drops the Kbu and Kdr against the Kdr and Kgt respectively. It was identified by review of aerial photography and published maps. Lack of evidence of enhanced permeability and the presence of fine-grained soil cover suggests a low probability for rapid infiltration.

Feature S-2

Feature S-2 is a sediment basin. Due to the non-karst nature of the feature, the probability of rapid infiltration is low.

Feature S-3

Feature S-3 is a series of existing sewer lines that are partially located beneath pavement. The sewer lines have been trenched through bedrock and backfilled with a mix of fine and course fill material that may be more permeable than surrounding undisturbed areas. Therefore, the probability of rapid infiltration is intermediate.

Feature S-4 through S-8

Features S-4 through S-8 are a series of existing storm drain lines that are partially located beneath pavement. The storm drain lines have been trenched through bedrock and backfilled with a mix of fine and course fill material that may be more permeable than surrounding undisturbed areas. Therefore, the probability of rapid infiltration is intermediate.

REFERENCES

Collins, E.W., 1997, Georgetown Quadrangle, University of Texas at Austin, Bureau of Economic Geology, Series unknown, 1:24,000.

Nationwide Environmental Title Research, LLC. Historical Aerials, HistoricAerials.com. https://www.historicaerials.com/viewer, July 5, 2023.

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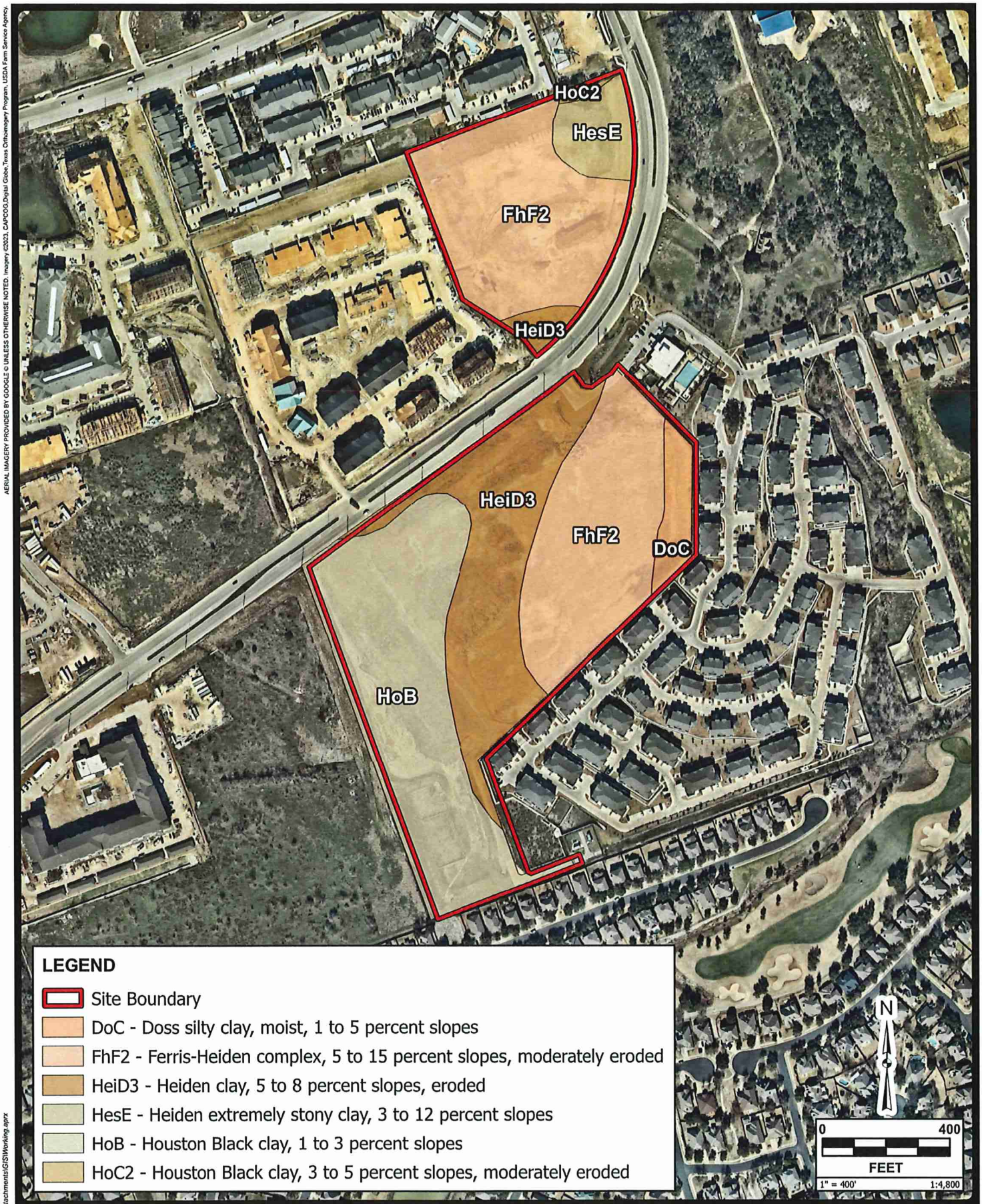
Stein, W.G., and Ozuna, G.B., 1995, Geologic framework and hydrogeologic characteristics of the Edwards Aquifer recharge zone, Bexar County, Texas: U.S. Geological Survey Water-Resources Investigations Report 95–4030, 8 p.

Texas Water Development Board, Wells in TWDB Groundwater Database Viewer, https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer, July 5, 2023

U.S. Geological Survey, National Water Information System: Mapper, https://maps.waterdata.usgs.gov/mapper/index.html, July 5, 2023.

ATTACHMENT D
Site Geologic Map(s)



AERIAL IMAGERY PROVIDED BY GOOGLE © UNLESS OTHERWISE NOTED. Imagery ©2023, CAPCOG,Digital Globe, Texas Orthoimagery Program, USDA Farm Service Agency.

LEGEND

- Site Boundary
- DoC - Doss silty clay, moist, 1 to 5 percent slopes
- FhF2 - Ferris-Heiden complex, 5 to 15 percent slopes, moderately eroded
- HeiD3 - Heiden clay, 5 to 8 percent slopes, eroded
- HesE - Heiden extremely stony clay, 3 to 12 percent slopes
- HoB - Houston Black clay, 1 to 3 percent slopes
- HoC2 - Houston Black clay, 3 to 5 percent slopes, moderately eroded

JOB NO.	51370-00
DATE	Mar 2023
DESIGNER	HS
CHECKED	HDJ
SHEET	ATTACHMENT D

WESTINGHOUSE FLEX

WILLIAMSON COUNTY, TEXAS

SITE SOILS MAP

PAPE-DAWSON ENGINEERS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Date: Mar 29, 2023 1:05 PM User: hstultz
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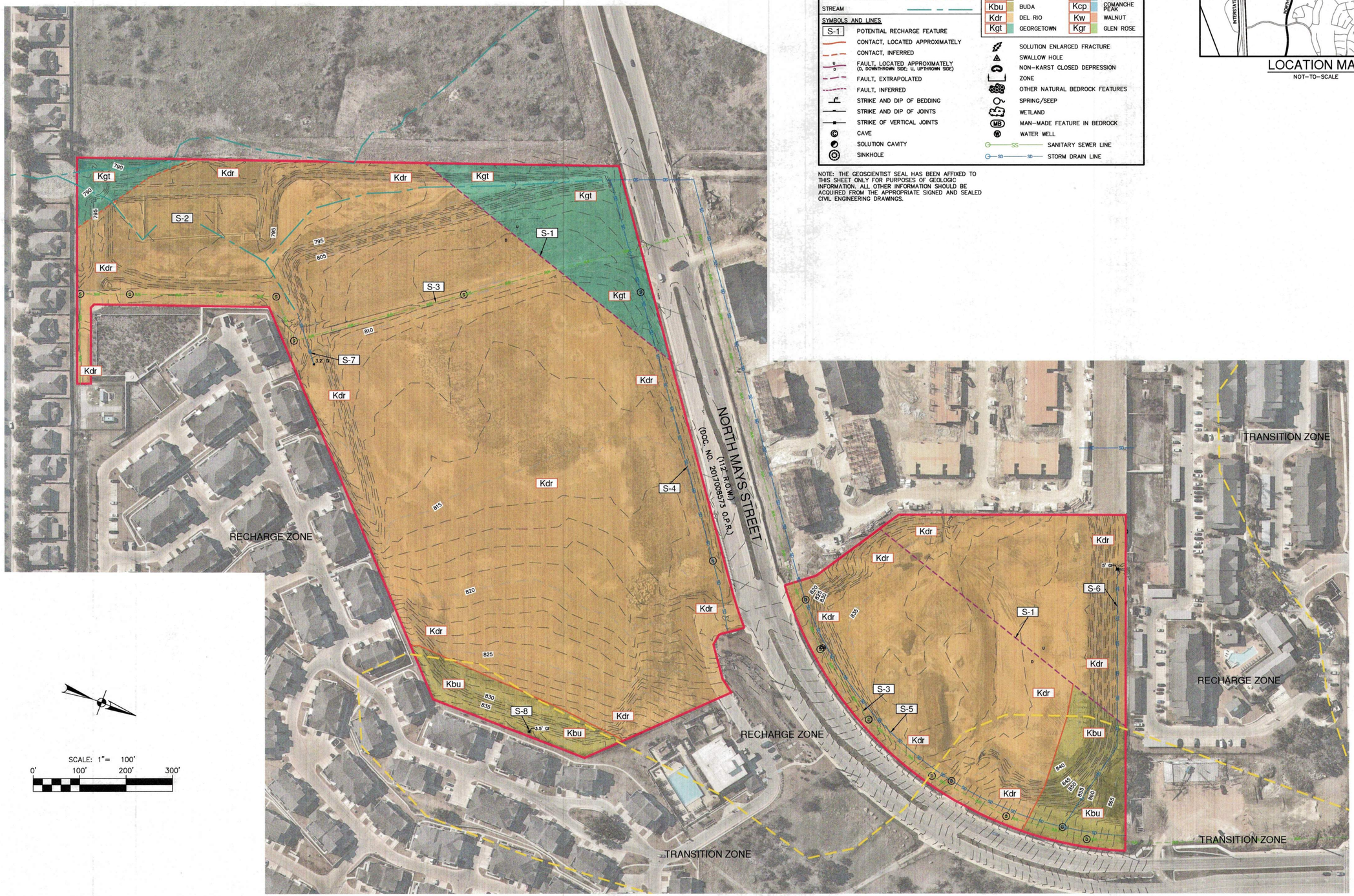


LEGEND

PROJECT LIMITS

100 YEAR FLOODPLAIN

STREAM

SYMBOLS AND LINES

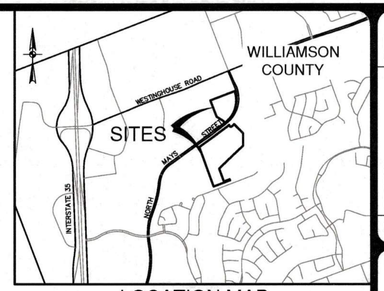
- S-1 — POTENTIAL RECHARGE FEATURE
- CONTACT, LOCATED APPROXIMATELY
- CONTACT, INFERRED
- FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
- FAULT, EXTRAPOLATED
- FAULT, INFERRED
- STRIKE AND DIP OF BEDDING
- STRIKE AND DIP OF JOINTS
- STRIKE OF VERTICAL JOINTS
- CAVE
- SOLUTION CAVITY
- SINKHOLE

GEOLOGIC FORMATIONS

Kef	EAGLE FORD	Ked	EDWARDS
Kbu	BUDA	Kcp	COMANCHE PEAK
Kdr	DEL RIO	Kw	WALNUT
Kgt	GEORGETOWN	Kgr	GLEN ROSE

- SOLUTION ENLARGED FRACTURE
- SWALLOW HOLE
- NON-KARST CLOSED DEPRESSION
- ZONE
- OTHER NATURAL BEDROCK FEATURES
- SPRING/SEEP
- WETLAND
- MB — MAN-MADE FEATURE IN BEDROCK
- WATER WELL
- SS — SANITARY SEWER LINE
- SD — STORM DRAIN LINE

NOTE: THE GEOSCIENTIST SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR PURPOSES OF GEOLOGIC INFORMATION. ALL OTHER INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SIGNED AND SEALED CIVIL ENGINEERING DRAWINGS.



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 100'
0' 100' 200' 300'

NO.	REVISION	DATE

STATE OF TEXAS
HENRY STULTZ III
GEOLOGY
12121
LICENSED
PROFESSIONAL GEOSCIENTIST
March 31, 2023

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TBPE FIRM REGISTRATION #470 | TBPG FIRM REGISTRATION #50351

WESTINGHOUSE FLEX
GEORGETOWN, TEXAS

SITE GEOLOGIC MAP
WATER POLLUTION ABATEMENT PLAN

JOB NO. 51370-00
DATE MARCH 2023
DESIGNER HS
CHECKED HDJ DRAWN HS

ATTACHMENT D

Date: Mar 30, 2023, 3:52pm User ID: hstultz
File: H:\Projects\513\70\00\ENV\GA\Attachments\GA513700.dwg

MODIFICATION OF A PREVIOUSLY APPROVED WATER POLLUTION ABATEMENT PLAN (TCEQ-0590)

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), 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.

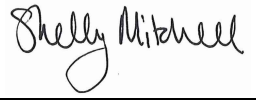
Signature

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 request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Shelly Mitchell, P.E.

Date: 07/08/2024

Signature of Customer/Agent:



Project Information

1. Current Regulated Entity Name: Westinghouse Flex - North
   Original Regulated Entity Name: Westinghouse Flex
   Regulated Entity Number(s) (RN): 110424017
   Edwards Aquifer Protection Program ID Number(s): 11003708 (WPAP); 11003709 (SCS)
   ☒ The applicant has not changed and the Customer Number (CN) is: 606180263
   ☐ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☐ 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;
   - ☐ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
   - ☒ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☒ Physical modification of the approved organized sewage collection system;
   - ☐ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	33.33	9.021
Type of Development	industrial	industrial
Number of Residential Lots	N/A	N/A
Impervious Cover (acres)	17.45	4.974 (4.871 proposed)
Impervious Cover (%	53.5	53
Permanent BMPs	2 batch detention basins	1 batch detention basin
Other	_____	1 15' VFS

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	860.27	423.68
Pipe Diameter	6"; 8"	6"; 8"
Other	_____	_____

AST Modification Summary	***Approved Project***	***Proposed Modification***
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	***Approved Project***	***Proposed Modification***
Number of USTs	_____	_____
Volume of USTs	_____	_____
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☒ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☒ Acreage has not been added to or removed from the approved plan.

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

ATTACHMENT A

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 27, 2023

Mr. Edward A. St. John
Mays Westinghouse Crossing, LLC
3800 N. Lamar Blvd., Ste. 200
Austin, TX 78756

Re: Modification of an approved Water Pollution Abatement Plan (WPAP-MOD) and Approval of an Organized Sewage Collection System (SCS) Plan
Westinghouse Flex; Located at 0.5 miles south of N. Mays St. and Westinghouse Rd.; Georgetown, Williamson County, Texas
Edwards Aquifer Protection Program ID No. 11003708 (WPAP-MOD) and 11003709 (SCS); Regulated Entity No. RN110424017

Dear Mr. St. John:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the applications for the above-referenced projects submitted to the Edwards Aquifer Protection Program (EAPP) by Pape-Dawson Engineers on behalf of the applicant, Mays Westinghouse Crossing, LLC, on September 7, 2023. Final review of the applications were completed after additional material was received on October 26, 2023 and October 27, 2023.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213 and Chapter §217. The permanent best management practices (BMPs), engineering design report, technical specifications and final design plans were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are hereby **approved,** subject to applicable state rules and the conditions in this letter.

This approval expires two years from the date of this letter, unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of this letter.

The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed in accordance with 30 TAC §50.139.

BACKGROUND

The New Westinghouse Investors Tract WPAP (EAPP ID No. 11002422), approved by letter dated May 20, 2021, included mass grading of the site.

PROJECT DESCRIPTION

WPAP DESCRIPTION

The proposed industrial project will have an area of approximately 33.33 acres. The modification will include construction of seven industrial flex buildings, associated parking and drives, utilities, and associated appurtenances. The impervious cover will be 17.45 acres (52.35 percent).

SCS DESCRIPTION

The proposed sewage collection system will provide disposal service for industrial development. The system includes gravity lines and other appurtenances necessary for conveying wastewater to a treatment plant.

The proposed SCS includes the lines listed in the table below:

Pipe Diameter (inches)	Linear Feet	Pipe Material	Specifications
6	244.36	PVC SDR 26	ASTM 3034
6	20	PVC SDR 26	ASTM 2241
8	570.91	PVC SDR 26	ASTM 3034
8	25	PVC SDR 26	ASTM 2241
Total Linear Feet	860.27		

TREATMENT FACILITY

The system will be connected to an existing City of Georgetown wastewater line for conveyance to the Dove Springs Wastewater Treatment Plant for treatment and disposal. **The proposed system shall be connected for conveyance prior to use of the development.** The project will conform to all applicable codes, ordinances, and requirements of the City of Georgetown.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, two batch detention basins (Batch A and Batch B), designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices,* will be constructed to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 15,186 pounds of TSS generated from the 17.45 acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The permanent BMPS shall be operational prior to occupancy or use of the proposed project. Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, the surficial units of the site are the Buda Limestone (Kbu), Del Rio Clay (Kdr) and Georgetown (Kgt) formations. No sensitive geologic features were identified in the GA. The site assessment conducted on October 3, 2023 by TCEQ staff determined the site to be generally as described by the GA.

SPECIAL CONDITIONS

I. This modification is subject to all the special and standard conditions listed in the approval letter dated May 20, 2021 (EAPP ID No. 11002422).

STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and technical specifications contained in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control, Water Quality) as required based on the specifics of the plan.

2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

Prior to Commencement of Construction:

3. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the plan holder must submit to the EAPP proof of recordation of notice in the county deed records, with the volume and page number(s) of the county record. A description of the property boundaries shall be included in the deed recordation in the county deed records. TCEQ form, Deed Recordation Affidavit (TCEQ-0625), may be used.

4. The plan holder of any approved Edwards Aquifer protection plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.

5. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. Notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person.

6. Temporary erosion and sedimentation (E&S) controls as described in the referenced application, must be installed prior to construction, and maintained during construction. Temporary E&S controls may be removed when vegetation is established, and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.

7. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring or gravel. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation.

During Construction:

8. This approval does not authorize the installation of temporary or permanent aboveground storage tanks on this project that will have a total storage capacity of 500 gallons or more of static hydrocarbons or hazardous substances without prior approval of an Aboveground Storage Tank facility application.

9. If any sensitive feature is encountered during construction, replacement, or rehabilitation on this project, all regulated activities must be **immediately** suspended near it and notification must be made to TCEQ EAPP staff. Temporary BMPs must be installed and maintained to protect the feature from pollution and contamination. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality.

10. All water wells, including injection, dewatering, and monitoring wells shall be identified in the geologic assessment and must be in compliance with the requirements of the Texas Department of Licensing and Regulation 16 TAC Chapter §76 and all other locally applicable rules, as appropriate.

11. If sediment escapes the construction site, the 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). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.

12. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.

13. The following records shall be maintained and made available to the executive director 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.

14. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

15. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE **must certify** in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.

16. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

17. No part of the organized sewage collection system may be used as a sewage holding tank, as defined in 30 TAC §213.3 (excluding lift stations), over the Edwards Aquifer recharge zone.

18. A Texas licensed PE **must certify** in writing that the new sewage collection system (including force mains) has passed all required testing. The certification shall be submitted to the EAPP within 30 days of test completion and prior to the new sewage collection system being put into service.

19. A Texas licensed PE **must certify** subsequent testing required every five years of the existing sewage collection system after being put into use to determine types and locations of structural damage and defects such as offsets, open joints, or cracked or crushed lines that would allow exfiltration to occur. The test results must be retained by the plan holder for five years and made available to the executive director upon request.

The holder of the approved Edwards Aquifer protection plan is responsible for compliance with Chapter §213 and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 and is subject to administrative rule or orders and penalties as provided under §213.10 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. Colin Gearing of the Edwards Aquifer Protection Program at 512-239-7015 or the regional office at 512-339-2929.

Sincerely,

Lillian Butler

Lillian Butler, Section Manager
Edwards Aquifer Protection Program
Texas Commission on Environmental Quality

LIB/cmg

cc: Ms. Shelly Mitchell, P.E., Pape-Dawson Engineers

ATTACHMENT B

WESTINGHOUSE FLEX – NORTH
Water Pollution Abatement Plan Modification

Attachment B – Narrative of Proposed Modification

The Westinghouse Flex – North Water Pollution Abatement Plan Modification (WPAP MOD) is a modification of the previously approved Westinghouse Flex WPAP (ID 11003708), approved on October 27, 2023. The previous plan approved an industrial development on approximately 33.33 acres, including a north and south site, with 17.45 acres of total impervious cover. This WPAP modification is for the north site only. The site is located approximately 0.4 miles south of the N Mays St and Westinghouse Rd intersection. The site is cleared and undeveloped, lies within the Brushy Creek watershed in both the Edwards Aquifer Recharge and Transition Zones, and does not contain the 100-year floodplain. The Geologic Assessment identified zero naturally occurring sensitive geological features.

This WPAP MOD proposes additional clearing and grading for the construction of two (2) deceleration lanes for the north site. The Permanent Best Management Practices (PBMPs) for this north site are the previously approved batch detention basin "A" (ID 11003708) and the proposed 15' engineered VFS, which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) form the site as required by TCEQ and 85% removal per the City of Georgetown guidelines. Approximately 4.871 total acres of impervious cover, or 54% of the 9.021-acre site, are proposed for this site. There are approximately 0.1304 acres of existing impervious cover within the project limits to remain, for a total of 4.974 acres of impervious cover overall. Part of the previously uncaptured driveway will now be captured by the proposed fifteen-foot (15') engineered vegetative filter strip (VFS). No modifications are proposed to the previously approved basin. Overtreatment for the approximately 0.275 acres of uncaptured impervious cover has been accounted for via the approved detention basin. Please see the Treatment Summary Table attached with this application for a full breakdown of the impervious cover.

The previously approved Westinghouse Flex overall site also approved the construction of sanitary sewer main. This Westinghouse Flex – North SCS proposes the modification of the north sewer main alignment, resulting in a change in the linear footage. The proposed alignment consists of approximately 57.27 LF of 6-inch (6") polyvinyl chloride (PVC), SDR 26 gravity main and approximately 366.41 LF of 8-inch (8") PVC SDR 26 gravity main. Regulated activities proposed include excavation, construction of sewer mains, manholes, and compaction. Approximately 0.97 acres may be disturbed as identified by the limits of the fifty-foot (50') SCS/GA envelope shown on the plans; however, additional regulated activities will disturb 9.021 acres for the overall north site development, in accordance with the concurrent WPAP.

The proposed development will generate approximately 5,844 gallons per day (average flow) of domestic wastewater based on 55,434 SF of industrial building space (55,434 SF * 1 LUE/1,660 SF * 175 GPD/LUE). Wastewater will be disposed of by the Dove Springs Wastewater Treatment Plant. Potable water service is to be provided by the City of Georgetown.

ATTACHMENT C

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex North
Date Prepared: 10/26/2023

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project — TCEQ 80% Removal

County =	Williamson	
Total project area included in plan * =	33.331	acres
Predevelopment impervious area within the limits of the plan * =	0.000	acres
Total post-development impervious area within the limits of the plan * =	17.447	acres
Total post-development impervious cover fraction * =	0.52	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	15186	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Batch A

Total drainage basin/outfall area =	7.79	acres
Predevelopment impervious area within drainage basin/outfall area =	0.00	acres
Post-development impervious area within drainage basin/outfall area =	4.49	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\ THIS\ BASIN}$ =	3908	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

Aquologic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_C x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	7.79	acres
A_I =	4.49	acres
A_P =	3.30	acres
L_R =	4576	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4461 lbs.

F = 0.97

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	3.00	inches
Post Development Runoff Coefficient =	0.40	
On-site Water Quality Volume =	34258	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6852	
Total Capture Volume (required water quality volume(s) x 1.20) =	**41110**	cubic feet

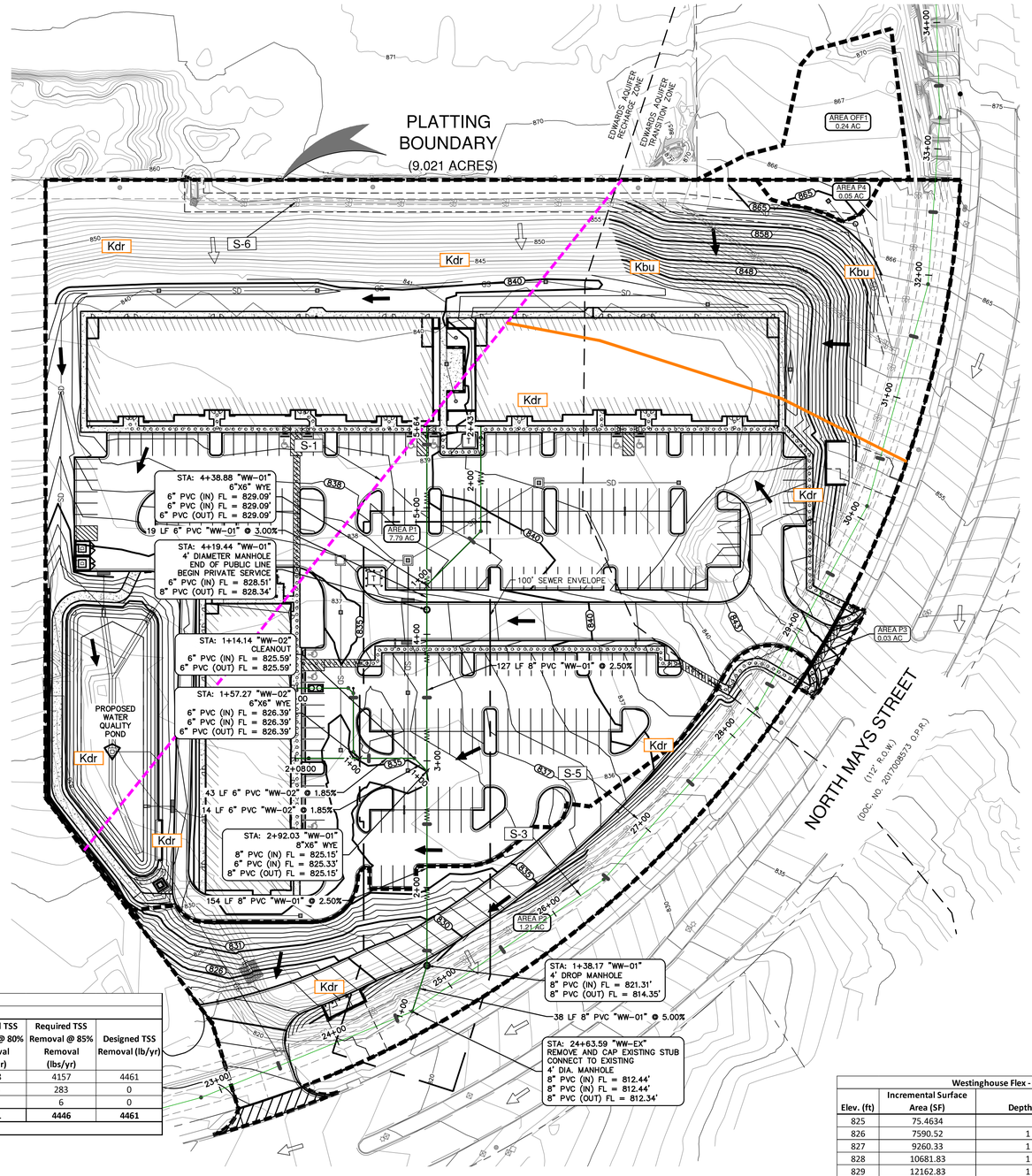
The following sections are used to calculate the required water quality volume(s) for the selected BMP.
The values for BMP Types not selected in cell C45 will show NA.

7. Retention/Irrigation System Designed as Required in RG-348 — Pages 3-42 to 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 permeability rate or assumed value of 0.1
Irrigation area =	NA	square feet	
	NA	acres	

8. Extended Detention Basin System Designed as Required in RG-348 — Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 41110 cubic feet



SCALE: 1"= 50'
0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- DRAINAGE BOUNDARY
- TC FLOW LINE
- 760 EXISTING CONTOUR LINE
- 760 PROPOSED CONTOUR LINE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- AREA X.XX AC — DRAINAGE AREA
- EXISTING IMPERVIOUS COVER
- Kbu — BUDA FORMATION
- Kdr — DEL RIO FORMATION
- S-1 — POTENTIAL RECHARGE FEATURE
- CONTACT, LOCATED APPROXIMATELY
- CONTACT, INFERRED
- U D — FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
- FAULT, EXTRAPOLATED
- FAULT, INFERRED

GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE FROM FIELD DATA COLLECTED AUGUST 2021.

Treatment Summary Table
Westinghouse Flex - North

Watershed	Watershed Area (acres)	Previously Approved Impervious Cover * (acres)	Proposed Impervious Cover (acres)	Total Impervious Cover (acres)	BMP	Required TSS Removal @ 80% Removal (lbs/yr)	Required TSS Removal @ 85% Removal (lbs/yr)	Designed TSS Removal (lb/yr)
P1	7.789	0.000	4.490	4.490	Proposed WQ Pond Basin A	3908	4157	4461
P2	1.208	0.024	0.306	0.330	Overtreatment	266	283	0
P3	0.029	0.023	0.007	0.030	Overtreatment	6	6	0
Total	**9.026**	**0.0470**	**4.803**	**4.850**	**-**	**4181**	**4446**	**4461**

*impervious cover approved with other WPAP

Water Quality Basin Summary

Basin	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)
A	41,201	**41,110**	91

Westinghouse Flex - North - Water Quality Pond

Elev. (ft)	Incremental Surface Area (SF)	Depth (ft)	Incremental Volume (ft³)	Cummulative Volume (ft³)	Notes
825	75.4634		0	0	
826	7590.52	1	3833	3833	
827	9260.33	1	8425	12258	
828	10681.83	1	9971	22229	
829	12162.83	1	11422	33652	
829.60	**13001.46**	**0.60**	**7549**	**41201**	**WQEL**
830	13560.54	0.40	5312	46514	
831	15081.22	1	14321	60834	

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
10/27/2023
Shelly Mitchell

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626
WPAP EXHIBIT - BASIN A

JOB NO. 51370-00
DATE OCTOBER 2023
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 1 OF 1

2023-44-SDP

Date: Oct 27, 2023, 8:19am User ID: sdusby
File: K:\Projects\513\27\01\301 Construction Documents\WPAP\WPAP-North Exhibit.dwg

WATER POLLUTION ABATEMENT PLAN APPLICATION FORM (TCEQ-0584)

Water Pollution Abatement Plan Application

Texas Commission on Environmental Quality

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

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

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

Signature

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

Print Name of Customer/Agent: Shelly Mitchell, P.E.

Date: 07/08/2024

Signature of Customer/Agent:

Regulated Entity Name: Westinghouse Flex - North

Regulated Entity Information

1. The type of project is:

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

2. Total site acreage (size of property):9.021

3. Estimated projected population:N/A

4. The amount and type of impervious cover expected after construction are shown below:

Table 1 - Impervious Cover Table

Impervious Cover of Proposed Project	Sq. Ft.	Sq. Ft./Acre	Acres
Structures/Rooftops	55,248	÷ 43,560 =	1.27
Parking	155,479	÷ 43,560 =	3.57
Other paved surfaces	1,355	÷ 43,560 =	0.031
Total Impervious Cover	212,082	÷ 43,560 =	4.871

Total Impervious Cover 4.871 **÷ Total Acreage** 9.021 **X 100 =** 54**% Impervious Cover**

4.974 ac total impervious cover, including existing impervious cover

5. ☒ **Attachment A - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water and groundwater quality that addresses ultimate land use is attached.

6. ☒ Only inert materials as defined by 30 TAC §330.2 will be used as fill material.

For Road Projects Only

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

7. Type of project:

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

8. Type of pavement or road surface to be used:

   ☐ Concrete
   ☐ Asphaltic concrete pavement
   ☐ Other: _____

9. Length of Right of Way (R.O.W.): _____ feet.

   Width of R.O.W.: _____ feet.
   L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

10. Length of pavement area: _____ feet.

    Width of pavement area: _____ feet.
    L x W = _____ Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
    Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

11. ☐ A rest stop will be included in this project.

    ☐ A rest stop will not be included in this project.

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

Stormwater to be generated by the Proposed Project

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

Wastewater to be generated by the Proposed Project

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

100% Domestic	5,844 Gallons/day
_____% Industrial	_____ Gallons/day
_____% Commingled	_____ Gallons/day

TOTAL gallons/day 5,844 (55,435 SF * 1 LUE/1,660 SF * 175 GPD/LUE)

15. Wastewater will be disposed of by:

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

- ☐ **Attachment C - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.
- ☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):

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

- ☐ The SCS was previously submitted on_____.
- ☒ The SCS was submitted with this application.
- ☐ The SCS will be submitted at a later date. The owner is aware that the SCS may not be installed prior to Executive Director approval.

☒ The sewage collection system will convey the wastewater to the Dove Springs (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 100'.

18. 100-year floodplain boundaries:

☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
☒ No part of the project site is located within the 100-year floodplain.
The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): DFIRM (Digital Flood Insurance Rate Map for Georgetown, Texas) Panel No. 48491C0485F, Dated 12/10/2019

19. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, open space, etc. are shown on the plan.

☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, open space, etc. are shown on the site plan.

20. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

☐ There are _____ (#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

☐ The wells are not in use and have been properly abandoned.
☐ The wells are not in use and will be properly abandoned.
☐ The wells are in use and comply with 16 TAC §76.

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

21. Geologic or manmade features which are on the site:

☒ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.

☐ **Attachment D - Exception to the Required Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

22. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.
23. ☒ Areas of soil disturbance and areas which will not be disturbed.
24. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.
25. ☒ Locations where soil stabilization practices are expected to occur.
26. ☐ Surface waters (including wetlands).

    ☒ N/A
27. ☐ Locations where stormwater discharges to surface water or sensitive features are to occur.

    ☒ There will be no discharges to surface water or sensitive features.
28. ☒ Legal boundaries of the site are shown.

Administrative Information

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

ATTACHMENT A

Attachment A – Factors Affecting Water Quality

Potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the site during construction include:

- Soil erosion due to the clearing of the site;
- Oil, grease, fuel and hydraulic fluid contamination from construction equipment and vehicle drippings;
- Hydrocarbons from asphalt paving operations;
- Miscellaneous trash and litter from construction workers and material wrappings;
- Concrete truck washout.
- Potential overflow/spills from portable toilets

Potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges from the site after development include:

- Oil, grease, fuel and hydraulic fluid contamination from vehicle drippings;
- Dirt and dust which may fall off vehicles; and
- Miscellaneous trash and litter.

ATTACHMENT B

Attachment B – Volume and Character of Stormwater

Stormwater runoff will increase as a result of this development. For a 25-year storm event, the overall project will generate approximately 154 cfs. The runoff coefficient for the site changes from approximately 0.47 before development to 0.77 after development. Values are based on the Rational Method using runoff coefficients per the City of Georgetown Development Code.

TEMPORARY STORMWATER SECTION (TCEQ-0602)

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: Shelly Mitchell, P.E.

Date: 07/08/2024

Signature of Customer/Agent:

Regulated Entity Name: Westinghouse Flex - North

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: construction staging area

   These fuels and/or hazardous substances will be stored in:

   ☒ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☐ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: Brushy Creek

Temporary Best Management Practices (TBMPs)

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

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

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☒ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

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

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☐ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

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

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

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

ATTACHMENT A

Attachment A – Spill Response Actions

In the event of an accidental leak or spill:

- Spill must be contained and cleaned up immediately.
- Spills will not be merely buried or washed with water.
- Contractor shall take action to contain spill. Contractor may use sand or other absorbent material stockpiled on site to absorb spill. Absorbent material should be spread over the spill area to absorb the spilled product.
- In the event of an uncontained discharge the contractor shall utilize onsite equipment to construct berms downgradient of the spill with sand or other absorbent material to contain and absorb the spilled product.
- Spill containment/absorbent materials along with impacted media must be collected and stored in such a way so as not to continue to affect additional media (soil/water). Once the spill has been contained, collected material should be placed on poly or plastic sheeting until removed from the site. The impacted media and cleanup materials should be covered with plastic sheeting and the edges weighed down with paving bricks or other similarly dense objects as the material is being accumulated. This will prevent the impacted media and cleanup materials from becoming airborne in windy conditions or impacting runoff during a rain event. The stockpiled materials should not be located within an area of concentrated runoff such as along a curb line or within a swale.
- Contaminated soils and cleanup materials will be sampled for waste characterization. When the analysis results are known the contaminated soils and cleanup materials will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.
- The contractor will be required to notify the owner, who will in turn contact TCEQ to notify them in the event of a significant hazardous/reportable quantity spill. Additional notifications as required by the type and amount of spill will be conducted by owner or owner's representative.

In the event of an accidental significant or hazardous spill:

The contractor will be required to report significant or hazardous spills in reportable quantities to:

- Notify the TCEQ by telephone as soon as possible and within 24 hours at 512-339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site. https://www.tceq.texas.gov/response/spills/spill_rq.html
- For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

- Notification should first be made by telephone and followed up with a written report.

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

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

- Contaminated soils will be sampled for waste characterization. When the analysis results are known the contaminated soils will be removed from the site and disposed in a permitted landfill in accordance with applicable regulations.

Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 1.4.16. Contractor shall review this section.

ATTACHMENT B

Attachment B – Potential Sources of Contamination

Other potential sources of contamination during construction include:

Potential Source	Preventative Measure
Asphalt products used on this project.	▪ After placement of asphalt, emulsion or coatings, the contractor will be responsible for immediate cleanup should an unexpected rain occur. For the duration of the asphalt product curing time, the contractor will maintain standby personnel and equipment to contain any asphalt wash-off should an unexpected rain occur. The contractor will be instructed not to place asphalt products on the ground within 48 hours of a forecasted rain.
Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.	▪ Vehicle maintenance when possible, will be performed within the construction staging area. ▪ Construction vehicles and equipment shall be checked regularly for leaks and repaired immediately.
Accidental leaks or spills of oil, petroleum products, and substances listed under 40 CFR parts 110, 117, and 302 used or stored temporarily on site.	▪ Contractor to incorporate into regular safety meetings, a discussion of spill prevention and appropriate disposal procedures. ▪ Contractor's superintendent or representative overseer shall enforce proper spill prevention and control measures. ▪ Hazardous materials and wastes shall be stored in covered containers and protected from vandalism. ▪ A stockpile of spill cleanup materials shall be stored on site where it will be readily accessible.
Miscellaneous trash and litter from construction workers and material wrappings.	▪ Trash containers will be placed throughout the site to encourage proper trash disposal.
Construction debris.	▪ Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.
Spills/Overflow of waste from portable toilets	▪ Portable toilets will be placed away from high-traffic vehicular areas and storm drain inlets. ▪ Portable toilets will be placed on a level ground surface. ▪ Portable toilets will be inspected regularly for leaks and will be serviced and sanitized at time intervals that will maintain sanitary conditions.

ATTACHMENT C

WESTINGHOUSE FLEX – NORTH
Water Pollution Abatement Plan Modification

Attachment C – Sequence of Major Activities

The sequence of major activities which disturb soil during construction on this site will be divided into two stages. The first is site preparation that will include installation of TBMPs, clearing and grubbing of vegetation where applicable. This will disturb approximately 9.021 acres. The second is construction that will include construction of industrial flex buildings with associated drives, sidewalks, parking, deceleration lanes, batch detention basins, landscaping and site cleanup.

Install TBMPs, including rough grading of basin – 3.71
Clearing, grading, grubbing – 9.021
Excavation for installation of utilities – 0.97
Basin construction – 1.65
Parking and drive construction – 3.22
Building construction – 2.6
Site stabilization and landscape – 4.39
Remove TBMPs – 5.82

ATTACHMENT D

Attachment D – Temporary Best Management Practices and Measures

a. 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.

Upgradient water will cross the site from the adjacent property to the north. All TBMPs are adequate for the drainage areas they serve.

b. 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.

Site preparation, which is the initiation of all activity on the project, will disturb the largest amount of soil. Therefore, before any of this work can begin, the clearing and grading contractor will be responsible for the installation of all on-site control measures. The methodology for pollution prevention of on-site stormwater will include: (1) erection of silt fences along the downgradient boundary of construction activities for temporary erosion and sedimentation controls, (2) installation of rock berms with silt fencing downgradient from areas of concentrated stormwater flow for temporary erosion control, (3) Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities for sediment control (4) installation of stabilized construction entrance/exit(s) to reduce the dispersion of sediment from the site, and (5) installation of construction staging area(s).

Prior to the initiation of construction, all previously installed control measures will be repaired or reestablished for their designed or intended purpose. This work, which is the remainder of all activity on the project, may also disturb additional soil. The construction contractor will be responsible for the installation of all remaining on-site control measures that includes installation of the concrete truck washout pit(s), as construction phasing warrants.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features.

c. A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

Temporary measures are intended to provide a method of slowing the flow of runoff from the construction site in order to allow sediment and suspended solids to settle out of the runoff. By containing the sediment and solids within the site, they will not enter surface streams and/or sensitive features.

d. 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.

BMP measures utilized in this plan are intended to allow stormwater to continue downstream after passing through the BMPs. This will allow stormwater runoff to continue downgradient to streams or features that may exist downstream of the site.

ATTACHMENT F

Attachment F – Structural Practices

The following structural measures will be installed prior to the initiation of site preparation activities:

- Erection of silt fences along the downgradient boundary of construction activities and rock berms with silt fence for secondary protection, as located on Exhibit 1 and illustrated in Exhibit 2.
- Installation of gravel bags and drain inlet protection at inlets and downgradient areas of construction activities, as located on Exhibit 1 and illustrated in Exhibit 2.
- Installation of stabilized construction entrance/exit(s) and construction staging area(s), as located on Exhibit 1, and illustrated on Exhibit 2.

The following structural measures will be installed at the initiation of construction activities or as appropriate based on the construction sequencing:

- Installation of concrete truck washout pit(s), as required and located on Exhibit 1 and illustrated on Exhibit 2.

ATTACHMENT G

Attachment G – Drainage Area Map

No more than ten (10) acres will be disturbed with these proposed improvements. All TBMPs utilized are adequate for the drainage areas served.

ATTACHMENT I

INSPECTIONS

Designated and qualified person(s) shall inspect Pollution Control Measures weekly and within 24 hours after a storm event. An inspection report that summarizes the scope of the inspection, names and qualifications of personnel conducting the inspection, date of the inspection, major observations, and actions taken as a result of the inspection shall be recorded and maintained as part of Storm Water TPDES data for a period of three years after the Notice of Termination (NOT) has been filed. A copy of the Inspection Report Form is provided in this Storm Water Pollution Prevention Plan.

As a minimum, the inspector shall observe: (1) significant disturbed areas for evidence of erosion, (2) storage areas for evidence of leakage from the exposed stored materials, (3) structural controls (rock berm outlets, silt fences, drainage swales, etc.) for evidence of failure or excess siltation (over 6 inches deep), (4) vehicle exit point for evidence of off-site sediment tracking, (5) vehicle storage areas for signs of leaking equipment or spills, (6) concrete truck rinse-out pit for signs of potential failure, (7) embankment, spillways, and outlet of sediment basin (where applicable) for erosion damage, and (8) sediment basins (where applicable) for evidence that basin has accumulated 50% of its volume in silt. Deficiencies noted during the inspection will be corrected and documented within seven calendar days following the inspection or before the next anticipated storm event if practicable.

Contractor shall review Sections 1.3 and 1.4 of TCEQ's Technical Guidance Manual for additional BMP inspection and maintenance requirements.

WESTINGHOUSE FLEX – NORTH
Water Pollution Abatement Plan Modification

Pollution Prevention Measure	Inspected in Compliance	Corrective Action Required	
		Description (use additional sheet if necessary)	Date Completed
Best Management Practices			
Natural vegetation buffer strips			
Temporary vegetation			
Permanent vegetation			
Sediment control basin			
Silt fences			
Rock berms			
Gravel filter bags			
Drain inlet protection			
Other structural controls			
Vehicle exits (off-site tracking)			
Material storage areas (leakage)			
Equipment areas (leaks, spills)			
Concrete washout pit (leaks, failure)			
General site cleanliness			
Trash receptacles			
Evidence of Erosion			
Site preparation			
Roadway or parking lot construction			
Utility construction			
Drainage construction			
Building construction			
Major Observations			
Sediment discharges from site			
BMPs requiring maintenance			
BMPs requiring modification			
Additional BMPs required			

_____ A brief statement describing the qualifications of the inspector is included in this SWP3.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I further certify I am an authorized signatory in accordance with the provisions of 30 TAC §305.128."

Inspector's Name _____ Inspector's Signature _____ Date _____

PROJECT MILESTONE DATES

Date when major site grading activities begin:

Construction Activity	Date
Installation of BMPs	

Dates when construction activities temporarily or permanently cease on all or a portion of the project:

Construction Activity	Date

Dates when stabilization measures are initiated:

Stabilization Activity	Date
Removal of BMPs	

ATTACHMENT J

Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

Interim on-site stabilization measures, which are continuous, will include minimizing soil disturbances by exposing the smallest practical area of land required for the shortest period of time and maximizing use of natural vegetation. As soon as practical, all disturbed soil will be stabilized as per project specifications in accordance with pages 1-35 to 1-60 of TCEQ's Technical Guidance Manual (TGM) RG-348 (2005). Mulching, netting, erosion blankets and seeding are acceptable.

Stabilization measures will be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and except as provided below, will be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased. Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within twenty-one (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 seasonably arid conditions, stabilization measures must be initiated as soon as practicable.

PERMANENT STORMWATER SECTION (TCEQ-0600)

Permanent Stormwater Section

Texas Commission on Environmental Quality

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

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

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

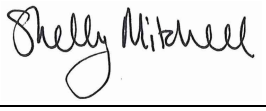
Signature

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

Print Name of Customer/Agent: Shelly Mitchell, P.E.

Date: 07/08/2024

Signature of Customer/Agent



Regulated Entity Name: Westinghouse Flex - North

Permanent Best Management Practices (BMPs)

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

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

   ☐ N/A

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

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

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

☐ N/A

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

   ☐ N/A

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

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

5. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

   ☐ **Attachment A - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
   ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
   ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

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

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.

☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

7. ☒ **Attachment C - BMPs for On-site Stormwater**.

☒ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.

☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

8. ☒ **Attachment D - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams, sensitive features, or the aquifer is attached. Each feature identified in the Geologic Assessment as sensitive has been addressed.

☐ N/A

9. ☒ The applicant understands that to the extent practicable, BMPs and measures must maintain flow to naturally occurring sensitive features identified in either the geologic assessment, executive director review, or during excavation, blasting, or construction.

☒ The permanent sealing of or diversion of flow from a naturally-occurring sensitive feature that accepts recharge to the Edwards Aquifer as a permanent pollution abatement measure has not been proposed.

☐ **Attachment E - Request to Seal Features**. A request to seal a naturally-occurring sensitive feature, that includes, for each feature, a justification as to why no reasonable and practicable alternative exists, is attached.

10. ☒ **Attachment F - Construction Plans**. All construction plans and design calculations for the proposed permanent BMP(s) and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. The plans are attached and, if applicable include:

☒ Design calculations (TSS removal calculations)
☒ TCEQ construction notes
☒ All geologic features
☒ All proposed structural BMP(s) plans and specifications

☐ N/A

11. ☒ **Attachment G - Inspection, Maintenance, Repair and Retrofit Plan**. A plan for the inspection, maintenance, repairs, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan includes all of the following:

    ☒ Prepared and certified by the engineer designing the permanent BMPs and measures
    ☒ Signed by the owner or responsible party
    ☒ Procedures for documenting inspections, maintenance, repairs, and, if necessary retrofit
    ☒ A discussion of record keeping procedures

    ☐ N/A

12. ☐ **Attachment H - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

    ☒ N/A

13. ☒ **Attachment I -Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that results in water quality degradation.

    ☐ N/A

Responsibility for Maintenance of Permanent BMP(s)

Responsibility for maintenance of best management practices and measures after construction is complete.

14. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

    ☐ N/A

15. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development, or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

    ☐ N/A

ATTACHMENT B

Attachment B – BMPs for Upgradient Stormwater

A portion of the property to the north of the project limits flows across the project limits and will be intercepted by an onsite grate inlet and routed around the site. No offsite upgradient stormwater will flow to the onsite PBMPs.

The Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved batch detention basin (ID 11003708) and one (1) proposed fifteen-foot (15') engineered vegetative filter strip, which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site as required by TCEQ and 85% removal per the City of Georgetown guidelines.

ATTACHMENT C

Attachment C – BMPs for On-Site Stormwater

The Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved batch detention basin (ID 11003708) and one (1) proposed fifteen-foot (15') engineered vegetative filter strip, which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site as required by TCEQ and 85% removal per the City of Georgetown guidelines.

ATTACHMENT D

Attachment D – BMPs for Surface Streams

The Permanent Best Management Practices (PBMPs) for stormwater treatment is one (1) previously approved batch detention basin (ID 11003708) and one (1) proposed fifteen-foot (15') engineered vegetative filter strip, which are designed in accordance with the TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) to remove 80% of the increase in Total Suspended Solids (TSS) from the site as required by TCEQ and 85% removal per the City of Georgetown guidelines.

ATTACHMENT F

WESTINGHOUSE FLEX – NORTH
Water Pollution Abatement Plan Modification

Attachment F – Construction Plans

Please refer to the Exhibits Section of this application for the Water Pollution Abatement Site Plans.

ATTACHMENT G

WESTINGHOUSE FLEX
Water Pollution Abatement Plan Modification

PERMANENT POLLUTION ABATEMENT MEASURES
MAINTENANCE SCHEDULE AND MAINTENANCE PROCEDURES

This document has been prepared to provide a description and schedule for the performance of maintenance on permanent pollution abatement measures. Maintenance measures to be performed will be dependent on what permanent pollution abatement measures are incorporated into the project. The project specific water pollution abatement plan should be reviewed to determine what permanent pollution abatement measures are incorporated into a project.

It should also be noted that the timing and procedures presented herein are general guidelines, adjustment to the timing and procedures may have to be made depending on project specific characteristics as well as weather related conditions but may not be altered without TCEQ approval.

Where a project is occupied by the owner, the owner may provide for maintenance with his own skilled forces or contract for recommended maintenance of Permanent Best Management Practices. Where a project is occupied or leased by a tenant, the owner shall require tenants to contract for such maintenance services either through a lease agreement, property owners association covenants, or other binding document.

I understand that I am responsible for maintenance of the Permanent Pollution Abatement Measures included in this project until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or ownership is transferred.

I, the owner, have read and understand the requirements of the attached Maintenance Plan and Schedule.

Mays Westinghouse Crossing, LLC

By: St. John Projects, LLC, Manager

By: Edward St. John, LLC,
General Manager

By: _____ Date: 8/14/23

Name: Edward A. St. John
Title: General Manager

INSPECTION AND MAINTENANCE SCHEDULE
FOR
PERMANENT POLLUTION ABATEMENT MEASURES

Recommended Frequency	Task to be Performed												
	1	2	3	4	5	6	7	8	9	10	11	12	13
After Rainfall	√							√			√		√
Biannually*	√	√	√	√	√	√	√	√	√	√	√	√	√

At least one biannual inspection must occur during or immediately after a rainfall event.
√Indicates maintenance procedure that applies to this specific site.

See description of maintenance task to be performed on the following pages. Frequency of maintenance tasks may vary depending on amount of rainfall and other weather-related conditions but may not be altered without TCEQ approval.

A written record should be kept of inspection results and maintenance performed.

Task No. & Description	***Included in this project***	
1. Mowing	**Yes**	~~No~~
2. Litter and Debris Removal	**Yes**	~~No~~
3. Erosion Control	**Yes**	~~No~~
4. Level Sensor	**Yes**	~~No~~
5. Nuisance Control	**Yes**	~~No~~
6. Structural Repairs and Replacement	**Yes**	~~No~~
7. Discharge Pipe	**Yes**	~~No~~
8. Detention and Drawdown Time	**Yes**	~~No~~
9. Sediment Removal	**Yes**	~~No~~
10. Logic Controller	**Yes**	~~No~~
11. Vegetated Filter Strips	**Yes**	~~No~~
12. Visually Inspect Security Fencing for Damage or Breach	**Yes**	~~No~~
13. Recordkeeping for Inspections, Maintenance, and Repairs	**Yes**	~~No~~

MAINTENANCE PROCEDURES FOR PERMANENT POLLUTION ABATEMENT MEASURES

Note: Additional guidance can be obtained from TCEQ's Technical Guidance Manual (TGM) RG-348 (2005) Section 3.5.

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

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

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

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

4. Level Sensor. The level sensor in the basin should be inspected and any debris or sediment in the area should be removed. Litter and debris removal should take place at least twice a year, as part of the periodic mowing operations and inspections. Debris and litter should be removed from the surface of the basin.

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

6. Structural Repairs and Replacement. With each inspection, any damage to structural elements of the basin (pipes, concrete drainage structures, retaining walls, etc.) should be identified and

repaired immediately. An example of this type of repair can include patching of cracked concrete, sealing of voids, removal of vegetation from cracks and joints. The various inlet/outlet structures in a basin will eventually deteriorate and must be replaced. *A written record should be kept of inspection results and corrective measures taken*

7. Discharge Pipe. The basin discharge pipe shall be checked 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. Erosion at the point of discharge shall be monitored. If erosion occurs, the addition of rock rubble to disperse the flow should be accomplished. *A written record should be kept of inspection results and corrective measures taken*

8. Detention and Drawdown Time. One inspection should take place during wet weather to determine if the basin is meeting the target detention time of 12 hours and a drawdown time of no more than 48 hours. This characteristic can be a sign of the need for maintenance. The minimum drawdown time is 24 hours. If drawdown time is less than 24 hours, the actuator valve shall be checked and partially closed to limit the drawdown time. Extensive drawdown time greater than 48 hours may indicated blockage of the discharge pipe. Corrective actions should be performed and completed within 15 working days. *A written record of the inspection findings and corrective actions performed should be made.*

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

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

11. Vegetated Filter Strips. Vegetation height for native grasses shall be limited to no more than 18-inches. When vegetation exceeds that height, the filter strip shall be cut to a height of approximately 4 inches. Turf grass shall be limited to a height of 4-inches with regular maintenance that utilizes a mulching mower. Trash and debris shall be removed from filter strip prior to cutting. Check filter strip for signs of concentrated flow and erosion. Areas of filter strip showing signs of erosion shall be repaired by scarifying the eroded area, reshaping, regrading,

and placement of solid block sod over the affected area. *A written record of the inspection findings and corrective actions performed should be made*

12. Visually Inspect Security Fencing for Damage or Breach. Check maintenance access gates for proper operation. Damage to fencing or gates shall be repaired within 5 working days. *A written record should be kept of inspection results and maintenance performed.*

13. Recordkeeping Procedures for Inspections, Maintenance, Repairs, and Retrofits.
    - Written records shall be kept by the party responsible for maintenance or a designated representative.
    - Written records shall be retained for a minimum of five years.

ATTACHMENT I

Attachment I – Measures for Minimizing Surface Stream Contamination

Any points where discharge from the site is concentrated and erosive velocities exist will include appropriately sized energy dissipators to reduce velocities to non-erosive levels.

ORGANIZED SEWAGE COLLECTION SYSTEM PLAN (TCEQ-0582)

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: Westinghouse Flex - North

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

Customer Information

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

   Contact Person: _____
   Entity: Georgetown Utility Systems
   Mailing Address: 300-1 Industrial Ave
   City, State: Georgetown, TX Zip: 78626
   Telephone: (512) 930-3555 Fax: _____
   Email Address: gus@georgetown.org
   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: Shelly Mitchell, P.E.
   Texas Licensed Professional Engineer's Number: 103662
   Entity: Pape-Dawson Engineers
   Mailing Address: 10801 N MoPac Expy, Bldg 3 - Ste 200
   City, State:Austin, TX Zip: 78759
   Telephone:(512) 454-8711 Fax:_____
   Email Address:smitchell@pape-dawson.com

Project Information

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

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

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

   100% Domestic — 23,443 gallons/day
   _____% Industrial — _____ gallons/day
   _____% Commingled — _____ gallons/day
   Total gallons/day: 23,443 (222,357 SF * 1 LUE/1660 SF * 175 GPD/1 LUE)

6. Existing and anticipated infiltration/inflow is 1,000 gallons/day. This will be addressed by: adequate sizing of the mains.

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

   ☐ The WPAP application for this development was approved by letter dated _____. A copy of the approval letter is attached.
   ☒ The WPAP application for this development was submitted to the TCEQ on concurrent, 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)*
6	57.27	PVC, SDR 26	ASTM D3034, ASTM D3212
8	366.41	PVC, SDR 26	ASTM D3034, ASTM D3212

Total Linear Feet: 423.68

(1) Linear feet - Include stub-outs and double service connections. Do not include private service laterals.

(2) Pipe Material - If PVC, state SDR value.
(3) Specifications - ASTM / ANSI / AWWA specification and class numbers should be included.

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

☒ Existing
☐ Proposed

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

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

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

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

Alignment

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

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

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

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

Manholes and Cleanouts

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

Table 2 - Manholes and Cleanouts

Line	*Shown on Sheet*	*Station*	*Manhole or Clean-out?*
N WW-01	N 1 Of N 4	4+46.97	MH
N WW-02	N 2 Of N 4	1+14.14	CO
	Of		
	Of		
	Of		
	Of		

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

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

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

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

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

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

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

Site Plan Requirements

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

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

Site Plan Scale: 1" = 40'.

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

20. Lateral stub-outs:

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

☐ No lateral stub-outs will be installed during the construction of this sewer collection system.

21. Location of existing and proposed water lines:

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

22. 100-year floodplain:

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

Table 3 - 100-Year Floodplain

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

23. 5-year floodplain:

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

Table 4 - 5-Year Floodplain

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

24. ☒ Legal boundaries of the site are shown.

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

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

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

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

Table 5 - Water Line Crossings

Line	*Station or Closest Point*	*Crossing or Parallel*	*Horizontal Separation Distance*	*Vertical Separation Distance*

27. Vented Manholes:

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

Table 6 - Vented Manholes

Line	*Manhole*	*Station*	*Sheet*

Line	*Manhole*	*Station*	*Sheet*

28. Drop manholes:

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

Table 7 - Drop Manholes

Line	*Manhole*	*Station*	*Sheet*
North WW-01		1+65.10	N 1 of 4

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

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

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

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

31. Minimum flow velocity (From Appendix A)

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

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

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

Table 8 - Flows Greater Than 10 Feet per Second

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

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

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

Administrative Information

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

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

Table 9 - Standard Details

Standard Details	*Shown on Sheet*
Lateral stub-out marking **[Required]**	N 3 of N 4
Manhole, showing inverts comply with 30 TAC §217.55(l)(2) **[Required]**	N 3 of N 4
Alternate method of joining lateral to existing SCS line for potential future connections **[Required]**	N 3 of N 4
Typical trench cross-sections **[Required]**	N 4 of N 4
Bolted manholes **[Required]**	N 3 of N 4
Sewer Service lateral standard details **[Required]**	N 3 of N 4
Clean-out at end of line **[Required, if used]**	N 3 of N 4
Baffles or concrete encasement for shock/erosion protection **[Required, if flow velocity of any section of pipe >10 fps]**	of
Detail showing Wastewater Line/Water Line Crossing **[Required, if crossings are proposed]**	N 3 of N 4
Mandrel detail or specifications showing compliance with 30 TAC §217.57(b) and (c) **[Required, if Flexible Pipe is used]**	of

Standard Details	*Shown on Sheet*
Drop manholes **[Required, if a pipe entering a manhole is more than 24 inches above manhole invert]**	N 3 of N 4

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: when advised by TCEQ of site visit

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: Shelly Mitchell, P.E

Date: 07/08/2024

Place engineer's seal here:

Signature of Licensed Professional Engineer:

Appendix A-Flow Velocity Table

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

Table 10 - Slope Velocity

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

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

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

Figure 1 - Manning's Formula

Where:

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

ATTACHMENT A
(Engineering Design Report)

WESTINGHOUSE FLEX – NORTH
Engineering Design Report
6” & 8” PVC SDR 26

TABLE OF CONTENTS

WESTINGHOUSE FLEX – NORTH
Engineering Design Report
6” & 8” PVC SDR 26

This Engineering Design Report has been prepared to comply with the Texas Commission on Environmental Quality’s (TCEQ) Design Criteria for Domestic Wastewater Systems (30 TAC 217), and regulations over the Edwards Aquifer Recharge Zone (30 TAC 213). Please note, throughout this application, in the case of multiple regulations, the more stringent shall apply.

PROJECT INFORMATION

Westinghouse Flex – North proposes the construction of an industrial flex site with associated water quality basin, parking, and drives, located on approximately 9.021 acres within the City of Georgetown, in Williamson County, Texas. The site is located approximately 0.4 miles south of the N Mays St and Westinghouse Rd intersection. The site is cleared and undeveloped, lies within the Brushy Creek watershed in both the Edwards Aquifer Recharge and Transition Zones, and does not contain the 100-year floodplain. There were zero (0) naturally-occurring and six (6) manmade sensitive geological features identified in the Geologic Assessment.

This Westinghouse Flex - North SCS proposes the construction of 423.68 linear feet (LF) of sanitary sewer main to serve this development over the Edwards Aquifer Recharge Zone. The proposed alignment will consist of approximately 57.27 LF of 6-inch (6”) polyvinyl chloride (PVC), SDR 26 gravity main; and 366.41 LF of 8-inch (8”) PVC, SDR 26 gravity main. Regulated activities proposed include excavation, construction of sewer mains, manholes, and compaction. Approximately 0.97 acres may be disturbed as identified by the limits of the fifty-foot (50’) SCS/GA envelope shown on the plans; however, additional regulated activities will disturb 9.021 acres for the overall development of this site, in accordance with the concurrent WPAP.

The proposed development will generate approximately 5,844 gallons per day (average flow) of domestic wastewater based on 55,434 SF of industrial building space (55,434 SF * 1 LUE/1,660 SF * 175 GPD/LUE). Wastewater will be disposed of by the Dove Springs Wastewater Treatment Plant. Potable water service is to be provided by the City of Georgetown.

Please refer to Sheets North 1-2 of the attached sewer plans, which show the proposed service area and its topographic features. This system is designed to have a minimum structural life of 50 years.

Refer to included EDR for additional details.

Safety considerations are the responsibility of the contractor. Safety protection shall be accomplished in accordance with the most recent requirements of the Occupational Safety and Health Administration (OSHA) Standards and Interpretations.

GRAVITY SANITARY SEWER PIPING: FLOW & CAPACITY ANALYSIS

Basis for average flow used for design of collection system (**check one or more**):

Per Capita Contributions: _____

Service Connections: _____

Land Area and Use: ✓

Fixture Analysis: _____

Odor Control

Odor Control is not necessary on this project as it is a gravity line and there will be no conditions where sewage is standing and will become septic.

Flow Calculation

Peaking Factor used for design: ***1.5***

Peaking Factor is based on: ***Design Requirements for peak flow (from City of Georgetown, CDM Memorandum on Water & Wastewater System Design Criteria) for non-residential sites***

Project Limits = 9.021 ac

Total Building Square Footage = 55,434 SF

Infiltration = 1,000 gallons/acre served

Site Flows = 55,434 SF x 1 LUE/1,660 SF x 175 GPD/1 LUE = ***5,844 gpd*** *average dry flow =* ***4.06 gpm***

Peak Dry Flow = 5,844 gallons/ day average x 1.5 peaking factor = ***8,766 gpd*** *=* ***6.09 gpm***

Avg. Wet Flow = 5,844 gpd + [(1000 gpd/acre) x 9.021 acres] = ***14,865 gpd*** *=* ***10.32 gpm***

Peak Wet Flow = 8,766 gpd + [(1000 gpd/acre) x 9.021 acres] = ***17,787 gpd*** *=* ***12.35 gpm***

*85% Peak Wet Flow = 17,787 gpd * 0.85 =* ***15,119 gpd*** *=* ***10.50 gpm***

Please note that capacities are determined using Manning's equation for pipes flowing full with an "n" value of 0.013. A reference for Manning's Equation can be found in "The Uni-Bell Handbook of PVC Pipe: Design and Construction".

Capacity Calculation

Characteristics of 6" ASTM D3034, SDR 26, PVC Sewer Pipe:

Nominal Size = 6"

Outer Diameter (D_o) = 6.275"

Minimum Wall Thickness (t) = 0.241"

Inner Diameter (D_i) = 5.793"

Characteristics of 8" ASTM D3034, SDR 26, PVC Sewer Pipe:

Nominal Size = 8"

Outer Diameter (D_o) = 8.40"

Minimum Wall Thickness (t) = 0.323"

Inner Diameter (D_i) = 7.75"

Manning's Equation:

$Q = (k/n)(A)(R^{2/3})(S^{1/2})$

$v = Q/A$

Where:

Q = Discharge (cfs)

k = Constant $[(1.49\ ft^{1/3})/sec.]$

n = Manning's roughness coefficient (unitless)

A = Flow area (ft^2)

R = Hydraulic Radius (ft)

$= A/P$ = Cross sectional area of flow (ft^2)/Wetted perimeter (ft.)

S = Slope (ft/ft)

v = Velocity of flow (ft/s)

n = 0.013 [as required by 30 TAC 213.53 A(i)]

Calculations for 6" ASTM D3034, SDR 26, PVC Sewer Pipe:

$A = \pi(D_i^2)/4 = \pi(5.793\ in)^2/4 = 26.36\ in^2 = 0.18\ ft^2$

$P = \pi(D_i) = \pi(26.36\ in) = 18.20\ in = 1.52\ ft$

$R = A/P = 0.18\ ft^2/1.52\ ft = 0.12\ ft$

$S = 0.025$

$Q = [(1.49\ ft^{1/3}/sec)/0.013](0.18\ ft^2)(0.12\ ft)^{2/3}(0.025)^{1/2}$

$Q = 0.81\ cfs = 364\ gpm = Q_{full}$

$v = 0.81\ cfs/0.18\ ft^2 =$ ***4.43 ft/s***

*Qmax = 0.81 cfs (0.85)(7.48 gallons/1 cf)(60 sec/1 min.)=****309 gpm***

Calculations for 8" ASTM D3034, SDR 26, PVC Sewer Pipe:

$A = \pi(D_i^2)/4 = \pi(7.75\ in)^2/4 = 47.17\ in^2 = 0.33\ ft^2$

$P = \pi(D_i) = \pi(7.75\ in) = 24.35\ in = 2.03\ ft$

$R = A/P = 0.33\ ft^2/2.03\ ft = 0.16\ ft$

$S = 0.01$

$Q = [(1.49\ ft^{1/3}/sec)/0.013](0.33\ ft^2)(0.16\ ft)^{2/3}(0.01)^{1/2}$

$Q = 1.11\ cfs = 500\ gpm = Q_{full}$

*$v = 1.11\ cfs/0.33\ ft^2$=**3.40 ft/s***

*Qmax = 1.11 cfs (0.85)(7.48 gallons/1 cf)(60 sec/1 min.)=**425 gpm***

Nominal Main Size (in)	Outer Diameter (in)	Minimum Slope (%)	Area (ft^2)	Hydraulic Radius (A/P) ft	$R^{2/3}$	$S^{1/2}$	Q-Full (cfs)	Velocity (ft/s)	Peak Wet Max Pipe (%)	Q-Max (gpm) 85%	Peak Dry Max Pipe (%)	Q-Max (gpm) 65%
6 (NR)	*6.275*	*2.50*	*0.18*	*0.12*	*0.24*	*0.15*	*0.81*	*3.40*	*85*	*309*	*65*	*201*
8 (NR)	*8.40*	*1.00*	*0.33*	*0.16*	*0.29*	*0.10*	*1.11*	*4.43*	*85*	*425*	*65*	*276*

Conclusion

The proposed 6" pipe (NR) with a minimum slope of 2.50% and the proposed 8" pipe (NR) with a minimum slope of 1.00% have sufficient capacity to convey the projected average and peak flows. The Peak Dry Weather Flow of 6.09 gpm shall not exceed 65% of capacity. The Peak Wet Weather Flow of 12.35 gpm shall not exceed 85% of the capacity.

GENERAL STRUCTURAL COMPONENTS

Project Materials (Pipe and Joints):

Nominal Pipe Diameter (in)	Linear Feet	Pipe Material	National Standard Specification for Pipe Material	National Standard for Pipe Joints
6 (NR)	*57.27*	*PVC SDR 26*	*ASTM D3034*	*ASTM D3212*
8 (NR)	*366.41*	*PVC SDR 26*	*ASTM D3034*	*ASTM D3212*

Note: Section 217.53 (j)(4) requires a minimum pipe diameter of 6 inches for all gravity sanitary sewer collection system piping.

Watertight, size on size resilient connectors conforming to ASTM C-923 have been specified for connecting pipe to manholes.

Where a collection system parallels a water supply pipe and a nine-foot separation distance cannot be achieved, Section 217.53 (d)(3)(A)(i) requires a collection system pipe be constructed of cast iron, ductile iron, or PVC meeting ASTM specifications with at least a 150 pounds per square inch (psi) rating for both the pipe and joints. The proposed project will comply with these requirements.

Where a collection system pipe crosses a water supply line and a nine-foot separation distance cannot be achieved, Section 217.53(d)(3)(B)(i) requires the collection system pipe be constructed of cast iron, ductile iron, or PVC with a minimum pressure rating of 150 psi. The proposed project will comply with this requirement and that of 217.53(d)(3)(B)(iii).

Project Materials (Bedding):

The specified bedding will comply with ASTM D2321-11 Class I, II or III for materials and densification. A minimum of 6 inches of bedding is required for all pipe.

Pipe Diameter (in)	Pipe Material	Bedding Class
6	*PVC*	*Class I & Class III*
8	*PVC*	*Class I & Class III*

Initial backfill for the pipe sizes shown above will be Class I. Secondary backfill will be Class III. See Table 2 of ASTM D2321-11 "Soil Classes" in Appendix A of this subsection.

Project Materials (Manholes):

Section 217.55 (f) prohibits the use of bricks to adjust a manhole cover to grade or construct a manhole. The proposed project will comply with this requirement.

The inside diameter of a manhole must be no less than 48 inches.

Section 217.55 (n) requires watertight, size-on-size resilient connectors that allow for differential settlement and must conform to American Society for Testing and Materials C-923. The proposed project complies with this requirement.

Under 30 TAC 213.5(C)(3)(A), all manholes over the Recharge Zone must be watertight, with watertight rings and covers. The proposed project complies with this requirement.
The materials specified for manhole construction are **precast concrete.**

Project Materials (Manhole Covers):

Manhole covers must be constructed of impervious materials. If personnel entry is required, a minimum 30-inch diameter clear opening must be provided. Inclusion of steps in a manhole is prohibited. If a manhole must be located within a 100-year floodplain, then a means of preventing inflow is required. A manhole cover that is located in a roadway must meet or exceed the American Association of State Highways and Transportation Officials Standard M-306 for load bearing.
Under 30 TAC 213.5 (c)(3)(A), all manholes over the Edwards Aquifer Recharge Zone must be watertight, with watertight rings and covers. This proposed project complies with this requirement.

Minimum and Maximum Slopes

Note: All pipes are designed with a slope that will provide a velocity of at least 2 ft/s flowing full, as calculated using Manning's equation with an "n" value of 0.013. Additionally, the collection system is designed to ensure that, with pipes flowing full, the velocities will be less than 10 feet per second.

The following are the minimum and maximum slopes for each pipe diameter:

Pipe Diameter: ***6" (NR)*** Min. Slope: ***2.50 %*** Max. Slope: ***2.50%***

Pipe Diameter: ***8" (NR)*** Min. Slope: ***1.00%*** Max. Slope: ***2.50%***

Backfill

Note: The backfill will be free of stones greater than 6 inches in diameter and free of organic or any other unstable material. See SAWS Item No. 804 for additional specifications.

Trenching

Note: The trench width will be minimized while still allowing adequate width for proper compaction of backfill, and while still ensuring that at least 6 inches of backfill exists below and on each side of the pipe. The trench walls will be vertical to at least one foot above the pipe.

Trenching will occur over the Recharge Zone and will comply with 30 TAC 213.5.

Minimum and Maximum Trench Width

Based on Georgetown Utility Systems Construction Detail WW16 30 TAC 217.54:

Pipe Diameter: ***6" (NR)*** Min. Trench Width: ***19***" Max. Trench Width: ***30"***

Pipe Diameter: ***8" (NR)*** Min. Trench Width: ***21***" Max. Trench Width: ***33"***

These trench widths account for the bell diameter.

Corrosion Prevention

Proposed collection system components (pipes, manholes, etc.) will not be susceptible to deterioration through the corrosive effects of an anaerobic sewage environment. Manholes shall be constructed of or lined with a corrosion resistant material. Where new construction ties into an existing manhole, the existing manhole must be lines, coated, or replaces with a corrosion resistant material.

Manholes (General)

Note: Manholes are provided at all changes in size, grade or alignment of pipe, at the intersection of all pipes and at the end of all lines that may be extended at a future date. A clean-out with watertight plugs may be installed instead of a manhole if no extensions are anticipated. Clean outs must pass all testing requirements outlined for gravity collection pipes.

The project complies with the maximum manhole spacing allowed by the TCEQ:

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

Manhole Spacing:

Pipe Diameter: ***6"*** Max. Spacing: ***57.27 LF***

Pipe Diameter: ***8"*** Max. Spacing: ***216.21 LF***

Manholes (Inverts)

The bottom of a manhole must contain a U-shaped channel, which is a smooth continuation of the inlet, and outlet pipes. The bench above the channel must be sloped a minimum of 0.5 inches per foot. See the City of Georgetown Detail which, complies with these requirements. Note, a manhole connected to a pipe less than 15 inches in diameter must have a channel depth equal to at least half the largest pipe's diameter.

Manholes (Ventilation)

Vented manholes are not proposed for this SCS.

Reduction of Inflow

Connection of storm water or roof drains to the sewage collection system is prohibited in accordance with 30 TAC 217.55(j)(6).

FLEXIBLE PIPE COMPUTATIONS

Please note, all flexible pipe computations are based on engineering principles and practices for the design of buried PVC pipe systems. Equations used can be found in "The Uni-Bell PVC Pipe Association Handbook of PVC Pipe: Design and Construction". Please note, the equations used may be in a different format than shown in the Uni-Bell Handbook.

Live Load Calculations

Minimum burial depth without concrete encasement is six (6) feet. Based on Table 6-6 Live Loads on PVC pipe (from Uni-Bell Handbook for PVC) for this sewer line would be 1.39 psi.

Buckling Pressure Calculations

This area of the Edwards Aquifer is unsaturated; consequently, there are no anticipated areas where sewer pipe will be placed below the water table. The value of hw=0 as there will be no height or time period of perched water or groundwater above the pipe crowns of the proposed sewer line.

The value of H for use in these calculations is fourteen (14) feet as it exceeds the maximum burial depth for this line. The value of γ_s equals 143 pcf is a conservative value based on a dry unit weight of 135 pcf and a moisture content of 6%. This value is conservative as it corresponds to saturated unit weights of commonly used backfill materials. Please see information from Raba-Kistner provided in Appendix C.

Allowable Buckling Pressure:

$$q_a = 0.4 * \sqrt{32 * R_w * B' * E_b * (E * I / D^3)}$$ ***Equation 1***

$$q_a = 0.4 * \sqrt{32 * 1 * 0.38 * 400 * (400{,}000 * 0.001/6.03^3)} = 40.82 \text{ psi } (6''\text{PVC NR})$$

$$q_a = 0.4 * \sqrt{32 * 1 * 0.38 * 400 * (400{,}000 * 0.003/8.08^3)} = 40.90 \text{ psi } (8''\text{PVC NR})$$

$$R_w = 1 - 0.33 * (h_w/h)$$ ***Equation 2***

$$R_w = 1 - 0.33 * (0/168) = 1$$

$$B' = \frac{1}{1 + 4 * e^{-.065*H}}$$ ***Equation 3***

$$B' = \frac{1}{1 + 4 * e^{-.065*14}} = 0.38$$

$$I = t^3/12 * (\text{inches}^4/\text{linear inch})$$ ***Equation 4***

$$I = 0.241^3/12 = .001\text{in}^3 \ (6''\text{PVC SDR 26, NR})$$

$$I = 0.323^3/12 = .003\text{in}^3 \ (8''\text{PVC SDR 26, NR})$$

$$D = D_o - t$$ ***Equation 5***

$$D = 6.275 \text{ inches} - 0.241 \text{ inches} = 6.03 \text{ inches} \ (6'' \text{ PVC SDR 26, NR})$$

$$D = 8.4 \text{ inches} - 0.323 \text{ inches} = 8.08 \text{ inches} \ (8''\text{PVC SDR 26, NR})$$

Where:

- q_a = Allowable buckling pressure, pounds per square inch (psi)
- h = Height of soil surface above top of pipe in inches (in)
- h_w = Height of water surface above top of pipe in inches (in) (groundwater elevation)
- R_w = Water buoyancy factor. If hw = 0, Rw = 1. If 0 ≤ hw ≤ h (groundwater elevation is between the top of the pipe and the ground surface), calculate Rw with Equation 2
- H = Depth of burial in feet (ft) from ground surface to crown of pipe.
- B' = Empirical coefficient of elastic support
- E_b = Modulus of soil reaction for the bedding material (psi)
- E = Modulus of elasticity of the pipe material (psi)
- I = Moment of inertia of the pipe wall cross section per linear inch of pipe, inch4/linear inch = inch3. For solid wall pipe, "I" can be calculated with Equation 4
- t = Pipe structural wall thickness (in)
- D = Mean pipe diameter (in)
- D_o = Pipe outer diameter (in)

Pressure Under Installed Conditions

$$q_p = \gamma_w * h_w + R_w * (W_c/D) + L_l$$ ***Equation 6***

$$q_p = 0.361 * 0 + 1 * (87.24/6.03) + 1.39 = 16.20 \text{ psi } (6''\text{PVC SDR 26, NR})$$

$$q_p = 0.361 * 0 + 1 * (116.78/8.08) + 1.39 = 16.20 \text{ psi } (8''\text{PVC SDR 26, NR})$$

Where:

- q_p = Pressure applied to pipe under installed conditions (psi)
- γ_w = 0.0361 pounds per cubic inch (pci), specific weight of water
- W_c = Vertical soil load on the pipe per unit length in pounds per linear inch (lb/in)
- L_l = Live load (lbs)

$$W_c = \gamma_s * H * (D + t)/144$$ ***Equation 7***

$$W_c = 143 * 16 * (6.03 + 0.241)/144 = 99.70 \text{ lb/in}^2 (6''\text{PVC SDR 26, NR})$$

$$W_c = 143 * 16 * (8.08 + 0.323)/144 = 133.47 \text{ lb/in}^2 (8''\text{ PVC SDR 26, NR})$$

Pipe Diameter: ***6" (NR)*** Pipe Material: ***PVC, SDR 26*** q_a: ***40.82*** q_p: ***16.20***

Pipe Diameter: ***8" (NR)*** Pipe Material: ***PVC, SDR 26*** q_a: ***40.90*** q_p: ***16.20***

Since $q_a \geq q_p$, the specific pipe is acceptable for the proposed installation.

Wall Crushing

No portion of the proposed SCS is located in the 5-year floodplain.

$$H = (24 * P_c * A)/(\gamma_s * D_o)$$ ***Equation 8***

$$A = t(in) * 12(in/ft)$$ ***Equation 9***

$$H = (24 * 4000 * 2.892)/(143 * 6.275) = 309.40 \text{ (6" PVC SDR 26, NR)}$$

$$A = 0.241(in) * 12(in\ /\ ft) = 2.892 \text{ in}^2/\text{ft (6" PVC SDR 26, NR)}$$

$$H = (24 * 4000 * 3.876)/(143 * 8.4) = 309.77 \text{ (8" PVC SDR 26, NR)}$$

$$A = 0.323(in) * 12(in\ /\ ft) = 3.876^2/\text{ft(8" PVC SDR 26, NR)}$$

Where:

D_o = outside pipe diameter, in.

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

A = surface area of the pipe wall, $in.^2/ft$ [conversion factor of 12 applied to change from ft. to in.]

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

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

24 = conversions and coefficients

Installation Temperature Effects

Flexible pipe will be installed under favorable ambient conditions, per pipe manufacturer's specifications.

Tensile Strength

The information below is from "The Uni-Bell Handbook of PVC Pipe: Design and Construction" Table 2.1 pages 14-15. This applies to all PVC SDR-26 pipe.

Pipe Material: ***PVC SDR 26*** Tensile Strength: ***7,000*** Cell Class (PVC only) ***12454***

Strain

The conditions of this installation are such that strain-related failure will not be a problem. Strain is generally not a performance-limiting factor for buried PVC pipe or a design-limiting criterion for PVC pipes according to the Uni-Bell Handbook of PVC Pipe (Chapter VII, Pages 255 and 257). As pipe deflection will be below 5%, strain-related failure is not anticipated.

Modulus of Soil Reaction

The modulus of soil reaction for the bedding material, E_b, is **400 psi**.

This value was determined using the "Table 1: Soil Classification Chart" and "Table 2: Soil Classes" from ASTM D2321-11 and "Average Values of Modulus of Soil Reaction, E" Table 7.3 from "The Uni-Bell Handbook of PVC Pipe: Design and Construction" attached in Appendix A of this subsection. Class III material was chosen. As the secondary backfill (Class III) has a lower Modulus of Soil Reaction than initial backfill (Class I), its value was used in the calculations that follow. Class III on Table 2 corresponds to coarse-grained soils with fines (GM, GC, SM or SC) and sandy or gravelly fine-grained soils (CL or ML). On Table 7.3, coarse-grained soils with fines at a slight compaction have an E' equal to 400 psi.

The modulus of soil reaction for the in-situ soil, $E'_{n,}$ is **3,000 psi**

This value was determined using the "Table 1: Soil Classification Chart" and "Table 2: Soil Classes" from ASTM D 2321-11 and "Table 7.3 Average Values of Modulus of Soil Reaction, E" from "The Uni-Bell Handbook of PVC Pipe: Design and Construction" attached in Appendix A of this subsection. Class I material was chosen, which includes crushed rock as shown on Table 2. Compacted crushed rock on Table 7.3 has an E' equal to 3,000 psi. Values in Table 7.3 are based on empirical data and derived from laboratory and field tests for buried pipe.

Bedding to in-situ soil modulus of soil reaction ratio = E_b/E'_n = **400 psi/3,000 psi = 0.13**

Zeta Calculation

Where native soil is significantly weaker than bedding material, or where predicted deflection approaches 5%, the effect of native soil must be quantified using Leonhardt's Zeta factor. If the ration of bedding modulus to soil modulus is not equal to 1.0, a zeta factor must be calculated by using the equations below, where zeta is a factor, which corrects for the effect of in-situ soil on pipe stability (Uni-Bell Handbook of Pipe, page 267). To calculate zeta, directly use the formulas below. The calculations that are done to determine the zeta factors for the different pipe diameters must be included with this submittal.

$$\text{zeta} = \frac{1.44}{f + (1.44 - f) * (E_b/E_{n'})}$$ ***Equation 10***

$$\text{zeta} = \frac{1.44}{1.33 + (1.44 - 1.12) * 0.13} = 1.03(6''\text{PVC SDR 26, NR})$$

$$\text{zeta} = \frac{1.44}{1.17 + (1.44 - 1.19) * 0.13} = 1.24(8''\text{ PVC SDR 26, NR})$$

$$f = \frac{(b/d_a) - 1}{1.154 + 0.444 * ((b/d_a) - 1)}$$ ***Equation 11***

$$f = \frac{(30/6.275) - 1}{1.154 + 0.444 * ((30/6.275) - 1)} = 1.12(6''\text{ PVC SDR 26, NR})$$

$$f = \frac{(33/8.40) - 1}{1.154 + 0.444 * ((32/8.40) - 1)} = 1.19(8''\text{ PVC SDR 26, NR})$$

Where:

- f = Pipe/trench width coefficient
- b = Trench width (in)
- d_a = Pipe diameter (in)
- E_b = Modulus of soil reaction for the bedding material (psi)
- E'_n = Modulus of soil reaction for the in-situ soil (psi)

Pipe Diameter: ***6" (NR)*** Trench Width: ***30"*** Zeta: ***1.03***

Pipe Diameter: ***8" (NR)*** Trench Width: ***33"*** Zeta: ***1.24***

Pipe Stiffness

Pipe stiffness (Ps) is based on National Reference Standards and manufacturer's data. Please see Table 7.1 of the "The Uni-Bell Handbook of PVC Pipe: Design and Construction" listing the pipe stiffness of 6" PVC SDR 26 and 8" PVC SDR 26 as 115 psi for E = 400,000 psi.

Pipe Diameter: ***6"*** Pipe Material: ***PVC SDR 26*** Ps: ***115 psi***

Pipe Diameter: ***8"*** Pipe Material: ***PVC SDR 26*** Ps: ***115 psi***

Deflection

Maximum allowable deflection in installed lines is 5% (per 30 TAC 217), as determined by the deflection analysis and verified by a mandrel test. It is recommended that the percent of vertical deflection is below this range; however, a 7.5% deflection limit (recommended by ASTM D3034) provides a conservative factor of safety against structural failure (Handbook of PVC Pipe, page 249).

Note: Per Table 7.2 attached in Appendix A of the SCS Application, K = 0.096 when the bedding angle is 90 degrees.

Assume Live Load at 14 feet max bury depth is negligible.

$$\Delta Y/D(\%) = \frac{K * (L_p + L_1) * 100}{(0.149 * P_s) + (0.061 * \text{zeta} * E_b)}$$ ***Equation 12***

$$\Delta Y/D(\%) = \frac{0.096 * (13.9 + 0) * 100}{(0.149 * 115) + (0.061 * 1.03 * 400)} = 3.17\%(6'' \text{ PVC SDR26, NR})$$

$$\Delta Y/D(\%) = \frac{0.096 * (13.9 + 0) * 100}{(0.149 * 115) + (0.061 * 1.24 * 400)} = 2.82\%(8''\text{PVC SDR 26, NR})$$

$$L_p = \frac{\gamma_s * H}{144}$$ ***Equation 13***

$$L_p = \frac{143 * 14}{144} = 13.9 \text{ psi}$$

Where:

ΔY/D (%) = Predicted % vertical deflection under load

ΔY = Change in vertical pipe diameter under load

D = Undeflected mean pipe diameter (in)

K = Bedding angle constant

γ_s = Unit weight of soil (pcf)

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

L_p = Prism load (psi)

Type of Pipe Material	P_s (psi)	Zeta Factor Assumed or Calculated	E_b (psi)	% Deflection
6” PVC SDR 26	***115***	***1.03***	***400***	***3.17***
8" PVC SDR 26	***115***	***1.24***	***400***	***2.82***

All pipes proposed for this project have a maximum predicted deflection below 5.0% Per ASTM D3034, 7.5% deflection is permitted.

Signature, Seal and Date of the Texas Professional Engineer Below:

07/08/2024

APPENDIX A (TABLES)

SOIL CLASSIFICATION CHART

From ASTM D2321-11: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

TABLE 1 Soil Classification Chart (see Classification D2487)

	Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
					Group Symbol	Group Name[B]
Coarse-Grained Soils	Gravels	Clean gravels	C ≥ 4 and 1 ≤ Cc ≤ 3[C]		GW	Well-graded gravel[D]
More than 50% retained on No. 200 sieve	More than 50% of coarse fraction retained on No. 4 sieve	Less than 5% of fines[E]	Cu < 4 and/or 1> Cc>3[C]		GP	Poorly graded gravel[D]
		Gravels with more than 12% fines[E]	Fines classify as ML or MH		GM	Silty gravel[DFG]
			Fines classify as CL or CH		GC	Clayey gravel[DFG]
	Sands	Clean sands	Cu ≥ 6 and 1 ≤ Cc ≤ 3[C]		SW	Well-graded sand[H]
	50% or more of coarse fraction passes on No. 4 sieve	Less than 5% fines[I]	Cu < 6 and/or 1 > Cc > 3[C]		SP	Poorly graded sand[H]
		Sand with fines	Fines classify as ML or MH		SM	Silty sand[FGH]
		More than 12% fines[I]	Fines classify as CL or CH		SC	Clayey sand[FGH]
Fine-Grained Soils	Silts and clays	Inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[KLM]
50% or more passes the No. 200 Sieve	Liquid limit less than 50		PI < 4 and plots below "A" line[J]		ML	silt[KLM]
		Organic	Liquid Limit-Oven dried	<0.75	OL	Organic clay[KLMN]
			Liquid Limit-Not dried			Organic silt[KLMO]
	Silts and clays	Inorganic	PI plots on or above "A" line		CH	Fat clay[KLM]
	Liquid limit 50 or more		Plots below "A" line		MH	Elastic silt[KLM]
		Organic	Liquid Limit-Oven Dried	<0.75	OH	Organic clay[KLMP]
			Liquid Limit-Not Dried			Organic silt[KLMQ]
Highly organic soils	Primarily organic matter, dark in color, and organic odor				PT	peat

[A] Based on the material passing the 3-in. (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] $Cu = D_{60} / D_{10}$

$$Cc = \frac{(D_{30})^2}{D_{10} x D_{60}}$$

[D] If soil contains ≥15 % sand, add "with sand" to group name.
[E] Gravels with 5 to 12 % fines require dual symbols:
GW-GM well-graded gravel with silt:
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[F] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[G] If fines are organic, add "with organic fines" to group name.
[H] If soil contains ≥ 15 % gravel, add "with gravel" to group name.
[I] Sands with 5 to 12 % fines require dual symbols:
SW-SM well graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay (see Test Method D4318).
[K] If soil contains 15 to 29 % plus No. 200, add "with sand" or "with gravel", whichever is predominant.
[L] If soil contains ≥ 30 % plus No. 200, predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30 % plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.

SOIL CLASSIFICATION CHART

From ASTM D2321-11: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

TABLE 2 Soil Classes

Soil Group [A,B]	Soil Class	American Association of State Highway and Transportation Officials (AASHTO) Soil Groups [C]
Crushed rock, angular [D], 100% passing 1-1/2 in. sieve, </=15 % passing #4 sieve, </= 25 % passing 3/8 in. sieve and </= 12 % passing #200 sieve	Class I	--
Clean, coarse grained soils: SW, SP, GW, GP or any soil beginning with one of these symbols with </= 12 % passing #200 sieve[E,F]	Class II	A1, A3
Coarse grained soils with fines: GM, GC, SM, SC or any soil beginning with one of these symbols, containing > 12 % passing #200 sieve; Sandy or gravelly fine-grained soils: CL, ML, or any soil beginning with one of these symbols, with >/= 30 % retained on #200 sieve	Class III	A-2-4, A-2-5, A-2-6, or A-4 or A-6 soils with more than 30% retained on #200 sieve
Fine-grained soils: CL, ML, or any soil beginning with one of these symbols, with <30 % retained on #200 sieve	Class IV	A-2-7, or A-4, or A-6 soils with 30% or less retained on #200 sieve
MH, CH, OL, OH, PT	Class V Not for use as embedment	A5, A7

[A] See Classification D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
[B] Limits may be imposed on the soil group to meet project or local requirements if the specified soil remains within the group. For example, some project applications require a Class I material with minimal fines to address specific structural or hydraulic conditions and the specification may read "Use Class I soil with a maximum of 5% passing the #200 sieve."
[C] AASHTO M145, Classification of Soils and Soil Aggregate Mixtures.
[D] All particle face shall be fractured.
[E] Materials such as broken coral, shells, and recycled concrete, with $\leq$ = 12% passing a No. 200 sieve, are considered to be Class II materials. These materials should only be used when evaluated and approved by the Engineer.
[F] Uniform fine sands (SP) with more than 50% passing a No. 100 sieve (0.006 in., 0.15 mm) are very sensitive to moisture and should not be used as backfill unless specifically allowed in the contract documents. If use of these materials is allowed, compaction and handling procedures should follow the guidelines for Class III materials.

SOIL CLASSIFICATION CHART

From ASTM D2321-11: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

TABLE 3 Recommendations for Installation and Use of Soils and Aggregates for Foundation and Pipe-Zone Embedment

Soil Class[A]	Class I[B]	Class II	Class III	Class IV
General Recommendations and Restrictions	Acceptable and common where no migration is probable or when combined with a geotextile filter media. Suitable for use as a drainage blanket and under drain where adjacent material is suitably graded or when used with a geotextile filter fabric (see X1.8).	Where hydraulic gradient exists check gradation to minimize migration. Clean groups are suitable for use as a drainage blanket and underdrain (see Table 2). Uniform fine sands (SP) with more than 50 % passing a #100 sieve (0.006 in., 0.15 mm) behave like silts and should be treated as Class IV soils.	Do not use where water conditions in trench prevent proper placement and compaction. Not recommended for use with pipes with stiffness of 9 psi or less.	Difficult to achieve high-soil stiffness. Do not use where water conditions in trench prevent proper placement and compaction. Not recommended for use with pipes with stiffness of 9 psi or less.
Foundation	Suitable as foundation and for replacing over-excavated and unstable trench bottom as restricted above.	Suitable as foundation and for replacing over-excavated and unstable trench bottom as restricted above. Install and compact in 12 in. (300 mm) maximum layers.	Suitable for replacing over-excavated trench bottom as restricted above. Install and compact in 6 in. (150 mm) maximum layers.	Suitable for replacing over-excavated trench bottom as restricted above. Install and compact in 6-in (150 mm) maximum layers.
Pipe Embedment	Suitable as restricted above. Work material under pipe to provide uniform haunch support.	Suitable as restricted above. Work material under pipe to provide uniform haunch support.	Suitable as restricted above. Difficult to place and compact in the haunch zone.	Suitable as restricted above. Difficult to place and compact in the haunch zone.
Embedment Compaction: Min Recommended Percent Compaction, SPD[D]	See Note[C]	85 % (SW and SP soils) For GW and GP soils See Note[E]	90 %	95 %
Relative Compactive Effort Required to Achieve Minimum Percent Compaction	Low	Moderate	High	Very high
Compaction Methods	Vibration or impact	Vibration or impact	Impact	Impact
Required Moisture Control	None	None	Maintain near optimum to minimize compactive effort	Maintain near optimum to minimize compactive effort

[A] Class V materials are unsuitable as embedment. They may be used as final backfill as permitted by the engineer.
[B] Class I materials have higher stiffness than Class II materials, but data on specific soil stiffness of placed, uncompacted Class I materials can be taken equivalent to Class II materials compacted to 95% of maximum standard Proctor density (SPD95), and the soil stiffness of compacted Class I materials can be taken equivalent to Class II materials compacted to 100% of maximum standard Proctor density (SPD100). Even if placed uncompacted (that is, dumped), Class I materials should always be worked into the haunch zone to assure completed placement.
[C] Suitable compaction typically achieved by dumped placement (that is, uncompacted but worked into haunch zone to ensure complete placement).
[D] SPD is standard Proctor density as determined by Test Method D698.
[E] Place and compact GW and GP soils with at least two passes of compaction equipment.

TABLE 6.6
LIVE LOADS ON PVC PIPE
From Uni-Bell Handbook of PVC Pipe: Design and Construction, Fourth Edition (2001)

Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²			Height of Cover (ft)	Live Load Transferred to Pipe, lb/in²		
	Highway H20[1]	Railway E80[2]	Airport [3]		Highway H20[1]	Railway E80[2]	Airport [3]
1	12.50			14	*	4.17	3.06
2	5.56	26.39	13.14	16	*	3.47	2.29
3	4.17	23.61	12.28	18	*	2.78	1.91
4	2.78	18.40	11.27	20	*	2.08	1.53
5	1.74	16.67	10.09	22	*	1.91	1.14
6	1.39	15.63	8.79	24	*	1.74	1.05
7	1.22	12.15	7.85	26	*	1.39	*
8	0.69	11.11	6.93	28	*	1.04	*
10	*	7.64	6.09	30	*	0.69	*
12	*	5.56	4.76	35	*	*	*
				40	*	*	*

[1] *Simulates 20 ton truck traffic + impact (Source: ASTM A 796)*
[2] *Simulates 80,000 lb/ft railway load + impact (Source: ASTM A 796)*
[3] *180,000 lbs. dual tandem gear assembly. 26 inch spacing between tires and 66 inch center-to-center spacing between fore and aft tires under a rigid pavement 12 inches thick + impact.*
** Negligible live load influence.*

FIGURE 7.4
BEDDING ANGLE
From Uni-Bell Handbook of PVC Pipe: Design and Construction, Fourth Edition (2001)

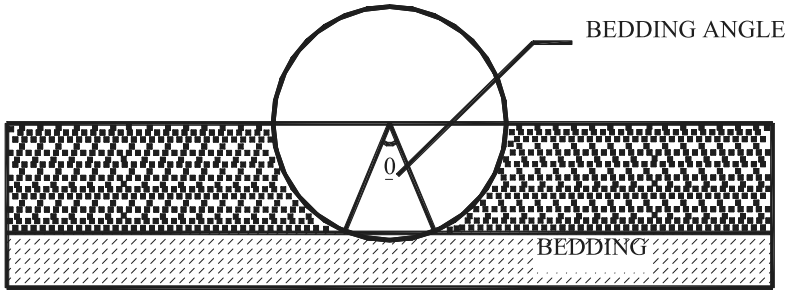


TABLE 7.2
VALUES OF BEDDING CONSTANT, K

BEDDING ANGLE (DEGREES)	K
0	0.110
30	0.108
45	0.105
60	0.102
90	0.096
120	0.090
180	0.083

TABLE 7.3
AVERAGE VALUES OF MODULUS OF SOIL REACTION, E'
(For Initial Flexible Pipe Deflection)
From Uni-Bell Handbook of PVC Pipe: Design and Construction, Fourth Edition (2001)

Soil type-pipe bedding material (Unified Classification System[a]) (1)	E' for Degree of Compaction of Bedding, in pounds per square inch			
	Dumped (2)	Slight, < 85% Proctor, <40% relative density (3)	Moderate, 85%-95% Proctor, 40%-70% relative density (4)	High, >95% Proctor, >70% relative density (5)
Fine-grained Soils (LL>50)[b] Soils with medium to high plasticity, CH, MH, CH-MH	No data available; consult a competent soils engineer; Otherwise use E' = 0			
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with less than 25% coarse-grained particles	50	200	400	1,000
Fine-grained Soils (LL<50) Soils with medium to no plasticity, CL, ML, ML-CL, with more than 25% coarse-grained particles	100	400	1,000	2,000
Coarse-grained Soils with Fines GM, GC, SM, SC[c] contains more than 12% fines				
Coarse-grained Soils with Little or no Fines GW, GP, SW, SP[c] contains less than 12% fines	200	1,000	2,000	3,000
Crushed Rock	1,000	3,000	3,000	3,000
Accuracy in Terms of Percentage Deflection[d]	± 2	± 2	± 1	± 0.5

[a]ASTM Designation D 2487, USBR Designation E-3.
[b]LL = Liquid limit.
[c]Or any borderline soil beginning with one of these symbols (i.e. GM-GC, GC-SC).
[d]For ± 1% accuracy and predicted deflection of 3%, actual deflection would be between 2% and 4%

Note: Values applicable only for fills less than 50 ft (15 m). Table does not include any safety factor. For use in predicting initial deflections only, appropriate Deflection Lag Factor must be applied for long-term deflections. If bedding falls on the borderline between two compaction categories, select lower E' value or average the two values. Percentage Proctor based on laboratory maximum dry density from test standards using about 12,500 ft-lb/cu ft (598,000 J/m^3) (ASTM D 698, AASHTO T-99, USBR Designation E-11). 1 psi = 6.9 kPa.

SOURCE: "Soil Reaction for Buried Flexible Pipe" by Amster K. Howard, U.S. Bureau of Reclamation, Denver, Colorado. Reprinted with permission from American Society of Civil Engineers.

APPENDIX B (SOIL UNIT WEIGHT VALUES)

Raba Kistner

January 14, 2009

Raba-Kistner Consultants, Inc.
12821 W. Golden Lane
P.O. Box 690287, San Antonio, TX 78269-0287
(210) 699-9090 • FAX (210) 699-6426
www.rkci.com

Charles P. "Frosty" Forster, P.E., P.G.
Pape Dawson Engineers
555 East Ramsey
San Antonio, Texas 78216

RE: Soil Unit Weight Values for Backfill Materials
Various Projects
San Antonio, Texas

Dear Mr. Forster:

Raba-Kistner Consultants Inc. (R-K) is pleased to submit this letter providing general guidance for selecting design soil unit weights for use in utility trench design.

In general, the following table contains a list of the frequently used trench backfill materials in the San Antonio area. The table also contains approximate values for the soil dry unit weight, moist unit weight and saturated unit weight for these materials assuming 90 to 95 percent compaction utilizing a standard Proctor (ASTM D 698.)

MATERIAL DESCRIPTION	DRY UNIT WEIGHT, PCF	MOIST UNIT WEIGHT, PCF	SATURATED UNIT WEIGHT, PCF
TxDOT TEX-113E Type A, Gr. 1 or 2	130	137	143
TxDOT TEX-113E Type A, Gr. 3 thru 5	128	135	143
Limestone Millings	115	124	134
Gravelly Clay	110	120	132
Clay	100	120	127
Clayey Sand	95	106	123
Gravel (Clean)	115	120	134
Sand (Clean)	92	98	120
Pit Run Gravel	127	137	142

We appreciate the opportunity to be of service to you. If you have any questions or need additional assistance, please call.

Very truly yours,

RABA-KISTNER CONSULTANTS, INC.

STATE OF TEXAS
CHRIS L. SCHULTZ
80680
LICENSED
PROFESSIONAL ENGINEER
1/14/09

Chris L. Schultz, P.E.
Senior Vice President

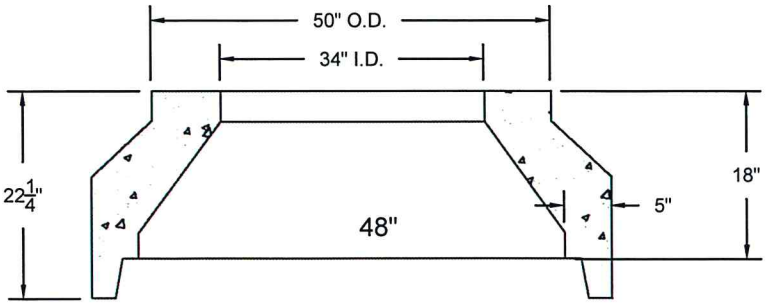
CLS/mem

O:\Admin - Non Project\San Antonio\PD back fill letter.doc

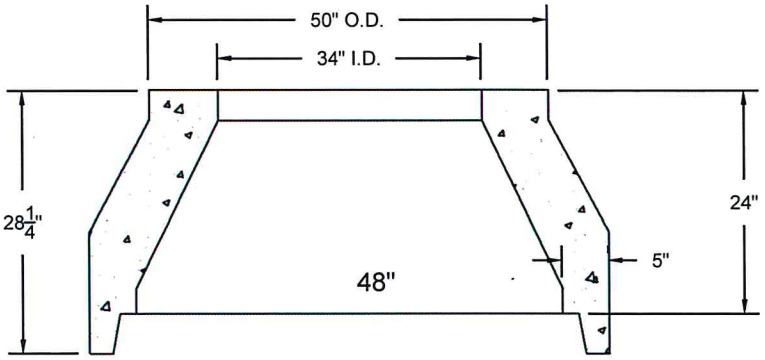
APPENDIX C (STANDARD SPECS AND PRE-CAST MANHOLES SPECS)

48" Dia. Concentric Cones

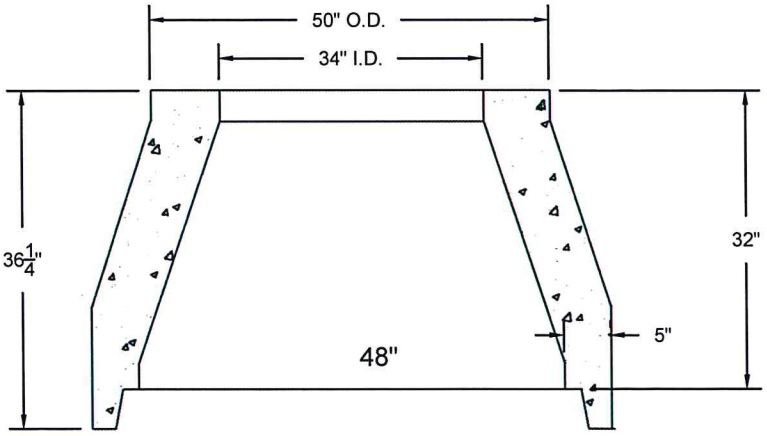
18" Yeild



24" Yeild



32" Yeild



NOTES:

1. Concrete: 4,000 PSI, 28 day Strength. Exceeds ASTM C - 478 - 11
2. Welded wire fabric strength fy = 65,000 psi.
3. Live Load - AASHOT HS-20.

Charlotte's Concrete, Inc.

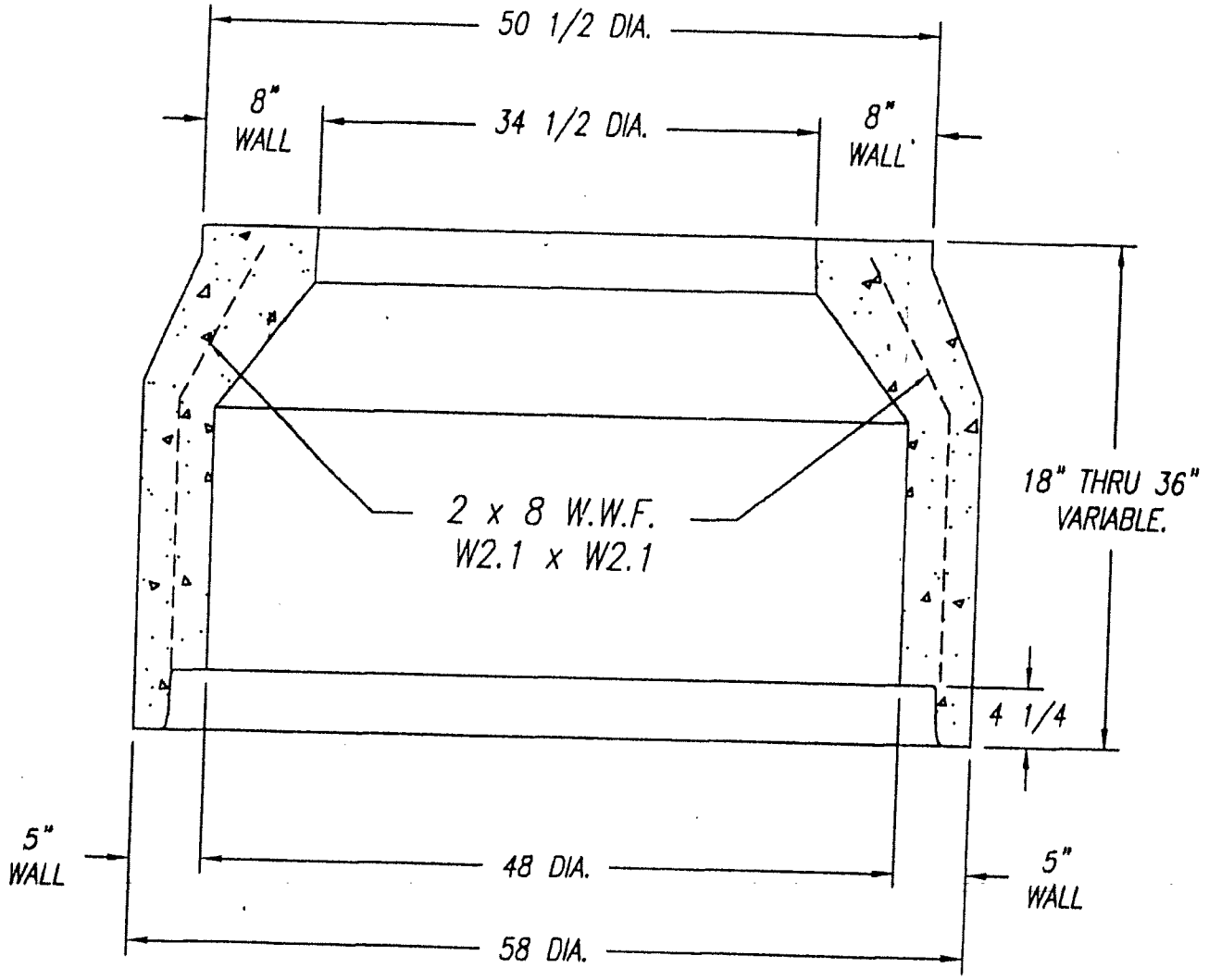
Charlotte's Concrete, Inc.
4950 Lane Dr.
San Antonio, Tx. 78263
Ph. (210) 648-4774

NPCA CERTIFIED PLANT

FOR 18", 24" & 32" Concentric Cones			
JOB			
DRAWN BY CA	DATE 08-06-15	REV. NO. -	SHEET 1 OF 1
FILE			

PRE-CAST MANHOLE DRAWINGS & SPECIFICATIONS

\APPROVAL\CONCENTRIC.DWG



(7R JOINT)

REF. FORM DWG. 3-303-5561

INTERNATIONAL PIPE MACHINERY CORP.

QUINN

MACHINE & FOUNDRY CORP.

A MEMBER OF THE BESSER FAMILY OF COMPANIES

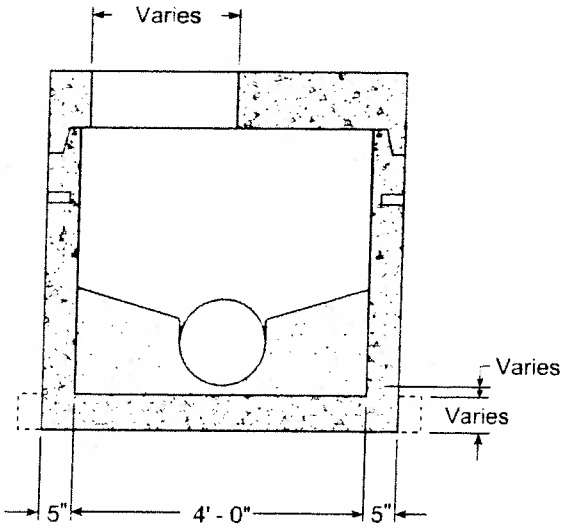
BOONE, IOWA U.S.A.

CHARLOTTES

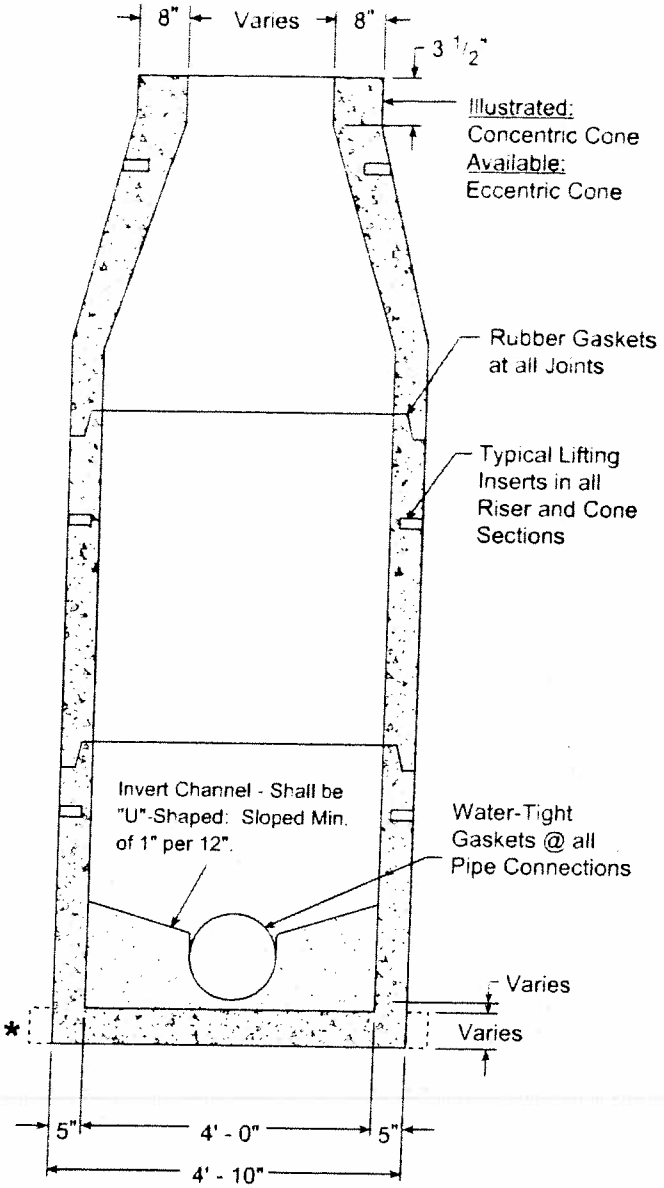
48 x 5 x 34 1/2 x 8 x 36 & 18

CONCENTRIC CONCRETE SECTION

DRAFTER	J.K	4/19/02	CONCENTRIC	REV.
CHECKED				
SCALE:	1/12" = 1"			



Flattop Illustration
for Shallow Manhole



Section View
4' I.D. Manhole - Regular Base
with Reducing Cone

Materials & Features

HOLES AS SPECIFIED: Max diameter = 32"
CONCRETE: 5,000 PSI, 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
Average weight of 24" depth base w/8" invert = 4,500 lbs.
Estimated weight of riser and cone sections = 870 lbs. / vt. ft.

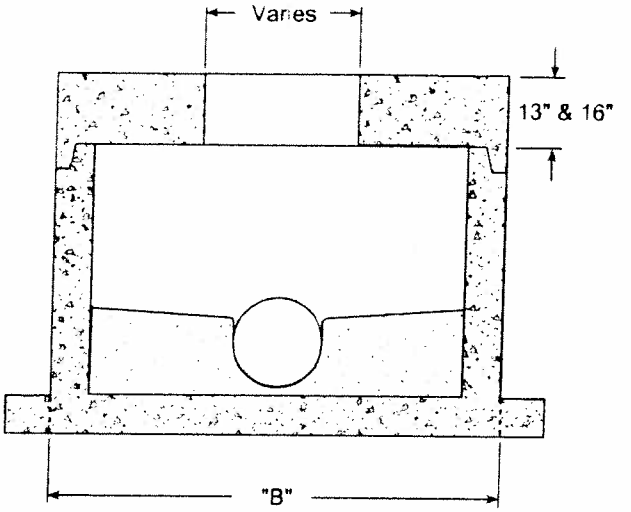
* - Extended base is available to meet local requirements.

In the event a boot is loose contact your Hanson representative to resolve.

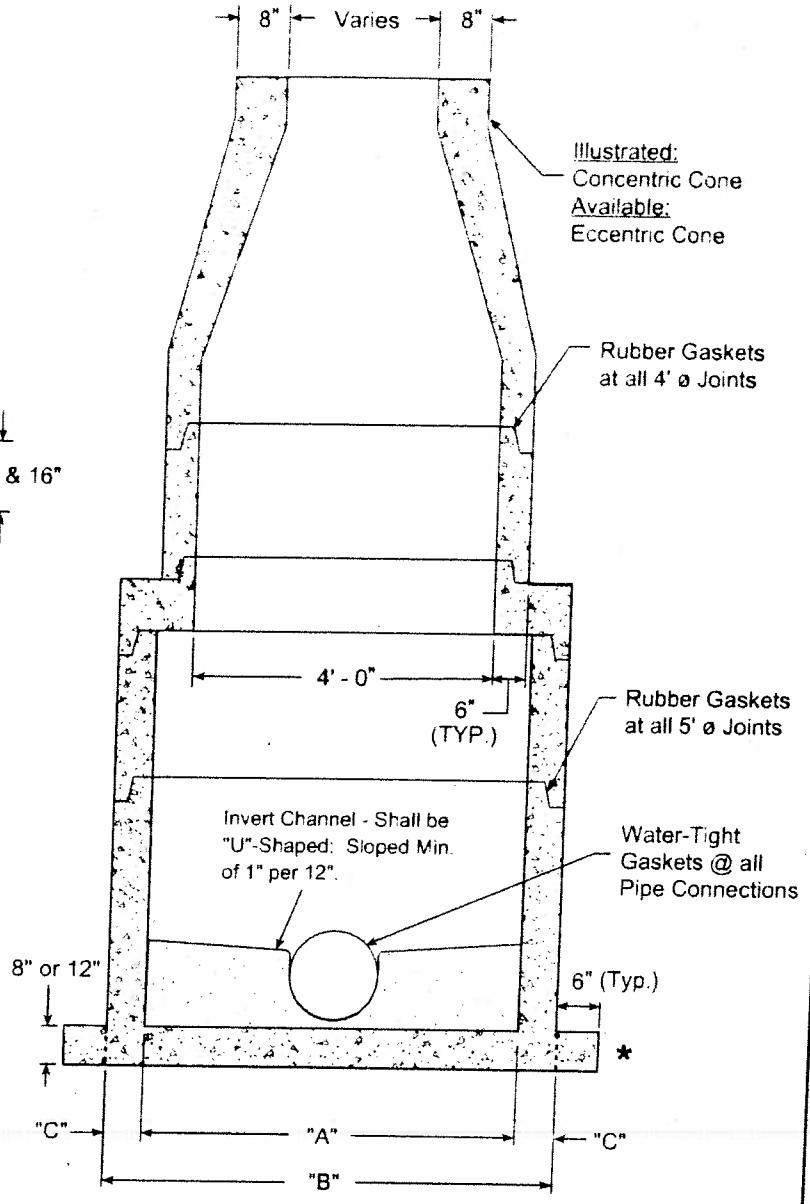
"Manufactured to your specifications."

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
4' I.D. Manhole **Regular Base w/ Reducing Cone**	All Plants	TX	5.5	08-15-06	Hanson



Flattop Illustration
for Shallow Manhole



Section View
5'/4' & 6'/4' I.D. Manhole
Extended Base with Reducing Cone

Materials & Features

HOLES AS SPECIFIED: for 5' I.D. max diameter = 40"
for 6' I.D. max diameter = 54"
CONCRETE: 5,000 PSI, 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
Average weight of 24" depth base w/8" invert:
for 5' I.D. = 7,500 lbs.
for 6' I.D. = 10,600 lbs.
Estimated weight of riser and sections:
for 5' I.D. = 1,325 lbs. / vt. ft.
for 6' I.D. = 1,800 lbs. / vt. ft.
For pipe sizes 15" and larger, invert shall be equal to the larger pipe diameter.
* - Extended base shown; Regular base also available."
In the event a boot is loose contact your Hanson representative to resolve.

"Manufactured to your specifications."

Pipe Size	I.D. "A"	O.D. "B"	Wall Thk. "C"
5'	5' - 0"	6' - 0"	6"
6'	6' - 0"	7' - 2"	7"

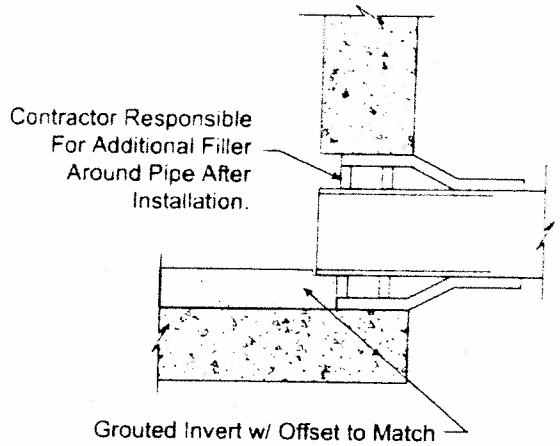
-No Scale-
All dimensions subject to allowable specification tolerances.

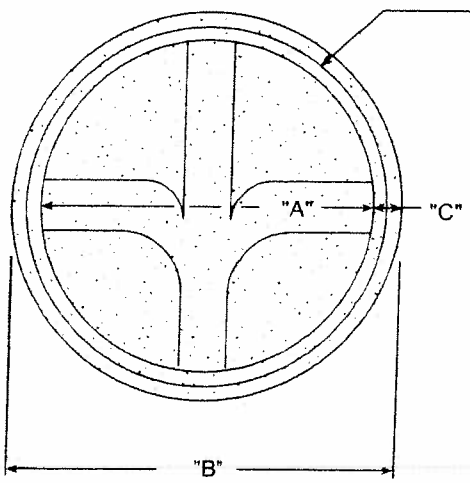
TITLE	PLANT	STATE	SECTION-PAGE	DATE
5'/4' & 6'/4'I.D. Manhole **Extended Base w/Reducing Cone**	All Plants	TX	5.6	08-15-06

Hanson

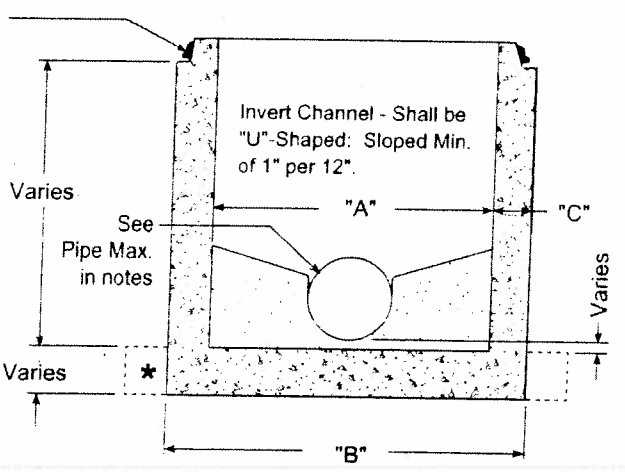
Precast Manholes

For Pipe Entering the Manhole at Excessive Depths Above the Flow Line Out, the Contractor May be Responsible for Grout Work Necessary to Bring Channel up to Flow Line on Inlet Pipe.





Plan View



Section View

Pipe Size	I.D. "A"	O.D. "B"	Wall Thk. "C"
4'	4' - 0"	4' - 10"	5"
5'	5' - 0"	6' - 0"	6"
6'	6' - 0"	7' - 2"	7"

Materials & Features

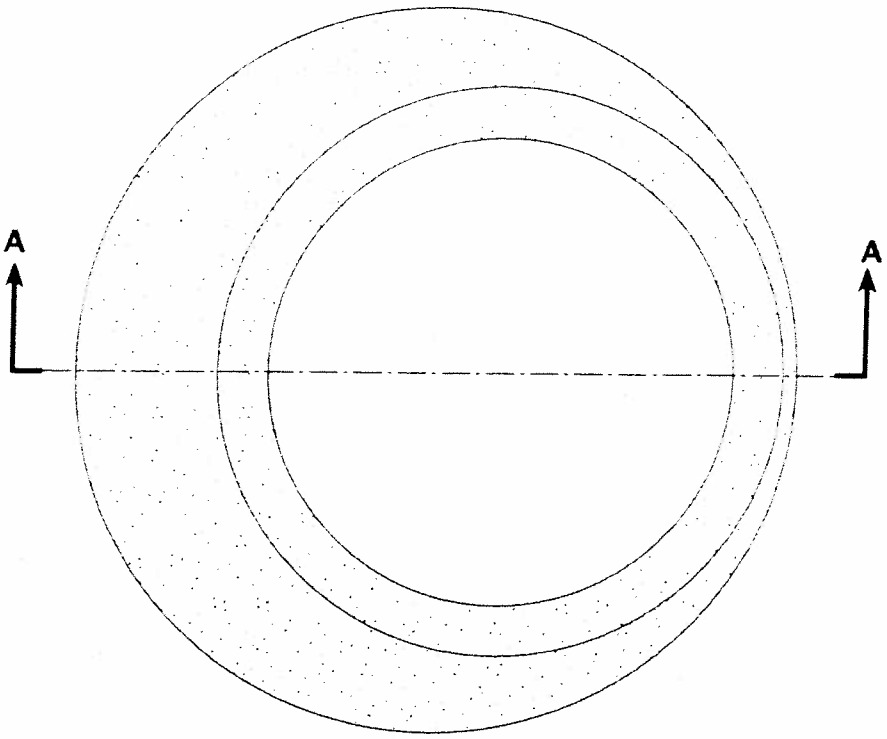
HOLES AS SPECIFIED:
- For 4' I.D. max. diameter = 32"
- For 5' I.D. max. diameter = 40"
- For 6' I.D. max. diameter = 54"

CONCRETE: 5,000 PSI, 28 day strength
REINFORCING: Meets or exceeds ASTM C478 requirements.
Average weight of 24" depth base w/8" invert = 4,500 lbs.
Water-tight gaskets at all pipe connections.
* - Regular base shown: Extended base also available.
In the event a boot is loose contact your Hanson representative to resolve.

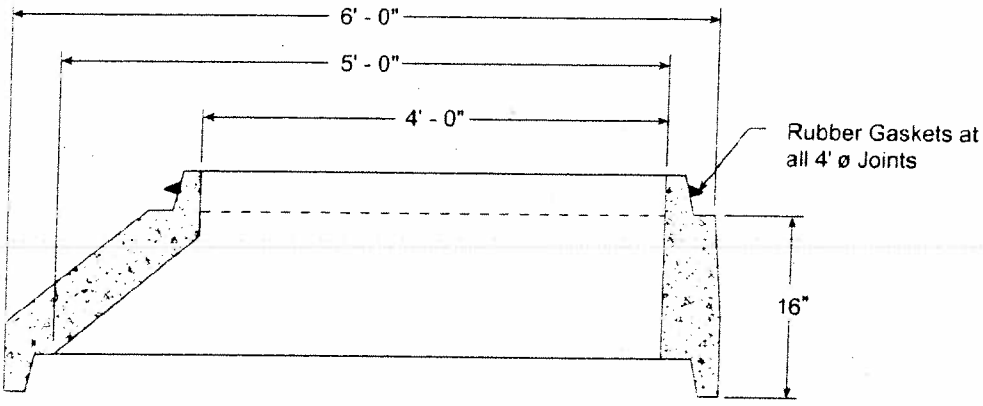
-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION-PAGE	DATE
Details: 4', 5' & 6' I.D. Precast Regular Manhole Base	All Plants	TX	5.7	08-15-06

Hanson



Plan View



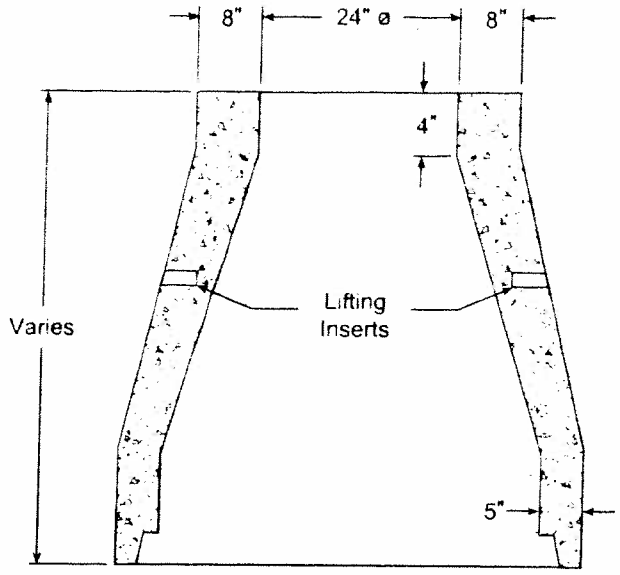
Section View

Materials & Features

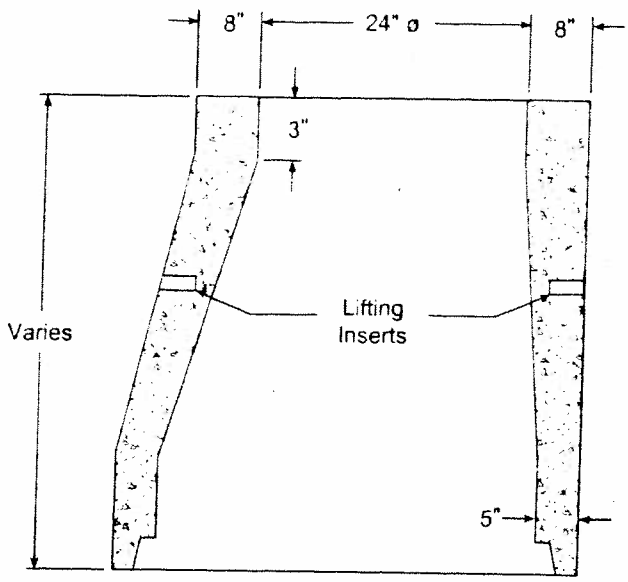
CONCRETE. 5,000 PSI. 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
CONSTRUCTION OF PRECAST is in accordance with ASTM C478.
Concrete is poured according to ACI-500.

-No Scale-
All dimensions subject to allowable specification tolerances.

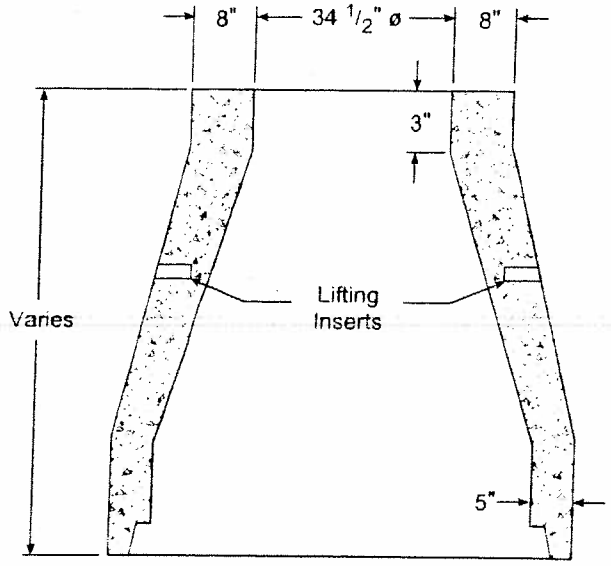
TITLE	PLANT	STATE	SECTION.PAGE	DATE	
5' x 4' Conical Adaptor	Waco	TX	5 8	08-15-06	Hanson



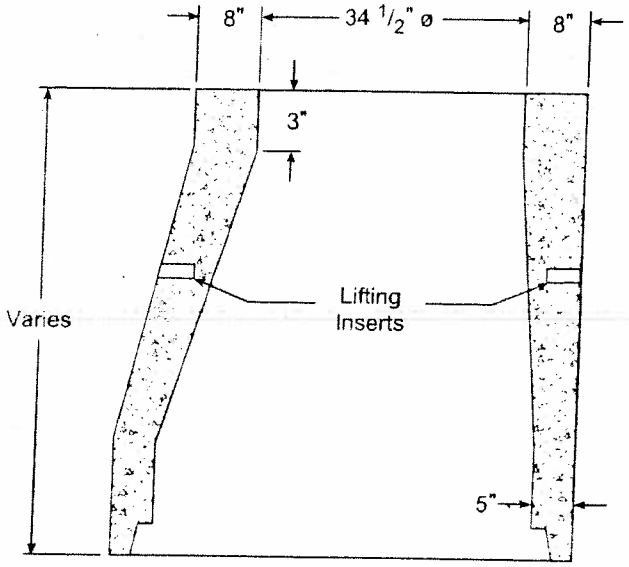
Concentric Cone
24" ø Opening



Eccentric Cone
24" ø Opening



Concentric Cone
34 1/2" ø Opening



Eccentric Cone
34 1/2" ø Opening

Materials & Features

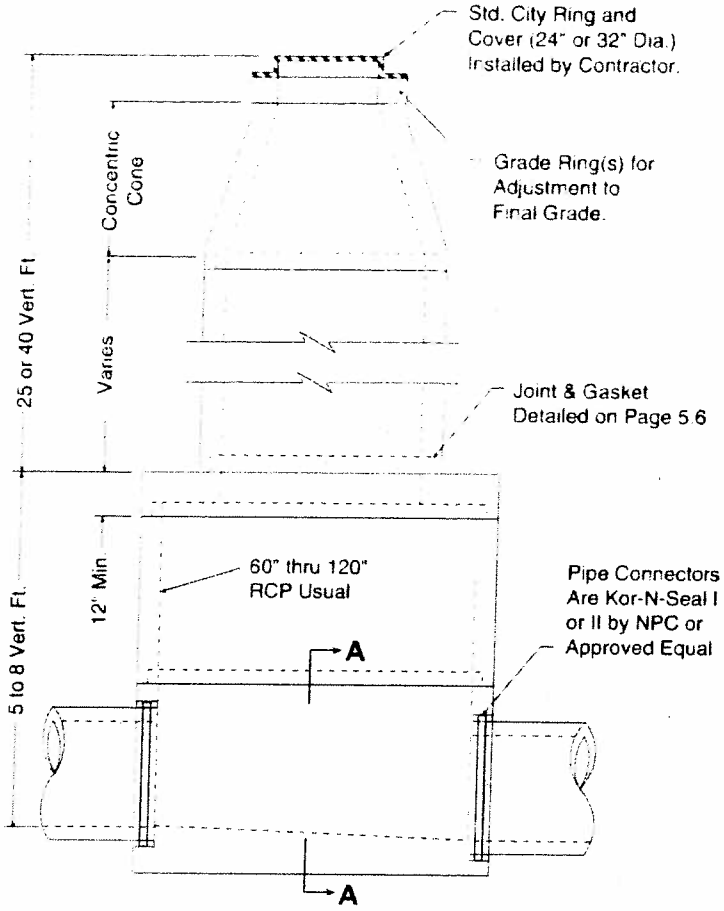
CONCRETE: 5,000 PSI, 28 day strength.
REINFORCING: Meets or exceeds ASTM C478 requirements.
30" ø also available in North Texas.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION/PAGE	DATE
Hanson 48" Manhole Reducing Cone Detail	Waco Houston	TX	5.9	08-15-06

Hanson

Precast Manholes



w/ Precast Base

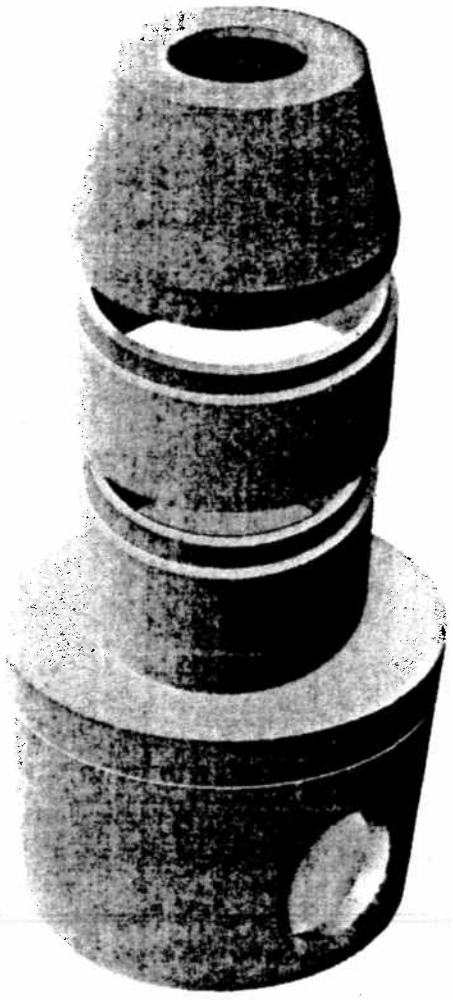
Section A-A

Base Slab Reinforcing

30' Deep Structure
60"ø - 6" Thick Slab min. - #5 @ 8" ea.way
72"ø - 8" Thick Slab min. - #5 @ 8" ea.way
84"ø - 8" Thick Slab min. - #5 @ 6" ea.way
96"ø - 10" Thick Slab min. - #5 @ 6" ea.way

45' Deep Structure
60"ø - 8" Thick Slab min. - #5 @ 8" ea.way
72"ø - 8" Thick Slab min. - #5 @ 8" ea.way
84"ø - 10" Thick Slab min. - #5 @ 6" ea.way
96"ø - 12" Thick Slab min. - #5 @ 6" ea.way

All Reinforcing has $1\frac{1}{2}$" cover from top of slab.



Isometric View

Materials & Features

CONCRETE: 5,000 PSI in 28 days.

REINFORCING STEEL: per ASTM A-615, Grade 60.

REINFORCING to meet AASHTO HS 20-44 Loading.

DESIGN EQUAL TO OR EXCEEDS ASTM C-478

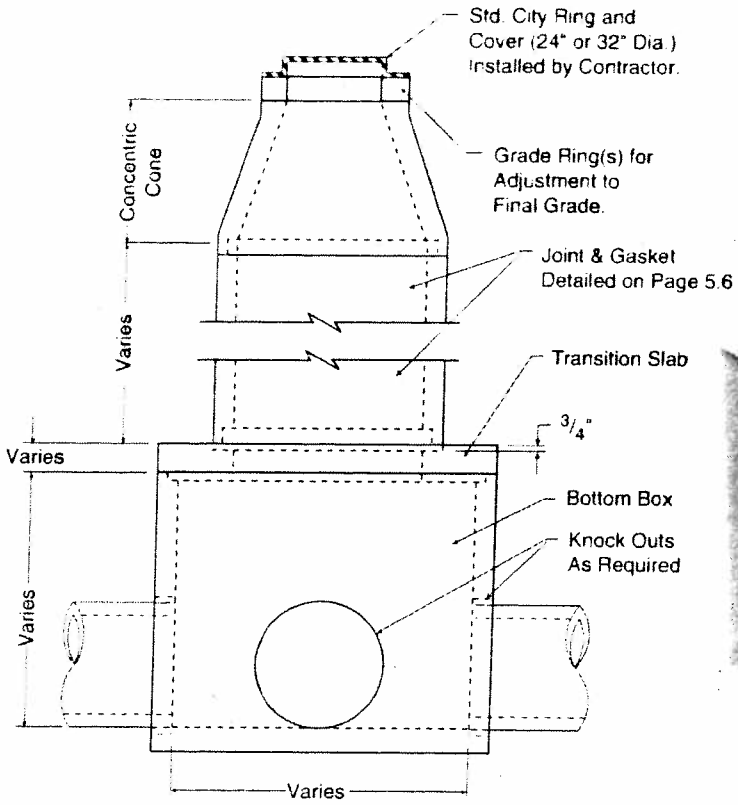
In the event a boot is loose contact your Hanson representative to resolve.

Note:

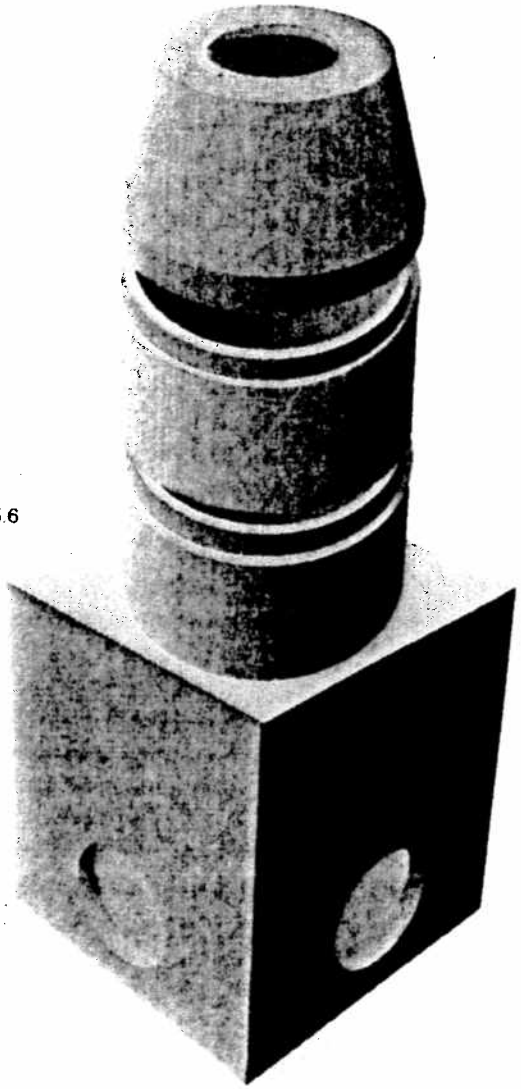
- Inverts shall be specifically sized for connecting pipes; and shall be U-Shaped with the min. depth 3/4 of the largest pipe diameter.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
30 & 45 Ft. Depth 60" thru 96"Large Base Manhole	Houston San Antonio	TX	5.10	08-15-06	Hanson



Side View



Isometric View

Materials & Features

CONCRETE: 5,000 PSI in 28 days.

REINFORCING STEEL: per ASTM A-615 / A-185

REINFORCING to meet AASHTO HS 20-44 Loading.

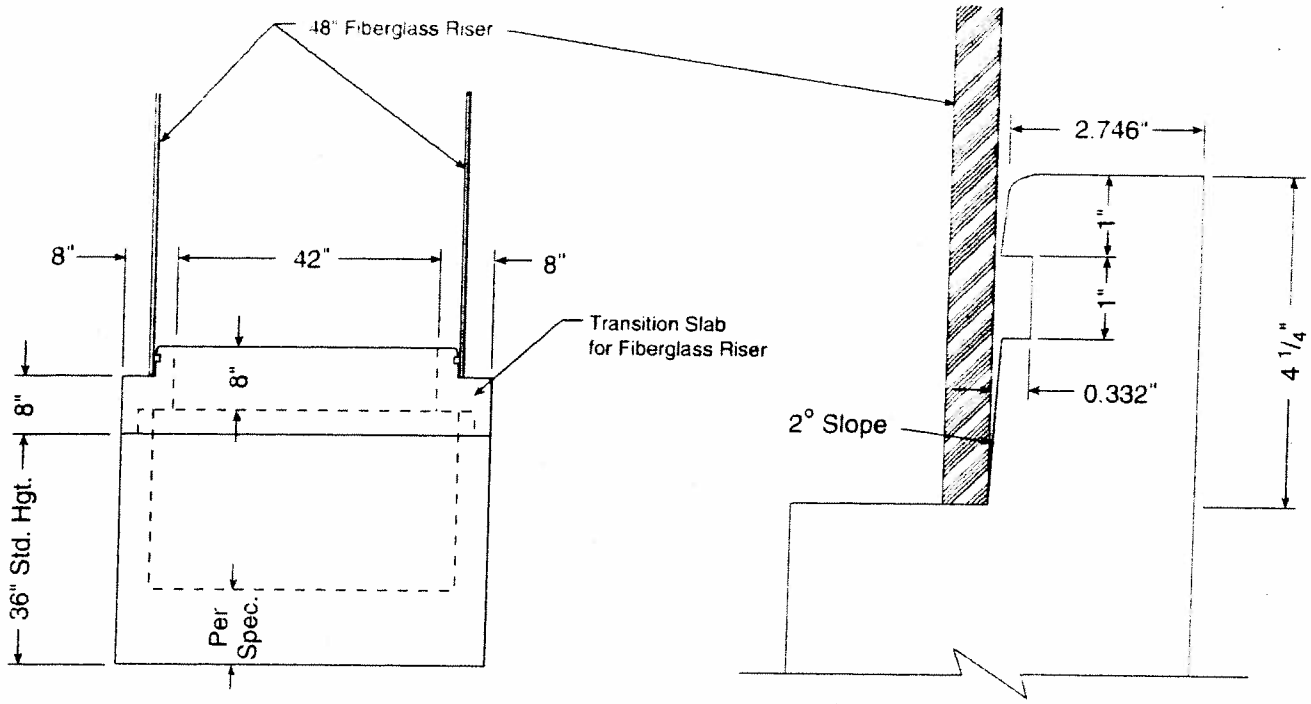
BASE DESIGN EQUAL TO OR EXCEEDS ASTM C-357

RISER DESIGN EQUAL TO OR EXCEEDS ASTM C-478

In the event a boot is loose contact your Hanson representative to resolve.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION, PAGE	DATE	
Type "C" Manhole	Houston San Antonio	TX	5.11	08-15-06	Hanson



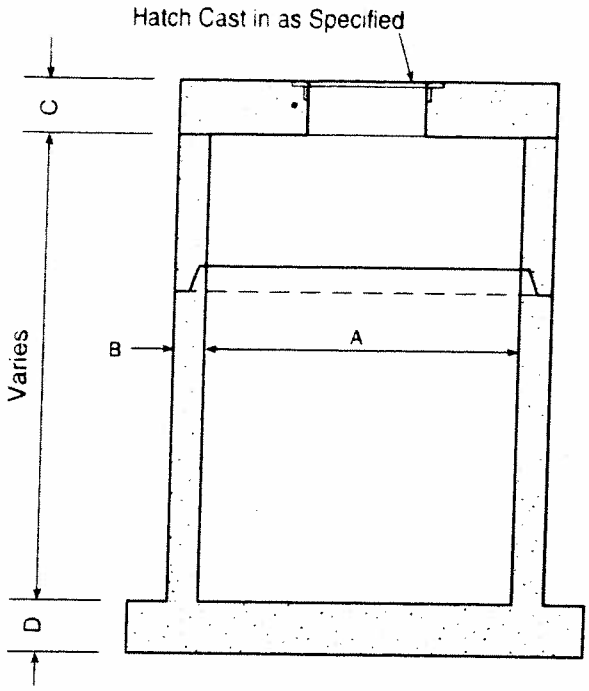
Profile **Joint Detail**

Materials & Features

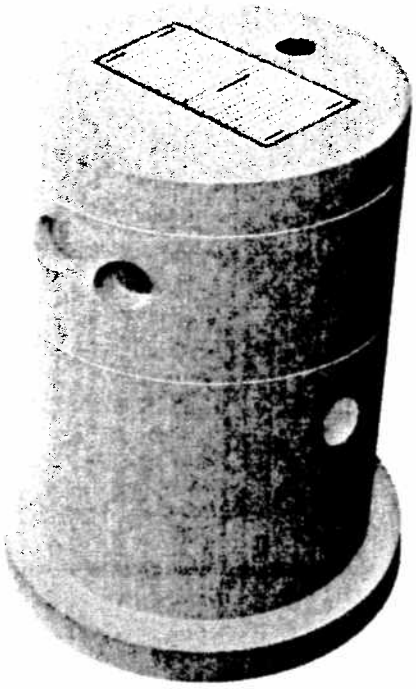
CONCRETE: 5,000 PSI in 28 days.
REINFORCING STEEL: per ASTM A-615, Grade 60.
REINFORCING to meet AASHTO HS 20-44 Loading.
DESIGN EQUAL TO OR EXCEEDS ASTM C-478

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
ASTM C-478 Special Base	Houston	TX	5.12	08-15-06	Hanson

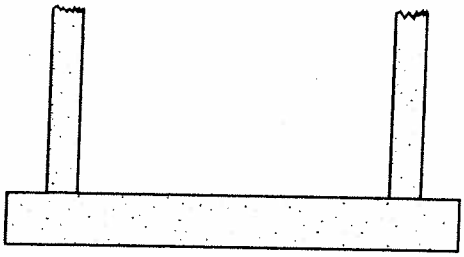


Section View
(Base configuration for 60", 72" & 84")

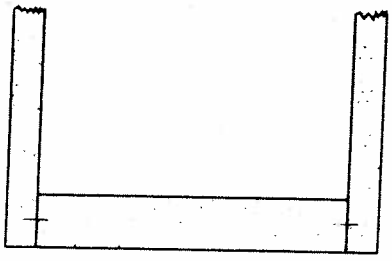


Isometric View

Product Dimensions			
A	B	C	D
60"	Contact your local Hanson representative for product dimensions.		
72"			
84"			
96"			
108"			
120"			
132"			
144"			



Section View
Base configuration for 96"



Section View
Base configuration for 108"-144"

Materials & Features

CONCRETE: 5,000 PSI in 28 days.

REINFORCING STEEL: per ASTM A-615 / A-185

REINFORCING to meet AASHTO HS 20-44 Loading.

BASE DESIGN EQUAL TO OR EXCEEDS ASTM C-357

RISER DESIGN EQUAL TO OR EXCEEDS ASTM C-478

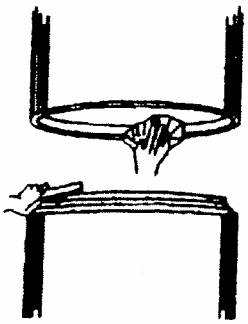
(A). Hatches as specified by Engineer.

In the event a boot is loose contact your Hanson representative to resolve.

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	PLANT	STATE	SECTION.PAGE	DATE	
Typical Wetwells - Various Diameters	All Plants	TX	5.13	08-15-06	Hanson

① "O"-Ring Gasket

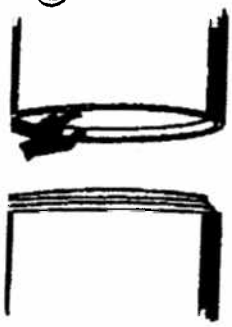


Carefully clean all dirt & foreign objects from the joining surface of the bell or groove end of pipe.

Carefully clean spigot or tongue end of pipe, including the gasket recess. Inspect the bell and spigot ends of each section to make sure they are free from cracks, chips or voids that will interfere with gasket.

Improperly prepared bell and spigot surfaces may prevent homing of the pipe or keep the gasket from sealing.

② Lubricate bell joint surface liberally, covering entire inside surface using proper pipe gasket lubricant.

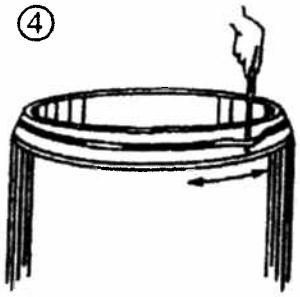


③

Lubricate the gasket throughly before it is placed on the spigot or tongue.

Bell and Gasket not lubricated or improperly lubricated may cause the gasket to roll and leak or possibly damage the bell.

④

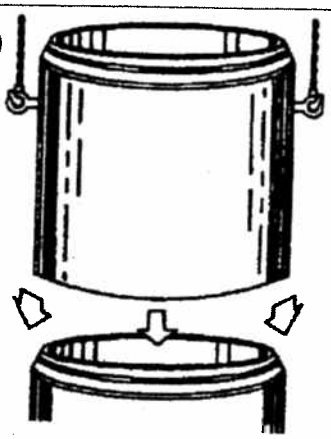


IMPORTANT

Fit the gasket carefully, equalizing the rubber gasket stretch by running a smooth, round object (inserted between the gasket & spigot) around the entire circumference several times.

Unequal stretch could cause bunching of the gasket and may cause leaks in the joint or crack the bell.

⑤



Align the bell & spigot to be joined. Before homing the joint, check that the gasket is in contact with the bell end entrance taper around the entire circumference.

Do not force sections together. If sections do not seat properly, unstack and contact your Hanson Sales Representative.

Improper alignment can dislodge gasket, causing leaks or possibly breaking the bell.

Profile Gasket

1. Manhole sections should be handed with extreme caution to avoid chipping of the bell or spigot ends. Proper lifting devices must be used on all sections.
2. Inspect gasket sealing area for any voids or rough edges that may interfere with the seal.
3. Place the 4-G Gasket in the step of the spigot. (Making sure that the pointed end of the gasket is toward the end of the pipe as shown in Fig A.)
4. **IMPORTANT** Equalize the stretch on the gasket by pulling the sealing lube away from the spigot at least one inch and then releasing the gasket. Repeat this every three or four inches around the circumference of the pipe. Equalization of stretch makes sure that the gasket has the same stretched cross-section and tension throughout. **Do not lube the gasket or spigot end of the pipe.**
5. Remove all dirt and other foreign matter from the inside surface of the bell. Apply lube to the inner surface of the bell including the lead-in taper surface on the outer edge of the bell. Align spigot with the bell. Gasket should touch lead-in taper around the entire circumference before pushing the pipe home.
6. Push the manhole section carefully, until the spigot is all the way home. (Fig B) Do not force sections together. If sections do not seat properly, unstack and contact your Hanson Sales Representative.
7. Every manhole will not come home exactly the same. Differences in application, consistency of lubricants, dimensions in the spigot and groove will cause variations in installation. If joining problems arise, please contact the manhole manufacturer immediately rather than forcing manhole sections together with subsequent damage to the manhole.
8. All testing should be performed prior to backfill of the manhole. Problems can not be detected after the manhole is backfilled. **Testing the manhole after backfill voids all warranties.**

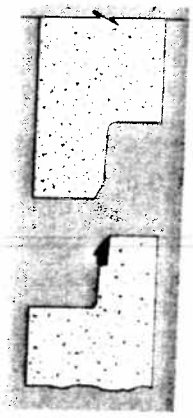


Fig. A

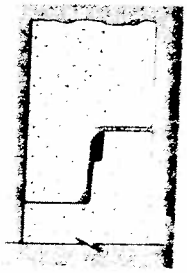
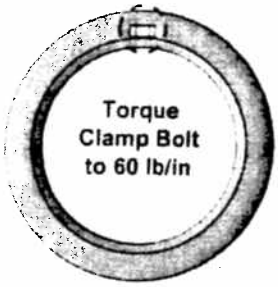


Fig. B

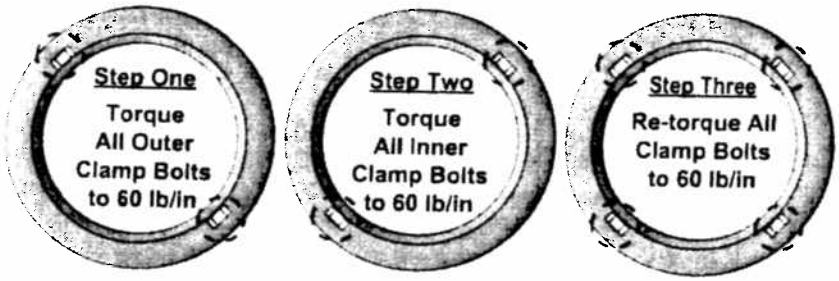
Note: *Manholes in excess of 30' in depth must be vacuum tested prior to backfill. The loads presented by soils and possible groundwater at 30' in addition to the load from the vacuum may exceed the design capacity of the pipe to manhole connector.*

TITLE	PLANT	STATE	SECTION.PAGE	DATE
O-Ring & Profile Gasket Installation on Manholes	All Plants	TX	5.14	08-15-06

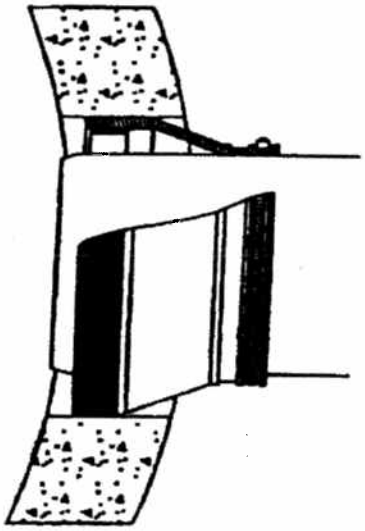
Hanson



Single Clamp



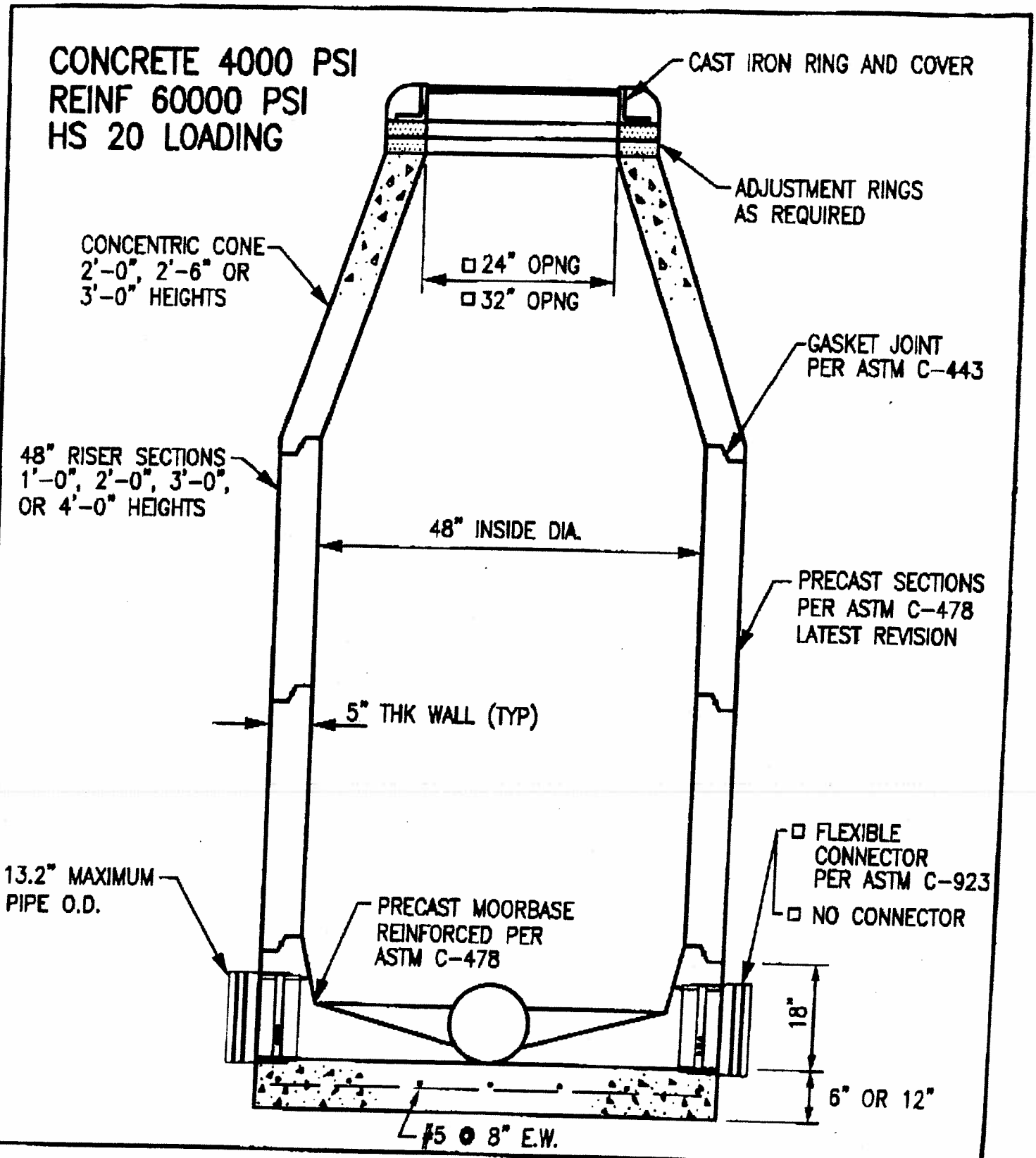
Multiple Clamps



Instructions

1. Clean pipe and boot to ensure no dirt or foreign materials are present.
2. Clamping surface on pipe must be clean and smooth.
3. Center pipe in opening and insert until pipe is at least equal to the inside plane of the manhole.
4. Attach take-up clamps(s) and stagger screw(s) of clamps(s) around the groove of the gasket so that take-up pressure will be equalized. Make sure each clamp is completely in the correct groove.
5. Using a torque ratchet or torque wrench, gradually tighten all screw(s) of clamp(s) in an alternating pattern to 60 lbs/in torque.
6. After reaching 60 lbs/in torque on final screw, check all screws again to ensure equal compression of all clamps.
7. If system is to be tested, testing shall be completed prior to backfilling, following all recommendations and requirements of the test system manufacturer. Vacuum testing shall be conducted in accordance with ASTM C-1244.
8. Adjust pipe to line and grade. Use proper bedding, backfill materials and techniques so that pipe deflection and deformation is minimized.
9. Any pipe stubs installed in the manhole must be positively restrained from movement.
10. Vacuum testing after backfill voids warranty.

For more information contact yor local Hanson Representative.



Rinker MATERIALS Moor-Tex
2735 HWY. 36 NORTH
MAILING: P.O. BOX 1088
SEALY, TEXAS 77474
PH: (979) 885-7403
(281) 375-6121
FAX:(979) 885-7001

REV.	DESCRIPTION	DATE
DATE: 8-09-02	SCALE: 3/4"=1'-0"	BY: RB

48" PRECAST CONCENTRIC MANHOLE WITH MOORBASE

JOB: 2002	FILE: 48CM	DWG. NO. 48CM

AGENT AUTHORIZATION FORM (TCEQ-0599)

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

I Edward St. John, manager in the capacity as set forth below,
Print Name

Mays Westinghouse Crossing, LLC
By: St. John Projects, LLC, manager
By: Edward St. John, LLC, General Manager
By: Edward A. St. John, General Manager

_____,
Title - Owner/President/Other

of Mays Westinghouse Crossing, LLC,
Corporation/Partnership/Entity Name

have authorized **Pape-Dawson Consulting Engineers, LLC**
Print Name of Agent/Engineer

of **Pape-Dawson Consulting Engineers, LLC**
Print Name of Firm

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

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Mays Westinghouse Crossing, LLC

By: St. John Projects, LLC, manager

By: Edward St. John, LLC,
General Manager

By: _____ 8/16/23
Name: Edward A. St. John Date
Title: General Manager

THE STATE OF Maryland §

County of Baltimore §

BEFORE ME, the undersigned authority, on this day personally appeared Edward St. John 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 16th day of August, 2023.

_____
NOTARY PUBLIC

MARGARET E GAMMON
Notary Public-Maryland
Howard County
My Commission Expires
May 19, 2027

Margaret E. Gammon
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5/19/2027

Owner Authorization Form

Texas Commission on Environmental Quality
for Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

Land Owner Authorization

I, Edward St. John, manager in the capacity as set forth below of
Land Owner Signatory Name

Mays Westinghouse Crossing II, LLC
By: St. John Projects, LLC, Manager
By: Edward St. John, LLC, General Manager
By: Edward A. St. John, General Manager
Land Owner Name (Legal Entity or Individual)

am the owner of the property located at
AW0385 AW0385 - Low, B.c. Sur., ACRES 9.021
Legal description of the property referenced in the application

and am duly authorized in accordance with §213.4(c)(2) and §213.4(d)(1) or §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 Mays Westinghouse Crossing, LLC
Applicant Name (Legal Entity or Individual)

to conduct construction of industrial buildings with associated water quality basin, parking, driveways, utilities, and drainage
Description of the proposed regulated activities

at 0.4 mi S of N Mays St & Westinghouse Rd intersection, Georgetown, TX 78626.
Precise location of the authorized regulated activities

Land Owner Acknowledgement

I understand that Mays Westinghouse Crossing II, LLC
Land Owner Name (Legal Entity or Individual)

Is ultimately responsible for 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 is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Mays Westinghouse Crossing II, LLC
By: St. John Projects, Manager
By: Edward St. John, LLC, General Manager
By: Edward A. St. John, General Manager

Edward St John — 8/14/23

Land Owner — Date

Signature THE STATE Maryland

OF § County of § Baltimore

BEFORE ME, the undersigned authority, on this day personally appeared Edward St. John 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 14th day of August 2023

Margaret E. Gammon

NOTARY PUBLIC

MARGARET E GAMMON
Notary Public-Maryland
Howard County
My Commission Expires
May 19, 2027

Margaret E. Gammon

Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5/19/2027

MARGARET E GAMMON
Notary Public-Maryland
Howard County
My Commission Expires
May 19, 2027

Attached: (Mark all that apply)

- ☐ Lease Agreement
- ☐ Signed Contract
- ☐ Deed Recorded Easement
- ☐ Other legally binding document

Applicant Acknowledgement

Mays Westinghouse Crossing , LLC
By: St. John Projects, LLC, Manager
By: Edward St. John, LLC, General Manager
By: Edward A. St. John, General Manager

I, Edward St. John, manager in the capacity as set forth below of _____
Applicant Signatory Name — Applicant Name (Legal Entity or Individual)

acknowledge that Mays Westinghouse Crossing II, LLC
Land Owner Name (Legal Entity or Individual)

has provided Mays Westinghouse Crossing, LLC
Applicant Name (Legal Entity or Individual)

with the right to possess and control the property referenced in the Edwards Aquifer protection plan.

I understand that Mays Westinghouse Crossing, LLC
Applicant Name (Legal Entity or Individual)

is contractually responsible for 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. I further understand that failure to comply with any condition of the executive director's approval is a violation is subject to administrative rule or orders and penalties as provided under §213.10 (relating to Enforcement). Such violation may also be subject to civil penalties and injunction.

Applicant Signature

Mays Westinghouse Crossing, LLC
By: St. John Projects, LLC, Manager
By: Edward St. John, LLC, General Manager
By: Edward A. St. John, General Manager

Edward St. John — 8/16/23
Applicant Signature — Date

THE STATE OF § Maryland

County of § Baltimore

BEFORE ME, the undersigned authority, on this day personally appeared Edward St. John 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 16th day of August 2023

Margaret E. Gammon
NOTARY PUBLIC

MARGARET E GAMMON
Notary Public-Maryland
Howard County
My Commission Expires
May 19, 2027

Margaret E. Gammon
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 5/19/2027

APPLICATION FEE FORM (TCEQ-0574)

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Westinghouse Flex North
Regulated Entity Location: 0.4 mi S of N Mays St & Westinghouse Rd intersection
Name of Customer: Mays Westinghouse Crossing, LLC
Contact Person: Edwards A. St. John Phone: (410) 788-0100
Customer Reference Number (if issued):CN 606180263
Regulated Entity Reference Number (if issued):RN 110424017

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

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

☐ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☒ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☐ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	9.021 Acres	$ 5,000
Sewage Collection System	423.68 L.F.	$ 650
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: Shelly Mitchell Date: 07/08/2024

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

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

Organized Sewage Collection Systems and Modifications

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

Underground and Aboveground Storage Tank System Facility Plans and Modifications

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

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

CORE DATA FORM
(TCEQ-10400)

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 606180263		RN 110424017

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

Mays Westinghouse Crossing, LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☐ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other:

15. Mailing Address:

City		State		ZIP		ZIP + 4	

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
( ) -		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected below this form should be accompanied by a permit application*)

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☒ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated in order to meet TCEQ Agency Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (*Enter name of the site where the regulated action is taking place.*)

Westinghouse Flex - North

23. Street Address of the Regulated Entity: *(No PO Boxes)*							
	City		**State**		**ZIP**		**ZIP + 4**
24. County	Williamson						

Enter Physical Location Description if no street address is provided.

25. Description to Physical Location:	0.4 mi S of N Mays St & Westinghouse Rd intersection				
26. Nearest City			**State**		**Nearest ZIP Code**
Georgetown			TX		78626
27. Latitude (N) In Decimal:	30.575796		**28. Longitude (W) In Decimal:**	-97.679901	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	34	32.9	-97	40	47.6

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
1541	1623	236210	237110

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

industrial flex buildings

34. Mailing Address:	**3800 N Lamar Blvd, Ste 200**						
	City	**Georgetown**	**State**	**TX**	**ZIP**	**78626**	**ZIP + 4**

35. E-Mail Address:	**mvannewkirk@sjpi.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(410) 788-100		**( ) -**

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
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Jean Autrey, P.E., CESSWI	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(210) 375-9000		(210) 375-9010	jautrey@pape-dawson.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:	Pape-Dawson Consulting Engineers, LLC	**Job Title:**	Vice President
Name *(In Print):*	Shelly Mitchell, P.E.	**Phone:**	(512) 454- **8711**
Signature:	Shelly Mitchell	**Date:**	07/08/2024

POLLUTANT LOAD AND REMOVAL CALCULATIONS

Treatment Summary Table Westinghouse Flex - North								
Watershed	**Watershed Area (acres)**	**Previously Approved Impervious Cover * (acres)**	**Proposed Impervious Cover (acres)**	**Total Impervious Cover (acres)**	**BMP**	**Required TSS Removal @ 80% Removal (lbs/yr)**	**Required TSS Removal @ 85% Removal (lbs/yr)**	**Designed TSS Removal (lb/yr)**
P1	7.789	0.000	4.490	4.490	Approved WQ Pond Basin A	3908	4157	4461
P2	1.160	0.024	0.201	0.225	Overtreatment	175	186	0
P2A**	0.106	0.000	0.106	0.106	Engineered VFS	92	98	100
P3	0.031	0.026	0.002	0.028	Overtreatment	2	2	0
P5	0.056	0.020	0.032	0.052	Overtreatment	28	30	0
P6	0.076	0.033	0.040	0.073	Overtreatment	34	37	0
Total	**9.218**	**0.1034**	**4.871**	**4.974**	**-**	**4239**	**4509**	**4561**

*Impervious cover approved with other WPAP

**Watershed P2A is a subwatershed within P2

Water Quality Basin Summary

Basin	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)
Approved Basin A	41,201	41,110	91

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex North
Date Prepared: 6/3/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2 (A_N \times P)$

where:

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =		Williamson	
Total project area included in plan * =		9.021	acres
Predevelopment impervious area within the limits of the plan * =		0.103	acres
Total post-development impervious area within the limits of the plan * =		4.974	acres
Total post-development impervious cover fraction * =		0.55	
P =		32	inches
$L_{M\ TOTAL\ PROJECT}$ =		4239	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Batch A

Total drainage basin/outfall area =	7.789	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	4.490	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\ THIS\ BASIN}$ =	3908	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	7.789	acres
A_I =	4.490	acres
A_P =	3.30	acres
L_R =	4576	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4461 lbs.

F = 0.97

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	3.00	inches
Post Development Runoff Coefficient =	0.40	
On-site Water Quality Volume =	34258	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6852	
Total Capture Volume (required water quality volume(s) x 1.20) =	41110	cubic feet

07/08/2024

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex
Date Prepared: 6/3/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
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Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spre

1. The Required Load Reduction for the total project: Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 28.93(A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of in
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =		Williamson	
Total project area included in plan	* =	9.021	acres
Predevelopment impervious area within the limits of the plan	* =	0.103	acres
Total post-development impervious area within the limits of the plan	* =	4.974	acres
Total post-development impervious cover fraction	* =	0.55	
P =		32	inches
$L_{M\ TOTAL\ PROJECT}$ =		4509	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Batch A

Total drainage basin/outfall area =	7.789	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	4.490	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\ THIS\ BASIN}$ =	4157	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	7.789	acres
A_I =	4.490	acres
A_P =	3.30	acres
L_R =	4576	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 4461 lbs.

F = 0.97

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 Pages 3-

Rainfall Depth =	3.00	inches
Post Development Runoff Coefficient =	0.40	
On-site Water Quality Volume =	34258	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6852	
Total Capture Volume (required water quality volume(s) x 1.20) =	41110	cubic feet

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

7. Retention/Irrigation System Designed as Required in RG-348 Pages 3-42 to 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 permeability rate or assun
Irrigation area =	NA	square feet	
	NA	acres	

8. Extended Detention Basin System Designed as Required in RG-348 Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 41110 cubic feet

07/08/2024

Shelly Mitchell

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex North
Date Prepared: 6/3/2024

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1. The Required Load Reduction for the total project Calculations from RG-348 Pages 3-27 to 3-30

Page 3-29 Equation 3.3: $L_M = 27.2 (A_N \times P)$

where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	9.021	acres
Predevelopment impervious area within the limits of the plan* =	0.103	acres
Total post-development impervious area within the limits of the pla* =	4.974	acres
Total post-development impervious cover fraction* =	0.55	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	4239	lbs.

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

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

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

Drainage Basin/Outfall Area No. = VFS

Total drainage basin/outfall area=	0.106	acres
Predevelopment impervious area within drainage basin/outfall are =	0.000	acres
Post-development impervious area within drainage basin/outfall are =	0.106	acres
Post-development impervious fraction within drainage basin/outfall are =	1.00	
$L_{M\ THIS\ BASIN}$ =	92	lbs.

3. Indicate the proposed BMP Code for this basin

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

07/08/2024

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: $L_R = (\text{BMP efficiency}) \times P \times (A \times 34.6 + A_P \times 0.54)$

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.106	acres
A_I =	0.106	acres
A_P =	0.00	acres
L_R =	100	lbs

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

Desired $L_{M\ THIS\ BASIN}$ = 100 lbs.

F = 1.00

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.82	
On-site Water Quality Volume =	1256	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	251	
Total Capture Volume (required water quality volume(s) x 1.20) =	1508	cubic feet

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex North
Date Prepared: 6/3/2024

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where:
$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	9.021	acres
Predevelopment impervious area within the limits of the plan* =	0.103	acres
Total post-development impervious area within the limits of the pla* =	4.974	acres
Total post-development impervious cover fraction* =	0.55	
P =	32	inches
$L_{M\ TOTAL\ PROJECT}$ =	4509	lbs.

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

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

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

Drainage Basin/Outfall Area No. = VFS

Total drainage basin/outfall area=	0.106	acres
Predevelopment impervious area within drainage basin/outfall are =	0.000	acres
Post-development impervious area within drainage basin/outfall are =	0.106	acres
Post-development impervious fraction within drainage basin/outfall are =	1.00	
$L_{M\ THIS\ BASIN}$ =	98	lbs.

3. Indicate the proposed BMP Code for this basin

Proposed BMP = Vegetated Filter Strips
Removal efficiency = 85 percent

Aqualogic Cartridge Filter
Bioretention
Contech StormFilter
Constructed Wetland
Extended Detention
Grassy Swale
Retention / Irrigation
Sand Filter
Stormceptor
Vegetated Filter Strips
Vortechs
Wet Basin
Wet Vault

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	0.106	acres
A_I =	0.106	acres
A_P =	0.00	acres
L_R =	100	lbs

07/08/2024

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

Desired $L_{M\ THIS\ BASIN}$ = 100 lbs.

F = 1.00

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area Calculations from RG-348 Pages 3-34 to 3-36

Rainfall Depth =	4.00	inches
Post Development Runoff Coefficient =	0.82	
On-site Water Quality Volume =	1256	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	251	
Total Capture Volume (required water quality volume(s) x 1.20) =	1508	cubic feet

EXHIBITS

Doc# 2023051383

FINAL PLAT
OF
HORIZONTAL WESTINGHOUSE TRACT SUBDIVISION, LOT 1, BLOCK A, AND LOT 2, BLOCK B

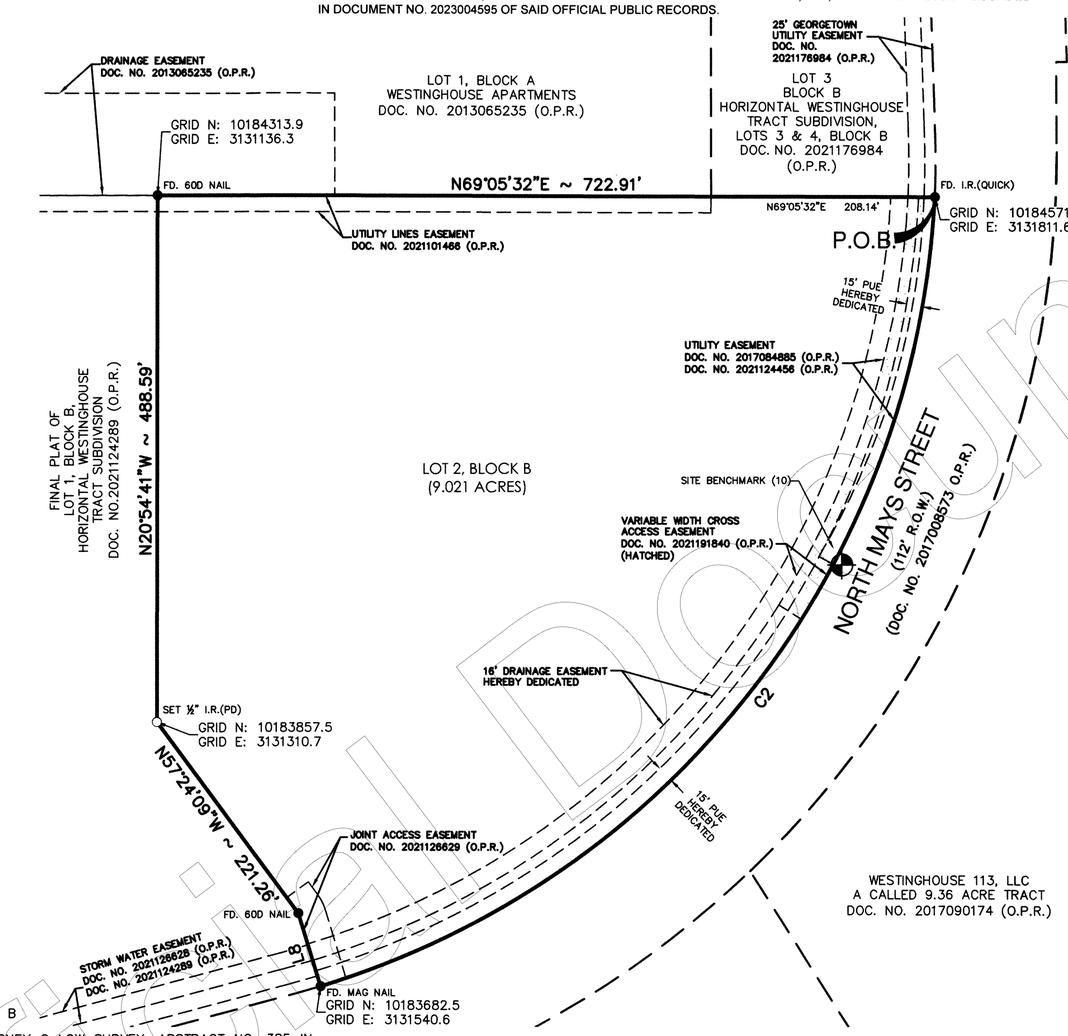
A 24.310 ACRE TRACT (LOT 1, BLOCK A), AND A 9.021 ACRE TRACT (LOT 2, BLOCK B), TOTALING 33.331 ACRES BEING SITUATED IN THE BARNEY C. LOW SURVEY, ABSTRACT NO. 385, IN WILLIAMSON COUNTY, TEXAS, BEING OUT OF A CALLED 24.310 ACRE TRACT, CONVEYED TO MAYS WESTINGHOUSE CROSSING, LLC, IN WARRANTY DEED RECORDED IN DOCUMENT NO. 2023004594 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS, AND BEING OUT OF A CALLED 9.021 ACRE TRACT, CONVEYED TO MAYS WESTINGHOUSE CROSSING II, LLC, IN WARRANTY DEED RECORDED IN DOCUMENT NO. 2023004595 OF SAID OFFICIAL PUBLIC RECORDS.

0' 100' 200' 300'

SCALE: 1"= 100'

LEGEND

PD	PAPE-DAWSON ENGINEERS
DOC	DOCUMENT NUMBER
OPR	OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS
PR	PLAT RECORDS OF WILLIAMSON COUNTY, TEXAS
DR	DEED RECORDS OF WILLIAMSON COUNTY, TEXAS
FD. I.R.	FOUND IRON ROD
R.O.W.	RIGHT OF WAY
VOL.	VOLUME
PG.	PAGE(S)
P.O.B.	POINT OF BEGINNING
P.O.C.	POINT OF COMMENCEMENT
PUE	PUBLIC UTILITY EASEMENT
(SURVEYOR) ●	FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
○	SET 1/2" IRON ROD (PD)
	EASEMENT LINE
	PLAT BOUNDARY LINE



FIELD NOTES FOR LOT 2, BLOCK B

A 9.021 ACRE TRACT OF LAND BEING SITUATED IN THE BARNEY C LOW SURVEY, ABSTRACT NO. 385 IN WILLIAMSON COUNTY, TEXAS, BEING OUT OF A CALLED 9.021 ACRE TRACT, CONVEYED TO MAYS WESTINGHOUSE CROSSING II, LLC, RECORDED IN DOCUMENT NO. 2023004595 OF THE OFFICIAL PUBLIC RECORDS OF WILLIAMSON COUNTY, TEXAS. SAID 9.021 ACRE TRACT BEING MORE FULLY DESCRIBED AS FOLLOWS, WITH BEARINGS BASED ON THE NORTH AMERICAN DATUM OF 1983 (NA 2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE CENTRAL ZONE:

BEGINNING at an iron rod with cap marked "Quick" found on a point in the northwest right–of–way line of North Mays Street, a 112–foot right–of–way recorded in Document No. 2017008573 of the Official Public Records of Williamson County, Texas, said point being the northeast corner of said 9.021–acre tract, same being the southeast corner of Lot 3, Block B of Horizontal Westinghouse Tract Subdivision, Lots 3 & 4, Block B, a subdivision according to the plat recorded in Document No. 2021176984 of the Official Public Records of Williamson County, Texas for the northeast corner, point of curvature and POINT OF BEGINNING hereof;

THENCE along the arc of a curve to the right, having a radius of 808.00 feet, a central angle of 70°15'02", a chord bearing and distance of S 16°56'38" W, 929.79 feet, for an arc length of 990.69 feet to a mag nail found at the southwest corner of said 9.021–acre tract, same being the southeast corner of Lot 1, Block B, of Horizontal Westinghouse Tract Subdivision, a subdivision according to the plat recorded in Document No. 2021124289 of the Official Public Records of Williamson County, Texas for the southernmost corner and point of non–tangency hereof;

THENCE departing the northwest right–of–way line of said North Mays Street, with the west boundary line of said 9.021–acre tract, same being the east boundary line of said Lot 1, the following three (3) courses and distances:

1. N 37°56'27" W, a distance of 70.80 feet to a 60D nail found for an angle point hereof;
2. N 57°24'09" W, a distance of 221.26 feet to a ½" iron rod with yellow cap marked "Pape–Dawson" set for an angle point hereof, and
3. N 20°54'41" W, a distance of 488.59 feet to a 60D nail found on a point in the south boundary line of Lot 1, Westinghouse Apartments, a subdivision according to the plat recorded in Document No. 2013065235 of the Official Public Records of Williamson County, Texas for the northwest corner hereof;

THENCE N 69°05'32" E, with the north boundary line of said 9.021–acre tract, same being the south boundary line of said Lot 1, Westinghouse Apartments, and, in part, with the south boundary line of said Lot 3, Block B, a distance of 722.91 feet to the POINT OF BEGINNING and containing 9.021 acres of land in Williamson County, Texas. Said tract being described in accordance with an on the ground survey prepared by Pape–Dawson Engineers, Inc. under Job No. 51229–00.

LINE TABLE		
LINE #	BEARING	LENGTH
L1	S35°55'40"E	56.23'
L2	S80°55'40"E	24.67'
L3	N54°04'20"E	76.34'
L4	N36°20'25"E	35.10'
L5	S65°31'58"E	9.91'
L6	N68°59'53"E	163.42'
L7	S21°00'07"E	29.85'
L8	N37°56'27"W	70.80'
L9	S36°05'04"E	0.30'
L10	S30°37'43"E	16.32'
L11	N20°03'04"W	18.69'

CURVE TABLE					
CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	920.00'	005°52'43"	N51°08'03"E	94.35'	94.39'
C2	808.00'	070°15'02"	S16°56'38"W	929.79'	990.69'

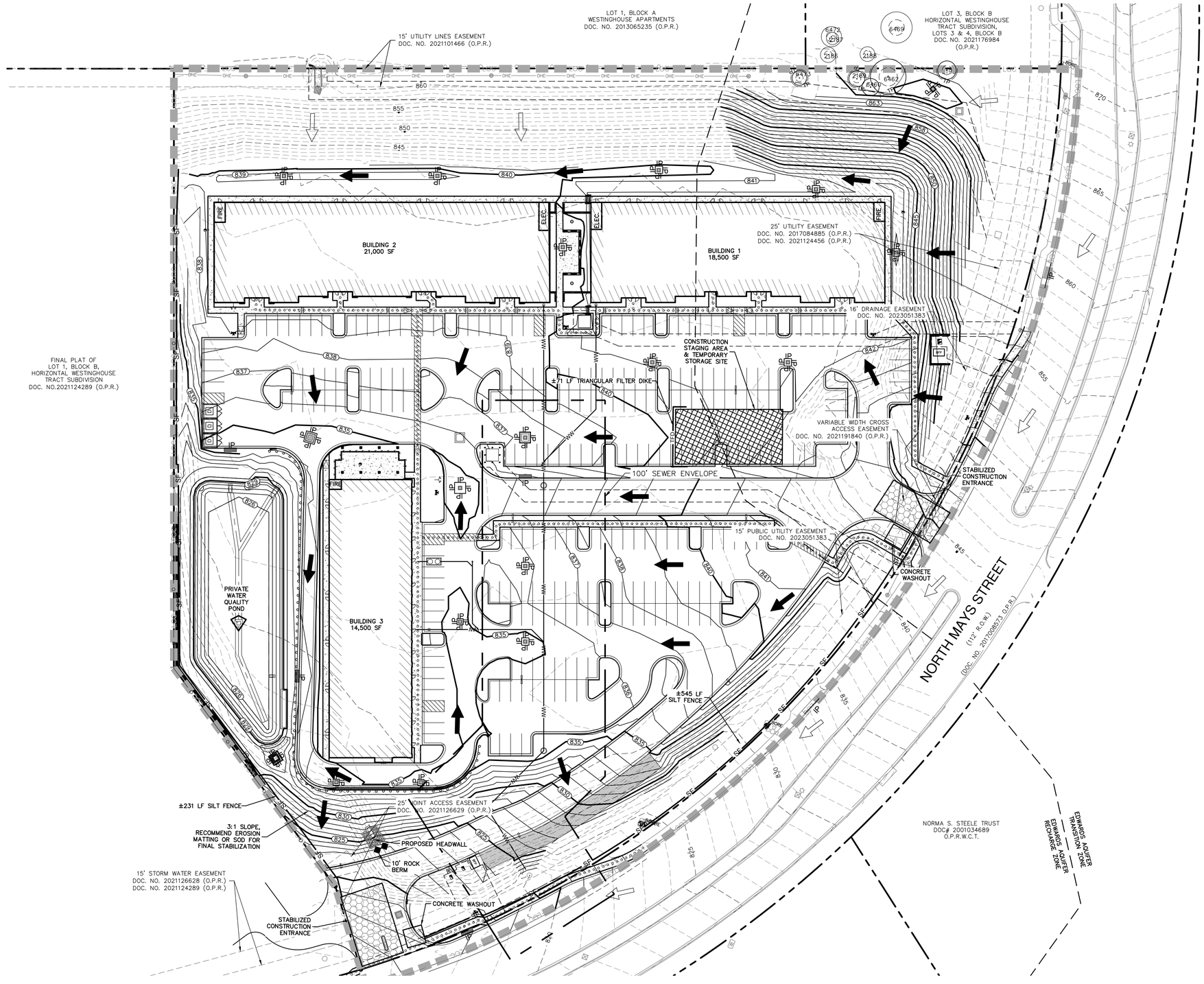
PLAT NOTES

1. UTILITY PROVIDERS FOR THIS DEVELOPMENT ARE WATER: CITY OF GEORGETOWN, WASTEWATER/SEPTIC: CITY OF GEORGETOWN, AND ELECTRIC: CITY OF GEORGETOWN.
2. ALL STRUCTURES/ OBSTRUCTIONS ARE PROHIBITED IN DRAINAGE EASEMENTS.
3. THERE ARE NO AREAS WITHIN THE BOUNDARIES OF THIS SUBDIVISION IN THE 100-YEAR FLOODPLAIN AS DEFINED BY FIRM MAP NUMBER 48491C0485F, EFFECTIVE DATE OF DECEMBER 20, 2019.
4. IN ORDER TO PROMOTE DRAINAGE AWAY FROM A STRUCTURE , THE SLAB ELEVATION SHOULD BE BUILT AT LEAST ONE-FOOT ABOVE THE SURROUNDING GROUND, AND THE GROUND SHOULD BE GRADED AWAY FROM THE STRUCTURE AT A SLOPE OF ½" PER FOOT FOR A DISTANCE OF AT LEAST 10 FEET.
5. ALL SEDIMENTATION , FILTRATION, DETENTION, AND /OR RETENTION BASINS AND RELATED APPURTENANCES SHOWN SHALL BE SITUATED WITHIN A DRAINAGE EASEMENT OR DRAINAGE LOT. THE OWNERS, HOA, OR ASSIGNEES OF THE TRACTS UPON WHICH ARE LOCATED SUCH EASEMENTS, APPURTENANCES, AND DETENTION FACILITIES SHALL MAINTAIN SAME AND BE RESPONSIBLE FOR THEIR MAINTENANCE, ROUTINE INSPECTION AND UPKEEP.
6. AS OF MARCH 2023, NO HERITAGE TREES WERE LOCATED ON LOTS INCLUDED IN THIS PLAT.
7. ALL INDIVIDUAL LOTS CONTAINING HERITAGE TREES ARE CONFIGURED AND DESIGNED SO THAT THE LOT IS DEVELOPABLE FOR THE INTENDED PURPOSE WITHOUT REQUIRING REMOVAL OF THE HERITAGE TREES OR EXCEEDING THE PERCENTAGE OF ALLOWABLE DISTURBANCE WITHIN THE HERITAGE TREES CRZ.
8. A 15-FOOT PUBLIC UTILITY EASEMENT IS RESERVED ALONG ALL STREET FRONTAGES WITHIN THIS PLAT.
9. THE MONUMENTS OF THIS PLAT HAVE BEEN ROTATED TO THE NAD 83 TEXAS STATE PLANE CENTRAL ZONE AND NAVD 88.
10. NON-RESIDENTIAL LOT SHALL BE PURSUANT TO THE UDC AT THE TIME OF SITE PLAN APPLICATION BASED ON THE ZONING DESIGNATION OF THE PROPERTY.
11. THE LANDOWNERS ASSUMES ALL RISKS ASSOCIATED WITH IMPROVEMENTS LOCATED IN THE RIGHT-OF-WAY, OR ROAD WIDENING EASEMENTS, BY PLACING ANYTHING IN THE RIGHT-OF-WAY OR ROAD WIDENING EASEMENTS, THE LANDOWNER INDEMNIFIES AND HOLD THE CITY OF GEORGETOWN, WILLIAMSON COUNTY, THEIR OFFICERS, AGENTS AND EMPLOYEES HARMLESS FROM ANY LIABILITY OWING TO PROPERTY DEFECTS OR NEGLIGENCE NOT ATTRIBUTABLE TO THEM AND ACKNOWLEDGES THAT THE IMPROVEMENTS MAY BE REMOVED BY THE CITY AND/OR COUNTY AND THAT THE OWNER OF THE IMPROVEMENTS WILL BE RESPONSIBLE FOR THE RELOCATION AND/OR REPLACEMENT OF THE IMPROVEMENTS.
12. THE BUILDING OF ALL STREETS, ROADS, AND OTHER PUBLIC THOROUGHFARES AND ANY BRIDGES OR CULVERTS NECESSARY TO BE CONSTRUCTED OR PLACED IS THE RESPONSIBLY OF THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRESCRIBED BY THE CITY OF GEORGETOWN AND/OR WILLIAMSON COUNTY, ROADS, OR OTHER PUBLIC THOROUGHFARES SHOWN ON THIS PLAT OR F CONSTRUCTING ANY OF THE BRIDGES OR DRAINAGE IMPROVEMENTS IN CONNECTION THEREWITH. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR DRAINAGE WAYS OR EASEMENTS IN THE SUBDIVISION, OTHER THAN THOSE DRAINING OR PROTECTING THE ROAD SYSTEM AND STREETS IN THEIR RESPECTIVE JURISDICTION.
13. NEITHER THE CITY OF GEORGETOWN NOR WILLIAMSON COUNTY ASSUMES ANY RESPONSIBILITY FOR THE ACCURACY OF REPRESENTATION BY OTHER PARTIES IN THIS PLAT. FLOODPLAIN DATA, IN PARTICULAR, MAY CHANGE DEPENDING ON SUBSEQUENT DEVELOPMENT. IT IS FURTHER UNDERSTOOD THAT THE OWNERS OF THE TRACT OF LAND COVERED BY THIS PLAT MUST INSTALL AT THEIR OWN EXPENSE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE THAT MAY BE REQUIRED BEFORE THE STREETS IN THE SUBDIVISION HAVE FINALLY BEEN ACCEPTED FOR MAINTENANCE BY THE CITY AND/OR COUNTY.
14. RIGHT-OF-WAY EASEMENTS FOR WIDENING ROADWAYS OR IMPROVING DRAINAGE SHALL BE MAINTAINED BY THE LANDOWNER UNTIL ROAD OR DRAINAGE IMPROVEMENTS ARE ACTUALLY CONSTRUCTED ON THE PROPERTY. THE CITY AND/OR COUNTY HAVE THE RIGHT AT ANY TIME TO TAKE POSSESSION OF ANY ROAD WIDENING EASEMENT FOR CONSTRUCTION, IMPROVEMENT, OR MAINTENANCE OF THE ADJACENT ROAD.
15. UNLESS OTHERWISE NOTED HEREIN, ALL EASEMENTS DEDICATED TO THE CITY OF GEORGETOWN BY THIS PLAT SHALL BE EXCLUSIVE TO THE CITY OF GEORGETOWN, AND GRANTOR COVENANTS THAT GRANTOR AND GRANTOR'S HEIRS, SUCCESSORS, AND ASSIGNS SHALL NOT CONVEY ANY OTHER EASEMENT, LICENCE, OR CONFLICTING RIGHT TO USE IN ANY MANNER, THE AREA (OR ANY PORTION THEREOF) COVERED BY THIS GRANT.
16. ALL EASEMENTS DEDICATED TO THE CITY OF GEORGETOWN BY THIS PLAT ADDITIONALLY INCLUDE THE FOLLOWING RIGHTS: (1) THE RIGHT TO THE CITY TO CHANGE THE SIZE OF ANY FACILITIES INSTALLED, MAINTAINED, OR OPERATED WITHIN THE EASEMENT AREA; (2) THE RIGHT OF THE CITY TO RELOCATE ANY FACILITIES WITHIN THE EASEMENT AREA; (3) THE RIGHT OF THE CITY TO REMOVE FROM THE EASEMENT AREA ALL TREES AND PARTS THEREOF, OR OTHER OBSTRUCTIONS, WHICH ENDANGER OR MAY INTERFERE WITH THE EFFICIENCY AND MAINTENANCE OF ANY FACILITIES WITHIN THE EASEMENT AREA.
17. THIS PLAT IS SUBJECT TO THE PROVISION OF THE CITY OF GEORGETOWN WATER CONSERVATION ORDINANCE.
18. THE SUBDIVISION SUBJECT TO THIS APPLICATION IS SUBJECT TO THE WATER QUALITY REGULATIONS OF THE CITY OF GEORGETOWN.
19. A GEOLOGIC ASSESSMENT, IN ACCORDANCE WITH THE CITY OF GEORGETOWN WATER QUALITY REGULATIONS, WAS COMPLETED OCTOBER 20TH, 2014. ANY SPRINGS AND STREAMS AS IDENTIFIED IN THE GEOLOGICAL ASSESSMENT ARE SHOWN HEREIN.

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

HORIZONTAL WESTINGHOUSE TRACT SUBDIVISION, LOT 1, BLOCK A, AND LOT 2, BLOCK B
Survey Job No. 51370-00

Date: May 24, 2023, 2:04pm User ID: DRodriguez
File: H:\Survey\CIVIL\51370-00\Plat\Westinghouse\PLAT51370-00_Westinghouse.dwg



LEGEND

- PROPERTY LINE
- LIMITS OF CONSTRUCTION (LOC)
- EXISTING EASEMENT LINE
- EDWARDS AQUIFER RECHARGE/ CONTRIBUTING ZONE LINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- SF — PROPOSED SILT FENCE
- TFD — PROPOSED TRIANGULAR FILTRATION DIKE
- TP TP — PROPOSED TREE PROTECTION
- 976 — EXISTING CONTOUR
- 970 — PROPOSED CONTOUR
- PROPOSED FIRE HYDRANT
- IP — PROPOSED INLET PROTECTION
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW
- PROPOSED ROCK BERM
- STABILIZED CONSTRUCTION ENTRANCE (FIELD LOCATE)
- CONCRETE WASH-OUT (FIELD LOCATE)
- TEMPORARY STAGING AND STORAGE AREA (FIELD LOCATE)
- PROPOSED BUILDING
- TREE TO REMAIN

GENERAL NOTES

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. SEE SHEETS 39 & 40 FOR EROSION AND SEDIMENTATION CONTROL DETAILS.
3. EXISTING CONTOUR INFORMATION SHOWN IS AT ONE (1) FOOT INTERVALS. THE CONTOURS ARE COMPUTER GENERATED USING FIELD SURVEY DATA FROM FEBRUARY 2023.
4. INSTALL INLET PROTECTION AS PER CITY OF GEORGETOWN DETAIL 628-2 UPON COMPLETION OF THE INLETS.
5. ONSITE DUST CONTROL SHALL BE IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS & STANDARDS.
6. THE ENVIRONMENTAL INSPECTOR HAS THE AUTHORITY TO ADD AND/OR MODIFY EROSION/SEDIMENTATION CONTROLS ON SITE TO KEEP PROJECT IN-COMPLIANCE WITH THE CITY OF GEORGETOWN RULES AND REGULATIONS.
7. WHEN SILT FENCE DOES NOT FOLLOW EXISTING CONTOURS, PROVIDE UPHILL TURNBACKS AT APPROX. 100-FT INTERVALS.
8. IF DISTURBED AREA IS NOT TO BE WORKED ON FOR MORE THAN 14 DAYS, DISTURBED AREA NEEDS TO BE STABILIZED BY REVEGETATION, MULCH, TARP OR REVEGETATION MATTING.
9. CONTRACTOR WILL CLEAN UP SPOILS THAT MIGRATE ONTO THE ROADS A MINIMUM OF ONCE DAILY.
10. CONTRACTOR SHALL UTILIZE DUST CONTROL MEASURES DURING SITE CONSTRUCTION SUCH AS IRRIGATION TRUCKS AND MULCHING AS PER GEORGETOWN CONSTRUCTION SPECIFICATION AND STANDARDS, OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
11. TREES GREATER THAN 8" IN DIAMETER ARE LOCATED ON SITE PER SURVEY COMPLETED BY TREEMAN SOLUTIONS DATED MARCH 2023.

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626

EROSION & SEDIMENTATION CONTROL PLAN

JOB NO. 51370-00
DATE JULY 2024
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 06 OF 48

2023-44-SDP

Date: Jul 02, 2024, 1:22pm User ID: mwells
File: I:\Projects\51\70\00\301 Construction Documents\North\Civil\EC51370-00.dwg

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	REACH LENGTH	MAXIMUM DRAINAGE AREA	SLOPE
SILT FENCE	N/A	2 ACRES	0 – 10%
	200 FEET	2 ACRES	10 – 20%
	100 FEET	1 ACRE	20 – 30%
	50 FEET	1/2 ACRE	> 30%
TRIANGLE FILTER DIKE	100 FEET	1/2 ACRE	< 30% SLOPE
	50 FEET	1/4 ACRE	> 30% SLOPE
ROCK BERM *, **	500 FEET	< 5 ACRES	0 – 10%

* FOR ROCK BERM DESIGN WHERE PARAMETERS ARE OTHER THAN STATED, DRAINAGE AREA CALCULATIONS AND ROCK BERM DESIGN MUST BE SUBMITTED FOR REVIEW.

** HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF GEORGETOWN.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL GUIDELINES

DRAWING NAME: EC01
SCALE: NTS DATE: 1/2003
DRAWN BY: MRS APPROVED BY: TRB

NOTE: THIS SECTION IS INTENDED TO ASSIST THOSE PERSONS PREPARING WATER POLLUTION ABATEMENT PLANS (WPAP) OR STORM WATER POLLUTION PREVENTION PLANS (SWPP) THAT COMPLY WITH FEDERAL, STATE AND/OR LOCAL STORM WATER REGULATIONS.

1. THE CONTRACTOR TO INSTALL AND MAINTAIN EROSION/SEDIMENTATION CONTROLS AND TREE/NATURAL AREA PROTECTIVE FENCING PRIOR TO ANY SITE PREPARATION WORK (CLEARING, GRUBBING, GRADING, OR EXCAVATION). CONTRACTOR TO REMOVE EROSION/SEDIMENTATION CONTROLS AT THE COMPLETION OF PROJECT AND GRASS RESTORATION.
2. ALL PROJECTS WITHIN THE RECHARGE ZONE OF THE EDWARD'S AQUIFER SHALL SUBMIT A BEST MANAGEMENT PRACTICES AND WATER POLLUTION AND ABATEMENT PLAN TO THE TNRCC FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
3. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS TO BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND WATER POLLUTION ABATEMENT PLAN. DEVIATIONS FROM THE APPROVED PLAN MUST BE SUBMITTED TO AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. ALL PLANTING SHALL BE DONE BETWEEN MAY 1 AND SEPTEMBER 15 EXCEPT AS SPECIFICALLY AUTHORIZED IN WRITING. IF PLANTING IS AUTHORIZED TO BE DONE OUTSIDE THE DATES SPECIFIED, THE SEED SHALL BE PLANTED WITH THE ADDITION OF WINTER FESCUE (KENTUCKY 31) AT A RATE OF 100lb/ACRE. GRASS SHALL BE COMMON BERMUDA GRASS, HULLED, MINIMUM 82% PURE LIVE SEED. ALL GRASS SEED SHALL BE FREE FROM NOXIOUS WEED, GRADE "A" RECENT CROP, RECLEANED AND TREATED WITH APPROPRIATE FUNGICIDE AT TIME OF MIXING. SEED SHALL BE FURNISHED IN SEALED, STANDARD CONTAINERS WITH DEALER'S GUARANTEED ANALYSIS.
5. ALL DISTURBED AREAS TO BE RESTORED AS NOTED IN THE WATER POLLUTION ABATEMENT PLAN.
6. THE PLANTED AREA TO BE IRRIGATED OR SPRINKLED IN A MANNER THAT WILL NOT ERODE THE TOPSOIL, BUT WILL SUFFICIENTLY SOAK THE SOIL TO A DEPTH OF FOUR (4) INCHES. THE IRRIGATION TO OCCUR AT 10-DAY INTERVALS DURING THE FIRST TWO MONTHS TO INSURE GERMINATION AND ESTABLISHMENT OF THE GRASS . RAINFALL OCCURRENCES OF 1/2 INCH OR GREATER TO POSTPONE THE WATERING SCHEDULE ONE WEEK.
7. RESTORATION TO BE ACCEPTABLE WHEN THE GRASS HAS GROWN AT LEAST 1-1/2 INCHES HIGH WITH 95% *COVERAGE*, PROVIDED NO BARE SPOTS LARGER THAN 25 SQUARE FEET EXIST.
8. A MINIMUM OF FOUR (4) INCHES OF TOPSOIL TO BE PLACED IN ALL AREAS DISTURBED BY CONSTRUCTION.
9. THE CONTRACTOR TO HYDROMULCH OR SOD (AS SHOWN ON PLANS) ALL EXPOSED CUTS AND FILLS UPON COMPLETION OF CONSTRUCTION.
10. EROSION AND SEDIMENTATION CONTROLS TO BE INSTALLED OR MAINTAINED IN A MANNER WHICH DOES NOT RESULT IN SOIL BUILDUP WITHIN TREE DRIPLINE.
11. TO AVOID SOIL COMPACTION, CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC, PARKING, OR STORAGE OF EQUIPMENT OR MATERIALS IN THE TREE DRIPLINE AREAS.
12. WHERE A FENCE IS CLOSER THAN FOUR (4) FEET TO A TREE TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF EIGHT (8) FEET (OR TO THE LIMITS OF LOWER BRANCHING) IN ADDITION TO THE FENCING.
13. TREES TO BE REMOVED IN A MANNER WHICH DOES NOT IMPACT TREES TO BE PRESERVED.
14. ANY ROOT EXPOSED BY CONSTRUCTION ACTIVITY TO BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN TWO DAYS, COVER THEM WITH ORGANIC MATERIAL IN A MANNER WHICH REDUCES SOIL TEMPERATURE AND MINIMIZES WATER LOSS DUE TO EVAPORATION.
15. CONTRACTOR TO PRUNE VEGETATION TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT BEFORE DAMAGE OCCURS (RIPPING OF BRANCHES, ETC.). ALL FINISHED PRUNING TO BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE "NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES").
16. THE CONTRACTOR IS TO INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/4 INCH TO VERIFY THAT THEY HAVE NOT BEEN SIGNIFICANTLY DISTURBED. ANY ACCUMULATED SEDIMENT AFTER A SIGNIFICANT RAINFALL TO BE REMOVED AND PLACED IN THE OWNER DESIGNATED SPOIL DISPOSAL SITE. THE CONTRACTOR TO CONDUCT PERIODIC INSPECTIONS OF ALL EROSION/SEDIMENTATION CONTROLS AND TO MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
17. WHERE THERE IS TO BE AN APPROVED GRADE CHANGE, IMPERMEABLE PAVING SURFACE, TREE WELL, OR OTHER SUCH SITE DEVELOPMENT IMMEDIATELY ADJACENT TO A PROTECTED TREE, ERECT THE FENCE APPROXIMATELY TWO TO FOUR FEET (2'-4') BEHIND THE AREA IN QUESTION.
18. NO ABOVE AND/OR BELOW GROUND TEMPORARY FUEL STORAGE FACILITIES TO BE STORED ON THE PROJECT SITE.
19. IF EROSION AND SEDIMENTATION CONTROL SYSTEMS ARE EXISTING FROM PRIOR CONTRACTS, OWNER'S REPRESENTATIVE AND THE CONTRACTOR TO EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEMS FOR DAMAGE PRIOR TO CONSTRUCTION. ANY DAMAGE TO PREEXISTING EROSION AND SEDIMENTATION CONTROLS NOTED TO BE REPAIRED AT OWNERS EXPENSE.
20. INTENTIONAL RELEASE OF VEHICLE OR EQUIPMENT FLUIDS ONTO THE GROUND IS NOT ALLOWED. CONTAMINATED SOIL RESULTING FROM ACCIDENTAL SPILL TO BE REMOVED AND DISPOSED OF PROPERLY.

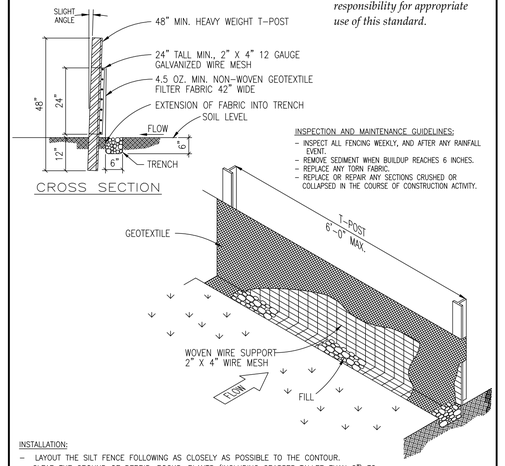
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
EROSION AND SEDIMENTATION AND TREE PROTECTION NOTES

DRAWING NAME: EC01A
SCALE: NTS DATE: 1/2003
DRAWN BY: MRS APPROVED BY: TRB

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



CROSS SECTION

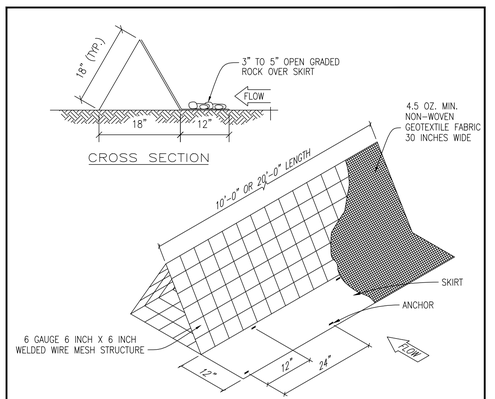
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECT ALL FENCING WEEKLY, AND AFTER ANY RAINFALL EVENT.
- REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.
- REPLACE ANY TORN FABRIC.
- REPLACE OR REPAIR ANY SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY.

INSTALLATION:
- LAYOUT THE SILT FENCE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS, PLANTS (INCLUDING GRASSES TALLER THAN 2") TO PROVIDE A SMOOTH FLOW APPROACH SURFACE. EXCAVATE 6" DEEP X 6" WIDE TRENCH ON UPSTREAM SIDE OF FACE PER PLANS.
- DRIVE THE HEAVY DUTY T-POST AT LEAST 12 INCHES INTO THE GROUND AND AT A SLIGHT ANGLE TOWARDS THE FLOW.
- ATTACH THE 2" X 4" 12 GAUGE WELDED WIRE MESH TO THE T-POST WITH 11 1/2 GAUGE GALVANIZED T-POST CLIPS. THE TOP OF THE WIRE TO BE 24" ABOVE GROUND LEVEL. THE WELDED WIRE MESH TO BE OVERLAPPED 6" AND TIED AT LEAST 6 TIMES WITH HOG RINGS.
- THE SILT FENCE TO BE INSTALLED WITH A SKIRT A MINIMUM OF 6" WIDE PLACED ON THE UPHILL SIDE OF THE FENCE INSIDE EXCAVATED TRENCH. THE FABRIC TO OVERLAP THE TOP OF THE WIRE BY 1".
- ANCHOR THE SILT FENCE BY BACKFILLING WITH EXCAVATED DIRT AND ROCKS (NOT LARGER THAN 2").
- GEOTEXTILE SPLICES SHOULD BE A MINIMUM OF 18" WIDE ATTACHED IN AT LEAST 6 PLACES. SPLICES IN CONCENTRATED FLOW AREAS WILL NOT BE ACCEPTED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
SILT FENCE DETAIL

DRAWING NAME: EC02
SCALE: NTS DATE: 1/2003
DRAWN BY: MRS APPROVED BY: TRB



CROSS SECTION

INSTALLATION:
- LAYOUT THE FILTER DIKE FOLLOWING AS CLOSELY AS POSSIBLE TO THE CONTOUR.
- CLEAR THE GROUND OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- PLACE THE FILTER DIKE SECTIONS ONE AT A TIME, WITH THE SKIRT ON THE UPHILL SIDE TOWARDS THE DIRECTION OF FLOW, ANCHORING EACH SECTION TO THE GROUND BEFORE THE NEXT SECTION IS PLACED.
- ANCHORS SHOULD BE PLACED ON 2'-0" CENTERS ALTERNATING FROM FRONT TO BACK SO THAT THERE IS ACTUALLY ONLY 1'-0" IN BETWEEN ANCHORS.
- SECURELY FASTEN THE SKIRT FROM ONE SECTION OF FILTER DIKE TO THE NEXT.
- FILTER DIKES MUST MAINTAIN CONTINUOUS CONTACT WITH THE GROUND.
- AFTER THE SITE IS COMPLETELY STABILIZED, THE DIKES AND ANY REMAINING SILT SHOULD BE REMOVED. SILT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

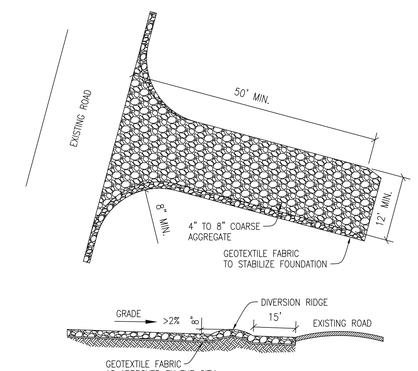
INSPECTION AND MAINTENANCE GUIDELINES:
- INSPECTION SHOULD BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- INSPECT AND REALIGN BERMS AS NEEDED TO PREVENT GAPS BETWEEN THE SECTIONS.
- ACCUMULATED SILT SHOULD BE REMOVED AFTER EACH RAINFALL EVENT, AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
TRIANGULAR FILTER DIKE

DRAWING NAME: EC05
SCALE: NTS DATE: 1/2003
DRAWN BY: MRS APPROVED BY: TRB



INSTALLATION:
- CLEAR THE AREA OF DEBRIS, ROCKS OR PLANTS THAT WILL INTERFERE WITH INSTALLATION.
- GRADE THE AREA FOR THE ENTRANCE TO FLOW BACK ON TO THE CONSTRUCTION SITE. RUNOFF FROM THE STABILIZED CONSTRUCTION
- PLACE GEOTEXTILE FABRIC AS APPROVED BY THE CITY.
- PLACE ROCK AS APPROVED BY THE CITY.

INSPECTIONS AND MAINTENANCE GUIDELINES:
- THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
- ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON TO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.
- WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
- WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
- ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS
STABILIZED CONSTRUCTION ENTRANCE

DRAWING NAME: EC06
SCALE: NTS DATE: 1/2003
DRAWN BY: MRS APPROVED BY: TRB

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
08/24/2023

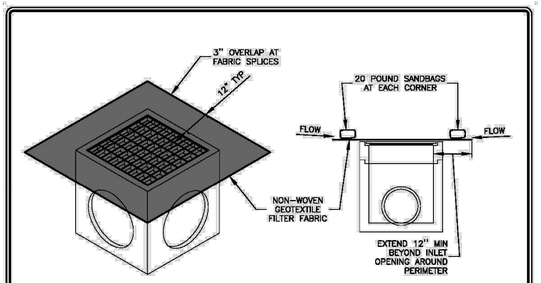
PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626

EROSION & SEDIMENTATION DETAILS (1 OF 2)

JOB NO. 51370-00
DATE AUGUST 2023
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 39 OF 48

2023-44-SDP



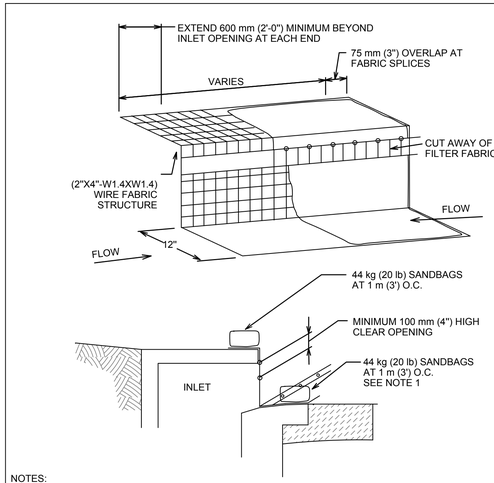
ISOMETRIC

CROSS SECTION

NOTES:

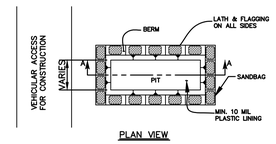
1. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
2. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY CLEAN THE INLET PROTECTION IF EXCESSIVE PONDING OCCURS.
3. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

RECORD SIGNED COPY ON FILE AT PUBLIC WORKS	CITY OF ROUND ROCK	DRAWING NO:
APPROVED 03-25-11 DATE	AREA INLET PROTECTION DETAIL	EC-15
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR THE APPROPRIATE USE OF THIS DETAIL. (NOT TO SCALE)		



NOTES:
1. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, THE CONTRACTOR MAY SUBSTITUTE A 25 mm X 100 mm (1" X 4") BOARD SECURED WITH CONCRETE NAILS 1 m (3') O.C. NAILED INTO THE GUTTER IN LIEU OF SANDBAGS TO HOLD THE FILTER DIKE IN PLACE. UPON REMOVAL, CLEAN ANY DIRT/DEBRIS FROM NAILING LOCATIONS, APPLY CHEMICAL SANDING AGENT AND APPLY NON-SHRINK GROUT FLUSH WITH SURFACE OF GUTTER.
2. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
3. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 50 mm (2").
4. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERTOP THE CURB.
5. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	FILTER DIKE CURB INLET PROTECTION	
RECORD COPY SIGNED BY J. PATRICK MURPHY 2/21/01 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S-2



PLAN VIEW

GENERAL NOTES:

1) Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
2) Washout pit shall be located in an area easily accessible to construction traffic.
3) Washout pit shall not be located in areas subject to inundation from storm water runoff.
4) Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies.
5) Temporary concrete washout facility should be constructed with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.

SECTION A–A

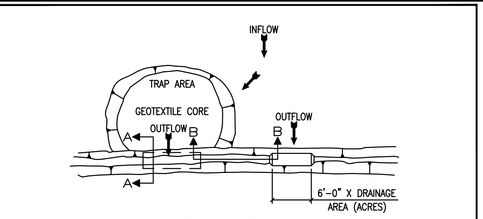
MATERIALS:

1) Plastic lining material should be a minimum of 10 mil in polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material.

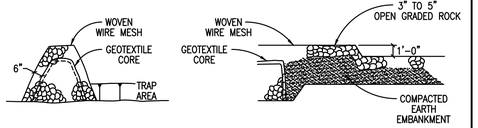
INSPECTION AND MAINTENANCE GUIDELINES:

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

CONCRETE TRUCK WASHOUT PIT



PLAN VIEW



SECTION A–A SECTION B–B

INSTALLATION:

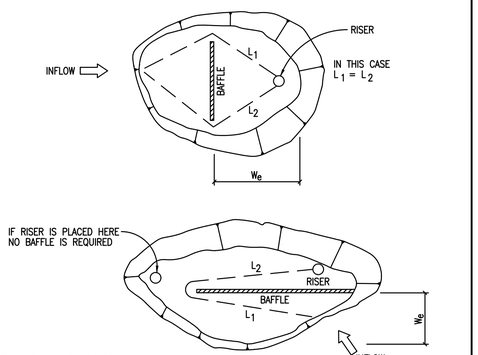
- LOCATE THE SEDIMENT TRAP SO AS TO DISTURB AS FEW TREES AS POSSIBLE.
- CLEAR AND GRUB THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MATS.
- LAYOUT THE WIRE MESH AND THEN THE GEOTEXTILE FABRIC.
- CONSTRUCT THE GEOTEXTILE CORE AND CORRESPONDING ROCK EMBANKMENT TO THE DESIGNATED HEIGHT AND CONFIGURATION.
- WRAP THE STRUCTURE WITH THE PREVIOUSLY PLACED WIRE MESH SECURE ENOUGH SO THAT WHEN WALKED ACROSS THE STRUCTURE RETAINS IT'S SHAPE. SECURE WITH TIE WIRE.
- PLACE THE EMBANKMENT MATERIAL IN 8 TO 12 INCH LIFTS AND MACHINE COMPACT.

INSPECTION AND MAINTENANCE GUIDELINES:

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

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

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
SEDIMENT TRAP DETAIL	DRAWING NAME: EC07
	SCALE: NTS; DATE: 1/2003; DESIGNED BY: MRS; DRAWN BY: TRB



SEDIMENT BASIN BAFFLE DESIGN

$W_e = A / (L_1 + L_2)$

W_e = EFFECTIVE WIDTH OF BASIN

A = SURFACE AREA OF BASIN WHEN FILLED TO RISER CREST

L_1, L_2 = SHORTEST TRAVEL DISTANCE AROUND THE BAFFLE FROM INLET TO OUTLET

INSPECTION AND MAINTENANCE GUIDELINES:

- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. REPAIR SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- TRASH AND OTHER DEBRIS SHOULD BE REMOVED AFTER EACH RAINFALL TO PREVENT CLOGGING OF THE OUTLET STRUCTURE.
- ACCUMULATED SILT SHOULD BE REMOVED AND THE BASIN SHOULD BE RE-GRADED TO ITS ORIGINAL DIMENSIONS AT SUCH POINT THAT THE CAPACITY OF THE IMPOUNDMENT HAS BEEN REDUCED TO 1/2 OF ITS ORIGINAL STORAGE CAPACITY.
- THE REMOVED SEDIMENT SHOULD BE STOCKPILED OR REDISTRIBUTED IN AREAS THAT ARE PROTECTED FROM EROSION.

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

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
SEDIMENT BASIN BAFFLE DESIGN	DRAWING NAME: EC08
	SCALE: NTS; DATE: 1/2003; DESIGNED BY: MRS; DRAWN BY: TRB

NO.	REVISION	DATE

STATE OF TEXAS — SHELLY MITCHELL — 103662 — LICENSED PROFESSIONAL ENGINEER
08/24/2023

PAPE-DAWSON ENGINEERS
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10801 N MOPAC EXPY, BLDG 3, STE 200 | AUSTIN, TX 78759 | 512.454.8711
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626

EROSION & SEDIMENTATION DETAILS (2 OF 2)

JOB NO. 51370-00
DATE AUGUST 2023
DESIGNER ASB
CHECKED DRAWN JM
SHEET 40 OF 48

2023-44-SDP

Texas Commission on Environmental Quality

TSS Removal Calculations 04-20-2009

Project Name: Westinghouse Flex North
Date Prepared: 6/3/2024

Additional information is provided for cells with a red triangle in the upper right corner. Place the cursor over the cell.
Text shown in blue indicate location of instructions in the Technical Guidance Manual - RG-348.
Characters shown in red are data entry fields.
Characters shown in black (Bold) are calculated fields. Changes to these fields will remove the equations used in the spreadsheet.

1. The Required Load Reduction for the total project: Calculations from RG-348 — Pages 3-27 to 3-30

Page 3-29 Equation 3.3: L_M = 27.2 (A_N x P)

where:
$L_{M\,TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 85% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

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

County =	Williamson	
Total project area included in plan * =	9.021	acres
Predevelopment impervious area within the limits of the plan * =	0.103	acres
Total post-development impervious area within the limits of the plan * =	4.974	acres
Total post-development impervious cover fraction * =	0.55	
P =	32	inches
$L_{M\,TOTAL\ PROJECT}$ =	4239	lbs.

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

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

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

Drainage Basin/Outfall Area No. = Batch A

Total drainage basin/outfall area =	7.789	acres
Predevelopment impervious area within drainage basin/outfall area =	0.000	acres
Post-development impervious area within drainage basin/outfall area =	4.490	acres
Post-development impervious fraction within drainage basin/outfall area =	0.58	
$L_{M\,THIS\ BASIN}$ =	3908	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP = Extended Detention
Removal efficiency = 91 percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7: L_R = (BMP efficiency) x P x (A_I x 34.6 + A_P x 0.54)

where:
A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	7.789	acres
A_I =	4.490	acres
A_P =	3.30	acres
L_R =	4576	lbs

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

Desired $L_{M\,THIS\ BASIN}$ = 4461 lbs.

F = 0.97

6. Calculate Capture Volume required by the BMP Type for this drainage basin / outfall area. Calculations from RG-348 — Pages 3-34 to 3-36

Rainfall Depth =	3.00	inches
Post Development Runoff Coefficient =	0.40	
On-site Water Quality Volume =	34258	cubic feet

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

Off-site area draining to BMP =	0.00	acres
Off-site Impervious cover draining to BMP =	0.00	acres
Impervious fraction of off-site area =	0	
Off-site Runoff Coefficient =	0.00	
Off-site Water Quality Volume =	0	cubic feet
Storage for Sediment =	6852	
Total Capture Volume (required water quality volume(s) x 1.20) =	41110	cubic feet

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

7. Retention/Irrigation System Designed as Required in RG-348 — Pages 3-42 to 3-46

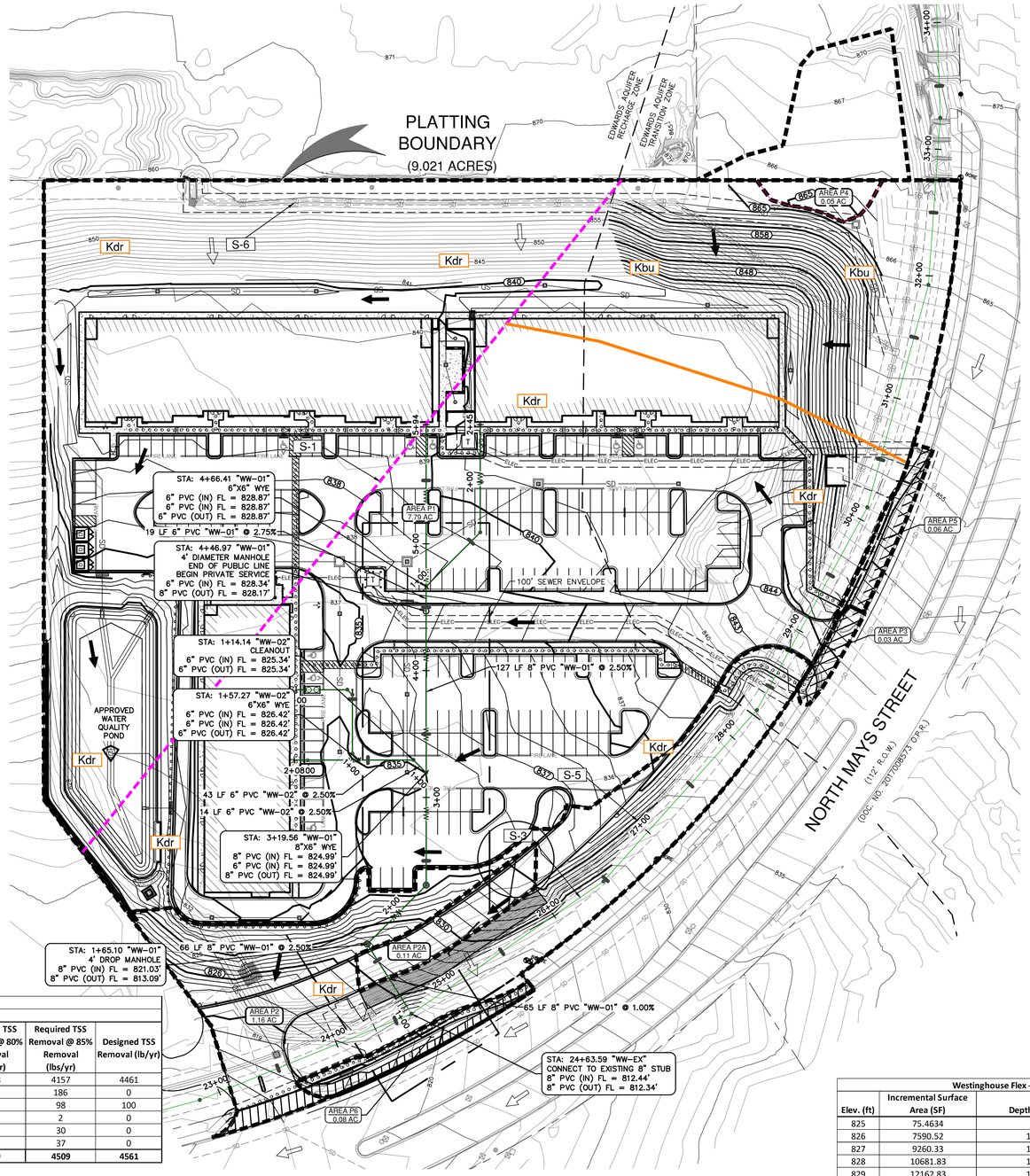
Required Water Quality Volume for retention basin = NA cubic feet

Irrigation Area Calculations:

Soil infiltration/permeability rate =	0.1	in/hr	Enter determined permeability rate or assumed value of 0.1
Irrigation area =	NA	square feet	
	NA	acres	

8. Extended Detention Basin System Designed as Required in RG-348 — Pages 3-46 to 3-51

Required Water Quality Volume for extended detention basin = 41110 cubic feet



SCALE: 1"= 50'
0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- DRAINAGE BOUNDARY
- TC FLOW LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- AREA X.XX AC — DRAINAGE AREA
- EXISTING IMPERVIOUS COVER
- Kbu — BUDA FORMATION
- Kdr — DEL RIO FORMATION
- S-1 — POTENTIAL RECHARGE FEATURE
- CONTACT, LOCATED APPROXIMATELY
- CONTACT, INFERRED
- FAULT, LOCATED APPROXIMATELY (D, DOWNTHROWN SIDE; U, UPTHROWN SIDE)
- FAULT, EXTRAPOLATED
- FAULT, INFERRED

GENERAL NOTES:

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2. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE FROM FIELD DATA COLLECTED AUGUST 2021.

Treatment Summary Table
Westinghouse Flex - North

Watershed	Watershed Area (acres)	Previously Approved Impervious Cover * (acres)	Proposed Impervious Cover (acres)	Total Impervious Cover (acres)	BMP	Required TSS Removal @ 80% Removal (lbs/yr)	Required TSS Removal @ 85% Removal (lbs/yr)	Designed TSS Removal (lb/yr)
P1	7.789	0.000	4.490	4.490	Approved WQ Pond Basin A	3908	4157	4461
P2	1.160	0.024	0.201	0.225	Overtreatment	175	186	0
P2A**	0.106	0.000	0.106	0.106	Engineered VFS	92	98	100
P3	0.031	0.026	0.002	0.028	Overtreatment	2	2	0
P5	0.056	0.020	0.032	0.052	Overtreatment	28	30	0
P6	0.076	0.033	0.040	0.073	Overtreatment	34	37	0
Total	**9.218**	**0.1034**	**4.871**	**4.974**	**-**	**4239**	**4509**	**4561**

*Impervious cover approved with other WPAP
**Watershed P2A is a subwatershed within P2

Water Quality Basin Summary

Basin	Designed Capture Volume (cf)	Required Volume (cf)	Excess Volume Capacity (cf)
A	41,201	**41,110**	91

Westinghouse Flex - North - Water Quality Pond

Elev. (ft)	Incremental Surface Area (SF)	Depth (ft)	Incremental Volume (ft³)	Cummulative Volume (ft³)	Notes
825	75.4634		0	0	
826	7590.52	1	3833	3833	
827	9260.33	1	8425	12258	
828	10681.83	1	9971	22229	
829	12162.83	1	11422	33652	
829.60	**13001.46**	**0.60**	**7549**	**41201**	**WQEL**
830	13560.54	0.40	5312	46514	
831	15081.22	1	14321	60834	

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

PAPE-DAWSON ENGINEERS
AUSTIN I SAN ANTONIO I HOUSTON I FORT WORTH I DALLAS
10801 N MOPAC EXPY, BLDG 3, STE 200 I AUSTIN, TX 78759 I 512.454.8711
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626
WPAP EXHIBIT - BASIN A

JOB NO. 51370-00
DATE JULY 2024
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 1 OF 1

Date: Jul 02, 2024, 1:29pm User ID: mwells
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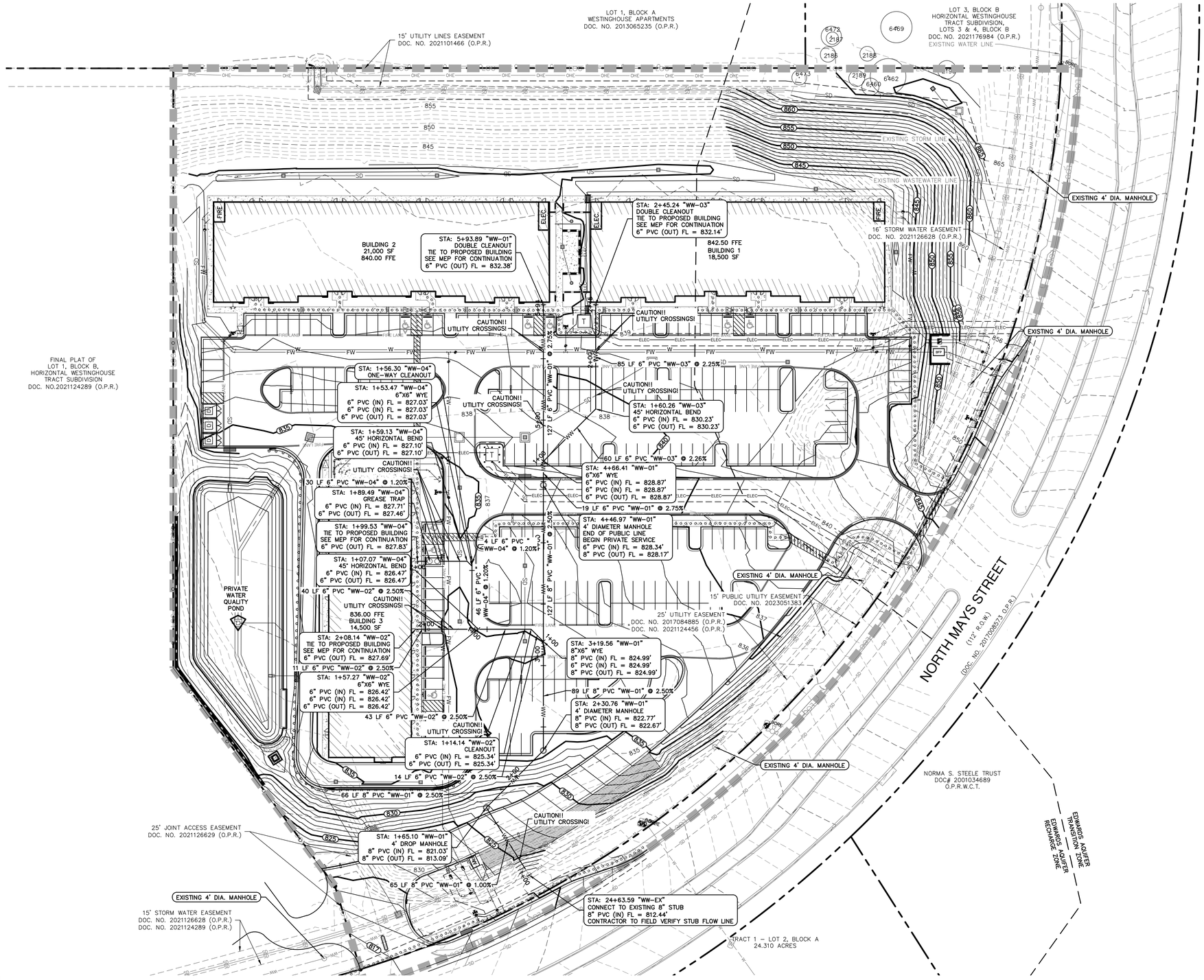
2023-44-SDP



LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EXISTING WASTEWATER LINE
- PROPOSED EASEMENT LINE
- EXISTING WATERLINE
- EXISTING OVERHEAD ELECTRIC LINE
- PROPOSED STORM DRAIN LINE
- EXISTING FENCE
- PROPOSED RETAINING WALL
- PROPOSED WATERLINE
- PROPOSED WASTEWATER LINE
- PROPOSED ELECTRIC LINE
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED ROCK RIP RAP
- PROPOSED WASTEWATER MANHOLE
- PROPOSED TRANSFORMER
- PROPOSED GRATE INLET
- PROPOSED JUNCTION BOX W/ MANHOLE
- PROPOSED SIDEWALK

GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL WASTEWATER MANHOLES ARE 4 FT. DIA. CITY OF GEORGETOWN STANDARD AND COATED TO COG SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. WATER AND WASTEWATER CROSSING WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE RATED WASTEWATER LINE, THE POTABLE WATER PIPE SEGMENT SHALL BE CENTERED OVER THE WASTEWATER LINE. THE WASTEWATER LINE SHALL BE LOCATED BELOW THE WATER LINE. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF TWO (2) FEET SHALL BE PROVIDED. IN ADDITION, WITHIN NINE (9) FEET HORIZONTALLY OF EITHER SIDE OF THE WATERLINE, THE WASTEWATER PIPE AND JOINT SHALL BE CONSTRUCTED WITH PIPE MATERIAL HAVING A MINIMUM PRESSURE RATING OF 150 PSI. ONE SEGMENT OF THE PRESSURE RATED WASTEWATER PIPE SHALL BE CENTERED ON THE WATER CROSSING. APPROPRIATE ADAPTERS SHALL BE USED TO CONNECTION THE PRESSURE RATED WASTEWATER PIPE WITH THE NON-PRESSURE RATED WASTEWATER PIPE.
4. MANDREL TESTING WILL BE REQUIRED ON ALL FLEXIBLE WASTEWATER PIPE PER TCEQ RULES.
5. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE FROM FIELD DATA COLLECTED FEBRUARY 2023.
6. ALL FILL AREAS SHALL BE COMPACTED TO 95% PRIOR TO UTILITY INSTALLATION.
7. NO WASTEWATER CLEANOUTS LOCATED IN SIDEWALK OR DRIVEWAY AREAS.
8. NORTHING AND EASTING LABELS ARE SURFACE COORDINATES.

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

PAPE-DAWSON ENGINEERS
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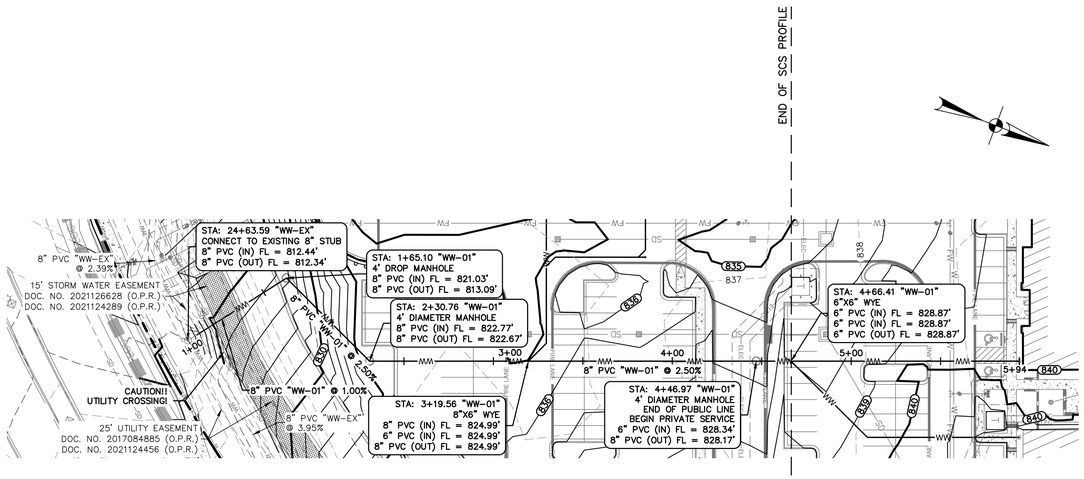
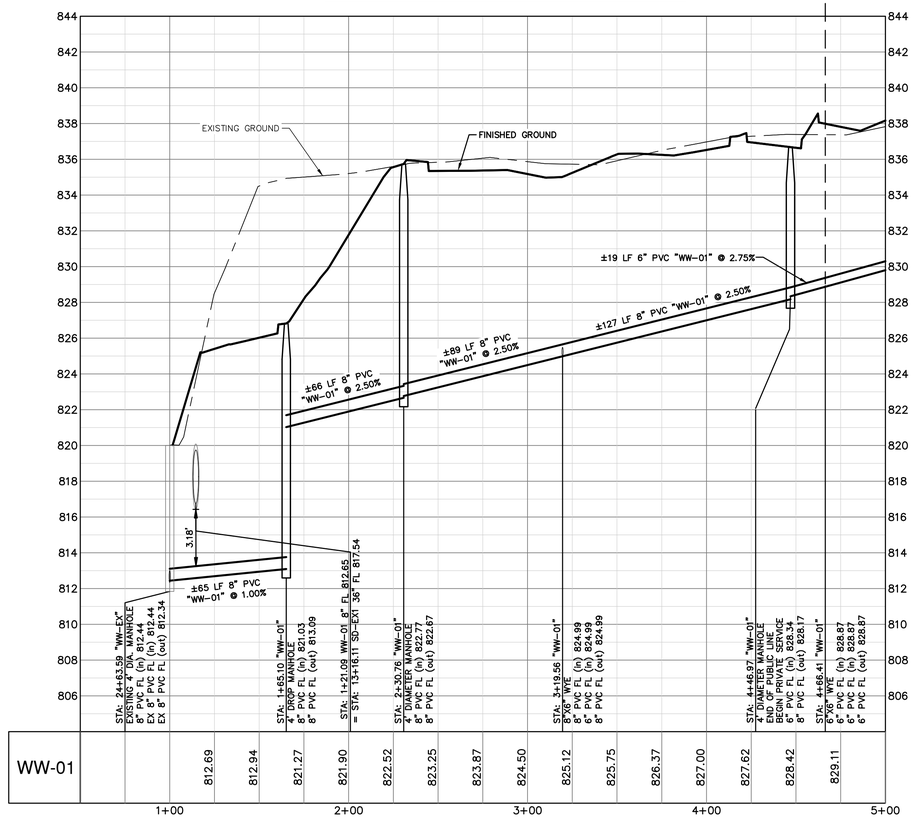
TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028801

WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626
WASTEWATER PLAN

JOB NO. 51370-00
DATE JULY 2024
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 27 OF 48



PROPOSED 8" WASTEWATER LINE WW-01



SCALE: 1"= 40'
0' 40' 80' 120'

LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EXISTING WASTEWATER LINE
- PROPOSED EASEMENT LINE
- EXISTING WATERLINE
- PROPOSED STORM DRAIN LINE
- EXISTING FENCE
- PROPOSED RETAINING WALL
- PROPOSED FIRE WATERLINE
- PROPOSED WATERLINE
- PROPOSED WASTEWATER LINE
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED WASTEWATER MANHOLE
- PROPOSED TRANSFORMER
- PROPOSED GRATE INLET
- PROPOSED JUNCTION BOX W/ MANHOLE
- PROPOSED SIDEWALK

GENERAL NOTES:

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2. ALL WASTEWATER MANHOLES ARE 4 FT. DIA. CITY OF GEORGETOWN STANDARD AND COATED TO COG SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. WATER AND WASTEWATER CROSSING WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE RATED WASTEWATER LINE, THE POTABLE WATER PIPE SEGMENT SHALL BE CENTERED OVER THE WASTEWATER LINE. THE WASTEWATER LINE SHALL BE LOCATED BELOW THE WATER LINE. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF TWO (2) FEET SHALL BE PROVIDED. IN ADDITION, WITHIN NINE (9) FEET HORIZONTALLY OF EITHER SIDE OF THE WATERLINE, THE WASTEWATER PIPE AND JOINT SHALL BE CONSTRUCTED WITH PIPE MATERIAL HAVING A MINIMUM PRESSURE RATING OF 150 PSI. ONE SEGMENT OF THE PRESSURE RATED WASTEWATER PIPE SHALL BE CENTERED ON THE WATER CROSSING. APPROPRIATE ADAPTERS SHALL BE USED TO CONNECTION THE PRESSURE RATED WASTEWATER PIPE WITH THE NON-PRESSURE RATED WASTEWATER PIPE.
4. MANDREL TESTING WILL BE REQUIRED ON ALL FLEXIBLE WASTEWATER PIPE PER TCEQ RULES.
5. ALL PIPE MATERIAL TO BE SDR 26, WITH TRACER TAPE, SERVICES INCLUDED, UNLESS OTHERWISE NOTED.
6. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE FROM FIELD DATA COLLECTED FEBRUARY 2023.
7. ALL FILL AREAS SHALL BE COMPACTED TO 95% PRIOR TO UTILITY INSTALLATION.
8. NO WASTEWATER CLEANOUTS LOCATED IN SIDEWALK OR DRIVEWAY AREAS.
9. NORTHING AND EASTING LABELS ARE SURFACE COORDINATES.

PROFILE SCALES:
1" = 40' HORIZONTAL
1" = 4' VERTICAL

PROFILE LEGEND:
- NATURAL GROUND
- SUBGRADE
- FINISHED GRADE
- PROPOSED WASTEWATER
- 1-JOINT OF PRESSURE PIPE SEE NOTE THIS SHEET.
- STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

PAPE-DAWSON ENGINEERS
AUSTIN | SAN ANTONIO | HOUSTON | FORT WORTH | DALLAS
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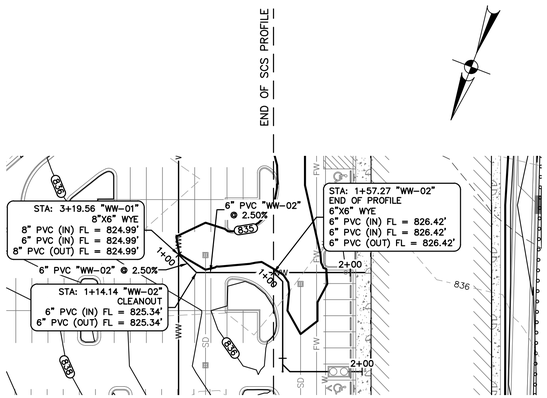
TBPE FIRM REGISTRATION #470 | TBPLS FIRM REGISTRATION #10028801

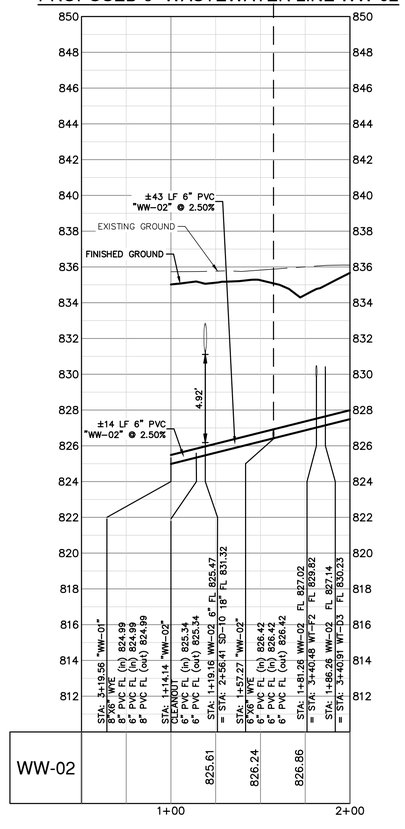
WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626
SCS WASTEWATER PLAN & PROFILE

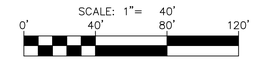
JOB NO. 51370-00
DATE JULY 2024
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 1 OF 4

2023-44-SDP



PROPOSED 6" WASTEWATER LINE WW-02





LEGEND

- LIMITS OF CONSTRUCTION (LOC)
- PROPERTY LINE
- EXISTING WASTEWATER LINE (WW)
- PROPOSED EASEMENT LINE
- EXISTING WATERLINE (W)
- PROPOSED STORM DRAIN LINE (SD)
- EXISTING FENCE (X)
- PROPOSED RETAINING WALL
- PROPOSED FIRE WATERLINE (FW)
- PROPOSED WATERLINE (W)
- PROPOSED WASTEWATER LINE (WW)
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED WASTEWATER MANHOLE
- PROPOSED TRANSFORMER (T)
- PROPOSED GRATE INLET
- PROPOSED JUNCTION BOX W/ MANHOLE
- PROPOSED SIDEWALK

GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE ASSOCIATED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL WASTEWATER MANHOLES ARE 4 FT. DIA. CITY OF GEORGETOWN STANDARD AND COATED TO COG SPECIFICATIONS UNLESS OTHERWISE NOTED.
3. WATER AND WASTEWATER CROSSING WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE RATED WASTEWATER LINE, THE POTABLE WATER PIPE SEGMENT SHALL BE CENTERED OVER THE WASTEWATER LINE. THE WASTEWATER LINE SHALL BE LOCATED BELOW THE WATER LINE. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF TWO (2) FEET SHALL BE PROVIDED. IN ADDITION, WITHIN NINE (9) FEET HORIZONTALLY OF EITHER SIDE OF THE WATERLINE, THE WASTEWATER PIPE AND JOINT SHALL BE CONSTRUCTED WITH PIPE MATERIAL HAVING A MINIMUM PRESSURE RATING OF 150 PSI. ONE SEGMENT OF THE PRESSURE RATED WASTEWATER PIPE SHALL BE CENTERED ON THE WATER CROSSING. APPROPRIATE ADAPTERS SHALL BE USED TO CONNECTION THE PRESSURE RATED WASTEWATER PIPE WITH THE NON-PRESSURE RATED WASTEWATER PIPE.
4. MANDREL TESTING WILL BE REQUIRED ON ALL FLEXIBLE WASTEWATER PIPE PER TCEQ RULES.
5. ALL PIPE MATERIAL TO BE SDR 26, WITH TRACER TAPE, SERVICES INCLUDED, UNLESS OTHERWISE NOTED.
6. EXISTING CONTOUR INFORMATION SHOWN IS AT 1 FOOT INTERVALS. THE CONTOURS ARE FROM FIELD DATA COLLECTED FEBRUARY 2023.
7. ALL FILL AREAS SHALL BE COMPACTED TO 95% PRIOR TO UTILITY INSTALLATION.
8. NO WASTEWATER CLEANOUTS LOCATED IN SIDEWALK OR DRIVEWAY AREAS.
9. NORTHING AND EASTING LABELS ARE SURFACE COORDINATES.

PROFILE SCALES:
1" = 40' HORIZONTAL
1" = 4' VERTICAL
PROFILE LEGEND:

- NATURAL GROUND
- SUBGRADE
- FINISHED GRADE
- PROPOSED WASTEWATER
- 1-JOINT OF PRESSURE PIPE SEE NOTE THIS SHEET.
- STEEL ENCASEMENT WITH SPACERS SEE CONSTRUCTION DETAILS

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

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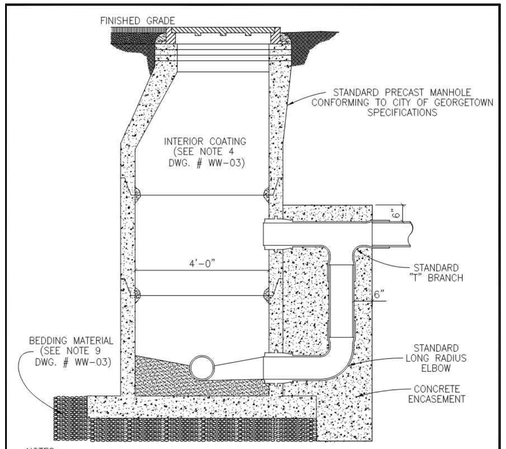
WESTINGHOUSE FLEX NORTH
N. MAYS STREET
GEORGETOWN, TEXAS 78626

SCS WASTEWATER PLAN & PROFILE

JOB NO. 51370-00
DATE JULY 2024
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 2 OF 4

2023-44-SDP



NOTES:

1. CONCRETE ENCASEMENT FOR DROP CONNECTION TO BE POURED INTEGRALLY WITH BOTH MANHOLE SLAB AND WALL.
2. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO FEET (2') OR MORE ABOVE THE MAIN INVERT CHANNEL.
3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
4. WHEN P.V.C. IS USED IN SANITARY SEWER LINES, SOLVENT TYPE JOINT P.V.C. FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.
5. MINIMUM PIPE SIZE FOR DROP IS EIGHT INCHES (8").
6. SEE STANDARD MANHOLE DETAIL (DWG. # WW-03) FOR ADDITIONAL REQUIREMENTS.

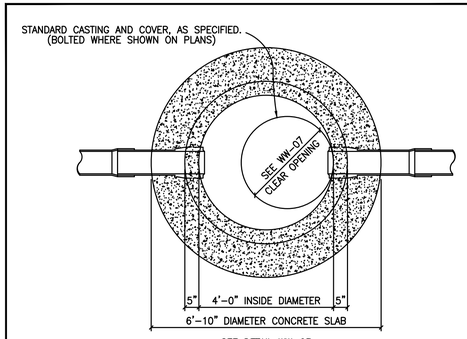
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

DROP CONNECTION–PRECAST MANHOLE TYPE "A"

DRAWING NAME: WW04 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



SEE DETAIL WW-03

MANHOLE PLAN

CITY OF GEORGETOWN NOTES:

MANHOLE DETAILS SHALL REFLECT THE CITY'S MINIMUM SPECIFICATIONS, AS STATED BELOW:

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

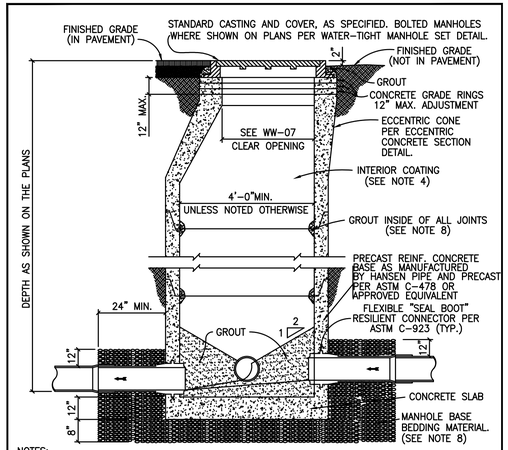
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – PLAN

DRAWING NAME: WW02 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

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

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

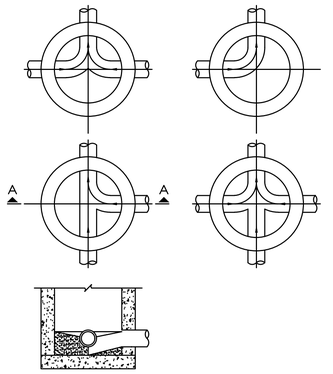
REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

STANDARD MANHOLE – SECTION

DRAWING NAME: WW03 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

FLOW PATTERNS FOR INVERT CHANNELS



SECTION "A–A"

NOTES:

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

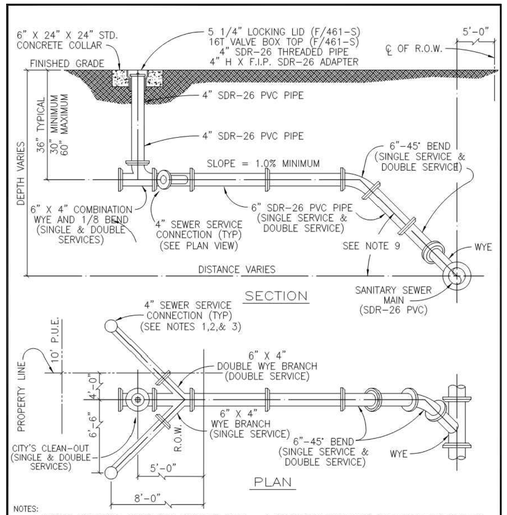
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

FLOW PATTERNS FOR INVERT CHANNELS

DRAWING NAME: WW06 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

1. SERVICE CONNECTION RISERS SHALL TERMINATE 8' INSIDE THE PROPETY LINE.
2. THE END OF EACH SERVICE CONNECTION RISER SHALL BE EXTENDED 12" ABOVE FINISH GRADE.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATER–TIGHT WITH AN APPROVED CAP OR PLUG.
4. FOR P.V.C. INSTALLATIONS, CONNECT TO EXISTING "BELL END" AND CONNECT OPPSITE END WITH P.V.C. TO P.V.C. KNOCK ON SLEEVE.
5. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT (1'–0") ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON PAVEMENT REPLACEMENT DETAIL.
6. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
7. ANY DEVIATION FROM THESE METHODS MUST BE APPROVED BY THE CITY OF GEORGETOWN ENGINEERING DEPARTMENT.
8. SERVICE LINE MATERIAL SHALL BE P.V.C., SDR–26.
9. SEWER SERVICE SLOPE TO BE 45° OFF CENTERLINE OF MAIN.

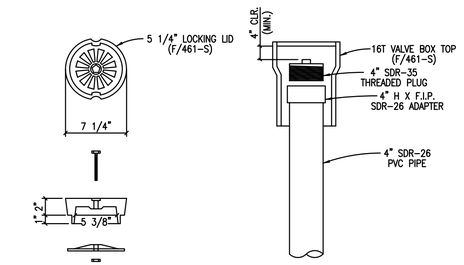
The Architect/Engineer assumes responsibility for appropriate use of this standard.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

SEWER SERVICE CONNECTIONS

DRAWING NAME: WW13 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



5 1/4" LOCKING LID (F/461–S)

SEWER CLEAN–OUT CITY OF GEORGETOWN (RESIDENTIAL SERVICE)

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

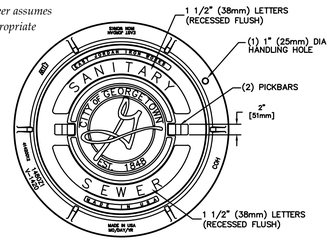
REVISION NOTE: ADOPTED 6/21/2006

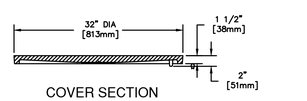
CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

SEWER CLEAN–OUT DETAIL

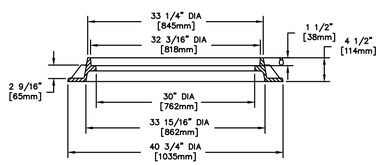
DRAWING NAME: WW12 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

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





COVER SECTION



FRAME SECTION

NOTES:

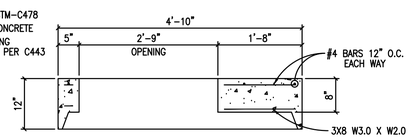
1. STANDARD WASTEWATER MANHOLE SET TO BE EAST JORDAN IRON WORKS, INC. CATALOG NO. 1480A V–1420/1480Z1, COVER TO BE STAMPED WITH "SANITARY SEWER".
2. STANDARD WASTEWATER MANHOLE SET TO BE HEAVY DUTY LOAD RATED.
3. FOR MORE DETAILED SPECIFICATIONS REFER TO EAST JORDAN IRON WORKS, INC. REFERENCE PRODUCT DRAWING 41420012 00148390.
4. FOR BOLTED WASTEWATER MANHOLE SET REFER TO DETAIL WW07A.

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

STANDARD WASTEWATER MANHOLE SET

DRAWING NAME: WW07 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB



NOTES:

1. AVAILABLE WITH CAST IRON RING AND COVER CAST IN PLACE.
2. PERMITTED ONLY WITH WRITTEN APPROVAL FROM GEORGETOWN UTILITY SYSTEMS, CITY OF GEORGETOWN

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

REVISION NOTE: ADOPTED 6/21/2006

CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS

48" MANHOLE FLAT LID

DRAWING NAME: WW09 | SCALE: NTS | DATE: 1/2003 | DRAWN BY: MRS | APPROVED BY: TRB

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
103662
LICENSED
PROFESSIONAL ENGINEER
07/08/2024

PAPE-DAWSON ENGINEERS
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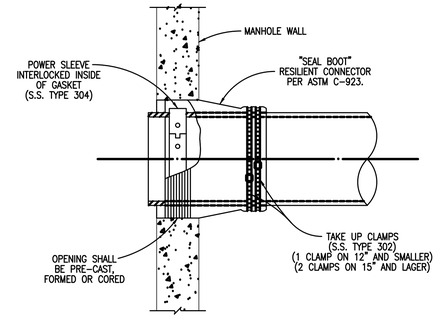
SEWER DETAILS

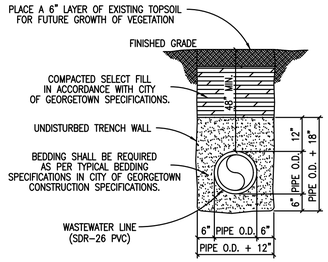
JOB NO. 51370–00
DATE AUGUST 2023
DESIGNER ASB
CHECKED ____ DRAWN JM
SHEET 3 OF 4

2023-44-SDP



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

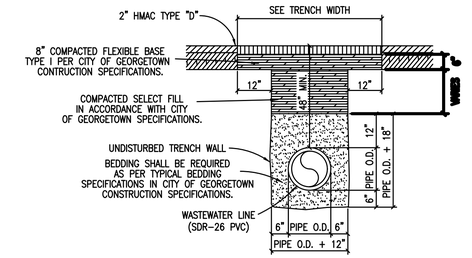
	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
GEORGETOWN TEXAS	FLEXIBLE "SEAL BOOT" CONNECTOR	DRAWING NAME: WW10
		SCALE: NTS · DATE: 1/2003 · DRAWN BY: MRS · APPROVED BY: TRB



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
GEORGETOWN TEXAS	TRENCH AND EMBEDMENT DETAIL UNDER NON-PAVED AREAS	DRAWING NAME: WW16
		SCALE: NTS · DATE: 1/2003 · DRAWN BY: MRS · APPROVED BY: TRB

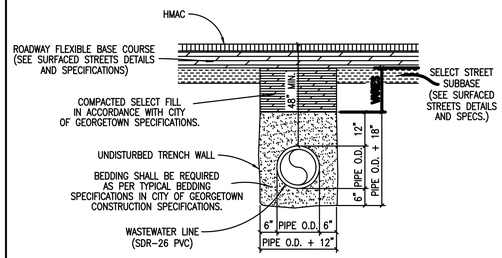


TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE.
2. BASE MATERIAL SHALL BE PLACED IN MULTIPLE LIFTS NOT TO EXCEED 6". EACH LAYER SHALL BE THOROUGHLY ROLLED OR TAMPED TO SPECIFIED MAXIMUM DENSITY.
3. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
5. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
6. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
GEORGETOWN TEXAS	TRENCH AND EMBEDMENT AND PAVEMENT REPLACEMENT DETAIL UNDER EXISTING ROADWAY	DRAWING NAME: WW17
		SCALE: NTS · DATE: 1/2003 · DRAWN BY: MRS · APPROVED BY: TRB



TRENCH WIDTHS
*PIPE LESS THAN 20" DIAMETER
1'-0" + PIPE O.D.
*20" DIAMETER PIPE AND LARGER
2'-0" + PIPE O.D.

NOTES:
1. DENSITY TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE CITY OF GEORGETOWN CONSTRUCTION SPECIFICATIONS AND STANDARDS.
2. CONTRACTOR OR ENGINEER MAY USE FLOWABLE BACKFILL AS AN ALTERNATE BACKFILL MATERIAL (SEE C9 FLOWABLE BACKFILL FOR THE SPECIFICATION).

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

	CITY OF GEORGETOWN CONSTRUCTION STANDARDS AND DETAILS	REVISION NOTE: ADOPTED 6/21/2006
GEORGETOWN TEXAS	TRENCH AND EMBEDMENT DETAIL UNDER PROPOSED ROADWAY	DRAWING NAME: WW18
		SCALE: NTS · DATE: 1/2003 · DRAWN BY: MRS · APPROVED BY: TRB

NO.	REVISION	DATE

STATE OF TEXAS
SHELLY MITCHELL
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